

BOQ OF MISCELLANEOUS ARCHITECTURAL ITEMS : MAIN BUILDING

Sl no.	Source	Item code for Ahmedabad SOR	NBO ref no. or DSR ref no.	Item- Description	SOR item unit	Quantity	Rate (in Rupees)	Amount (in Rupees)
For all the items, wherever applicable ,necessary shop drawing to be prepared by contractor and submitted for approval. Physical sample for all items to be submitted for clients approval before procurement and application.								
A				Masonry work and plastering				
1	SOR	6014		Masonry work using Aerated lightweight concrete block having crushing strength not less than 35kg/sqcm for superstructure above plinth level upto floor two level in cement mortar 1:5 (1cement:5fine sand) complete as per Technical Specification	cu.m	2834	4709	13,345,306
2.0	NSOR			Providing and laying 200 mm thick cement concrete block work in wall (below plinth level) in cement mortar (1:6) using approved quality cement concrete blocks (400x200x100 mm) including, curing, racking of joints etc. complete at all levels.	cum	10	7500	75,000
3		17002B	17.6	Providing 15mm thick cement plaster in single coat on Rough (Similar) side of single or half brick walls for interior plastering up to floor two level and finished even and smooth in (ii) Cement mortar 1:4 (1-cement :4-sand)				
3.1	SOR			Ground floor	Sqm	3879	98.8	383,245
3.2	SOR			1st Floor	Sqm	4378	113.5	496,903
3.3	SOR			2nd Floor	Sqm	4289	128.2	549,850
3.4	SOR			3rd Floor	Sqm	2737	142.9	391,117
3.5	SOR			Terrace	Sqm	432	157.6	68,083
4		17006	17.91	Providing 10mm thick cement plaster in single coat on ceiling surfaces for interior plastering upto floor two level and finished even and smooth in (ii) Cement mortar 1:4 (1-cement :4-sand)				
4.1	SOR	17006	17.91	Ground floor	Sqm	5044	88.4	445,890
4.2	SOR	17008	17.93	1st Floor	Sqm	4705	101.8	478,969
4.3	SOR	17008	17.93	2nd Floor	Sqm	4129	115.2	475,661
4.4	SOR	17008	17.93	3rd Floor	Sqm	3235	128.6	416,021
4.5	SOR			Mumty and LMR	Sqm	169	142	23,998
5		17009	17.95	20mm thick sand faced cement plaster on walls upto height 10 metres above ground level consisting of 12mm thick backing coat of C.M.1:3 (1-cement:3-sand) and 8mm thick finishing coat of C.M. 1:1 (1-cement : 1-sand) etc. complete.				
5.1	SOR			Ground floor	Sqm	1710	189	323,190
5.2	SOR			1st Floor	Sqm	1834	202.4	371,202
5.3	SOR			2nd Floor	Sqm	2225	215.8	480,155
5.4	SOR			3rd Floor	Sqm	1897	229.2	434,792
5.5	SOR			Terrace	Sqm	1341	242.6	325,327
6.0	NSOR			Providing 12 wide 6mm deep vertical or horizontal groove in cement plaster, maintaining all line and level, with all necessary tools, labour complete.	metre	1500	75	112,500
				Total cost for Masonary work and plastering				19197209
B				Painting				

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1	DSR		13.42	Distemping with 1st quality acrylic distemper (ready mixed) of approved manufacturer, of required shade and colour complete, as per manufacturer's specification.				
1.2			13.42.1	Two or more coats on new work	Sqm	11200	53.15	595,280
2	NDSR		NSOR	Supply and application of interior grade primer in two coats to wall and ceiling surfaces	Sqm	20210	25	505,250
3	SOR	18031	18.57	Wall painting (two coats) with plastic emulsion paint of approved brand and manufacturer on undecorated wall surface to give an even shade including thoroughly brushing the surface free from mortar droppings and other foreign matter and sand papered smooth.	Sqm	9000	49.8	448,200
4	SOR	18033	18.6	Painting (two coats) with plastic emulsion paint of approved brand on ceilings and sloping roofs.	Sqm	10.000	53.2	532
5	NDSR		NSOR	Supply and application of exterior grade primer in two coats to exterior surfaces	Sqm	10000.00	35	350,000
6	SOR	19031		Finishing wall with weather proof exterior emulsion paint on wall surface (twocoats) to give an required shape even shade after thoroughly brushing the surface to remove all dirt,and remains of loose powdered materials.etc complete	Sqm	10	72	720
7	DSR	DSR item	13.45	Finishing walls with textured exterior paint of required shade :				
7.1			13.45.1	New work (Two or more coats applied @ 3.28 ltr/10 sqm) over and including priming coat of exterior primer applied @ 2.20kg/10 sqm	Sqm	10000	150.65	1,506,500
8	DSR	DSR item	13.78	Providing and applying 12 mm thick (average) premixed formulated one coat gypsum lightweight plaster having additives and light weight aggregates as vermiculite/ perlite respectively conforming to IS: 2547 (Part - 1 & II) 1976, applied on hacked / uneven background such as bare brick/ block/ RCC work on walls & ceiling at all floors and locations, finished in smooth line and level etc. complete.	Sqm	10	217.35	2,174
9	SOR	19032		Applying two coats of Birla (white cement based) or Asian (acrylic lapy-putty) or equivalent & two coats of primer of approved brand and manufacturer on new wall surface to give an even shade including thoroughly brushing the surface free from mortar dropping and other foreign matter and sand papered smooth.	Sqm	9010	47.4	427,074
10	SOR	19001	19.2	Applying priming coat over new steel and othermetalsurfaceafterandincludingpreparingthesurfacebythrough hlycleaning,oil,grease,dirtandotherforeignmatterandscouredwithbrushesfineststeelwood,scrapersandsforeignmatterwithreadymixed priming paint brushing red lead.	Sqm	500	21.8	10,900
11	SOR	19002	19.7	Painting two coats (excludingprimingcoat) on new steel andothermetalsurfacewithenamelpaint,brushing,interiortogiveane venshadeincludingcleaningthesurfaceanevenshadeincludingclea nicnthesurfaceofalldirt,dustandother foreign matter.	Sqm	500	55.2	27,600
Total cost of Painting								3874230
C								
Flooring								
1		DSR item	8.12	Providing and laying flamed finish Granite stone flooring in required design and patterns, in linear as well as curvilinear portions of the building all complete as per the architectural drawings with 18 mm thick stone slab over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade including rubbing , curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge:				
1.2	DSR		8.12.1	(A) Flamed finish granite stone slab Jet Black, Cherry Red, Elite Brown, Cat Eye or equivalent.	Sqm	230	2887.85	664,206

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2			8.13	Providing and laying polished Granite stone flooring in required design and patterns, in linear as well as curvilinear portions of the building all complete as per the architectural drawings with 18 mm thick stone slab over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade including rubbing , curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge:				
2.1	DSR		8.13.1	Polished granite stone slab Jet Black, Cherry Red, Elite Brown, Cat Eye, Grey Granite (Sadar Ali),Chima pink or equivalent.	Sqm	340	2937.70	998,818
2.2	NDSR		NDSR	300 wide floor margin with Polished granite stone slab Jet Black, Cherry Red, Elite Brown, Cat Eye, Grey Granite (Sadar Ali),Chima pink or equivalent.	Sqm	185	3200	592,000
3				Providing and Fixing Granite Stone Skirting in required design complete as per architectural drawings with 18mm thk. Stone Slab over 12mm (average) thk. Base of cement mortar 1:3 (1 Cement: 3 Coarse Sand) laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade including rubbing, curing, polishing etc. all complete as specified and as directed by the Engineer in Charge				
3.1	DSR	DSR item	Derived	(A) Granite stone slab Jet Black, Cherry Red, Elite Brown, Cat Eye or equivalent.	Sqm	250	2179	544,750
4		DSR item	8.2	Providing and fixing 18 mm thick gang saw cut, mirror polished, premoulded and prepolished, machine cut granite slab for kitchen platforms , vanity counters, window sills , facias and similar locations of required size, approved shade, colour and texture laid over 20 mm thick base cement mortar 1:4 (1 cement : 4 coarse sand), joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edges to give high gloss finish etc. complete at all levels.				
4.1	DSR		8.2.2.1	Area of slab upto 0.50 sqm	Sqm	400	3,351.95	1,340,780
4.2	DSR		8.2.2.2	Area of slab over 0.50 sqm	Sqm	5	3,113.30	15,567
5	DSR		8.4	Extra for fixing marble /granite stone , over and above corresponding basic item, in facia and drops of width upto 150 mm with epoxy resin based adhesive, including cleaning etc. complete.	Metre	95	266.25	25,294
6	SOR	14012A	14.43	Providing and laying polished Kota stone slab flooring over 20mm (Average) thick base of cement mortar 1:6 (1-cement:6-coarsesand) or L.M.1.1.5 laid over and jointed with grey cement slurry including rubbing and polishing etc.complete. (B) 30 mm thick (upto 10 ton)	Sqm	1430	826	1,181,180
7	SOR	14013	14.44	Providing and laying polished kota stone slab 25mm thick in risers of steps, skirting Dedo and pillars laid on 10mm thick cement mortar 1:3(1-Cement : 3 coarse sand) and jointed with gray cement slurry mixed with pigment to match the shade of slab including rubbing and polishing etc.complete. (upto 10 ton)	Sqm	122	888	108,336
8	SOR	14008C	14.29 (C1)	Providing and laying Vitrified tiles 8 to10 mm thick ,24"x24" in flooring treads of steps and landing laid on a bed of 12mm thick cement mortar 1:3 (1-cement:3-coarse sand) finishing with flush pointing in white cement. (upto 10 ton). Tiles shall be with anti skid finish	Sqm	680	761	517,480
9	SOR		14.29 (C2)	Providing and laying Vitrified tiles 8 to10 mm thick ,36 "x36 " in flooring treads of steps and landing laid on a bed of 12mm thick cement mortar 1:3 (1-cement:3-coarse sand) finishing with flush pointing in white cement. (upto 10 ton)	Sqm	7080	1259	8,913,720
10	SOR		14.32 (C2)	Providing and laying Vitrified tiles 8 to10mm thick ,in skirting risers of steps and dado on 10mm thick cement plaster 1:3(1-cement:3-coarsesand)and jointed with white cement slurry (upto 10 ton)	Sqm	10	1263	12,630

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11	SOR	14009B	14.32 (B)	Providing and laying Ceramic tiles 6mm thick in skirting risers of steps and dado on 10mm thick cement plaster 1:3 (1-cement:3-coarse sand) and jointed with white cement slurry (upto 10 ton)	Sqm	1790	709	1,269,110
Total cost for Flooring								16183870
D				Doors, Windows, and Hardware				
1	SOR		10.1	Providing wood work in frames of Doors, windows, clear story windows and other similar works wrought, framed and fixed in position. (A) Indian Teak Wood (upto 10 ton)	10 Cu.Dm	1	691	691
2	SOR	10011	10.3	Providing and fixing flush door shutters , solid core construction with frame of first class hard wood with cross board and face veneer or plywood facepanels, including anodised aluminium butt hinges with necessary screws. (B) Non-decorative type and block board core anodised aluminium but hinges in flush door shutters (2) 35 mm thick.	Sqm	10	1696	16,960
3	SOR	10036		Providing and fixing FRP frame size 125 x 65 mm and 35mm thick FRP shutter with wood grain raised paneled design finish shutter having extra reinforcement on sides & edges in Gel coat finish. The core of the shutter & frame is to be filled up with injected polyurethane foam done in situ along with embedded wooden pieces for stiffening & also taking hinges & fittings. The whole FRP frame & shutter is to be waterproof weatherproof, termiteproof & resistance to mild acid/alkali. Rates are to be inclusive of S.S hinges with fastener sleeve & aluminium fixtures & fastenings.	Sqm	72	3823	275,256
4	SOR	10037		Providing and fixing FRP frame size 100x50 mm and 28mm thick FRP depress panel shutter having extra reinforcement on sides & edges in Gel coat finish. The core of the shutter & frame is to be filled up with injected fire retardant grade polyurethane foam done in situ along with embedded wooden pieces for stiffening & also taking hinges & fittings. The whole FRP frame & shutter is to be waterproof weatherproof, termite proof & resistant to mild acid/alkali. Rates are to be inclusive of S.S hinges with necessary screws & aluminium fixtures & fastenings & fastener sleeve.	Sqm	106	3283	347,998
5	NDSR		NDSR	Providing and fixing of frameless Automatic bi-parting sliding door , modular design, including internal cover, eagle sensors on both sides, Electro mechanical lock, light barriers and programmer switch complete, With Operator Dimensions (L x H x T): 6250x100 x 180 mm. The track profile should be separate from the main profile for enabling reduction in vibration with self-learning, reversing when obstruction is encountered. Microprocessor-controlled control unit. It should be Self-learning, with adjustable parameters for opening and closing speed, hold-open time and opening and closing force. Class of protection IP 20. The glasses shall be of 12mm clear toughened frameless with polished edges. The system shall have constant power supply 210V, 50/60Hz (by others), for various opening sizes all complete as per design and instructions of Engineer-in-Charge. For opening size 2m x 2.4m. Make of Sensor and hardware : Geze or approved equivalent	Each	13	258,754.00	3,363,802
6			10.6	Supplying and fixing rolling shutters of approved make, made of required size M.S. laths, interlocked together through their entire length and jointed together at the end by end locks, mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation complete, including the cost of providing and fixing necessary 27.5 cm long wire springs manufactured from high tensile steel wire of adequate strength conforming to IS: 4454 - part 1 and M.S. top cover of required thickness for rolling shutters.				
6.1	DSR		10.6.1	80x1.25 mm M.S. laths with 1.25 mm thick top cover	Sqm	9	2,316.10	20,845

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7		DSR item	21.1.1	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS : 1285, fixed with rawl plugs and screws or with fixing clips, or with expansion hold fasteners including necessary filling up of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / panelling, C.P. brass / stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing, paneling and dash fasteners to be paid for separately) :				-
7.1		DSR item		a) For Fixed Portion.				
7.1.1	DSR	DSR item	21.1.1.1	Anodised aluminium (anodised transparent or dyed to required shade according to IS: 1868, Minimum anodic coating of grade AC 15)	Kg	6725	355.2	2,388,720
7.2		DSR item	21.1.2	b) For shutters of doors, windows & ventilators including providing and fixing hinges/ pivots and making provision for fixing of fittings wherever required including the cost of EPDM rubber / neoprene gasket required (Fittings shall be paid for separately)				
7.2.1	DSR	DSR item	21.1.2.1	Anodised aluminium (anodised transparent or dyed to required shade according to IS: 1868, Minimum anodic coating of grade AC 15)	Kg	780	415.05	323,739
8			21.8	Filling the gap in between aluminium frame & adjacent RCC/ Brick/ Stone work by providing weather silicon sealant over backer rod of approved quality as per architectural drawings and direction of Engineer-in-charge complete.				
8.1	DSR		21.8.1	Upto 5mm depth and 5 mm width	Metre	1300	62.45	81,185
9		DSR item	21.2	Providing and fixing 12 mm thick prelaminated particle board flat pressed three layer or graded wood particle board conforming to IS: 12823 Grade I Type II, in panelling fixed in aluminum doors, windows shutters and partition frames with C.P. brass / stainless steel screws etc. complete as per architectural drawings and directions of Engineer-in-charge.				
9.1	DSR		21.2.2	Pre-laminated particle board with decorative lamination on both sides	Sqm	10	866.6	8,666
10		DSR item	21.3	Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with EPDM rubber / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer-in-charge . (Cost of aluminium snap beading shall be paid in basic item):				
10.1	DSR	DSR item	21.3.2	i) With float glass panes of 5.50 mm thickness	Sqm	80	1003.95	80,316
10.2	NDSR	NDSR		ii) With high performance green Coloured tinted 6mm thick toughened glass of Saintgobain (ET425) or approved equivalent	Sqm	1000	6602.66	6,602,663
11	DSR		9.113	Providing and fixing bright finished 100 mm mortice lock with 6 levers without pair of handles of approved qualities for aluminium doors , with necessary scews etc. Complete as per direction of engineer incharge.	each	16	473.65	7,578
12	NDSR		NDSR	Providing and fixing brushed finished 100mm mortice latch in stainless steel satin/polished finish with euro deadlock (Coin release) with rose rings and pair of stainless steel (grade 304) lever handles with necessary SS screws etc complete of approved make. complete as per direction of Engineer-in-Charge. Make : Geze or approved equivalent	each	88	1,931.57	169,978
13	NDSR		NDSR	Supply and installation of heavy duty floor spring with SS cover plate, set within the floor finish (of Geze / Dorma / Haffle or approved equivalent brand) , all complete.	each	30	18000	540,000

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14			2510	Providing carbon steel galvanised (minimum coating 5 micron) dash fastener of 10 mm dia double threaded 6.8 grade (yield strength 480 N/mm ²), counter sunk head, comprising of 10 m dia polyamide PA 6 grade sleeve, including drilling of hole in frame , concrete/ masonry, for aluminium frame for doors, windows and ventilators etc. as per direction of Engineer-in-charge.					
14.1	DSR			a) 10 x 160 mm	each	500	57.50	28,750	
15			NDSR	Providing and fixing of Hollow metal fire rated doors as per IS 3614 part-1 & part-2 for stability and integrity. Pressed Galvanized steel conforming to IS 277 with the following specification. Recommended fire door shall have doors tested at CBRl or ARAI for maximum rating of 2hrs . Manufacturer test certificate shall cover doors both single and double leaf and all doors supplied should be within the tested specimen, deviation in specification and sheet thickness other than what is mentioned in the test certificates are not allowed. Proper label confirming the type of door and the hourly rating is mandatory. Door frame shall be Single rebate Grooved profile of size 125 x 60 mm made out of 1.60mm (16gauge) minimum thick galvanized steel sheet Door leaf shall be 46mm thick fully flush double skin door with or without vision lite. Door leaf shall be manufactured from 1.2mm (18gauge) minimum thick galvanised steel sheet. The internal construction of the door should be rigid reinforcement pads for receiving appropriate hardware. The infill material shall be resin bonded honeycomb core. Vision lite wherever applicable should be provided . All doors and frames shall be finished with etched primer coating, stove zinc phosphate primer and thermosetting polyurethane aliphatic grade paint of approved colour. The door leaf and frame shall have passed minimum 250 hours of salt sprey test. Supply of Glass for vision panel shall be paid as extra. Area of masonry opening shall be					
15.1				2Hrs Fire Rated Door Single/Double leaf doors as per the elevation with hardware set provisions.Hardware cost will be paid seperately as per items listed. Make : Shakti Hormann or approved equivalent	Sqm	400	5878.35	2,351,341	
16	NDSR		NDSR	Extra over item above for providing 200 x 300 vision panel with 2hrs fire rated transparent glazing. Test certificates should be available for vision panels as part of the fire door assembly. Independent glass test certificates will not be accepted.	Sqm	8	61,192.23	489,538	
17	NDSR		NDSR	Supply & Fixing 2 hour fire rated & CE Mark SS 304 ball bearing butt Hinges in Satin Finish of size 100x75x3mm of Geze or approved equivalent make	Each	720	255.53	183,982	
18	NDSR		NDSR	Supply & Fixing of 2 hour Fire rated & CE Mark Mortise sash lock , in silver finish, (RH/LH) of approved make with 5pin cylinder 70mm long with one side key other side TT with lever handle,19mm Dia with roses & escutcheon, SS304, Satin finish. of Geze or approved equivalent make	Each	70	5,011.87	350,831	
19	NDSR		NDSR	Supply & Fixing of Fire rated & CE Marked Door Closer of approved make with slide arm in silver finish of Geze or approved equivalent make	Each	70	6,215.19	435,063	
20	NDSR		NDSR	Supply and Fixing of Door coordinator in SS Satin Finish of Geze or approved equivalent make	Each	70	2,749.27	192,449	
21	NDSR		NDSR	Supply & Fixing of lever Concealed flush bolt L=300mm in SS Satin Finish of Geze or approved equivalent make	Each	180	1,036.06	186,490	
22	NDSR		NDSR	Suply & Fixing of 2 hour fire rated Panic bar for the double leaf door with two point latching in silver finish of Geze or approved equivalent make	Each	70	13,008.80	910,616	
23	NDSR		NDSR	Supply & Fixing of 2 hour Fire rated grooved frame seal for the fire doors of Geze or approved equivalent make	Rmt	500	1,400.77	700,385	

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24			NDSR	Providing and fixing in stainless steel Grade 304 in stainless steel satin/polish finish "D" type pull handles of Standard range of make Dorma make or equivalent or as approved with necessary screws etc. complete. Make: Geze or approved equivalent				
24.1	NDSR			200 x 19mm dia	Pair	30	1,393.80	41,814
Total cost for Doors, Windows, and Hardware								20099655
E Railing and MS works								
1	DSR		10.28	Providing and fixing stainless steel (Grade 304) railing made of Hollow tubes, channels, plates etc., including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts and bolts complete, i/c fixing the railing with necessary accessories & stainless steel dash fasteners , stainless steel bolts etc., of required size, on the top of the floor or the side of waist slab with suitable arrangement as per approval of Engineer-in-charge, (for payment purpose only weight of stainless steel members shall be considered excluding fixing accessories such as nuts, bolts, fasteners etc.).	kg	3750	472.40	1,771,500
2			10.25	Steel work welded in built up sections/ framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required.				-
2.1	DSR		10.25.2	In gratings, frames, guard bar, ladder, railings , brackets, gates and similar works	Kg	1000	85.95	85,950
Total cost for Railing and MS works								1857450
F Internal partition & False ceiling								
1			9.105	GYPSON BOARD PARTITION : Providing and fixing partition upto ceiling height consisting of G.I. frame and required board, including providing and fixing of frame work made of special section power pressed/ roll form G.I. sheet with zinc coating of 120 gms/sqm(both side inclusive), consisting of floor and ceiling channel 50mm wide having equal flanges of 32 mm and 0.50 mm thick, fixed to the floor and ceiling at the spacing of 610 mm centre to centre with dash fastener of 12.5 mm dia meter 50 mm length or suitable anchor fastener or metal screws with nylon plugs and the studs 48 mm wide having one flange of 34 mm and other flange 36 mm and 0.50 mm thick fixed vertically within flanges of floor and ceiling channel and placed at a spacing of 610 mm centre to centre by 6 mm dia bolts and nuts, including fixing of studs along both ends of partition fixed flush to wall with suitable anchor fastener or metal screws with nylon plugs at spacing of 450 mm centre to centre, and fixing of boards to both side of frame work by 25 mm long dry wall screws on studs, floor and ceiling channels at the spacing of 300 mm centre to centre. The boards are to be fixed to the frame work with joints staggered to avoid through cracks, M.S. fixing channel of 99 mm width (0.9 mm thick having two flanges of 9.5mm each) to be provided at the horizontal joints of two boards, fixed to the studs using metal to metal flat head screws, including jointing and finishing to a flush finish with recommended jointing compound, jointing tape, angle beads at corners (25 mm x 25 mm x 0.5 mm), joint finisher and two coats of primer suitable for board as per manufacture's specification and direction of engineer in charge all complete.				
1.1	DSR		9.105.2	75mm overall thickness partition with 12.5 mm thick double skin tapered edged plain Gypsum board conforming to IS: 2095: part I	Sqm	816	1,181.85	964,390

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2	NDSR		NDSR	Supply and installation of frameless glass partition with 12mm thick toughened float glass, fixed to the floor and ceiling member with adequate number of SS patch fittings of approved make. Cost shall include providing hardwood ceiling member (100 mm x 75mm) at the top portion for fixing of patch fittings. All joints shall be filled up with transparent silicon sealant (non bleed type)	Sqm	104	7,300.00	759,200
3			NDSR	Supply and installation of frameless glass door with 12mm thick toughened float glass, with all necessary SS patch fittings, heavy duty floor spring, patch lock, pair of 300mm high SS "D" handle all complete				
3.1	NDSR			i) For single leaf door	Sqm	24	19,500.00	468,000
3.2	NDSR			ii) For double leaf door	Sqm	1	21,500.00	21,500
4			26.27	Providing and fixing mineral fibre false ceiling tiles at all heights of size 595X595mm of approved texture, design and pattern. The tiles should have Humidity Resistance (RH) of 99%, Light Reflectance > 85%, Thermal Conductivity k = 0.052 - 0.057 w/m K, Fire Performance as per (BS 476 pt - 6 &7)in true horizontal level suspended on interlocking T-Grid of hot dipped all round galvanized iron section of 0.33 mm thick (galvanized @120 gsm) comprising of main T runners of 15x32 mm of length 3000 mm, cross T of size 15x32mm of length 1200 mm and secondary intermediate cross T of size 15x32mm of length 600 mm to form grid module of size 600x600 mm suspended from ceiling using galvanized mild steel item (galvanised @80gsm) 50 mm long 8mm outer diameter M-6dash fasteners, 6 mm diameter fully threaded hanger rod upto 1000 mm length and L-shape level adjuster of size 85x25x2 mm, spaced at 1200mm centre to centre along main 'T'. The system should rest on periphery walls/partitions with the help of GI perimeter wall angle of size24x24X3000 mm made of 0.40 mm thick sheet, to be fixed to the wall with help of plastic rawl plug at 450mm centre to centre & 40 mm long dry wall S.S. screws. The exposed bottom portion of all T-sections used in false ceiling support system shall be prepainted with polyester baked paint, for all heights. The work shall be carried out as per specifications, drawings and as per directions of the engineer-in-charge.				
4.1	DSR		26.27.2	With 20 mm thick beveled tegular mineral fibre false ceiling tile (NRC 0.7)	Sqm	6423	1,783.80	11,457,347
5	DSR		12.45	Providing and fixing false ceiling at all height including providing and fixing of frame work made of special sections, power pressed from M.S. sheets and galvanized with zinc coating of 120 gms/sqm (both side inclusive) as per IS : 277 and consisting of angle cleats of size 25 mm wide x 1.6 mm thick with flanges of 27 mm and 37mm, at 1200 mm centre to centre, one flange fixed to the ceiling with dash fastener 12.5 mm dia x 50mm long with 6mm dia bolts, other flange of cleat fixed to the angle hangers of 25x10x0.50 mm of required length with nuts & bolts of required size and other end of angle hanger fixed with intermediate G.I. channels 45x15x0.9 mm running at the spacing of 1200 mm centre to centre, to which the ceiling section 0.5 mm thick bottom wedge of 80 mm				
				with tapered flanges of 26 mm each having lips of 10.5 mm, at 450 mm centre to centre, shall be fixed in a direction Perpendicular to G.I. intermediate channel with connecting clips made out of 2.64 mm dia x 230 mm long G.I. wire at every junction, including fixing perimeter channels 0.5 mm thick 27 mm high having flanges of 20 mm and 30 mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450 mm centre, with 25mm long dry wall screws @ 230 mm interval, including fixing of gypsum board to ceiling section and perimeter channel with the help of dry wall screws of size 3.5 x 25 mm a 230 mm c/c, including jointing and finishing				

BOQ OF MISCELLANEOUS ARCHITECTURAL ITEMS : MAIN BUILDING

Sl no.	Source	Item code for Ahmedabad SOR	NBO ref no. or DSR ref no.	Item- Description	SOR item unit	Quantity	Rate (in Rupees)	Amount (in Rupees)
				to a flush finish of tapered and square edges of the board with recommended jointing compound , jointing tapes , with jointing compound in 3 layers covering upto 150 mm on both sides of joint and two coats of primer suitable for board, all as per manufacturer's specification and also including the cost of making openings for light fittings, grills, diffusers, cutouts made with frame of perimeter channels suitably fixed, all complete as per drawings, specification and direction of the Engineer in Charge but excluding the cost of painting with :				
5.1			12.45.1	12.5 mm thick tapered edge gypsum plain board conforming to IS: 2095- Part I	Sqm	10	806.20	8,062
				Total cost for Internal partition & False ceiling				13678499
G				Miscellaneous works				
1	DSR		22.22A	Providing and applying fibre reinforced elastomeric liquid water proofing membrane with resilient acrylic polymers having Sun Reflectivity Index (SRI) of 105 on top of concrete roof in three coats @10.76 litre/ 10 sqm. One coat of self-priming of elastomeric waterproofing liquid (dilution with water in the ratio of 3:1) and two coats of undiluted elastomeric waterproofing liquid (dry film thickness of complete application/ system not less than 500 microns). The operation shall be carried out after scrapping and properly cleaning the surface to remove loose particles with wire brushes, complete in all respect as per the direction of Engineer-in-Charge.	Sqm	3400	327.55	1,113,670
2	DSR		12.55	Providing and fixing Heat Resistant Terrace Tiles (300 mm x 300 mm x 20 mm) with SRI (solar refractive index) > 78, solar reflection > 0.70 and initial emittance > 0.75 on waterproof and sloped surface of terrace, laid on 20 mm thick cement sand mortar in the ratio of 1:4 (1 cement : 4 coarse sand) and grouting the joints with mix of white cement & marble powder in ratio of 1:1, including rubbing and polishing of the surface upto 3 cuts complete, including providing skirting upto 150 mm height along the parapet walls in the same manner.	Sqm	3063	1,150.00	3,522,450
3	DSR		12.22	Making khurras 45x45 cm with average minimum thickness of 5 cm cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate of 20 mm nominal size) over P.V.C. sheet 1 m x 1 m x 400 micron, finished with 12 mm cement plaster 1:3 (1 cement : 3 coarse sand) and a coat of neat cement, rounding the edges and making and finishing the outlet complete.	Each	28	187.60	5,253
4	NSOR			Providing and fixing Glass Reinforced Concrete G.R.C. Screens (Jaali) in approved size, pattern, design, thickness and color of specified make. The screens should be made from '53 grade' approved White portland cement, quartz, fine silica sand, alkali resistant glass fiber manufactured by Saint Gobain or equivalent, polymers manufactured by BASF or equivalent, super plastisizers manufactured by BASF or equivalent with UV resistant synthetic inorganic pigments made by BAYFERROX (Germany) or equivalent. The material casting should be done in synthetic rubber / FRP mould manufactured by 'Reckli' or equivalent. The fixing of screens should be done with galvanised M.S. / S.S. "L" shaped clamps, dash fasteners and pins etc. complete as per requirement, approved shop drawing and instructions.	Sqm	245	6,923.00	1,696,135
5	SOR	22020		Providing and Fixing 12mm thick moisture & fire resistant heavy duty Cement Fibre Board (High pressure steamcured) Confirming to ISO4862-2000 inwall panels of one face of cold formed galvanised light gauge steel frame structure to form wall/partition as & Where directed by Engineer-in-Charge, hardware over steel or aluminium support structure as per design complete.	Sqm	10	819.00	8,190

BOQ OF MISCELLANEOUS ARCHITECTURAL ITEMS : MAIN BUILDING

SI no.	Source	Item code for Ahmedabad SOR	NBO ref no. or DSR ref no.	Item- Description	SOR item unit	Quantity	Rate (in Rupees)	Amount (in Rupees)
6	NDSR		NDSR	Supplying and installation of screen wall with colour anodized 3mm thick perforated (as per approved design) aluminium panels of 12000mm x 2400mm size, with all necessary support framing on both vertical and horizontal direction at every panel joint (as per drawing) with anodized aluminium members, fixing the supporting members with RCC walls with SS anchor fasteners, and all necessary fittings and fixtures, cleaning, curing, finishing all complete. Fabricator : M/S Preksha Marketing, Vastrapur, Ahmedabad or approved equivalent	Sqm	10	14,518.75	145,188
				Total cost for Miscellaneous works				6490885
				Grand total of all the costs				81381797

BOQ OF MISCELLANEOUS ARCHITECTURAL ITEMS : Utility Building & Meter room

SI no.	Source	Item code for Ahmedabad SOR	DSR Item No.	Item- Description	Unit	Quantity - (Total)	Rate (In Rupees)	Total Amount (In Rupees)
For all the items, wherever applicable ,necessary shop drawing to be prepared by contractor and submitted for approval. Physical sample for all items to be submitted for clients approval before procurement and application.								
A				Masonry work and plastering				
1.0	SOR	6014		Masonry work using Aerated lightweight concrete block having crushing strength not less than 35kg/sqcm for superstructure above plinth level upto floor two level in cement mortar 1:5 (1cement:5fine sand) complete as per Technical Specification	cum	132	4,709.00	621,588
2.0	NSOR			Providing and laying 200 mm thick cement concrete block work in wall (below plinth level) in cement mortar (1:6) using approved quality cement concrete blocks (400x200x100 mm) including, curing, racking of joints etc. complete at all levels.	cum	4	7,500.00	30,000
3.0	SOR	17002B	17.6	Providing 15mm thick cement plaster in single coat on Rough (Similar) side of single or half brick walls for interior plastering up to floor two level and finished even and smooth in (ii) Cement mortar 1:4 (1-cement :4-sand)	Sqm	2015	98.80	199,082
4.0	SOR	17006	17.91	Providing 10 mm thick cement plaster in single coat on ceiling surfaces for interior plastering upto floor two level and finished even and smooth in (ii) Cement mortar 1:4 (1-cement :4-sand)	Sqm	500	88.40	44,200
5.0	SOR	17009	17.95	20mm thick sand faced cement plaster on walls upto height 10 metres above ground level consisting of 12mm thick backing coat of C.M.1:3 (1-cement:3-sand) and 8mm thick finishing coat of C.M. 1:1 (1-cement : 1-sand) etc. complete.	Sqm	835	189.00	157,815
6.0	NSOR			Extra over item above for providing 12 wide 6mm deep vertical or horizontal groove in top layer of plaster, made at green stage, maintaining all line and level, with all necessary tools, labour complete.	metre	100	75.00	7,500
7.0	DSR	DSR item	11.6	Cement plaster skirting up to 30 cm height , with cement mortar 1:3 (1 cement : 3 coarse sand), finished with a floating coat of neat cement.				
7.1			11.6.1	18 mm thick	Sqm	43	350.05	15,052
8.0	DSR	DSR item	13.18	Neat cement punning	Sqm	130	42.60	5,538
9.0	DSR	DSR item	4.17	Making plinth protection 50mm thick of cement concrete 1:3:6 (1 cement: 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) over 75mm thick bed of dry brick ballast 40 mm nominal size, well rammed and consolidated and grouted with fine sand, including necessary excavation, levelling & dressing & finishing the top smooth.	Sqm	44	450.35	19,815
				Total cost for Masonry work and plastering				1,100,591
B				Painting				
1.0	NSOR			Supply and application of interior grade primer in two coats to wall and ceiling surfaces	Sqm	4150	25.00	103,750
2.0	DSR	DSR item	13.42	Distemping with 1st quality acrylic distemper (ready mixed) of approved manufacturer, of required shade and colour complete, as per manufacturer's specification.				
2.1			13.42.1	Two or more coats on new work	Sqm	2000	53.15	106,300

BOQ OF MISCELLANEOUS ARCHITECTURAL ITEMS : Utility Building & Meter room

SI no.	Source	Item code for Ahmedabad SOR	DSR Item No.	Item- Description	Unit	Quantity - (Total)	Rate (In Rupees)	Total Amount (In Rupees)
3.0	SOR	18031	18.57	Wall painting (two coats) with plastic emulsion paint of approved brand and manufacturer on undecorated wall surface to give an even shade including thoroughly brushing the surface free from mortar droppings and other foreign matter and sand papered smooth.		1305	49.80	64,989
3.1	SOR	18033	18.6	Painting (two coats) with plastic emulsion paint of approved brand on ceilings and sloping roofs.	Sqm	845	53.20	44,954
4.0	NSOR			Supply and application of exterior grade primer in two coats to exterior surfaces	Sqm	915	35.00	32,025
5.0	SOR	19031		Finishing wall with weather proof exterior emulsion paint on wall surface (twocoats) to give an required shape even shade after thoroughly brushing the surface to remove all dirt, and remains of loose powdered materials. etc complete	sqm	915	96.80	88,572
6.0	SOR	19001	19.2	Applying priming coat over new steel and other metal surface after and including preparing the surface by thoroughly cleaning, oil, grease, dirt and other foreign matter and scoured with brushes fine steel wood, scrapers and sand paper with ready mixed priming paint brushing red lead.	Sqm	20	21.8	436
7.0	SOR	19002	19.7	Painting two coats (excluding priming coat) on new steel and other metal surface with enamel paint, brushing, interior to give an even shade including cleaning the surface an even shade including clean the surface of all dirt, dust and other foreign matter.	Sqm	20	55.2	1,104
				Total cost of Painting				442,130
C				Flooring				
1.0	SOR	14012A	14.43	Providing and laying polished Kota stone slab flooring over 20mm (Average) thick base of cement	Sqm	375	826.00	309,750
2.0	SOR	14013	14.44	Providing and laying polished kota stone slab 25mm thick in risers of steps, skirting Dedo and pillars laid on 10mm thick cement mortar 1:3(1-Cement : 3 coarse sand) and jointed with gray cement slurry mixed with pigment to match the shade of slab including rubbing and polishing etc. complete. (upto 10 ton)	Sqm	25	888.00	22,200
3.0			11.4	52 mm thick cement concrete flooring with concrete hardener topping, under layer 40 mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) and top layer 12 mm thick cement hardener consisting of mix 1:2 (1 cement hardener mix : 2 graded stone aggregate 6 mm nominal size) by volume, hardening compound mixed @ 2 litre per 50 kg of cement or as per manufacturer's specifications. This includes cost of cement slurry, but excluding the cost of nosing of steps etc. complete.	Sqm	260	555.25	144,365
4.0			11.3	Cement concrete flooring 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate) finished with a floating coat of neat cement, including cement slurry, but excluding the cost of nosing of steps etc. complete.				
4.1			11.3.1	40 mm thick with 20 mm nominal size stone aggregate	Sqm	36	362.60	13,054
				Total cost of Flooring				489,369
D				Doors, Windows, and Hardware				

BOQ OF MISCELLANEOUS ARCHITECTURAL ITEMS : Utility Building & Meter room

SI no.	Source	Item code for Ahmedabad SOR	DSR Item No.	Item- Description	Unit	Quantity - (Total)	Rate (In Rupees)	Total Amount (In Rupees)
1.0			21.1.1	Providing and fixing aluminium work for doors, windows , ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS : 1285, fixed with rawl plugs and screws or with fixing clips, or with expansion hold fasteners including necessary filling up of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / panelling, C.P. brass / stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge.(Glazing, paneling and dash fasteners to be paid for separately) :				
1.1			21.1.1.2	b) For shutters of doors, windows & ventilators including providing and fixing hinges/ pivots and making provision for fixing of fittings wherever required including the cost of EPDM rubber / neoprene gasket required (Fittings shall be paid for separately)				
1.1.2			21.1.2.3	Polyester powder coated aluminium (minimum thickness of polyester powder coating 50 micron)	Kg	230	452.40	104,052
2.0			21.3	Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with EPDM rubber / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer-in-charge . (Cost of aluminium snap beading shall be paid in basic item)				
2.1			21.3.2	i) With float glass panes of 5.50 mm thickness	Sqm	34	1,003.95	34,134
3.0			21.8	Filling the gap in between aluminium frame & adjacent RCC/ Brick/ Stone work by providing weather silicon sealant over backer rod of approved quality as per architectural drawings and direction of Engineer-in-charge complete.				
3.1			21.8.1	Upto 5mm depth and 5 mm width	Metre	120	62.45	7,494
4.0			NDSR	Providing and fixing Aluminum powder coated single point locking handle of approved make for openable portions of ventilators/ windows etc. (Top/Side Hung). Make : Ebco or approved equivalent	each	7	324.06	2,268
5.0			NDSR	Supplying, fitting & fixing in masonry/RCC pressed steel (1.2mm thick, GI sheet) door frame of size suitable for 35mm thick shutter, with all necessary inserts , hardwares, matching edges with shutter, painting, cleaning complete in all respect as per specification.	Metre	18	1,200.00	21,600
6.0			NDSR	Supplying, fitting & fixing steel 35mm steel flush door (0.8mm GI sheet) shutter complete in all respect with all necessary hardwares as per specification.	Sqm	10	12,000.00	120,000
7.0			NDSR	Extra over item of steel door shutter, for providing 200 mm x 400 mm vision panel with 6mm clear float glass	Sqm	1	2,000.00	2,000
8.0			NDSR	Supply and installation of aluminium alloy hydraulic heavy duty door closer	each	4	3,500.00	14,000
9.0			NDSR	Supply and installation of 200 high SS D handle on both sides of door	pair	4	2,000.00	8,000
10.0			NDSR	Supply and installation mortise latch and lock	each	3	1,500.00	4,500
11.0			NDSR	Supply and installation of brass door stopper	each	4	500.00	2,000

BOQ OF MISCELLANEOUS ARCHITECTURAL ITEMS : Utility Building & Meter room

SI no.	Source	Item code for Ahmedabad SOR	DSR Item No.	Item- Description	Unit	Quantity - (Total)	Rate (In Rupees)	Total Amount (In Rupees)
				Grand total of all the costs				2,687,999

BOQ OF MISCELLANEOUS ARCHITECTURAL ITEMS : Boundary wall & Gate House

S.No	Source	Item code for Ahmedabad SOR	NBO ref no. or DSR ref no.	Item- Description	SOR item unit	Quantity - (Total)	Rate (In Rupees)	Amount (In Rupees)
For all the items, wherever applicable ,necessary shop drawing to be prepared by contractor and submitted for approval. Physical sample for all items to be submitted for clients approval before procurement and application.								
A				Masonry work and plastering				
1.0	SOR	6014		Masonry work using Aerated lightweight concrete block having crushing strength not less than 35kg/sqcm for superstructure above plinth level upto floor two level in cement mortar 1:5 (1cement:5finesand) complete as per Technical Specification	cum	257	4,709.00	1,210,213
2.0	NSOR			Providing and laying 200 mm thick cement concrete block work in wall (below plinth level) in cement mortar (1:6) using approved quality cement concrete blocks (400x200x100 mm) including, curing, racking of joints etc. complete at all levels.	cum	11	7,500.00	82,500
3.0	SOR	17002B	17.6	Providing 15mm thick cement plaster in single coat on Rough (Similar) side of single or half brick walls for interior plastering up to floor two level and finished even and smooth in (ii) Cement mortar 1:4 (1-cement :4-sand)	Sqm	1798	98.80	177,642
4.0	SOR	17006	17.91	Providing 10 mm thick cement plaster in single coat on ceiling surfaces for interior plastering upto floor two level and finished even and smooth in (ii) Cement mortar 1:4 (1-cement :4-sand)	Sqm	115	88.40	10,166
5.0	SOR	17009	17.95	20mm thick sand faced cement plaster on walls upto height 10 metres above ground level consisting of 12mm thick backing coat of C.M.1:3 (1-cement:3-sand) and 8mm thick finishing coat of C.M. 1:1 (1-cement : 1-sand) etc. complete.	Sqm	1521	189.00	287,469
6.0	NSOR			Providing 12 wide 6mm deep vertical or horizontal groove in cement plaster, maintaining all line and level, with all necessary tools, labour complete.	metre	5602	75.00	420,150
7.0	DSR	DSR item	11.6	Cement plaster skirting up to 30 cm height , with cement mortar 1:3 (1 cement : 3 coarse sand), finished with a floating coat of neat cement.				
7.1			11.6.1	18 mm thick	Sqm	505	350.05	176,775
8.0	DSR	DSR item	13.18	Neat cement punning	Sqm	329	42.60	14,015
9.0	DSR	DSR item	4.17	Making plinth protection 50mm thick of cement concrete 1:3:6 (1 cement: 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) over 75mm thick bed of dry brick ballast 40 mm nominal size, well rammed and consolidated and grouted with fine sand, including necessary excavation, levelling & dressing & finishing the top smooth.	Sqm	440	450.35	198,154
				Total cost for Masonry work and plastering				2,577,085
B				Painting				
1.0	DSR	DSR item	13.78	Providing and applying 12 mm thick (average) premixed formulated one coat gypsum lightweight plaster having additives and light weight aggregates as vermiculite/ perlite respectively conforming to IS: 2547 (Part - 1 & II) 1976, applied on hacked / uneven background such as bare brick/ block/ RCC work on walls & ceiling at all floors and locations, finished in smooth line and level etc. complete.	Sqm	20	217.35	4,347
2.0	SOR	19032		Applying two coats of Birla (white cement based) or Asian (acrylic lapy-putty) or equivalent & two coats of primer of approved brand and manufacturer on new wall surface to give an even shade including thoroughly brushing the surface free from mortar dropping and other foreign matter and sand papered smooth.	Sqm	240	47.40	11,376

BOQ OF MISCELLANEOUS ARCHITECTURAL ITEMS : Boundary wall & Gate House

S.No	Source	Item code for Ahmedabad SOR	NBO ref no. or DSR ref no.	Item- Description	SOR item unit	Quantity - (Total)	Rate (In Rupees)	Amount (In Rupees)
3.0	NSOR			Supply and application of interior grade primer in two coats to wall and ceiling surfaces	Sqm	425	25.00	10,625
4.0	DSR	DSR item	13.42	Distemping with 1st quality acrylic distemper (ready mixed) of approved manufacturer, of required shade and colour complete, as per manufacturer's specification.				
4.1			13.42.1	Two or more coats on new work	Sqm	100	53.15	5,315
5.0	SOR	18031	18.57	Wall painting (two coats) with plastic emulsion paint of approved brand and manufacturer on undecorated wall surface to give an even shade including thoroughly brushing the surface free from mortar droppings and other foreign matter and sand papered smooth.	Sqm	250	49.80	12,450
6.0	SOR	18033	18.6	Painting (two coats) with plastic emulsion paint of approved brand on ceilings and sloping roofs.	Sqm	75	53.20	3,990
7.0	NSOR			Supply and application of exterior grade primer in two coats to exterior surfaces	Sqm	3093	35.00	108,255
8.0	SOR	19031		Finishing wall with weather proof exterior emulsion paint on wall surface (twocoats) to give an required shade even shade after thoroughly brushing the surface to remove all dirt, and remains of loose powdered materials.etc complete	sqm	2478	96.80	239,870
9.0	DSR	DSR item	13.45	Finishing walls with textured exterior paint of required shade :				
9.1	DSR	DSR item	13.45.1	New work (Two or more coats applied @ 3.28 ltr/10 sqm) over and including priming coat of exterior primer applied @ 2.20kg/10 sqm	Sqm	615	150.65	92,650
10.0	SOR	19001	19.2	Applying priming coat over new steel and other metal surface after and including preparing the surface by thoroughly cleaning, oil, grease, dirt and other foreign matter and scoured with brushes fine steel wood,scrapers and sand paper with ready mixed priming paint brushing red lead.	Sqm	1000	21.8	21,800
11.0	SOR	19002	19.7	Painting two coats (excluding priming coat) on new steel and other metal surface with enamel paint, brushing ,interior to give an even shade including cleaning the surface an even shade including cleanin the surface of all dirt, dust and other foreign matter.	Sqm	1000	55.2	55,200
				Total cost of Painting				565,878
C				Flooring				
1.0			11.37	Providing and laying Ceramic glazed floor tiles of size 300x300 mm (thickness to be specified by the manufacturer) of 1st quality conforming to IS : 15622 of approved make in colours such as White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick cement mortar 1:4 (1 Cement : 4 Coarse sand), including pointing the joints with white cement and matching pigment etc, complete.	Sqm	5	688.35	3,442

BOQ OF MISCELLANEOUS ARCHITECTURAL ITEMS : Boundary wall & Gate House

S.No	Source	Item code for Ahmedabad SOR	NBO ref no. or DSR ref no.	Item- Description	SOR item unit	Quantity - (Total)	Rate (In Rupees)	Amount (In Rupees)
2.0			11.36	Providing and fixing 1st quality ceramic glazed wall tiles conforming to IS: 15622 (thickness to be specified by the manufacturer), of approved make, in all colours, shades except burgundy, bottle green, black of any size as approved by Engineer-in-Charge, in skirting, risers of steps and dados, over 12 mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand) and jointing with grey cement slurry @ 3.3kg per sqm, including pointing in white cement mixed with pigment of matching shade complete.	Sqm	18	744.80	13,406
3.0	SOR	14012A	14.43	Providing and laying polished Kota stone slab flooring over 20mm (Average) thick base of cement mortar 1:6 (1-cement:6-coarsesand) or L.M.1.1.5 laid over and jointed with grey cement slurry including rubbing and polishing etc.complete. (B) 30 mm thick (upto 10 ton)	Sqm	95	826.00	78,470
4.0	SOR	14013	14.44	Providing and laying polished kota stone slab 25mm thick in risers of steps, skirting Dedo and pillars laid on 10mm thick cement mortar 1:3(1-Cement : 3 coarse sand) and jointed with gray cement slurry mixed with pigment to match the shade of slab including rubbing and polishing etc.complete. (upto 10 ton)	Sqm	6	888.00	5,328
5.0	DSR	DSR item	8.2	Providing and fixing 18 mm thick gang saw cut, mirror polished, premoulded and prepolished, machine cut granite for kitchen platforms , vanity counters, window sills , facias and similar locations of required size, approved shade, colour and texture laid over 20 mm thick base cement mortar 1:4 (1 cement : 4 coarse sand), joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edges to give high gloss finish etc. complete at all levels.				
5.1	DSR	DSR item	8.2.2.2	Area of slab over 0.50 sqm	Sqm	14	3,113.30	43,586
6.0	DSR	DSR item	8.4	Extra for fixing marble / granite stone , over and above corresponding basic item, in facia and drops of width upto 150 mm with epoxy resin based adhesive, including cleaning etc. complete.	Metre	22	266.25	5,858
				Total cost for Flooring				150,090
D				Doors, Windows, and Hardware				
1.0	DSR	DSR item	21.1.1	Providing and fixing aluminium work for doors, windows , ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS : 1285, fixed with rawl plugs and screws or with fixing clips, or with expansion hold fasteners including necessary filling up of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / panelling, C.P. brass / stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge.(Glazing, paneling and dash fasteners to be paid for separately) :				
1.1				a) For Fixed Portion.				
1.1.1			21.1.1.3	Polyester powder coated aluminium (minimum Polyester powder coating 50micron	Kg	375	391.80	146,925

BOQ OF MISCELLANEOUS ARCHITECTURAL ITEMS : Boundary wall & Gate House

S.No	Source	Item code for Ahmedabad SOR	NBO ref no. or DSR ref no.	Item- Description	SOR item unit	Quantity - (Total)	Rate (In Rupees)	Amount (In Rupees)
1.2	DSR		21.1.2	b) For shutters of doors, windows & ventilators including providing and fixing hinges/ pivots and making provision for fixing of fittings wherever required including the cost of EPDM rubber / neoprene gasket required (Fittings shall be paid for separately)				
1.2.1			21.1.2.3	Polyester powder coated aluminium (minimum thickness of polyester powder coating 50 micron)	Kg	270	452.40	122,148
2.0	DSR		21.3	Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with EPDM rubber / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer-in-charge . (Cost of aluminium snap beading shall be paid in basic item)				
2.1			21.3.2	i) With float glass panes of 5.50 mm thickness	Sqm	45	1,003.95	45,178
3.0	DSR		9.12	Extra for providing frosted glass panes 4 mm thick instead of ordinary float glass panes 4 mm thick in	Sqm	1	74.35	74
4.0	DSR		21.8	Filling the gap in between aluminium frame & adjacent RCC/ Brick/ Stone work by providing weather silicon sealant over backer rod of approved quality as per architectural drawings and direction of Engineer-in-charge complete.				
4.1			21.8.1	Upto 5mm depth and 5 mm width	Metre	80	62.45	4,996
5.0	NSOR		NSOR	Providing and fixing in stainless steel Grade 304 in stainless steel satin/polish finish "D" type pull handles of Standard range of make Dorma make or equivalent or as approved with necessary screws etc. complete. Make: Geze or approved equivalent				
5.1				200 x 19mm dia	Pair	3	1,393.80	4,181
6.0	DSR		9.113	Providing and fixing bright finished 100 mm mortice lock with 6 levers without pair of handles of approved qualities for aluminium doors , with necessary screws etc. Complete as per direction of engineer incharge.	each	2	473.65	947
7.0	NSOR			Providing and fixing brushed finished 100mm mortice latch in stainless steel satin/polished finish with euro deadlock (Coin release) with rose rings and pair of stainless steel (grade 304) lever handles with necessary SS screws etc complete of approved make. complete as per direction of Engineer-in-Charge. Make : Geze or approved equivalent	each	1	1,931.57	1,932
8.0	NSOR			Providing and fixing Aluminum powder coated single point locking handle of approved make for openable portions of ventilators/ windows etc. (Top/Side Hung). Make : Ebco or approved equivalent	each	14	324.06	4,537
9.0	DSR		9.117	Providing and fixing factory made uPVC door frame made of uPVC extruded sections having an overall dimension as below (tolerance ±1mm), with wall thickness 2.0 mm (± 0.2 mm), corners of the door frame to be Jointed with galvanized brackets and stainless steel screws,joints mitred and Plastic welded. The hinge side vertical of the frames reinforced by galvanized M.S. tube of size 19 X 19 mm and 1mm (± 0.1mm) wall thickness and 3 nos. stainless steel hinges fixed to the frame complete as per manufacturer's specification and direction of Engineer-in-charge				
9.1			9.117.2	Extruded section profile size 42x50 mm	metre	5	205.20	1,026

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S.No	Source	Item code for Ahmedabad SOR	NBO ref no. or DSR ref no.	Item- Description	SOR item unit	Quantity - (Total)	Rate (In Rupees)	Amount (In Rupees)
10.0	DSR		9.118.1	24 mm thick factory made PVC door shutters made of styles and rails of a uPVC hollow section of size 59x24 mm and wall thickness 2 mm (± 0.2 mm) with inbuilt edging on both sides. The styles and rails mitred and joint at the corners by means of M.S galvanised/ plastic brackets of size 75x220 mm having wall thickness 1.0 mm and stainless steel screws. The styles of the shutter reinforced by inserting galvanised M.S. tube of size 20x20 mm and 1 mm (± 0.1 mm) wall thickness. The lock rail made up of 'H' section, a uPVC hollow section of size 100x24 mm and 2 mm (± 0.2 mm) wall thickness, fixed to the shutter styles by means of plastic/galvanised M.S. 'U' cleats. The shutter frame filled with a uPVC multi-chambered single panel of size not less than 620 mm, having over all thickness of 20 mm and 1 mm (± 0.1 mm) wall thickness. The panels filled vertically and tie bar at two places by inserting horizontally 6 mm galvanised M.S. rod and fastened with nuts and washers, complete as per manufacturer's specification and direction of Engineer-in-charge. (For W.C. and bathroom door shutter).	sqm	2	1,800.45	3,781
				Total cost for Doors, Windows, and Hardware				335,725
E				False ceiling				
1.0	DSR		12.45	Providing and fixing false ceiling at all height including providing and fixing of frame work made of special sections, power pressed from M.S. sheets and galvanized with zinc coating of 120 gms/sqm (both side inclusive) as per IS : 277 and consisting of angle cleats of size 25 mm wide x 1.6 mm thick with flanges of 27 mm and 37mm, at 1200 mm centre to centre, one flange fixed to the ceiling with dash fastener 12.5 mm dia x 50mm long with 6mm dia bolts, other flange of cleat fixed to the angle hangers of 25x10x0.50 mm of required length with nuts & bolts of required size and other end of angle hanger fixed with intermediate G.I. channels 45x15x0.9 mm running at the spacing of 1200 mm centre to centre, to which the ceiling section 0.5 mm thick bottom wedge of 80 mm				
				with tapered flanges of 26 mm each having lips of 10.5 mm, at 450 mm centre to centre, shall be fixed in a direction Perpendicular to G.I. intermediate channel with connecting clips made out of 2.64 mm dia x 230 mm long G.I. wire at every junction, including fixing perimeter channels 0.5 mm thick 27 mm high having flanges of 20 mm and 30 mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450 mm centre, with 25mm long dry wall screws @ 230 mm interval, including fixing of gypsum board to ceiling section and perimeter channel with the help of dry wall screws of size 3.5 x 25 mm a 230 mm c/c, including jointing and finishing				







BOQ OF MISCELLANEOUS ARCHITECTURAL ITEMS : Boundary wall & Gate House

S.No	Source	Item code for Ahmedabad SOR	NBO ref no. or DSR ref no.	Item- Description	SOR item unit	Quantity - (Total)	Rate (In Rupees)	Amount (In Rupees)
				to a flush finish of tapered and square edges of the board with recommended jointing compound , jointing tapes , with jointing compound in 3 layers covering upto 150 mm on both sides of joint and two coats of primer suitable for board, all as per manufacturer's specification and also including the cost of making openings for light fittings, grills, diffusers, cutouts made with frame of perimeter channels suitably fixed, all complete as per drawings, specification and direction of the Engineer in Charge but excluding the cost of painting with :				
1.1			12.45.1	12.5 mm thick tapered edge gypsum plain board conforming to IS: 2095- Part I	Sqm	40	806.20	32,248
				Total Cost for False ceiling work				32,248
F				Fencing, Railing and MS works				
1.0	DSR		16.17	Fencing with R.C.C. post placed at required distance, embedded in cement concrete blocks, every 15th post, last but one end post and corner post shall be strutted on both sides and end post one side only, provided with horizontal lines and two diagonals of barbed wire weighing 9.38 kg per 100 metres (minimum), between the two posts fitted and fixed with G.I. staples on wooden plugs or G.I. binding wire tied to 6 mm bar nibs fixed while casting the post (cost of R.C.C. posts, struts, earth work and concrete to be paid for separately) :- Payment to be made per metre cost of total length of barbed wire used.				
1.1			16.17.1	With G.I. barbed wire	metre	2300	8.25	18,975
2.0	DSR		10.25	Steel work welded in built up sections/ framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required.				
2.1			10.25.2	In gratings, frames, guard bar, ladder, railings , brackets, gates and similar works	Kg	11956	85.95	1,027,618
3.0	DSR		10.27	Providing and fixing carbon steel galvanised (minimum coating 5 micron) dash fastener of 10 mm dia double threaded 6.8 grade (yield strength 480 N/mm ²), counter sunk head, comprising of 10 m dia polyamide PA 6 grade sleeve, including drilling of hole in frame , concrete/ masonry, etc. as per direction of Engineer-in-charge.				
3.1			10.27.3	10 x 120 mm	each	2050	91.80	188,190
				Total Cost for False ceiling work				1,234,783
G				Miscellaneous works				
1.0	DSR		12.22	Making khurras 45x45 cm with average minimum thickness of 5 cm cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate of 20 mm nominal size) over P.V.C. sheet 1 m x1 m x 400 micron, finished with 12 mm cement plaster 1:3 (1 cement : 3 coarse sand) and a coat of neat cement, rounding the edges and making and finishing the outlet complete.	Each	3	187.60	563









BOQ OF MISCELLANEOUS ARCHITECTURAL ITEMS : Boundary wall & Gate House

S.No	Source	Item code for Ahmedabad SOR	NBO ref no. or DSR ref no.	Item- Description	SOR item unit	Quantity - (Total)	Rate (In Rupees)	Amount (In Rupees)
2.0	DSR		22.22A	Providing and applying fibre reinforced elastomeric liquid water proofing membrane with resilient acrylic polymers having Sun Reflectivity Index (SRI) of 105 on top of concrete roof in three coats @10.76 litre/ 10 sqm. One coat of self-priming of elastomeric waterproofing liquid (dilution with water in the ratio of 3:1) and two coats of undiluted elastomeric waterproofing liquid (dry film thickness of complete application/ system not less than 500 microns). The operation shall be carried out after scrapping and properly cleaning the surface to remove loose particles with wire brushes, complete in all respect as per the direction of Engineer-in-Charge.	Sqm	135	327.55	44,219
				Total cost for Miscellaneous works				44,782
				Grand total of all the costs				4,940,591





BOQ of Signage and Furniture

S.No	Source	Description of Work	Unit	Total Quantity	Rate	Total Amount	REFERENCE IMAGE and Furniture Tag as per Tender drawing
A		Signages					
1.0	NSOR	Providing and fixing of SS (304 grade) 2mm thick laser cut letter, 600 mm high, 25mm raising with CNC bending 1.2mm ss sheet by proper welding and painted with Polyurethane coating (4 step coating for paint grip duly with metal surface) ,providing a finish of joint less look of the moulded casting letter . Fixing of proper welded studs for anchoring with the wall. White LED 6500K fixing at Letter backside for Backside reflection for halo effect on the wall and celute letter effect at night. Should be cared and maintained for even illumination for entire out area for smooth look. letter fixed with maintain 25mm gap from the wall Externa wall- Building Name	Each	1	1,19,000	1,19,000	 S1
2.0	NSOR	Providing and fixing mild steel 12mm cut letter through laser cut for accuracy of design, and stud fixing on back side for anchoring on wall. Whole material cured with antirust 7 tank treatment and painted with method of Polyurethane coating maintaining even fixing on the wall by using template (if required). Base plate fixed with maintain 12mm gap from the wall On internal wall- Names of Exhibition halls, Theatre halls etc Plate size-1800 -2000 X450 mm Letter size 150-200 mm	Each	16	36,400	5,82,400	 S2
3.0	NSOR	Providing and fixing Brush SS of 304 grade and size wise cutting must be through laser cut machine for proper maintain of square / rectangle shape and buffing edge for neatness , typography 3M vinyl cut through electro cut machine as per design (from client) , end finish used with grade 1 laquer for smooth finish and royal looks. Door mounted - 300X150mm Fixing with ss stud 4 nos	Each	37	2,520	93,240	 S3
4.0	NSOR	Providing and fixing Brush steel ss 304 grade and size wise cutting must be through laser cut machine for proper maintain square / rectangle shape and boffing edge for neatness, typography print over sheet by etching as per given design (from client) , end finish use grade 1 laquer for smooth finish and royal looks. Fix on wall tape or / stude (location wise). Toilet identification, Door mounted - 150X200 mm fixing with bothside gum tape on 3m	Each	14	1,800	25,200	 S4
5.0	NSOR	Providing and fixing Brush steel SS 304 grade and size wise cutting must be through laser cut machine for proper maintain of square / rectangle shape and buffing edge for neatness, typography print over sheet by etching as per given design (from client) , end finish uses with grade 1 laquer for smooth finish and royal looks. Fixing on wall with tape or / stud (location wise). DA Toilet identification, Door mountedDoor mounted - 200X200 mm fixing with bothside gum tape on 3m	Each	7	3,000	21,000	 S5
6.0	NSOR	Providing & applying edge mounted both side profile and 304 grade SS brush steel fix (2mm) on both sides . SS sheet must be through lesar cut process with edge machine polish for neatness . Typography made of electro cut 3m vinyl , but picto should be lesar cut acrylic pasted over sheet. For suspension from ceiling by pre fix MS holding tube as required, over all SS sheet should be matt melamine sprayed for royal looks. Hanging with SS attachments in Cooridors for Directions Size - 1800 X 450	Each	20	14,217	2,84,340	 S6

BOQ of Signage and Furniture

S.No	Source	Description of Work	Unit	Total Quantity	Rate	Total Amount	REFERENCE IMAGE and Furniture Tag as per Tender drawing
7.0	NSOR	Providing and laying Edgelit fire exit with battery back up, Hanging from Ceiling Size - 600 X 200mm	Each	13	2,500	32,500	 S7
8.0	NSOR	Providing & applying edge mounted single side profile and 304 grade SS brush steel fix (2mm) on both sides . SS sheet must be cut through lesar cut with edge machine polish for neatness . Typography made of electro cut 3M vinyl , but picto should be lesar cut acrylic pasted over sheet. For fixing on wall hidden locking system to be used as required, over all SS sheet should be matt melamine spray for royal looks. Floor identification, Wall Mounted - Size 300 X 300mm Fixing with ss stud 4 nos	Each	16	3,000	48,000	 S8
9.0	NSOR	Supply and installation of Photoluminescent signages on foam board (Exit/Extinguisher/ Fire etc) Size - 400 X 150mm. Letter height 75 mm, fixed on top of exit doors	Each	16	480	7,680	 S9
10.0	NSOR	Providing and fixing 1.5mm Brush steel SS 304 grade and size wise cutting must be through laser cut machine for proper maintain square / rectangle shape and buffing edge for neatness, typography print over sheet by etching as per given design (from client), end finish used with grade 1 laquer for smooth finish and royal looks. Fixing on wall with tape or / studs (location wise). Push/ Pull : size - 50X200 mm Door mounted, Fixing with bothside gum tape on 3m	Each	3	750	2,250	 S10
11.0	NSOR	Providing and fixing signage with vinyl (3M or equivalent) cut through electrocut machine and pasted on glass maintained as per approved design. Pasting on internal sliding glass door. Glass sticker : EXIT ONLY	Each	13	750	9,750	 S11
12.0	NSOR	Providing and fixing signage with vinyl (3M or equivalent) cut through electrocut machine and pasted on glass maintained as per approved design. Pasting on internal sliding glass door. Glass sticker : ENTRY ONLY	Each	16	750	12,000	 S12
13.0	NSOR	Providing & applying table mounted single side profile and 304 grade SS brush steel fix (2mm) both sides . SS sheet should be cut through lesar, with edge polished with machine for neatness . Typography made of electro cut 3M vinyl , but picto should be lesar cut acrylic pasted over sheet. For fixing on wall hidden locking system to be used as required, over all SS sheet should be matt melamine sprayed for royal looks. Table mounted signage Size - 300 X 150mm	Each	4	3,780	15,120	 S13
14.0	NSOR	Providing & applying edge mounted single side profile and 304 grade SS brush steel fix (2mm) both sides . SS sheet should be cut through lesar, with edge polished with machine for neatness . Typography made of electro cut 3M vinyl , but picto should be lesar cut acrylic pasted over sheet. For fixing on wall hidden locking system to be used as required, over all SS sheet should be matt melamine sprayed for royal looks. Direction board : wall mounted - Size - 450 X 150mm	Each	11	3,150	34,650	 S14








BOQ of Signage and Furniture

S.No	Source	Description of Work	Unit	Total Quantity	Rate	Total Amount	REFERENCE IMAGE and Furniture Tag as per Tender drawing
15.0	NSOR	Providing & applying edge mounted single side profile and 304 grade SS brush steel fix (2mm) both sides . SS sheet should be cut through lesar, with edge polished with machine for neatness . Typography made of electro cut 3M vinyl , but picto should be lesar cut acrylic pasted over sheet. For fixing on wall hidden locking system to be used as required, over all SS sheet should be matt melamine sprayed for royal looks. Staircase numbers- wall mounted Size - 300 X 150mm	Each	28	2,520	70,560	
		Total of Signage Work Carried Over to Summary				13,57,690	S15
B		Furniture					
1	NSOR	Reception table - Main Table - 1800 x 750 x 750mm ht with side unit of 900 x 450 x 750mm ht - 2 seater	No.	3	29000	87000	
2.0	NSOR	Supplying and placing in position Office Chairs - Medium back mesh chair• AN70 mesh• Adjustable lumbar support• Height adjustable arms• Single lock synchro mechanism• Nylon base	Each	90	8,500.00	7,65,000	
3.0	NSOR	Supply of four seater sofa made of SS structure (stand, armrest, skeleton etc) and leatherette cushions. SS shall be of 304 grade.	Each	14	33,000.00	4,62,000	
4.0	NSOR	Supplying & Placing in position L Shape Sofa with 4 nos. 2 Seater amd 1 nos. Corner with a pair of armrests. Seat & Body- Understructure: Understructure is made of combination of plywood & pinewood members. Plywood is 12±1mm thk. [moisture resistance & termile proof as per IS:303] & pinewood are cross section [22x25, 22x40, 25x75 & 25x100mm] are without major knots & defects on the surface. 3mm MDF is stapled on the seat front bottom vertical surface to get the surface to stick the foam. Dia. 3.8mm zigzag spring asly. is mounted on the seat structure with spring mounting plastic bracket for support & additional cushioning purpose. Elastic belt of 2" width are used above the spring asly. to give good sagging effect. Non woven fabric is stapled on the seat structure frame above the spring asly. to avoid the tearing of seat foam with the surface contact of metal spring.	Each	10	1,25,000.00	12,50,000	
		Back vertical surface is stapled with non-woven cloth to get surface to stick the foam. Complete understructure is made by gluing & stapling. · Foam: Seat is made of PU foam with density 28 kg/m3 having an additional top layer of supersoft PU foam with density 18 kg/m3. Recron sheet of 230GSM is used above this foam. Seat front bottom vertical surface & back vertical surface is glued with the PU foam with density 22 kg/m3. Side vertical surface, body front taper vertical & top horizontal surface is glued with PU foam with density 16 kg/m3. · Upholstry: Seat & body upholstry is made in the dual tone colour with fabric / fabric option & fabric / leatherite option. Back Top Cushion- Understructure: Understructure is made of combination 12±1mm & 6±1mm thk. plywood [for 2 Seater, 3 Seater & Chaise Lounge] & combination 12±1mm, 4±1mm thk. plywood & 3mm MDF [for Small Corner & Big Corner] with gluing & stapling. Foam: It is made with					F4


BOQ of Signage and Furniture

S.No	Source	Description of Work	Unit	Total Quantity	Rate	Total Amount	REFERENCE IMAGE and Furniture Tag as per Tender drawing
5.0	NSOR	Supply of premium quality centre table with 12.00 mm thick toughened glass with high quality teak wood framing / MS ERU high quality chrome plated framing. Approx. Size shall be - 2000mm (W)x 800mm(D)x 425 mm (H) (min). All materials used should be of relevant ISI specification.	Each	2	32,000.00	64,000	 F3
6.0	NSOR	Designing, fabricating and installing 8 seater canteen table 2400 x 900 x 750 ht with laminated table top	Each	12	13,500.00	1,62,000	 F28
7.0	NSOR	Supplying and placing canteen chairs	Each	96	3,000.00	2,88,000	 F8
8.0	NSOR	Supplying and placing in position Cabin Table with flip up on main table Size: Main Table: 1500x600x750HT Table Top- 25mm thick pre laminate particle board with 2mm PVC edge lipping. Support: MS powder coated 50x50 mm perform legs and supporting MS cross beams. Modesty Panel: 18mm thk pre lam board with 2mm PVC edge lipping of 450mm HT Wire Management: 300 mm metal flip up with soft closure, provision to mount switches and sockets on MS cable dunn	Each	4	12,500.00	50,000	 F26
9.0	NSOR	Supplying and placing in position Work station (Linear sharing workstation) SIZE : 1200 x 600 x 1100 HT Table top - 25mm thick pre-lam particle board finished with 2mm PVC edge banding. 30mm Split screen With Half fabric magnetic and half glass marker. Under-structure - Supported on ms powder coated sq. 50x50 straight perform legs with ms powder coated cross beam 40x20. Wire Management - 65 dia wire manager hole per workstation	Each	36	6,600.00	2,37,600	 F12
10.0	NSOR	Supplying and placing in position Board room Chairs -Cushioned Revolving chair ,Gaslift & ,Tilt Lock, Fixed Arms	Each	9	4,738.00	42,642	 F25
11.0	NSOR	Providing 9 pax Board room table of size 3000 x 1200 x 750mm ht	Each	1	29,500.00	29,500	 F20
12.0	NSOR	Office desk - Main Table - 1800 x 750 x 750mm ht with side unit of 900 x 450 x 600mm ht	Each	9	18,000.00	1,62,000	 F22



BOQ of Signage and Furniture

S.No	Source	Description of Work	Unit	Total Quantity	Rate	Total Amount	REFERENCE IMAGE and Furniture Tag as per Tender drawing
13.0	NSOR	Auditorium Seats with arm rest and Pushback, tip feature	Each	216	5,000.00	10,80,000	 F31
14.0	NSOR	Supplying, preparing shop drawing, fabricating and installing Display Stage (5200 x 5200 x 600 ht) made out of minimum 19 mm thk commercial Ply with suitable hardwood or MS frame, top finished with 12mm thk solid surface LG / Smasung make, sides and bottom finished with laminates, hidden skirting, as per approved shop drawings.	Each	1	60200	60,200	 F11
15.0	NSOR	Supplying, preparing shop drawing, fabricating and installing Display Deck with illuminated base (1500 x 1500 x 900 ht) made out of minimum 19 mm thk commercial Ply with suitable hardwood or MS frame, top finished with 12mm thk solid surface LG / Smasung make, sides and bottom finished with laminates, hidden skirting, illumination slots with milky white acrylic sheet of adequate thickness (but not less than 3 mm, LED lights and concealed wiring in built, as per approved shop drawings	Each	4	82000	3,28,000	 F21
16.0	NSOR	Supplying, preparing shop drawing, fabricating and installing Display Deck with illuminated base (4500 x 3000 x 900 ht) made out of minimum 19 mm thk commercial Ply with suitable hardwood or MS frame, top finished with 12mm thk solid surface LG / Smasung make, sides and bottom finished with laminates, hidden skirting, illumination slots with milky white acrylic sheet of adequate thickness (but not less than 3 mm, LED lights and concealed wiring in built, as per approved shop drawings	Each	1	3,25,000.00	3,25,000	 F23
17.0	NSOR	Supplying, preparing shop drawing, fabricating and installing Display Deck with non illuminated base (4800 x 1500 x 900 ht) made out of minimum 19 mm thk commercial Ply with suitable hardwood or MS frame, top finished with 12mm thk solid surface LG / Smasung make, sides and bottom finished with laminates, hidden skirting, as per approved shop drawings	Each	1	24,477.00	24,477	 F24
18.0	NSOR	Supplying, preparing shop drawing, fabricating and installing Display Deck with non illuminated base (7500 x 1500 x 900 ht) made out of minimum 19 mm thk commercial Ply with suitable hardwood or MS frame, top finished with 12mm thk solid surface LG / Smasung make, sides and bottom finished with laminates, hidden skirting, as per approved shop drawings	Each	2	2,56,125.00	5,12,250	 F13
19.0	NSOR	Supplying, preparing shop drawing, fabricating and installing U shaped Display Deck with non illuminated base with 1000 mm width , approximately 14 m length and 900 mm height made out of minimum 19 mm thk commercial Ply with suitable hardwood or MS frame, top finished with 12mm thk solid surface LG / Smasung make, sides and bottom finished with laminates, hidden skirting, as per approved shop drawings	Each	1	3,50,000.00	3,50,000	 F17
20.0	NSOR	Supplying, preparing shop drawing, fabricating and installing Display Deck with non illuminated base (4900 x 1000 x 900 ht) made out of minimum 19 mm thk commercial Ply with suitable hardwood or MS frame, top finished with 12mm thk solid surface LG / Smasung make, sides and bottom finished with laminates, hidden skirting, as per approved shop drawings	Each	1	1,17,000.00	1,17,000	 F18







BOQ of Signage and Furniture

S.No	Source	Description of Work	Unit	Total Quantity	Rate	Total Amount	REFERENCE IMAGE and Furniture Tag as per Tender drawing
21.0	NSOR	Supplying, preparing shop drawing, fabricating and installing L shaped Display Deck with non illuminated base with 1000 mm width , approximately 5.7 m length and 900 mm height made out of minimum 19 mm thk commercial Ply with suitable hardwood or MS frame, top finished with 12mm thk solid surface LG / Smasung make, sides and bottom finished with laminates, hidden skirting, as per approved shop drawings	Each	1	1,34,000.00	1,34,000	F15
22.0	NSOR	Supplying, preparing shop drawing, fabricating and installing Display Deck with non illuminated base (4675 x 1000 x 900 ht) made out of minimum 19 mm thk commercial Ply with suitable hardwood or MS frame, top finished with 12mm thk solid surface LG / Smasung make, sides and bottom finished with laminates, hidden skirting, as per approved shop drawings	Each	1	1,12,000.00	1,12,000	F27
23.0	NSOR	Supplying, preparing shop drawing, fabricating and installing Display Rack (5400 x 600 x 2100 ht) with front glass, 4 nos of glass shelves at 900, 1200, 1500 and 1800 from base , made out of minimum 19 mm thk commercial Ply, inside and outside finished with laminates, stainless steel hardware, lock all as per approved shop drawings.	Each	1	1,32,300.00	1,32,300	F28
24.0	NSOR	Supplying, preparing shop drawing, fabricating and installing Display Deck with illuminated base (1600 x 900 x 1200 ht) made out of minimum 19 mm thk commercial Ply with suitable hardwood or MS frame, top finished with 12mm thk solid surface LG / Smasung make, sides and bottom finished with laminates, hidden skirting, illumination slots with milky white acrylic sheet of adequate thickness (but not less than 3 mm, LED lights and concealed wiring in built, as per approved shop drawings	Each	12	75,000.00	9,00,000	F32
25.0	NSOR	Supplying, preparing shop drawing, fabricating and installing Display Deck with non illuminated base (700 x 525 x 1000 ht) made out of minimum 19 mm thk commercial Ply with suitable hardwood or MS frame, top finished with 12mm thk solid surface LG / Smasung make, sides and bottom finished with laminates, hidden skirting, as per approved shop drawings	Each	35	25,000.00	8,75,000	F33
26.0	NSOR	Supplying, preparing shop drawing, fabricating and installing Display Deck with non illuminated base (700 x 325 x 1000 ht) made out of minimum 19 mm thk commercial Ply with suitable hardwood or MS frame, top finished with 12mm thk solid surface LG / Smasung make, sides and bottom finished with laminates, hidden skirting, as per approved shop drawings	Each	58	16,000.00	9,28,000	F34
27.0	NSOR	Supplying, preparing shop drawing, fabricating and installing Display Deck with illuminated base (700 x 1000 x 1000 ht) made out of minimum 19 mm thk commercial Ply with suitable hardwood or MS frame, top finished with 12mm thk solid surface LG / Smasung make, sides and bottom finished with laminates, hidden skirting, illumination slots with milky white acrylic sheet of adequate thickness (but not less than 3 mm, LED lights and concealed wiring in built, as per approved shop drawings	Each	22	49,500.00	10,89,000	F35
28.0	NSOR	4 Drawer Metal powder Coated Storage with Sliding Drawer -Product: M.S Drawer Storage Size:H :1320mm x 458mm x 622mm H Specification: Storage will be made of 8mm thick CRCA powder coated with 50-60 microns. Drawers will be running on telescopic channel.	Each	20	17,500.00	3,50,000	 F13

BOQ of Signage and Furniture

S.No	Source	Description of Work	Unit	Total Quantity	Rate	Total Amount	REFERENCE IMAGE and Furniture Tag as per Tender drawing
29.0	NSOR	Rear Storage units Size : 900(w) x 450(d) x 1050(h) The sturcture made out of 18mm thick prelaminated board (PLB). The shelves are made out of 18mm thick (PLB), which are adjustable in height. The shutters are made out of 18mm (PLB) openable, and fitted by hinges, recessed handles, locking unit and levelers are considered.	Each	10	7,500.00	75,000	 F18
30.0	NSOR	PLB MOBILE PEDESTAL (2D+1F) Size - 400L x 450D x 640HT. Made of 18mm thick PLB with 2 Drawer +1 Filling unit arrangement with Castors for easy mobility of the pedestal. Suitable recessed handles, Locking system & other necessary hardware to be provided.	Each	40	4,800.00	1,92,000	 With Item No. F26 & F12
31.0	NSOR	Providing and fixing Roller Blinds as per architectural drawing and instructions made out of approved make and quality fabrics shall be made from high quality texturised and spun yarn. It should have excellent textile appearance of translucency, 100% polyester fabric, acrylic coating on both side of fabric, fabric fixed to the proper location.including necessary hardware, drilling, cutting, powder coate aluminum clips, rods and pulling rope. two blinds should be over lap to each other by 150mm. etc. cpmpleted as required.				-	
31.1		Providing and fixing perforated screen Blinds :Openness factor: 8%,	Sqm	1000	1,260.00	12,60,000	
		Total of Furniture Work Carried Over to Summary				1,24,43,969	
C		ACOUSTIC FALSE CEILING & WALL PANEL					
1.0	NSOR	Providing & Fixing of Armstrong Soft Fibre Acoustical Suspended Ceiling System with Optra (Vector) EDGE TILES WITH ARMSTRONG 38mm Semi - Concealed 24mm System or equivalent. The tiles should have Humidity Resistance (RH) of 95 %, NRC 0.9 - 1.0, Light Reflectance ≥85%, Thermal Conductivity k = NA w/m K, Colour Black, Fire Performance UK Class 0 / Class 1 (BS 476 pt - 6 &7) in module size of 600 x 600x25 mm, suitable for Green Building application, with Recycled content of 66% GW & 74% RW The tile shall be laid on Armstrong Prelude 38 with 24 mm wide T - section flanges colour Black having rotary stitching on all T sections i.e. the Main Runner, 1200 mm special Cross Tees (without over ride & end details) with a web height of 38mm. And need to be installed with Suspension system of Armstrong make. The Tile & Grid system used together should carry a	sqm	900	2,915.00	26,23,500	
2.0	NSOR	Providing and fixing Armstrong or equivalent Acoustic wall panelling (in auditorium, Zurassic theatre, and small film hall) - Optra Acoustic wall panelling with square edges made of fibre glass substrate 25mm thick and wrapped on the front side with an acoustically transparent and classified for Fire reaction Class B-s1, d1 as per EN13501, fabric with an option of colors – Ivory, Autumn Orange, Pista Green, Straw Gold, Rustic Green, Burgundy, Rust, Peacock Blue, Ash Grey, Mocha as per the choice of the Architect of size 600X2100 mm providing a minimum sound absorption level of 0.90 NRC to be affixed to wall using Wall panel impalers supplied by M/s Armstrong Industries India Pvt. Ltd	sqm	1200	5,020.00	60,24,000	
		Total of False ceiling Work Carried Over to Summary				86,47,500	

BOQ of Signage and Furniture

S.No	Source	Description of Work	Unit	Total Quantity	Rate	Total Amount	REFERENCE IMAGE and Furniture Tag as per Tender drawing
D		LIGHTING FIXTURES					
		Supply and installation of lighting fixtures including accessories					
1	NDSR	56242 Star Bar tube / 27K of philips or equivalent	nos	73	3,450.00	2,51,850	
2	NDSR	Philips DN193B LED12S-4000 PSU WH S1 Diffused Recessed Downlighter of philips or equivalent	nos	44	2,150.00	94,600	
3	NDSR	BGP310, 6nos of led, beam angle 36 deg of philips or equivalent	nos	8	7,000.00	56,000	
4	NDSR	Philips myLiving Suspension light 31139/43/66 31139 brown LED (The hanging cord will be shortened to make it a ceiling fixture) of philips or equivalent	nos	1	18,300.00	18,300.00	
5	NDSR	Philips Pendant/ Suspension Light. 36288 Pods pendant LED white or equivalent. (price mentioned without hanging rod/string for further elongation)	nos	3	4,450.00	13,350.00	
6	NDSR	Dimmer Switch 046677458140	nos	5	1,599.00	7,995.00	
		Total of Lighting Fixtures Carried Over to Summary				4,42,095	
		Total				2,28,91,254	

BOQ FOR LANDSCAPE WORKS : RSM PATAN						
Total Area for Landscape Works :				19000.00	sq.m	
Sl no.	SOR/ DSR Reference	Description of item	Unit	Quantity	Rate	Total Amount
A	Landscape Works and Earthworks : Softscape					
1	Top Soil Restoration					
		Existing Topsoil to be excavated for restoration to a depth of 200 mm (not more than 400 mm) and separated from subsoil debris and stones larger than 50 mm diameter to be stockpiled to a height of 400 mm in designated area. Stockpiled topsoil to be protected from erosion during storage by installing earthen berms/solid walls/temporary grass plantation/covering with mulch/ plastic sheets. Stockpiled topsoil to be protected with sand bags/solid walled enclosures (2 feet high) on all sides for containment. Appropriate drainage channels to be dug around the storage area to prevent flooding of the top soil storage area as instructed by engineer incharge.	cum	3800.00	92.13	350094.00
2	Rough Dressing					
2.1	DSR 23.05	Rough dressing the trenched ground including breaking clods.	sq.m	12000.00	0.60	7182.00
3	Fine Dressing					
3.1	DSR 23.07	Fine dressing of the ground.	sq.m	12000.00	1.45	17400.00
4	DSR 23.28	Preparation of mounds of various size and shape by available excavated / supplied earth in layers breaking clods, watering of each layer, dressing etc., lead upto 50 meter and lift upto 1.5 m complete as per direction of Officer-in-charge.	cum	624.00	178.70	111508.80
5	Mixing and Spreading of Good Soil and Manure					
5.1	DSR 23.08	Spreading of sludge, dump manure and/or good earth in required thickness as per direction of officer-in-charge (cost of sludge, dump manure and/ or good earth to be paid separately).	cum	4800.00	21.00	100800.00
6	DSR 23.09	Mixing earth and sludge or manure in the required proportion specified or directed by the Officer-in-charge	cum	1440.00	14.35	20664.00
7	DSR 23.14	Digging holes in ordinary soil and refilling the same with the excavated earth mixed with manure or sludge in the ratio of 2:1 by volume (2 parts of stacked volume of earth after reduction by 20% : 1 part of stacked volume of manure after reduction by 8%) flooding with water, dressing including removal of rubbish and surplus earth, if any, with all leads and lifts (cost of manure, sludge or extra good earth if needed to be paid for separately) :				
7.1	DSR 23.14.2	Holes 90 cm dia, and 90 cm deep	No.	260.00	80.20	20852.00
7.2	DSR 23.14.3	Holes 60 cm dia, and 60 cm deep	No.	250.00	24.70	6175.00
8		Excavation for Lawn on Soft surface: Excavating the ground to the depth of 10 cm removing excavated material from the site.	sq.m	3745.00	20.00	74900.00
9	DSR 23.2	Filling mixture of earth and sludge or manure in the desired proportion in trenches, flooding with water and leveling (cost of supplying earth and sludge or manure and mixing excluded).	cum	6240.00	7.15	44616.00
10	Weeding					
10.1	DSR 23.06	Uprooting weeds from the trenched area after 10 to 15 days of its flooding with water including disposal of uprooted vegetation.	sq.m	12000.00	1.94	23286.00
Total for Landscape Works : Softscape						777477.80
B	Softscape Works and Plantation					
1	Good Garden Soil					
1.1	DSR 23.02	Supplying and stacking of good earth at site including royalty and carriage complete (earth measured in stacks will be reduced by 20% for payment).	cum	4800.00	260.70	1251360.00
2	Cow Dung Manure					
2.1	DSR 23.25	Supplying and stacking of well decayed cow dung manure at site including and carriage complete (Cow dung manure measured in stacks will reduced by 8% for Payment).	cum	1440.00	165.20	237888.00
3	Grassing					
3.1	Non DSR	Planting Jumping / Korian Lawn)(Labour)	sq.m	3745.00	120.00	449400.00
4	NDSR	Renovating lawns including weeding, cheeling the grass, forking the ground, top dressing with sludge or manure, mixing the same with forked soil, watering and maintaining the lawn for 30 days or more till the grass forms a thick lawn free from weeds and fit for mowing and disposal of rubbish as directed, including supplying good earth if needed but excluding the cost of sludge or manure (the good earth shall be paid for separately).	sq.m	3745.00	13.53	50669.85
5	Shrubs, Hedges, Shrubbery and Groundcover Plantation					
5.1	DSR 23.13	Preparation of beds for hedging and shrubbery by excavating 60 cm deep and trenching the excavated base to a further depth of 30 cm, refilling the excavated earth after breaking clods and mixing with sludge or manure in the ratio of 8:1 (8 parts of stacked volume of earth after reduction by 20% : one part of stacked volume of sludge or manure after reduction by 8%), flooding with water, filling with earth if necessary, watering and finally fine dressing, leveling etc. including stacking and disposal of materials declared unserviceable and surplus earth by spreading and leveling as directed, within a lead of 50 m, lift up to 1.5 m complete (cost of sludge, manure or extra earth to be paid for separately).(LABOUR)	cum	4631.00	87.50	405212.50
5.2	Non DSR	Planting Shrubs (Labour, transport and unloading) (Excluding cost of plant)	sq.m	4846.00	75.00	363450.00
5.3	Non DSR	Wadelia trilobata	sq.m	1480.00	250.00	370000.00
5.4	Non DSR	Raphis excelsa	sq.m	580.00	600.00	348000.00
5.5	Non DSR	Chlorophytum cosmosum	sq.m	105.00	350.00	36750.00
5.6	Non DSR	Ixora paviflora	sq.m	23.00	350.00	8050.00
5.7	Non DSR	Ficus Panda	sq.m	435.00	450.00	195750.00
5.8	Non DSR	Russilia equisetiformis	sq.m	145.00	450.00	65250.00
5.9		Rhoeo spathacea	sq.m	388.00	400.00	155200.00
5.1		Duranta Variegated	sq.m	425.00	400.00	170000.00
5.11		Hamelia patens	sq.m	530.00	400.00	212000.00
5.12	Non DSR	Pennisetum alopecuroides	sq.m	435.00	450.00	195750.00
5.13	Non DSR	Asperagus mayerii	sq.m	300.00	400.00	120000.00

6		Trees Plantation				
		Providing well grown trees with minimum average girth of 5 cm and minimum height of 1.5 M above finished level after plantation of specified variety , at desired location & at specified distances. Achieving finished grade level. Planting the tree with appropriate anchoring, leveling the top soil surface as specified after plantation, staking to balance the tree. Including transport to the site & planting , preparation of tree basin, watering & maintaining for 1 month after completion of plantation and replacement of casualties till 1 month.				
6.1	Non DSR	Planting Tree (Labour, transport and unloading) (Excluding cost of plant)	No.	260.00	344.10	89466.00
		Tree List: (Ht. At time of plantation: 1M-1.5M)				
6.2	Non DSR	Ficus benjamina	No.	27.00	250.00	6750.00
6.3	Non DSR	Plumeria rubra dwarf	No.	47.00	400.00	18800.00
6.4	Non DSR	Cassia fistula	No.	35.00	150.00	5250.00
6.5	Non DSR	Alstonia scholaris	No.	26.00	150.00	3900.00
6.6	Non DSR	Delonix regia	No.	23.00	150.00	3450.00
6.7	Non DSR	Phoenix sylvestris	No.	16.00	2500.00	40000.00
6.8	Non DSR	Bauhinia purpurea	No.	15.00	250.00	3750.00
6.9	Non DSR	Lagerstromia indica	No.	44.00	100.00	4400.00
6.10.	Non DSR	Bambusa ventricosa	No.	302.00	85.00	25670.00
6.11	Non DSR	Cocus nucifera	No.	7.00	450.00	3150.00
6.12	Non DSR	Peltophorum pterocarpum	No.	22.00	150.00	3300.00
6.13	Non DSR	Plumeria alba	No.	42.00	250.00	10500.00
		Total for Softscape Works and Plantation				4853116.35
C		Filling to get existing levels				
1	Non DSR	As per civil BOQ		In civil BOQ	0.00	0.00
D		Landscape Works : Hardscape				
1	SOR:14012A	Leather finish Kota stone slab in various dimensions for outdoor flooring 25 mm thk	sq.m	110.00	769.00	84590.00
2	NSOR	Mirror Polished Kota stone slab in various dimensions for outdoor flooring 25 mm thk	sq.m	188.00	1221.00	229548.00
3	NSOR	Unpolished Kota stone tiles for tile edging between plantation 25 mm thk	meter	450.00	305.25	137362.50
4	NSOR	Mirror Polished Kota stone slab in various dimensions for outdoor Seating 40 mm thk	sq.m	80.00	1776.00	333888.00
5		Cement concrete interlocking pavers				
		Providing & Fixing 60 mm thick unishape cement concrete interlocking pavers (monolithic-single layer precast concrete blocks manufactured in gray cement only) in red (Terra Cotta) Black, Brown or any colour having average crusting strength 40 N/mm ² with pigment @ 3% by weight of cement in the footpath, placed on uniformly graded river sand cushioning of average compacted thickness 25 mm properly compacted with mechanical compactor with required level. Filling crushed gravel (gravel dia not bigger than 10mm)in the cavity as per the paver design post complete installation and compation. complete as specified and as directed by the Engineer.				
	Non DSR	Paver with Black, grey and Brown	sq.m	2025.00	1083.36	2193804.00
6		Pre-cast cement concrete Grass pavers 60mm thk				
	Non DSR	Providing and fixing at ground levels, pre cast cement concrete grass pavers as per drawing with M30 grade concrete (Min cement content 380 kg/cum) including providing, laying and fixing HYSD reinforcement of dia. 8 mm and spacing max 200 mm and setting in position over 50 mm thick sand layer etc complete as directed by Engineer.	sq.m	2000.00	2220.00	4440000.00
7		Gravel Bed				
	SOR 569	Screened Gravel 12mm Size to be laid as a pathway with a thickness of 25mm on rammed earth as a path in the Dinasaur Creek	cum	225.00	168.00	37800.00
8		Flamed Granite				
	DSR 8.12	Providing and laying flamed finish Granite stone flooring in required design and patterns, in linear as well as curvilinear portions of the building all complete as per the architectural drawings with 18 mm thick stone slab over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade including rubbing , curing and polishing etc. all complete as specified and as directed by the Engineerin- Charge:	cum	445.00	2887.85	1285093.25
		Total for Hardscape				8408197.75
E		Other Elements				
1		Dustbins				
	NDSR	Bin system make Brushed SS , for a rust free life capacity of 70 ltrs each. The Foundation slab shall be made in min M25 concrete. The cast iron nuts, bolts, shall be rust proof deep galvanized powder coated etc The stainless steel shall be treated to be resistant in all weathers.	No's	20.00	8000.00	160000.00
2		Tactile Paving				
	CPWD-DSR-2016 Section 16.90 Page 281	Tactile for footpath; Providing and laying tactile tile (for vision impaired persons as per standards) of size 300x300x9.8mm having water absorption less than 0.5% and conforming to IS: 15622, of approved make in all colours and shades in outdoor floors such as footpath, court yard, multi modals location etc., laid on 20mm thick base of cement mortar 1:4 (1 cement : 4 coarse sand) in all shapes & patterns including grouting the joints with white cement mixed with matching pigments etc. complete as per direction of Engineer-in-Charge.	Sqm	50.00	1450.45	72522.50
3		Signages				
	NDSR	Signages to be done with Aluminium frame work and aluminium plate with thickness 0.25mm and acrylic printed display unit with foundation and properly fixed in place.	No's	15.00	7000.00	105000.00

4		Brick work & Plastering				
4.1	SOR06003A	brickwork using common burnt clay building bricks having crushing strength not less than 35kg/sqm in foundation, wall and seaters(whenever necessary. In cement mortar 1:8)	cum	48.00	3014.00	144672.00
4.2	SOR17009	20MM thick sand faced cement plaster on walls upto height of 10meters above ground level consisting of 12mm thick backing coat of C.M 1:3 and 8mm thick finishing coat of C.M 1:1	sqm	280.00	189.00	52920.00
5		Railing				
5.1	NDSR	<p>Providing and fixing wrought iron railings as per approved design. The workmanship shall be in conformity with details shown on the drawings and/or as directed/approved by the Engineer. All the material for the new railing will be first approved by the Engineer. The new railing will including but not limited to posts, pickets, rails, post caps will be installed as per approved drawings and/or as directed by the Engineer.</p> <p>The materials for the fence include posts, pickets, rails, post caps and all necessary fittings and appurtenances required for proper installation. The Contractor will provide the Engineer with the specifications of all items for the fence and gates for approval before installation. The Contractor to use only raw material for installation.</p> <p>The installation of new railing will be measured by the foot of railing installed. Posts will be measured by the each.</p> <p>Painting will be by hand or spray. Two coats will be required on all parts. The final surface will be of even color without streaks, drips, bubbles, incomplete coverage or any other surface imperfection. Paint finish will be powder coated for ease of long-term maintenance.</p> <p>The payments will be full compensation for all materials required to meet the requirements of these Special Specifications, and furnishing all labor, tools, equipment and incidentals.</p>	Rm	1000.00	495.00	495000.00
6		Lighting				
6.1	Non DSR	POLE LIGHTS- BGP161 LED 2500-Philips	No's	40.00	20000.00	800000.00
6.2	Non DSR	UPLIGHTERS- BBP330-9XLED-PHILIPS	No's	40.00	12500.00	500000.00
6.3	Non DSR	BOLLARDS- CITYCUBE- BCP400 LED05	No's	50.00	11500.00	575000.00
6.4	Non DSR	STEPLIGHTS- BWG150 LED50	No's	10.00	7000.00	70000.00
6.5	Non DSR	STREET LIGHTS- LR01-024-XXX-WH-XX(with 3m height pole)	No's	68.00	18000.00	1224000.00
7		SUNDIAL:				
	Non DSR	Sundial: To made with Flat plate(Gnomon) with inscriptions on Granite Stone , the sundial will be of height 2.5mts and will be fixed on the site with foundation as per the design	No's	1.00	420000.00	420000.00
		Total for Other Landscape Elements				4619114.50
		Grand total				18657906.40

PROJECT: REGIONAL SCIENCE MUSEUM AT PATAN, (GUJARAT)

SCHEDULE OF QUANTITIES FOR CIVIL & STRUCTURAL WORKS

SI. No.	DESCRIPTION	Unit	Quantity	Unit Rate	Total Amount excluding taxes
A	SITE CLEARANCE				
1	Clearing of shrubs including uprooting of rank vegetation, grass, brushwood, trees and saplings of girth upto 300 mm measured at a height of 1 m above ground level, removing the roots and removal of rubbish within plot boundary including disposal of the same outside the Owner's premises to an unobjectionable location. Prior approval of the Owner shall be taken before taking up this item for execution.	m ²	20000	7.20	144000.00
	SITE GRADING				
1	Felling trees of the girth (measured at a height of 1 m above ground level) including cutting of trunks and branches, removing the roots and stacking of serviceable material and disposal of unserviceable material				
	a) Beyond 300 mm girth up to and including 600mm girth	Nos	20	219.20	4384.00
	b) Beyond 600mm girth up to and including 1200mm girth	Nos	15	972.70	14590.50
	c) Beyond 1200mm girth up to and including 2400mm girth	Nos	10	4504.25	45042.50
	d) Above 2400mm girth	Nos	5	9030.15	45150.75
2	Excavate in all types of soil using mechanical means including stacking the useful / serviceable soil and disposal of excavated soil as directed upto a lead of 1 KM etc complete, to depths 0.0M to 1.5M below existing ground level. Note: Rate shall include cost for bailing/pumping out any water accumulating inside the excavation.	m ³	0	125.95	0.00
3	Site filling with approved soil obtained from excavated earth from within the site, including crushing the soil by using vibro max roller and removing the clay / deleterious materials, depositing in loose layers of each 200 mm thickness, after removing / breaking clods etc. watering to optimum moisture content and compacting each layer to 95 % standard proctor density etc., all as specified and as directed by the Engineer.	m ³	0	125.75	0.00
4	Site filling with soil obtained from the approved borrow pits outside the site including excavation, removing the clay / deleterious materials, loading, transporting, depositing in loose layers of each 200 mm thickness, after removing / breaking clods etc. watering to optimum moisture content and compacting each layer to 95 % standard proctor density etc., all as specified and as directed by the Engineer.				0.00
	a) Approved Moorum	m ³	10000	631.05	6310500.00
	TOTAL SUMMARY				6,563,667.75

PROJECT: REGIONAL SCIENCE MUSEUM AT PATAN, (GUJARAT)

SCHEDULE OF QUANTITIES FOR CIVIL & STRUCTURAL WORKS

Sl. No.	DESCRIPTION	Unit	Quantity	Unit Rate	Total Amount excluding taxes
B	EARTH WORKS				
5	Excavation in all types of ordinary and hard soils/murram, disintegrated rock for all structures, trenches, pipe lines, cables etc including all necessary slope stability measures, such as stacking of sandbags/gabbions over the slope, etc., providing suitable shoring / strutting where necessary and storing the useful / serviceable material and unusable material in separate stacks as directed at locations approved by the Engineer-in-charge up to a lead of 1km, all complete as per specification and as instructed by the Engineer, including dewatering if necessary to depths below ground level as specified below : Note: Measurement will be made based on plan area of the foundation as per the drawings. Bidder has to quote rate accordingly.				
	a) From 0.0m to 1.5m	m3	12326	125.95	1661064.58
	b) From 1.5m to 3m	m3	6470	177.70	1230254.89
6	Excavation and restoration of existing top soil to a depth of 200 mm to 500 mm and separated from subsoil debris and stones larger than 50 mm diameter to be stockpiled to a height of 400 mm in designated area. Stockpiled topsoil to be protected from erosion during storage by installing earthen berms/solid walls/temporary grass plantation/covering with mulch/ plastic sheets. Stockpiled topsoil to be protected with sand bags/solid walled enclosures (2 feet high) on all sides for containment. Appropriate drainage channels to be dug around the storage area to prevent flooding of the top soil storage area as instructed by engineer incharge.	m3		95.00	0.00
7	Supplying, providing and filling at all heights and depths in foundation pits, trenches, sewer lines, around structures and foundations, under floors and other places with approved fill material including breaking clods, dressing and levelling, watering, compacting by manually or mechanically operated earth rammer in layers not exceeding 200 mm to achieve 95% proctor density including necessary soil test /core test etc., complete all as per specification and to the satisfaction of the Engineer-in-charge.				
	a) Approved Quality Earth available within the site premises	m3	8807	125.75	1185054.57
	b) Approved Quality Earth brought from outside	m3	3013	316.80	1021190.75
8	Supplying and filling in plinth with river sand under floors including, watering, ramming consolidating and dressing complete.	m3	QRO	917.75	
9	Disposal of Unserviceable / Surplus earth / Boulders, including breaking and making into smaller pieces at locations specified by the Engineer with initial lead upto 1KM including loading , unloading levelling the heaps etc., complete as directed by Engineer - in - Charge.	m3	3228	118.80	410299.85
10	Same as above Item no:9, but for every additional lead of 1Km or part there of over initial lead				0.00
	a) 1 Km to 5Km	m3	1830	149	290777.85
	b) 5Km to 10Km	m3	1830	198	387703.80
	c) Above 10Km	m3	0	248	0.00
11	Supplying, laying and rolling to correct width and depth of granular sub base of 200 mm compacted thickness (in layers with approved grade conforming to MORTH specifications) all complete as per drawing, and as directed by the Engineer-in-charge.	m3	600	217.80	139827.60
	TOTAL SUMMARY				6,326,173.89

PROJECT: REGIONAL SCIENCE MUSEUM AT PATAN, (GUJARAT)

SCHEDULE OF QUANTITIES FOR CIVIL & STRUCTURAL WORKS

SI. No.	DESCRIPTION	Unit	Quantity	Unit Rate	Total Amount excluding taxes
C	ANTI TERMITE TREATMENT				
12	Supplying, Providing and injecting chemical emulsion using Chloropyriphos mixed as a water emulsion in ratio 1:19 or equivalent and strictly in accordance with the manufacturer's specification for antitermite treatment and creating a chemical barrier all-around foundation pits, wall trenches, basement excavation, top surface of plinth filling, junction of wall and floor, along the external perimeter of building, expansion joints etc and at places suggested by Engineer-in-charge . (Plinth Area at ground floor only shall be measured)	m2	8850	131.90	1249027.05
TOTAL SUMMARY					1,249,027.05

PROJECT: REGIONAL SCIENCE MUSEUM AT PATAN, (GUJARAT)

SCHEDULE OF QUANTITIES FOR CIVIL & STRUCTURAL WORKS

SI. No.	DESCRIPTION	Unit	Quantity	Unit Rate	Total Amount excluding taxes
D	PLAIN CEMENT CONCRETE (PCC)				
13	Supplying, Providing and laying plain cement concrete 1:3:6 (1 cement : 3 coarse sand :6 graded stone aggregate 20mm nominal size) including necessary shuttering in leveling courses under foundations, pipelines, pits, under floors etc., complete at all levels and locations as directed by Engineer-in-charge or as per drawings. Rate to include all materials, labour, tools / tackles, plant and equipment, supervision etc. all complete.	Cum.	1099	5,120.95	6019307.63
14	Supplying and laying Plain Cement Concrete 1:4:8 (1 cement : 4 coarse sand :8 graded stone aggregate 40mm nominal size) including necessary shuttering in leveling courses under foundations, pipelines, pits, under floors etc., complete at all levels and locations as directed by Engineer - in-charge or as per drawings.Rate to include all materials, labour, tools / tackles, plant and equipment, supervision etc. all complete.	Cum.	0	4,672.10	0.00
15	Supplying and laying Plain Cement Concrete 1:5:10 (1 cement : 5 coarse sand :10 graded stone aggregate 40mm nominal size) including necessary shuttering in leveling courses under foundations, pipelines, pits, under floors etc., complete at all levels and locations as directed by Engineer - in-charge or as per drawings.Rate to include all materials, labour, tools / tackles, plant and equipment, supervision etc. all complete.	Cum.	0	4,403.00	0.00
16	Providing and laying Plain Cement Concrete 1:3:6 (1 cement : 3 coarse sand :6 graded stone aggregate 20mm nominal size) to proper level and slope including compaction, finishing ready to take flooring or as directed by Engineer-in-charge, curing etc. complete.Average thickness shall be 50 mm	Cum.	0	6000.00	0.00
TOTAL SUMMARY					6,019,307.63

PROJECT: REGIONAL SCIENCE MUSEUM AT PATAN, (GUJARAT)

SCHEDULE OF QUANTITIES FOR CIVIL & STRUCTURAL WORKS

Sl. No.	DESCRIPTION	Unit	Quantity	Unit Rate	Total Amount excluding taxes
E	SHUTTERING/FORMWORK				
	Supplying, Providing, erecting, fabricating, tying, fixing, securing laterally from outside and inside against lateral pressures due to concrete, vibrating, sideways thrust etc., supporting form-work, shuttering and staging in such a way as to carry the load of wet concrete, erection machinery and equipment, using tubular steel props, metal plates, variable spans, wooden rafters, MS channels, plywood etc. at all elevations including materials, labour, equipments, proper bracing, ties, anchors, bolts, nuts, washers, packing plates, fasteners of adequately designed capacities, removal of formwork and staging etc., all complete and producing finished concrete surfaces as specified and as directed by the Engineer-in-charge.				
17	a) Foundations, footings, bases of columns, etc. for mass concrete.	Sqm	5045	193.95	1076256.70
	b) Walls (any thickness) including attached pilasters, buttresses, plinth and string courses etc.	Sqm	5091	378.60	2120276.57
	c) Suspended floors, roofs, landings, balconies and access platform.	Sqm	7789	422.30	3618224.17
	d) Lintels, beams, plinth beams, girders, bressumers and cantilevers	Sqm	14631	342.90	5518603.25
	e) Columns, Pillars, Piers, Abutments, Posts and Struts.	Sqm	9096	467.85	4894165.86
	f) Stairs, (excluding landings) except spiral-staircases.	Sqm	370	419.35	170758.11
	g) Edges of slabs and breaks in floors and walls				0.00
	Under 20 cm wide	Meter		122.20	0.00
	TOTAL SUMMARY				17,398,284.67

PROJECT: REGIONAL SCIENCE MUSEUM AT PATAN, (GUJARAT)

SCHEDULE OF QUANTITIES FOR CIVIL & STRUCTURAL WORKS

Sl. No.	DESCRIPTION	Unit	Quantity	Unit Rate	Total Amount excluding taxes
F	REINFORCED CEMENT CONCRETE (RCC)				
18	<p>Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using fly ash and cement content as per approved design mix, and manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work, including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering, finishing and reinforcement, including cost of admixtures in recommended proportions as per IS : 9103 to accelerate / retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge.</p> <p>NOTE- (1) Cement content shall be 330 kg/cum and water cement ratio shall not be more than 0.5.</p> <p>Note:Fly ash conforming to grade I of IS 3812 (Part-1) only be used as part replacement of OPC as per IS : 456. Uniform blending with cement to be ensured in accordance with clauses 5.2 and 5.2.1 of IS:456 -2000 in the items of BMC and RMC.</p>				
	a)All works upto plinth level.	Cum	1223	6691.85	9000101.94
	b)All works above plinth level	Cum	204	7495.40	1800234.33
19	<p>Same as Item no.18 but providing M-30 grade concrete instead of M-25 grade BMC/RMC. (Note:-Minimum cement content shall be 340 kg/cum and water cement ratio shall not be more than 0.45)</p>				
	a)All works upto plinth level.	Cum	4919	6761.35	36584650.31
	b)All works above plinth level	Cum	3570	7564.90	29707740.92
20	<p>Same as Item no.18 but providing M-35 grade concrete instead of M-25 grade BMC/RMC.(Note : (Note:-Minimum cement content shall be 350 kg/cum and water cement ratio shall not be more than 0.40)</p>	Cum			0.00
	a)All works upto plinth level.	Cum	668	6900.30	5301842.05
	b)All works above plinth level	Cum	933	7703.85	8262036.30
21	Add for using extra cement in the items of design mix over and above the specified cement content therein.	Qtl	50	672.75	35319.38
	TOTAL SUMMARY				90,691,925.24

PROJECT: REGIONAL SCIENCE MUSEUM AT PATAN, (GUJARAT)

SCHEDULE OF QUANTITIES FOR CIVIL & STRUCTURAL WORKS

SI. No.	DESCRIPTION	Unit	Quantity	Unit Rate	Total Amount excluding taxes
G	REINFORCEMENT BARS				
22	<p>Supplying, Fabricating & fixing in position reinforcement for RCC work with Thermo mechanically Treated (TMT) bar of various diameters and grade of steel as specified below conforming to IS:1786 including cutting, bending, hoisting, fabricating and placing in position according to drawings and binding the reinforcement with GI annealed binding wire in two strands of 16 gauge and providing cover blocks for placing the reinforcements in position and for maintaining the cover specified and/or according to relevant IS. Note : Unless noted otherwise the measurements shall be in accordance with IS 1200. However, reinforcement shall be measured only in lengths of bars as actually placed in position on standard weight basis, no allowance shall be made in the weight for rolling margin. Cost shall be inclusive of all laps, splices of any shape and profiles. Chairs and spacers alone will be measured and paid separately. (TMT bars of grade Fe-500 D conforming to IS:1786)</p>	kg	1205080	56.60	75028299.95
TOTAL SUMMARY					75,028,299.95

PROJECT: REGIONAL SCIENCE MUSEUM AT PATAN, (GUJARAT)

SCHEDULE OF QUANTITIES FOR CIVIL & STRUCTURAL WORKS

Sl. No.	DESCRIPTION	Unit	Quantity	Unit Rate	Total Amount excluding taxes
H	GROUTING				
23	Supplying and placing Normal non shrink / dry pack in CM 1:1 below equipment, structural steel base plates/bearing plates, penetrations, anchorages, pockets and other areas at all levels, including preparation of surface, roughening of concrete surface by chipping including supply of material,necessary equipment, scaffolding, labour, compacting, curing, finishing etc., all complete as per drawings, and as specified and directed by Engineer- in - charge .	Cum	5	49500.00	247500.00
TOTAL SUMMARY					247,500.00

PROJECT: REGIONAL SCIENCE MUSEUM AT PATAN, (GUJARAT)

SCHEDULE OF QUANTITIES FOR CIVIL & STRUCTURAL WORKS

Sl. No.	DESCRIPTION	Unit	Quantity	Unit Rate	Total Amount excluding taxes
I	JOINTS				
24	Supplying, providing, fixing, approved bitumen impregnated fibre boards 25mm thick for expansion / separation joints at all elevations as per drawings and specifications. Cost to include preparation of surface, supply of necessary tools, scaffolding, manpower etc., all complete, as per drawings, specifications and as directed by the Engineer-in-charge.	Sq.m	120	297.00	38134.80
25	Supplying, mixing and caulking areas of expansion / separation joints of 25x20mm depth with approved bitumastic sealing compound including preparation of surfaces and edges, applying appropriate primer, backstop, masking tapes, as per drawings, specifications and as directed by the Engineer-in-charge.	RM	150	346.50	55613.25
26	Supplying, providing and installing in position for horizontal expansion joints at different floors sliding type cover strip in 6mm. thick plain MS plate with Epoxy paint including attaching the fixed edge of the cover strip to the embedded / bearing plates / base plate and providing sliding surface at the free edge including labours, materials etc., all complete, as per drawing, specifications and as directed by the Engineer.	Sq.m	120.00	8,425.20	1081795.68
27	Supplying, providing and installing in position for vertical expansion joint at the interior face of exterior twin columns at different floors, sliding type cover strip in 5mm. thick plain aluminium sheet, with stopper bar 25 mm. wide including attaching the fixed edge of the cover strip and stopper bar to the embedded bearing plates and providing sliding surface at the free edge, including labours, materials etc., all complete, as per drawing, specifications and as directed by the Engineer.	Sq.m	56.00	7,648.20	458280.14
TOTAL SUMMARY					1,633,823.87

PROJECT: REGIONAL SCIENCE MUSEUM AT PATAN, (GUJARAT)

SCHEDULE OF QUANTITIES FOR CIVIL & STRUCTURAL WORKS

Sl. No.	DESCRIPTION	Unit	Quantity	Unit Rate	Total Amount excluding taxes
J	WATER PROOFING				
30	<p>Providing and laying water proofing treatment to vertical and horizontal surfaces of depressed portions of W.C., kitchen and the like consisting of :</p> <p>(i) 1st course of applying cement slurry @ 4.4 Kg/sqm mixed with water proofing compound conforming to IS 2645 in recommended proportions including rounding off junction of vertical and horizontal surface. (ii) 1st course of 20mm cement plaster 1:3 (1 cement : 3 coarse sand) mixed with water proofing compound in recommended proportion including rounding off junction of vertical and horizontal surface. (iii) 1st course of applying blown or residual bitumen applied hot at 1.7 Kg. per sqm of area. (iv) 4th course of 400 micron thick PVC sheet. (Overlaps at joints of PVC sheet should be 100 mm wide and pasted to each other with bitumen @ 1.7 Kg/sqm.)</p>	sqm	480	505.90	259830.24
31	<p>Supplying & Installing 1.5mm thick self adhesive , cold applied , flexible waterproofing membrane "Proofex 3000" of Fosroc Chemicals/ Aquaprufe APF P of CKS Keshun Waterproof Technology/ Formceal 3000 of Hitchens comprising of a self adhesive rubberized asphalt with minimum 0.2mm HDPE lamination film . Membrane should be supplied with original manufacturer's Material Test Certificate (MTC) & membrane should be installed in strict accordance with original manufacturer's instructions (private label supplier are not allowed) and contractor should produce method statement from original product manufacturer . The self adhesive membrane shall have following minimum properties :</p> <p>(i) Lap Adhesion : > 670 N/M (ii) Thickness : 1.5mm (iii) Elongation (to ultimate failure of rubberised asphalt) : >210% (iv) Puncture Resistance : 240N</p> <p>Rates to include self adhesive membrane Termination on retaining wall which includes providing a chase of (20 x 20) mm at a distance of 300 mm from ground level or 150 mm from podium/roof slab level for membrane termination. The self adhesive membrane should be dressed into the chase and pointed with mortar or as approved by supplier prior to backfilling . All system to be installed as per supplier's recommendations, etc. complete with all lead and lift for all materials & labour & as directed by Engineer in-charge. The product performance shall carry guaranteed for 10 years against any leakage The membrane shall be applied as per following procedure</p> <p>a) Apply solvent based local primer on the surface and allow to dry b) Continue applying the membrane till entire area is covered.</p>	SQM	0	700.00	0
32	<p>Providing and laying roof insulation with 40 mm thick impervious sprayed, closed cell free Rigid Polyurethane foam over deck insulation conforming to IS - 12432 Pt. III (density of foam being 40-45 kg/ cum), over a coat of polyurethane primer applied @ 6-8 sqm per litre, laying 400 G polythene sheet over PUF spray and providing a wearing course of 40 mm thick cement screed 1 : 2 : 4 (1 cement : 2 coarse sand : 4 stone aggregate 20 mm nominal size) in chequered rough finish, in panels of 2.5 m x 2.5 m and embedding with 24 G wire netting and sealing the joints with polymerized mastic, all complete as per direction of Engineer-in-Charge</p>	sqm	3097	1151.05	3814337.98

PROJECT: REGIONAL SCIENCE MUSEUM AT PATAN, (GUJARAT)

SCHEDULE OF QUANTITIES FOR CIVIL & STRUCTURAL WORKS

Sl. No.	DESCRIPTION	Unit	Quantity	Unit Rate	Total Amount excluding taxes
33	<p>Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to the RCC structures like retaining walls of the basement, water tanks, roof slabs, podiums, reservoir, sewage & water treatment plant, tunnels/ subway and bridge deck etc., prepared by mixing in the ratio of 5 : 2 (5 parts integral crystalline slurry : 2 parts water) for vertical surfaces and 3 : 1 (3 parts integral crystalline slurry : 1 part water) for horizontal surfaces and applying the same from negative (internal) side with the help of synthetic fiber brush. The material shall meet the requirements as specified in ACI- 212-3R-2010 i.e by reducing permeability of concrete by more than 90% compared with control concrete as per DIN 1048 and resistant to 16 bar hydrostatic pressure on negative side. The crystalline slurry shall be capable of self-healing of cracks up to a width of 0.50mm. The work shall be carried out all complete as per specification and the direction of the engineer-in-charge. The product performance shall carry guaranteed for 10 years against any leakage.</p>				
	a)For horizontal surface one coat @1.10 kg per sqm.	Sq.m	1000	750.00	802660.50
	b)For vertical surface two coats @0.70 kg per sqm per coat	Sq.m	115	750.00	92287.50
34	Over deck, Spray applied PUF Insulation and Waterproofing of Concrete Roof:				-
35.1	<p>Over deck Insulation and Waterproofing:</p> <p>Surface Preparation: The cleaning and preparation of the substrate to which the Spray applied PU foam system is applied must be carried out thoroughly to leave a sound substrate for the application. Any laitance present on the surface must be removed mechanically. Release oil and other contaminants which may impair adhesion must be removed prior to the application of the primer. Any crack or imperfections shall be made good by filling with epoxy primer extended with filler.</p> <p>Spray applied PU Foam Insulation: Providing and applying, two component, Polyurethane foam MasterSeal 755 SPF of BASF or equivalent which should have a core density of 40 Kg/Cu.m as per DIN EN ISO 845, thermal conductivity of 0.024 W/mK as per DIN 52612, compressive strength of >175 KPa, flexural strength of 250 KPa, Closed Cells of 90% as per ISO 4590 and water absorption of <2.5% as per DIN 52428, applied over the prepared concrete substrate at the specified average thickness of 45mm, using two component high pressure spray equipment as per the instructions in the manufacturers' latest technical datasheet of the material.</p> <p>Epoxy based Sealer Coat on PUF: Providing and applying, two component, solvent free, epoxy based sealer coat MasterSeal P 2525 of BASF or equivalent at 0.35 Kg/Sq.m using roller / brush and broadcast with silica sand MasterTop SRA No.3 of BASF or equivalent at 1 Kg/Sq.m and allowed to reach tack-free state prior to the spray application of waterproofing membrane</p> <p>Spray applied Waterproofing membrane:- Providing and applying, fast curing, two component, solvent free, Hybrid Polyurethane based spray applied waterproofing membrane MasterSeal M800 of BASF or equivalent using a specially designed, plural component, high pressure spraying equipment at an average consumption of 2.20 Kg/Sq.m The mixed product should have 100% solids Content as per DIN 53213, Shore A hardness of 75 to 80 and offer a Tensile Strength of 8 – 10 Mpa as per DIN DIN 53504, Elongation of > 400% as per Din 53504, water vapour permeability – low risk of blistering (19.21 g/m2/day as per BS 3177), Crack bridging capability (>6mm as per EN 10204), Resistant to puncture and Green Certified. Coating shall be protected with 300 gsm PP geotextile prior to laying of slope screed.</p>	Sq.m	QRO	3,800.00	-

PROJECT: REGIONAL SCIENCE MUSEUM AT PATAN, (GUJARAT)

SCHEDULE OF QUANTITIES FOR CIVIL & STRUCTURAL WORKS

Sl. No.	DESCRIPTION	Unit	Quantity	Unit Rate	Total Amount excluding taxes
35.2	<p>UV Resistant Top Coat: (for the exposed area only) Providing and applying two component aliphatic PU based protective coating MasterSeal TC 269 of BASF or equivalent which offers a Tensile Strength of 12 MPa, Tear Strength of 70 N/mm and Elongation of 165% as per DIN 53504, after mixing both the components thoroughly and applied with roller / brush at a consumption of 0.25 Kg/Sq.m, over waterproofing membrane where ever it is exposed. The coating shall be of RAL 7032 shade. Note: The application of all the above systems shall be carried out only by the manufacturer's approved applicator. Item includes provision of a QA/QC procedure etc., all complete as per manufacturer's specifications.</p>	Sq.m	QRO	390.00	-
TOTAL SUMMARY					4,969,116.22

PROJECT: REGIONAL SCIENCE MUSEUM AT PATAN, (GUJARAT)

SCHEDULE OF QUANTITIES FOR CIVIL & STRUCTURAL WORKS

Sl. No.	DESCRIPTION	Unit	Quantity	Unit Rate	Total Amount excluding taxes
L	MISCELLANEOUS				
35	Making plinth protection 50mm thick of cement concrete 1:3:6 (1 cement :3 coarse sand : 6 graded stone aggregate 20 mm nominal size) over 75mm thick bed of stone 40 mm nominal size, well rammed and consolidated and grouted with fine sand including finishing the top smooth.	Sq.m	345	450.35	170907.83
36	Providing and laying on sunken areas broken light weight concrete block of approximately 600 kg. per cum density laid, consolidated, finished smooth, including finishing & grouting the top layer with water proof cement mortar with CICO and as per specifications and drawing.	cum	225	4200	1011150.00
37	Providing and fixing 24 SWG G.I chicken wire mesh of size 12mm fixed with nails/neat cement paster etc. as directed at the junction of brick and RCC works.	Rmt	QRO	0.00	0.00
38	Supplying,Casting and erecting in position pre-cast reinforced concrete units of every description, shape, size in M-20 grade concrete as per the specifications, approved drawings including all pockets, slits, slots,for lifting hook etc. including cost of all material, labour, equipment,shuttering,placing of reinforcements, transportation, loading, unloading, curing, etc. with manufacture of pre-cast units, MS erection fixtures etc. for laying at any elevation but excluding the cost of steel reinforcing bars etc. all complete as per specification and as directed by the Engineer - in-charge (Supplying and fixing of steel reinforcement will be paid separately under relevant items).				-
	a) 50mm thick	Sq.m	QRO	1,000.00	
	b) 75mm thick	Sq.m	QRO	1,500.00	2,500.00
39	Supplying and fixing in position PVC Rungs as per specification from M/s. Arpitha Exports,(or Equivalent) Bangalore the design approved by Architect / Engineers Sizes, 25mm Thick x 175 mm wide x 265 mm length inside 12mm Steel rod. U shaped bent including fixing in position, without damage to shuttering with necessary civil works etc complete at all levels.	Each	24	495.00	12711.60
40	Providing and Placing in position suitable PVC water stops conforming to IS:12200 for construction/ expansion joints between two RCC members and fixed to the reinforcement with binding wire before pouring concrete etc. Complete.				
	a) Serrated with central bulb (225mm wide, 8-11mm thick).	RM	238	254.15	64721.84
41	Providing & fixing SFRC Precon medium Manhole cover of diameter 600 mm and required thickness (fair finish) for covering the drain/culvert as per drawing and fixing in position all complete as directed.	each	20	4,158.00	87318.00
42	Providing extra 75mm thk cement mortor 1:5 below flooring	Cum	757	3,465.54	2884230.32
43	Dry stone pitching 22.5cm thk including supply ofstones and preparing bed surface.Dry stone pitching 22.5cm thk laid in courses.and req profile hammer dressed stones having noside less than15cm with min depth of 20cm including preparing the bedding surface etc .all complete.75mm thk back filling for pitching including. supply of req materials and consolidation etc.stone aggregate 20mm nominal size	Sq.m	490	910.65	490439.66
TOTAL SUMMARY					4,723,979.25

PROJECT: REGIONAL SCIENCE MUSEUM AT PATAN, (GUJARAT)

SCHEDULE OF QUANTITIES FOR CIVIL & STRUCTURAL WORKS

SI. No.	DESCRIPTION	Unit	Quantity	Unit Rate	Total Amount excluding taxes
M	STRUCTURAL STEEL WORKS				
44	Providing,fabricating , transporting, assembling & erection in position of Steel members for steel columns, built up beams using structural tubular sections (round, square or rectangular hollow tubes etc. confirming to IS 4923 / IS 1161 ,Yield strength 350 MPa as per latest IS Code) to the required profile & shape as called for as per the drawing & specifications.This item also includes the shear connectors /studs & fusion weld to top of horizontal member . This item also includes prepration of shop drawings & their approval, necessary templates,adequate temporary supports, scaffolding & staging,all cutting, grinding,sliding & all labour ,tools,plants& equipments & operations etc. required to complete the job as per drawing & specification. every precaution to be taken to prevent rusting of sections. This item also includes all test on materials & welded fabricated parts as per specification & direction of Engineer - in - Charge . Temporary bolts & nuts (grade EN 8) to be used during assembling & shall be removed before site erection.All site erection bolts shall be HSFG type only. The item to include cost of sand blasting on materials, application of primer & various coats of internal & external painting in fabrication shop & final painting on site including all touch up works after erection as per technical specification.	MT	5	95000.00	475000.00
45	Providing,fabricating , transporting, assembling & erection in position of Steel members for steel columns, built up beams using structural Built sections (plates, angles, channels, beams etc.) confirming to IS 2062 ,Yield strength 350 MPa as per latest IS Code) to the required profile & shape as called for as per the drawing & specifications.This item also includes the shear connectors /studs & fusion weld to top of horizontal member . This item also includes prepration of shop drawings & their approval, necessary templates,adequate temporary supports, scaffolding & staging,all cutting, grinding,sliding & all labour ,tools,plants& equipments & operations etc. required to complete the job as per drawing & specification. every precaution to be taken to prevent rusting of sections. This item also includes all test on materials & welded fabricated parts as per specification & direction of Engineer - in - Charge . Temporary bolts & nuts (grade EN 8) to be used during assembling & shall be removed before site erection.All site erection bolts shall be HSFG type only. The item to include cost of sand blasting on materials, application of primer & various coats of internal & external painting in fabrication shop & final painting on site including all touch up works after erection as per technical specification.	MT	5	95000.00	475000.00
TOTAL SUMMARY					950,000.00

PROJECT: REGIONAL SCIENCE MUSEUM AT PATAN, (GUJARAT)

SCHEDULE OF QUANTITIES FOR CIVIL & STRUCTURAL WORKS

Sl. No.	DESCRIPTION	Unit	Quantity	Unit Rate	Total Amount excluding taxes
N	ROAD WORKS				
46	Preparation and consolidation of subgrade with power road roller of 8 to 12 tonne capacity including making good the undulations etc. with earth of quarry spoils etc. and rerolling the subgrade.	sqm	7070	90.10	637007.00
	Supplying and stacking of graded stone aggregate at site of size range				
	90mm to 45mm	cum	0	1336.05	0.00
	63 mm to 45 mm	cum	0	1449.30	0.00
47	Laying, spreading and compacting stone aggregate of specified sizes to WBM specifications in uniform thickness, of 150mm hand picking, rolling with 3 wheeled road / vibratory roller 8-10 tonne capacity in stages to proper grade and camber, applying and brooming requisite type of screening / binding material to fill up interstices of coarse aggregate, watering and compacting to the required density .	Sqm	7070	449.1	3175137.00
48	Providing and laying design mix cement concrete of M-30 grade, in roads/ taxi tracks/ runways, using cement content as per design mix, using coarse sand and graded stone aggregate of 40 mm nominal size in appropriate proportions as per approved & specified design criteria, providing dowel bars with sleeve/ tie bars wherever required, laying at site, spreading and compacting mechanically by using needle and surface vibrators, levelling to required slope/ camber, finishing with required texture, including steel form work with sturdy M.S. channel sections, curing, making provision for contraction/ expansion, construction & longitudinal joints (10 mm wide x 50 mm deep) by groove cutting machine, providing and filling joints with approved joint filler and sealants, complete all as per direction of Engineer-in- charge (Item of joint fillers, sealants, dowel bars with sleeve/ tie bars to be paid separately).				
	Note:- Cement content considered in M-30 is @ 340 kg/cum				
	Cement concrete manufactured in automatic batching plant (RMC plant) i/c transportation to site in transit mixer	Cum	1237	7160.40	8857414.80
49	Extra for providing and mixing hardening compound of approved quality as per manufacturer's specification in cement concrete.	Litre		46.45	0.00
50	Providing and laying sub base of 100mm thickness for Carriageway made of metal obtained from rock having AIV of not more than 40% (Grading I as per Table No.400-1 of MORT&H Specifications, 5th edition, 2010) and compacting to the density of at least 98 per cent of the maximum dry density and laid complete in two layers to the required level and camber, rolling with 10/12 tones roller interstices being filled with sand / stone dust, watering, rolling and making each layer water bound etc complete as specified in Section 401 of MORT&H Specifications, 5th edition, 2010 and as directed by Engineer..	m3	707	1835.00	1297345.00
51	Providing and laying at or near ground level factory made kerb stone of M-25 grade cement in position to the line, level and curvature jointed with cement mortar 1:3 (1 cement : 3 coarse sand) including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5mm) including making drainage opening wherever required complete etc. as per direction of engineer-in-charge (length of finished kerb shall be measured for payment). (Precast C.C kerb stone shall be approved by Engineer-in-charge)	m3	61	5012.65	304267.86
52	Expansion Joints : supplying, providing and laying MS dowel bar arrangement with 500 mm long 25 mm dia MS rods dowel bars at 200 mm c/c at expansion joints all as directed by Engineer-in-charge.	Nos	330	330.00	108900.00
TOTAL SUMMARY					14,380,071.66
GRAND TOTAL					230181177

SCHEDULE OF QUANTITIES FOR HVAC SYSTEM						
PROJECT: REGIONAL SCIENCE MUSEUM, PATAN (GUJARAT)						
S.No	DSR Reference	Description	Units	Quantity	Unit Rate Supply	Total Amount (Supply + Installation Excluding taxes & duties)
		Supply, Installation, Testing & Commissioning (referred to as "SITC" here after) of following Equipment; Materials & Accessories as per specifications including supply, installation, testing & commissioning of any materials & accessories required to make the system complete in all respects:				
		Note: The System is required for the subject project which is aiming for meeting GRIHA Green Building Requirements as such the COP of all of the air-conditioning Equipment / Systems shall be as high as possible, shall meet the Green Building Certification Requirements and all the data committed by the Bidder shall be authenticated.				
A		Equipment:				
1.00		Water Cooled Screw Compressor Type Water Chilling Machines (ARI or Eurovent Certified):				
		SITC of Helical rotary screw type water chilling machine of actual cooling capacity as mentioned below complete with semi-hermetic compressor, motor, starter, water cooled condenser, insulated (insulation to be carried out at factory only) evaporator, vibration isolators, sole plates, integral refrigerant piping with insulation, first charge of refrigerant and oil, wiring, all accessories as per specifications, automatic and safety controls, microprocessor control panel, all mounted on steel frame, all accessories as per specifications and any other item required to make the system complete.				
		Refrigerant: R-134a				
		Maximum Chilled Water Velocity / Pressure Drop in Evaporator: 8 FPS / 18 ft WG				
		Maximum Condenser Water Velocity / Pressure Drop in Condenser: 8 FPS / 18 ft WG				
		In the event of conflict between Bill of Quantities and other documents including the Specifications, the most stringent shall apply. The interpretation of the Architect/Consultants/Owner shall be final and binding.				
		All equipment, quantities and technical data indicated in this Schedule are for the Contractor's guidance only, these are based on the documents prepared by the Consultant. The Contractor shall be paid for the actual quantity of work executed by him in accordance with the approved Shop/Construction Drawings at the contract rates.				
		Power Supply: Single Point Power Supply, 415V, 3 Phase, 50 Hz, 4 Wire				
		No alteration whatsoever is to be made to the text or quantities of this Schedule unless such alteration is authorized in writing by Consultant. Any such alterations, notes or additions shall unless authorized in writing be disregarded when tender documents are considered.				
		Sound pressure level shall not exceed 85 dBA @ 3 m (Free field sound data (the unit is placed in free field over a reflecting plane).				
		Any error in totaling in the amount column and in carrying forward the total shall be corrected. Any error in description or in quantity omission of items from this Schedule shall not vitiate this Contract but shall be corrected and deemed to be variation required by the Consultant.				

SCHEDULE OF QUANTITIES FOR HVAC SYSTEM						
PROJECT: REGIONAL SCIENCE MUSEUM, PATAN (GUJARAT)						
S.No	DSR Reference	Description	Units	Quantity	Unit Rate Supply	Total Amount (Supply + Installation Excluding taxes & duties)
		Performance Parameters at 100% Load:				
		Actual Cooling Capacity at conditions specified below, in TR: 145				
		Chilled Water Inlet/ Outlet Temp. Deg. F: 54.00/44.00				
		Chilled Water Flow Rate in USGPM: 348				
		Condenser Water Inlet/ Outlet Temp. Deg. F: 90.00/98.00				
		Condenser Water Flow Rate in USGPM: 435				
		Input KW/TR at above actual parameters: To be furnished by Bidder.				
		Performance Parameters at 75% Load - Chilled Water Outlet Temperature, Chilled Water Flow Rate, Condenser Water Flow Rate shall be same as for 100% Load:				
		Actual Cooling Capacity at conditions specified below, in TR: 75% of Full Load				
		Condenser Water Inlet Temp. in Deg. F = (CDW Inlet Temperature at 100% Load + 65.00) / 2				
		Input KW/TR at above actual parameters: To be furnished by Bidder.				
		Performance Parameters at 50% Load - Chilled Water Outlet Temperature, Chilled Water Flow Rate, Condenser Water Flow Rate shall be same as for 100% Load:				
		Actual Cooling Capacity at conditions specified below, in TR: 50% of Full Load				
		Condenser Water Inlet Temp. in Deg. F = 65.00				
		Input KW/TR at above actual parameters: To be furnished by Bidder.				
		Performance Parameters at 25% Load - Chilled Water Outlet Temperature, Chilled Water Flow Rate, Condenser Water Flow Rate shall be same as for 100% Load:				
		Actual Cooling Capacity at conditions specified below, in TR: 25% of Full Load				
		Condenser Water Inlet Temp. in Deg. F = 65.00				
		Input KW/TR at above actual parameters: To be furnished by Bidder.				
		Chillers shall meet the GRIHA Green Building Certification Requirements with Minimum COP to be 4.90 & Minimum IPLV to be 6.30 at ARI Conditions. Working + Standby: 2 + 0				
1.01	NDSR	SITC of Chilling Machines	Sets	2	2450000.00	4900000
1.02	NDSR	SITC of Minimum 50 mm Deflection Spring Type Vibration Isolators for above Chillers	Sets	2	32505.00	65010
1.03	NDSR	SITC of Flow Switches for Chilling Machines including control cabling/wiring between flow switch and chilling machine / electrical panel complete with all accessories as per specifications and any other item required to make the system complete.	Sets	4	2829.00	11316

SCHEDULE OF QUANTITIES FOR HVAC SYSTEM						
PROJECT: REGIONAL SCIENCE MUSEUM, PATAN (GUJARAT)						
S.No	DSR Reference	Description	Units	Quantity	Unit Rate Supply	Total Amount (Supply + Installation Excluding taxes & duties)
2.00		Centrifugal Pumps: SITC of Centrifugal type pumps complete with motor (TEFC Squirrel Cage Induction, Insulation Class F, Efficiency Class EFF-1), factory fitted mechanical seal, common base frame for pump and motor, coupling & coupling guard, foundation bolts, vibration isolators, insulation (if applicable), all accessories as per specifications and any other item required to make the system complete. The heads mentioned are indicative, bidder has to offer the pump as per estimated head loss & to make the system perform at optimum level				
		Sound pressure level shall not exceed 90 dBA @ 3 m (Free field sound data (the unit is placed in free field over a reflecting plane).				
		All the below pumps shall be mounted on Inertia base				
2.01	NDSR	Duty: Condenser Water Pumps for Chillers Flow Rate (without any negative tolerance): 435 USGPM Head: 80 ft WG Type: End Suction Back pull Out Long Coupled Motor Rating in KW (Maximum): 15.00 Power Supply: 415V, 3 Phase, 50 Hz Working + Standby: 2 + 1	Sets	3	129863.00	389589
2.02	NDSR	Duty: Primary Chilled Water Pumps for Chillers Flow Rate (without any negative tolerance): 348 USGPM Head: 65 ft WG Type: End Suction Back pull Out Long Coupled Motor Rating in KW (Maximum): 5.50 Power Supply: 415V, 3 Phase, 50 Hz Working + Standby: 2 + 1	Sets	3	102267.00	306801
2.03	NDSR	Duty: Secondary Chilled Water Pumps for Chillers Flow Rate (without any negative tolerance): 435 USGPM Head: 100 ft WG Type: End Suction Back pull Out Long Coupled Motor Rating in KW (Maximum): 11.00 Power Supply: 415V, 3 Phase, 50 Hz Working + Standby: 2 + 1	Sets	3	136702.00	410106
		Notes: Secondary Pumps shall be selected based on Chilled Water Flow Rate corresponding to 10 Deg F. Water Temperatures Differential to save on Pump & Pipe Sizing.				
		Variable Frequency Drives for the Pump Motors shall form part of Electrical Panel (MCC).				
		VFDs shall not be provided with any bypass starter in the electrical panel since there is a standby pump for the duty.				
		The Pump Speed Control shall be through the Dedicated Software (Specific to the application) programmed in the VFD through Input Signals from BMS.				
		The Differential Pressure Sensors shall be consider in above costing				
		The pump head indicated are the estimated on some assumptions, Successful bidder has to calculate the actual heads required as per his offered equipments & final shop drawings and submit the same for client/consultants approval. The final pump duty shall be offered with out any cost variation				
3.00		Cooling Towers: SITC of FRP Induced Draft cooling towers complete with FRP basin, casing, distribution system, fills, louvers, ladder, fan, motor (TEFC Squirrel Cage Induction, Insulation Class F, Efficiency Class EFF-1), supports for fan & motor, brass strainers, all accessories as per specifications and any other item required to make the system complete.				
3.01	NDSR	Duty: Cooling Towers for Chillers Water Inlet/ Outlet Temp.: 98.00 / 90.00 Deg. F Design ambient wet bulb temperature: 83 Deg. F Approach: 7 Deg F Water Flow Rate (Minimum) in USGPM: 435 No. of Fans x KW each: 1 x 5.50 Type of Draft: Induced Draft Power Supply: 415V, 3 Phase, 50 Hz Working + Standby: 2 + 1	Sets	2	204500.00	409000
		Sound pressure level shall not exceed 85 dBA @ 3 m (Free field sound data (the unit is placed in free field over a reflecting plane).				

SCHEDULE OF QUANTITIES FOR HVAC SYSTEM						
PROJECT: REGIONAL SCIENCE MUSEUM, PATAN (GUJARAT)						
S.No	DSR Reference	Description	Units	Quantity	Unit Rate Supply	Total Amount (Supply + Installation Excluding taxes & duties)
4.00		Canteen Air Handling Units: SITC of Air handling units complete with casing, sections & components as described below & in the specifications, vibration isolators, all accessories as per specifications and any other item required to make the system complete.				
		Orientation / Mounting: Floor Mounted				
		Casing: Double Skin (Thickness of Panels 25 mm)				
		Configuration: Draw Through				
		Location: Indoor				
		Units to be with Thermal Break Profile: No				
		Filters: Pre - Filters (50 mm Thick), MERV-13 Fine Filters				
		Cooling Coil: Type - Chilled Water				
		Supply Air Fan - Type: Centrifugal, Blades: Backward Curved, Belt Driven, Fan Motor: Single Speed, Fan Motor Power Supply: 3 - Phase				
		Fan Outlet Dampers				
		Notes:				
		All Motors shall be of high efficiency with Efficiency Class EFF-1				
		One Set of Commissioning Filters shall be supplied as spare and the units shall be dry run for 2 weeks for flushing before putting the AHUs to beneficial use.				
		All Dampers shall be of Extruded Aluminium Construction with Aerofoil Double Skin Blades.				
		The Units shall be provided with Ports for installation of Air Flow Switch for Fan Section & Dirty Filter Switch across the filters.				
		SA Fan CFM x SA Fan Static Pressure mm WG x SA Fan Motor KW (Maximum) x Cooling Coil Rows Deep x TR x Type of Fans (Single / Twin)				
4.01	NDSR	FM-AHU-2 :10700 x 65 x 7.5 x 6 x 35 x Single	Sets	1	234820.00	234820
		Fan Sound Pressure Level shall not exceed 65 dBA at 3 m distance (Room Conditions)				
		Fan Speed shall not exceed 1440 RPM.				
5.00		Kitchen Air Handling Unit (100% Fresh Air): SITC of Air handling units complete with casing, sections & components as described below & in the specifications, vibration isolators, all accessories as per specifications and any other item required to make the system complete.				
		Orientation / Mounting: Ceiling Suspended				
		Casing: Double Skin (Thickness of Panels 25 mm)				
		Configuration: Draw Through				
		Location: Indoor				
		Units to be with Thermal Break Profile: Yes				
		Mixing Box complete with Fresh Air Damper				
		Filters: Pre - Filters (50 mm Thick), MERV-13 Fine Filters				
		Cooling Coil: Type - Chilled Water				
		Supply Air Fan - Type: Centrifugal, Blades: Forward Curved, Belt Driven, Fan Motor: Single Speed, Fan Motor Power Supply: 3 - Phase				
		Fan Outlet Dampers				
		Notes:				
		All Motors shall be of high efficiency with Efficiency Class EFF-1				
		One Set of Commissioning Filters shall be supplied as spare and the units shall be dry run for 2 weeks for flushing before putting the AHUs to beneficial use.				
		All Dampers shall be of Extruded Aluminium Construction with Aerofoil Double Skin Blades.				
		The Units shall be provided with Ports for installation of Air Flow Switch for Fan Section & Dirty Filter Switch across the filters.				
		SA Fan CFM x SA Fan Static Pressure mm WG x SA Fan Motor KW (Maximum) x Cooling Coil Rows Deep x TR x Type of Fans (Single / Twin)				
5.01	NDSR	CS-AHU-4 - 2700 x 55 x 2.2 x 8 x 17.00 x Double -100% FA	Sets	1	109240.00	109240

SCHEDULE OF QUANTITIES FOR HVAC SYSTEM						
PROJECT: REGIONAL SCIENCE MUSEUM, PATAN (GUJARAT)						
S.No	DSR Reference	Description	Units	Quantity	Unit Rate Supply	Total Amount (Supply + Installation Excluding taxes & duties)
		Fan Sound Pressure Level shall not exceed 65 dBA at 3 m distance (Room Conditions)				
		Fan Speed shall not exceed 1440 RPM.				
6.00		Ceiling Suspended Air Handling Unit				
		SITC of Air handling units complete with casing, sections & components as described below & in the specifications, vibration isolators, all accessories as per specifications and any other item required to make the system complete.				
		Orientation / Mounting: Ceiling Suspended				
		Casing: Double Skin (Thickness of Panels 25 mm)				
		Configuration: Draw Through				
		Location: indoor				
		Units to be with Thermal Break Profile: No				
		Mixing Box complete with Fresh Air Damper-No				
		Filters: Pre - Filters (50 mm Thick), MERV-13 Fine Filters				
		Cooling Coil: Type - Chilled Water				
		Supply Air Fan - Type: Centrifugal, Blades: Forward Curved, Belt Driven, Fan Motor: Single Speed, Fan Motor Power Supply: 3 - Phase				
		Fan Outlet Dampers				
		Notes:				
		All Motors shall be of high efficiency with Efficiency Class EFF-1				
		One Set of Commissioning Filters shall be supplied as spare and the units shall be dry run for 2 weeks for flushing before putting the AHUs to beneficial use.				
		All Dampers shall be of Extruded Aluminium Construction with Aerofoil Double Skin Blades.				
		The Units shall be provided with Ports for installation of Air Flow Switch for Fan Section & Dirty Filter Switch across the filters.				
		SA Fan CFM x SA Fan Static Pressure mm WG x SA Fan Motor KW (Maximum) x Cooling Coil Rows Deep x TR x Type of Fans (Single / Twin)				
6.01	NDSR	CS-AHU-1 - 1140 x 32 x 0.55 x 6 x 2.40 x Single	Sets	1	54120.00	54120
		Fan Sound Pressure Level shall not exceed 65 dBA at 3 m distance (Room Conditions)				
		Fan Speed shall not exceed 1440 RPM.				
6.02	NDSR	CS-AHU-2 - 2800 x 50 x 2.2 x 6.6 x 5.9 x Double	Sets	2	78520.00	157040
		Fan Sound Pressure Level shall not exceed 65 dBA at 3 m distance (Room Conditions)				
		Fan Speed shall not exceed 1440 RPM.				
6.03	NDSR	CS-AHU-3 - 1400 x 32 x 0.55 x 6 x 2.4 x Single	Sets	1	54120.00	54120
		Fan Sound Pressure Level shall not exceed 65 dBA at 3 m distance (Room Conditions)				
		Fan Speed shall not exceed 1440 RPM.				
6.04	NDSR	CS-AHU-5 - 2700 x 50 x 2.2 x 6.5 x 5.8 x Double	Sets	2	77640.00	155280
		Fan Sound Pressure Level shall not exceed 65 dBA at 3 m distance (Room Conditions)				
		Fan Speed shall not exceed 1440 RPM.				
6.05	NDSR	CS-AHU-6 - 1400 x 32 x 0.55 x 6 x 2.5 x Single	Sets	1	54120.00	54120
		Fan Sound Pressure Level shall not exceed 65 dBA at 3 m distance (Room Conditions)				
		Fan Speed shall not exceed 1440 RPM.				
6.06	NDSR	CS-AHU-7 - 3150 x 50 x 2.2 x 6 x 7.7 x Double	Sets	2	84280.00	168560
		Fan Sound Pressure Level shall not exceed 65 dBA at 3 m distance (Room Conditions)				
		Fan Speed shall not exceed 1440 RPM.				
6.07	NDSR	CS-AHU-8 - 1400 x 32 x 0.55 x 6 x 2.50 x Single	Sets	2	57240.00	114480
		Fan Sound Pressure Level shall not exceed 65 dBA at 3 m distance (Room Conditions)				
		Fan Speed shall not exceed 1440 RPM.				

SCHEDULE OF QUANTITIES FOR HVAC SYSTEM						
PROJECT: REGIONAL SCIENCE MUSEUM, PATAN (GUJARAT)						
S.No	DSR Reference	Description	Units	Quantity	Unit Rate Supply	Total Amount (Supply + Installation Excluding taxes & duties)
7.00		Floor Mounted Air Handling Units: SITC of Air handling units complete with casing, sections & components as described below & in the specifications, vibration isolators, all accessories as per specifications and any other item required to make the system complete.				
		Orientation / Mounting: Horizontal Floor Mounted				
		Casing: Double Skin (Thickness of Panels 25 mm)				
		Configuration: Draw Through				
		Location: Indoor				
		Units to be with Thermal Break Profile: No				
		Mixing Box complete with Fresh Air & Return Air Dampers				
		Filters: Pre - Filters (50 mm Thick), MERV-13 Fine Filters				
		Cooling Coil: Type - Chilled Water				
		Supply Air Fan - Type: Centrifugal, Blades: Backward Curved, Belt Driven, Fan Motor: Single Speed, Fan Motor Power Supply: 3 - Phase				
		Fan Outlet Dampers				
		Notes:				
		All Motors shall be of high efficiency with Efficiency Class EFF-1				
		One Set of Commissioning Filters shall be supplied as spare and the units shall be dry run for 2 weeks for flushing before putting the AHUs to beneficial use.				
		All Dampers shall be of Extruded Aluminium Construction with Aerofoil Double Skin Blades.				
		The Units shall be provided with Ports for installation of Air Flow Switch for Fan Section & Dirty Filter Switch across the filters.				
		SA Fan CFM x SA Fan Static Pressure mm WG x SA Fan Motor KW (Maximum) x Cooling Coil Rows Deep x TR x Type of Fans (Single / Twin)				
7.01	NDSR	FM-AHU-1- 22500 x 65 x 15 x 6 x 52.00 x Single	Sets	1	545300.00	545300
		Fan Sound Pressure Level shall not exceed 68 dBA at 3 m distance (Room Conditions)				
		Fan Speed shall not exceed 1440 RPM.				
8.00		Floor Mounted Air Handling Units: SITC of Air handling units complete with casing, sections & components as described below & in the specifications, vibration isolators, all accessories as per specifications and any other item required to make the system complete.				
		Orientation / Mounting: Horizontal Floor Mounted				
		Casing: Double Skin (Thickness of Panels 25 mm)				
		Configuration: Draw Through				
		Location: Indoor				
		Units to be with Thermal Break Profile: No				
		Filters: Pre - Filters (50 mm Thick), MERV-13 Fine Filters				
		Cooling Coil: Type - Chilled Water				
		Supply Air Fan - Type: Centrifugal, Blades: Backward Curved, Belt Driven, Fan Motor: Single Speed, Fan Motor Power Supply: 3 - Phase				
		Fan Outlet Dampers				
		Notes:				
		All Motors shall be of high efficiency with Efficiency Class EFF-1				
		One Set of Commissioning Filters shall be supplied as spare and the units shall be dry run for 2 weeks for flushing before putting the AHUs to beneficial use.				
		All Dampers shall be of Extruded Aluminium Construction with Aerofoil Double Skin Blades.				
		The Units shall be provided with Ports for installation of Air Flow Switch for Fan Section & Dirty Filter Switch across the filters.				
		SA Fan CFM x SA Fan Static Pressure mm WG x SA Fan Motor KW (Maximum) x Cooling Coil Rows Deep x TR x Type of Fans (Single / Twin)				
8.01	NDSR	FM-AHU-3- 20000 x 65 x 15 x 6 x 54.00 x Single	Sets	1	425620.00	425620
		Fan Sound Pressure Level shall not exceed 70 dBA at 3 m distance (Room Conditions)				
		Fan Speed shall not exceed 1440 RPM.				
8.02	NDSR	FM-AHU-4- 5600x 50 x 3.7 x 6 x 9.60 x Single	Sets	1	159740.00	159740
		Fan Sound Pressure Level shall not exceed 70 dBA at 3 m distance (Room Conditions)				
		Fan Speed shall not exceed 1440 RPM.				
8.03	NDSR	FM-AHU-5- 18800x 65 x 15 x 6 x 50.2 x Single	Sets	1	393540.00	393540
		Fan Sound Pressure Level shall not exceed 67 dBA at 3 m distance (Room Conditions)				
		Fan Speed shall not exceed 1440 RPM.				

SCHEDULE OF QUANTITIES FOR HVAC SYSTEM						
PROJECT: REGIONAL SCIENCE MUSEUM, PATAN (GUJARAT)						
S.No	DSR Reference	Description	Units	Quantity	Unit Rate Supply	Total Amount (Supply + Installation Excluding taxes & duties)
8.04	NDSR	FM-AHU-6 - 13800x 65 x 10 x 6 x 35.00 x Single Fan Sound Pressure Level shall not exceed 70 dBA at 3 m distance (Room Conditions) Fan Speed shall not exceed 1440 RPM.	Sets	1	305820.00	305820
8.05	NDSR	FM-AHU-7 - 10600x 65 x 7.7 x 6 x 27.00 x Single Fan Sound Pressure Level shall not exceed 70 dBA at 3 m distance (Room Conditions) Fan Speed shall not exceed 1440 RPM.	Sets	1	221600.00	221600
8.06	NDSR	FM-AHU-8 - 20000x 65 x 15 x 6 x 53.00 x Single Fan Sound Pressure Level shall not exceed 70 dBA at 3 m distance (Room Conditions) Fan Speed shall not exceed 1440 RPM.	Sets	1	425620.00	425620
8.07	NDSR	FM-AHU-9 - 6200x 65 x 5 x 6 x 14.50 x Single Fan Sound Pressure Level shall not exceed 70 dBA at 3 m distance (Room Conditions) Fan Speed shall not exceed 1440 RPM.	Sets	1	185580.00	185580
9.00		Floor Mounted Heat Recovery Air Handling Units for Fresh Air: SITC of Air handling units complete with casing, sections & components as described below & in the specifications, vibration isolators, all accessories as per specifications and any other item required to make the system complete. Orientation / Mounting: Double Tier Floor Mounted Casing: Double Skin (Thickness of Panels 50 mm) Configuration: Draw Through Location: Outdoor (Outdoor Units shall be complete with Canopy to make the units suitable for Outdoor Installation) Units to be with Thermal Break Profile: Yes Lower Tier - Fresh Air Section: Fresh Air Intake Box complete with Fresh Air Damper Filters: Pre - Filters (50 mm Thick), MERV-13 Fine Filters Common between Lower & Upper Tier: Heat Recovery Wheel with 3 Phase Motor: Minimum Efficiency 75% (Both Sensible and Latent), Type - Desiccant Based Heat Recovery Wheel Fresh Air Fan - Type: Centrifugal, Blades: Backward Curved, Belt Driven, Fan Motor: Single Speed, Fan Motor Power Supply: 3 - Phase Fan Outlet Dampers Upper Tier - Return / Exhaust Air Section: Return Air Intake Box complete with Return Air Damper Filters: Pre - Filters (50 mm Thick) Return / Exhaust Air Fan - Type: Centrifugal, Blades: Backward Curved, Belt Driven, Fan Motor: Single Speed, Fan Motor Power Supply: 3 - Phase Fan Outlet Dampers Notes: All Motors shall be of high efficiency with Efficiency Class EFF-1 One Set of Commissioning Filters shall be supplied as spare and the units shall be dry run for 2 weeks for flushing before putting the AHUs to beneficial use. All Dampers shall be of Extruded Aluminium Construction with Aerofoil Double Skin Blades. The Units shall be provided with Ports for installation of Air Flow Switch for Fan Section & Dirty Filter Switch across the filters. RA Fan CFM x RA Fan Static Pressure mm WG x RA Fan Motor KW (Maximum) x SA Fan CFM x SA Fan Static Pressure mm WG x SA Fan Motor KW (Maximum) x Heat Recovery Wheel Motor KW (Maximum)				
9.01	NDSR	FM-HRU-1- 12500 x 45 x 7.5 x 12500x 65 x 10 x 0.18 Fan Sound Pressure Level shall not exceed 68 dBA at 3 m distance (Room Conditions) Fan Speed shall not exceed 1440 RPM.	Sets	1	1148940.00	1148940
9.02	NDSR	FM-HRU-2- 2200 x 45 x 2.2 x 2200 x 65 x 2.2 x 0.18 Fan Sound Pressure Level shall not exceed 68 dBA at 3 m distance (Room Conditions) Fan Speed shall not exceed 1440 RPM.	Sets	1	378270.00	378270
9.03	NDSR	FM-HRU-3- 2800 x 45 x 2.2 x 2800 x 65 x 2.2 x 0.18 Fan Sound Pressure Level shall not exceed 68 dBA at 3 m distance (Room Conditions) Fan Speed shall not exceed 1440 RPM.	Sets	1	378200.00	378200
9.04	NDSR	FM-HRU-4- 1600 x 45 x 2.2 x 1600 x 65 x 2.2 x 0.18 Fan Sound Pressure Level shall not exceed 68 dBA at 3 m distance (Room Conditions) Fan Speed shall not exceed 1440 RPM.	Sets	1	302530.00	302530

SCHEDULE OF QUANTITIES FOR HVAC SYSTEM						
PROJECT: REGIONAL SCIENCE MUSEUM, PATAN (GUJARAT)						
S.No	DSR Reference	Description	Units	Quantity	Unit Rate Supply	Total Amount (Supply + Installation Excluding taxes & duties)
10.00		Direct Driven Single Phase Ceiling Suspended Air Handling Units without Cooling Coil (Fan Filter Units) - For Fresh Air Supply in Toilets:				
		SITC of Air handling units complete with casing, sections & components as described below & in the specifications, vibration isolators, all accessories as per specifications and any other item required to make the system complete.				
		Orientation / Mounting: Ceiling Suspended				
		Casing: Double Skin (Thickness of Panels 25 mm)				
		Configuration: Draw Through				
		Location: Indoor				
		Units to be with Thermal Break Profile: No				
		Fresh Air Intake Box complete with Fresh Air Damper				
		Filters: Pre - Filters (50 mm Thick), MERV-13 Fine Filters				
		Supply Air Fan - Type: Centrifugal Type, Blades: Forward Curved, Direct Driven, Fan Motor: Three Speed, Fan Motor Power Supply: 1 - Phase				
		Fan Outlet Dampers				
		Notes:				
		All Motors shall be of high efficiency with Efficiency Class EFF-1				
		One Set of Commissioning Filters shall be supplied as spare and the units shall be dry run for 2 weeks for flushing before putting the AHUs to beneficial use.				
		All Dampers shall be of Extruded Aluminium Construction with Aerofoil Double Skin Blades.				
		The Units shall be provided with Ports for installation of Air Flow Switch for Fan Section & Dirty Filter Switch across the filters.				
		SA Fan CFM x SA Fan Static Pressure mm WG x SA Fan Motor KW (Maximum) x Type of Fans (Single / Twin)				
10.01	NDSR	CS-AHU-2800 x 15 x 1.2 x Twin	Sets	R/O	58000.00	
		Fan Sound Pressure Level shall not exceed 68 dBA at 3 m distance (Room Conditions)				
		Fan Speed shall not exceed 1440 RPM.				

SCHEDULE OF QUANTITIES FOR HVAC SYSTEM						
PROJECT: REGIONAL SCIENCE MUSEUM, PATAN (GUJARAT)						
S.No	DSR Reference	Description	Units	Quantity	Unit Rate Supply	Total Amount (Supply + Installation Excluding taxes & duties)
11.00		Direct Driven Single/Three Phase Floor Mounted Air Handling Units without Cooling Coil (Exhaust Air Units) - For Exhaust Air from Toilets - Units Installed on Roof:				
		SITC of Air handling units complete with casing, sections & components as described below & in the specifications, vibration isolators, all accessories as per specifications and any other item required to make the system complete.				
		Orientation / Mounting: Floor Mounted				
		Casing: Double Skin (Thickness of Panels 25 mm)				
		Configuration: Draw Through				
		Location: Outdoor (Outdoor Units shall be complete with Canopy to make the units suitable for Outdoor Installation)				
		Units to be with Thermal Break Profile: Yes				
		Exhaust Air Intake Box complete with Exhaust Air Damper				
		Exhaust Air Fan - Type: Centrifugal Type, Blades: Forward Curved, Direct Driven, Fan Motor: Three Speed, Fan Motor Power Supply: 1 - Phase				
		Fan Outlet Dampers				
		Notes:				
		All Motors shall be of high efficiency with Efficiency Class EFF-1				
		All Dampers shall be of Extruded Aluminium Construction with Aerofoil Double Skin Blades.				
		The Units shall be provided with Ports for installation of Air Flow Switch for Fan Section.				
		EA Fan CFM x EA Fan Static Pressure mm WG x EA Fan Motor KW (Maximum) x Type of Fans (Single / Twin)				
11.01	NDSR	7500 x 25 x 3.7x Twin Fan Sound Pressure Level shall not exceed 75 dBA at 3 m distance (Room Conditions) Fan Speed shall not exceed 1440 RPM.	Sets	2	103840.00	207680
11.02	NDSR	2800 x 25 x 2.2 x Twin Fan Sound Pressure Level shall not exceed 75 dBA at 3 m distance (Room Conditions) Fan Speed shall not exceed 1440 RPM.	Sets	2	40920.00	81840
12.00		High Wall Split AC Units: SITC of Air-Cooled High Wall Mounted Type Split AC Units comprising of: 1 x Indoor Unit complete with filters, evaporator cooling coil, fan with motor & drive arrangement, power & control components with wiring. 1 x Air cooled condensing unit complete with compressor(s), multi row deep air cooled condenser coil, condenser fan with motor & drive, controls, power & control components with wiring, as required. Initial charge of refrigerant and oil. Electronic remote control unit, Filter Dryer, Refrigerant Solenoid / Manual Valves, Expansion Valve etc. and any other item(s) to make the system complete. Refrigerant: R-410a / R-32 Unit shall be 5 Star Rated for Energy Efficiency. Unit shall be complete with factory made electrical panel suitable for above split AC units including internal power & control wiring, earthing etc. Units shall be suitable for long distance piping as indicated in the drawings and shall meet the requirements of air quantity as below:				
12.01	NDSR	For IT Server Room: 2.00 TR Nominal Capacity x 1 Phase Power Supply	Sets	2	58912.00	117824
12.02	NDSR	For Battery Room: 2.00 TR Nominal Capacity x 1 Phase Power Supply	Sets	2	58912.00	117824
13.00		Mild Steel Structural Steel Stands for Outdoor Condensing Units of Air-Cooled Split AC Units: SITC of MS Structural Steel Stands for mounting the outdoor units. The stands shall be painted with 2 coats of red oxide primer and 2 coats of synthetic enamel paint.				
13.01	NDSR	For 2.00 TR Nominal Capacity Unit	Sets	2	6889.00	13778
13.02	NDSR	For 2.00 TR Nominal Capacity Unit	Sets	2	6889.00	13778

SCHEDULE OF QUANTITIES FOR HVAC SYSTEM						
PROJECT: REGIONAL SCIENCE MUSEUM, PATAN (GUJARAT)						
S.No	DSR Reference	Description	Units	Quantity	Unit Rate Supply	Total Amount (Supply + Installation Excluding taxes & duties)
14.00		Kitchen Exhaust Fans: SITC of Kitchen Exhaust Fans complete with Casing, Plug type SISW Centrifugal Fan, motor, Base frame, vibration isolators, all accessories as per specifications and any other item required to make the system complete.				
		Notes: All Motors shall be of high efficiency with Efficiency Class EFF-1				
		CFM x Static Pressure mm WG x Motor KW (Maximum)				
14.01	NDSR	2200 x 55 x 1.2	Sets	1	59200.00	59200
		Fan Sound Pressure Level shall not exceed 70 dBA at 3 m distance (Room Conditions)				
15.00		Propeller Fans: SITC of Propeller Fans complete with mounting arrangement, all accessories as per specifications and any other item required to make the system complete. Fans shall be complete with speed regulator, gravity louvers & bird screen and shall be suitable for 230V, 1 Phase, 50 Hz AC power supply.				
		Fan Dia x Fan RPM x CFM x KW				
15.01	NDSR	AC Plant Room & Panel Room: 600 mm x 1400 x 5000 x 0.75	Sets	5	28482.00	142410
15.02	NDSR	HVAC Pump Room: 450 x 900 x 2500 x 0.5	Sets	2	20252.00	40504
16.00		Axial Flow Fans - Non Fire Rated: SITC of AMCA Certified Axial Flow fan complete with mounting accessories, vibration isolators, all accessories as per specifications and any other item required to make the system complete. Fans shall be suitable for 415V, 3 Phase, 50 Hz AC power supply.				
		Type: Normal				
		Notes: Price shall include for Welded Mesh Protective Screen / Grille for Inlet Only of Exhaust Air Fans & Outlet Only for Fresh Air Fans.				
		All Motors shall be of high efficiency with Efficiency Class EFF-1				
		Fans for Lift Well Pressurization				
		Fans with 7 mm WG Static Pressure				
		CFM x Motor KW (Maximum) x Maximum Fan Speed RPM				
16.01	NDSR	17500 x 5.5 x 2850	Sets	6	83718.00	502308
17.00		Axial Flow Fans - Fire Rated: SITC of AMCA Certified Axial Flow fan complete with mounting accessories, vibration isolators, all accessories as per specifications and any other item required to make the system complete. Fans shall be suitable for 415V, 3 Phase, 50 Hz AC power supply.				
		Type: Smoke Exhaust (Fire Rated for 250 Deg. C for 2 hours)				
		Notes: All Motors shall be of high Temperature Class H for Fire Rated Fans				
		Price shall include for Welded Mesh Protective Screen / Grille for Inlet Only of Exhaust Air Fans & Outlet Only for Fresh Air Fans.				
		Fans for Atrium Smoke Exhaust				
		Fans with 15 mm WG Static Pressure				
		CFM x Motor KW (Maximum) x Maximum Fan Speed RPM				
17.01	NDSR	Atrium Smoke Exhaust: 8000 x 3.7 x 1000	Sets	2	46126.00	92252
		Fans for Pump Room (Utility Building) Exhaust				
		Fans with 25 mm WG Static Pressure				
		Fan Speed / No. of Motor Poles shall be as per the manufacturer's selections subject to that the Motor KW & Noise Pressure Levels mentioned below are not exceeded.				
		CFM x Motor KW (Maximum) x Maximum Noise Pressure Level @ 3 m distance (Hemispherical Propagation in Reverberant Room Conditions)				
17.02	NDSR	Pump Room (Utility Building) Exhaust: 13500 x 3.7 x 77	Sets	1	59901.00	59901
		Fan Speed shall not exceed 1440 RPM.				

SCHEDULE OF QUANTITIES FOR HVAC SYSTEM						
PROJECT: REGIONAL SCIENCE MUSEUM, PATAN (GUJARAT)						
S.No	DSR Reference	Description	Units	Quantity	Unit Rate Supply	Total Amount (Supply + Installation Excluding taxes & duties)
18.00		Battery Room Exhaust Fan - Explosion Proof: SITC of Explosion Proof Fan suitable for Battery Room Exhaust, certified according to ATEX 94/9/EC Directive. The fan may be Centrifugal Inline Type, Mixed Flow Inline Type or Wall Mounted Axial Flow Type. The fan casing shall be made of non sparking material such as Silumin or Anti static Plastic. The fan shall be suitable for 230V, 1 Phase, 50 Hz AC power supply. The fan shall not be speed controllable. The capacitor of the fan shall be enclosed in sand (as approved for EX certification). The fan shall be suitable for Increased Safety Ex II2G EExellT3EC nr. LOM 08ATEX2052X Supplement 2. The flame proof enclosure shall comply with EN 60079 - 0/7, EN 14986, EN - 13463.				
		CFM x Static Pressure x Motor KW (Max.)				
18.01	NDSR	400 x 10 x 0.15	Sets	1	58126.00	58126
19.00		Cabinet Type Inline Fans - SITC of AMCA Certified cabinet fan complete with Fresh air Filter , mounting accessories, vibration isolators, all accessories as per specifications and any other item required to make the system complete. Fans shall be suitable for 415V, 3 Phase, 50 Hz AC power supply.				
		Type: Normal				
		Notes:				
		All Motors shall be of high efficiency with Efficiency Class EFF-1				
		Fans for Toilet Fresh Air				
		Fans with 7 mm WG Static Pressure				
19.01	NDSR	2850 CFM	Sets	2	46500.00	93000
19.02	NDSR	1400 CFM	Sets	2	28500.00	57000
		B				
1.00		Ducting: GSS Factory Fabricated Ducting: Supply, installation, balancing and commissioning of factory fabricated GSS sheet metal rectangular/round ducting complete with neoprene rubber gaskets, elbows, splitter dampers, vanes, DELHI SCHEDULE OF RATES (E&M)2016 62 Code No. Description Unit Rate hangers, supports etc. as per approved drawings and specifications of following sheet thickness complete as required. Including structural steel supports				
		It is to be noted that nothing extra shall be paid on account of site fabricated small ducts / collars / to suit pieces etc. Further, for payment purposes, the gauge / type / rates for these site made pieces shall be considered as per the fabrication table of factory made ducts irrespective of the actual gauge / type used for fabrication.				
		As an alternative to the Duct Support System, as specified in the General Technical Specifications, the contractor may consider use of Gripple / Approved Equal make Duct Support system comprising of End Fixing Studs / Fasteners, Steel Wire Ropes, Plastic Corner Saddles, Double Channel Locks (unlockable by a separate setting key) etc. including all necessary other hardware / fittings / accessories required but not mentioned above, at no extra cost to the client.				
1.01	16.12.1.1	24 G (0.63 mm) TDF - 0 to 750 mm	Sqm	3390	739.00	2505210
1.02	16.12.1.2	22 G (0.80 mm) TDF - 751 to 1500 mm	Sqm	1015	905.00	918575
1.03	16.12.1.3	20 G (1.00 mm) TDF - 1501 to 2250 mm	Sqm	791	1014.00	802074
1.04	16.12.1.4	18 G (1.25 mm) TDF - 2251 mm & above	Sqm	R/O	1278.00	1278
2.00		Round Flexible Ducting: SITC of Round Flexible Ducting (Factory Made) complete with fittings, flanges, supports, all accessories as per specifications and any other item required to make the system complete. Nominal Diameter in mm as indicated below:				
		Type: Insulated				
2.01	NDSR	100	Rmt	R/O	697.00	
2.02	NDSR	150	Rmt	R/O	955.00	
2.03	16.19.1	200	Rmt	R/O	381.00	
2.04	NDSR	250	Rmt	R/O	1825.00	
		C				
1.00		Air Distribution: Duct Flexible Connectors:				
1.01	NDSR	SITC of Duct Flexible Connectors made out of Silicon Coated Non Combustible Fabric (Finished Width of 150 mm) suitable to withstand temperature of 280 Deg. C for 1 Hour, complete with fittings, flanges, supports, all accessories as per specifications and any other item required to make the system complete.	Sqm	24	3750.00	90000
2.00		Fire Dampers:				
2.01	3071.00	SITC of Fusible Link Type Fire Dampers of 1.5 hour fire rating (Approved by CBRI, Roorkee) complete with casing, blades, linkages, retaining angle iron frame work on both ends, fittings, supports, 400 mm long sleeve, all accessories as per specifications and any other item required to make the system complete.	Sqm	22	5711.00	125642
2.02	NDSR	SITC of Fusible Link (UL Stamped) Type Temperature Sensor for above fire dampers complete with mounting arrangement, all accessories as per specifications and any other item required to make the system complete.	Sets	28	650.00	18200

SCHEDULE OF QUANTITIES FOR HVAC SYSTEM						
PROJECT: REGIONAL SCIENCE MUSEUM, PATAN (GUJARAT)						
S.No	DSR Reference	Description	Units	Quantity	Unit Rate Supply	Total Amount (Supply + Installation Excluding taxes & duties)
3.00		Manual Volume Control Duct Dampers:				
3.01	16.13	Supply, installation, testing and commissioning of GI volume control duct damper complete with neoprene rubber gaskets, nuts, bolts, screws linkages, flanges etc., as per specifications. and any other item required to make the system complete.	Sqm	20	5463.00	109260
4.00		Discreet Grilles:				
4.01	16.15	Supplying & fixing of powder coated extruded aluminium Supply Air Grilles with aluminium volume control dampers as per specifications. and any other item required to make the system complete.	Sqm	30	7132.00	213960
4.02	NDSR	SITC of black mat finish 20 G GI (for GI ducting) volume control dampers for discreet grilles complete with mounting arrangement, wooden/ steel/ aluminium frame work (if required), all accessories as per specifications and any other item required to make the system complete.	Sqm	30	2921.00	87630
5.00		Linear Grilles:				0
5.01	16.15	Supplying & fixing of powder coated extruded aluminium Supply Air Grilles with aluminium volume control dampers as per specifications. and any other item required to make the system complete.	Sqm	R/O	7132.00	
5.02	NDSR	SITC of black mat finish 20 G GI (for GI ducting) volume control collar dampers for linear grilles complete with mounting arrangement, wooden/ steel/ aluminium frame work (if required), all accessories as per specifications and any other item required to make the system complete.	Sqm	R/O	2921.00	
6.00		Air Transfer Grilles:				
6.01	NDSR	SITC of Powder Coated Finish Extruded Aluminium Non Vision Type Air Transfer Grilles complete with mounting arrangement, wooden/ steel/ aluminium frame work (if required), all accessories as per specifications and any other item required to make the system complete.	Sqm	4.2	5902.00	24788.4
7.00		Diffusers:				
7.01	16.17	Supplying, fixing testing commissioning of supply air diffusers of powder coated aluminium with aluminium volume control dampers with anti smudge ring & removable core. and any other item required to make the system complete.	Sqm	115	8686.00	998890
7.02	16.18	Supplying, fixing testing commissioning of Return air diffusers of powder coated aluminium without volume control dampers with anti smudge ring & removable core. and any other item required to make the system complete.	Sqm	115	5619.00	646185
8.00		Louvers:				
8.01	3067.00	SITC of Extruded Aluminium Louvers with Bird Screen but without Volume Control Dampers complete with mounting arrangement, wooden/ steel/ aluminium frame work (if required), all accessories as per specifications and any other item required to make the system complete.	Sqm	24	3272.00	78528
9.00		Non Return Dampers:				
9.01	NDSR	SITC of 16 G GI Frame / 22 G GI blades type Non Return Type Gravity Duct Dampers complete with linkages, levers, fittings, supports, all accessories as per specifications and any other item required to make the system complete.	Sqm	R/O	4312.00	
D		Piping Works:				
1.00		Mild Steel Piping:				
		Supplying, laying/ fixing, testing and commissioning of following nominal sizes of chilled water piping inside the building (with necessary clamps, vibration isolators and fittings but excluding valves, strainers, gauges etc.) duly insulated with following closed cell elastometric nitrile rubber of 25mm thickness, minimum 45 Kg / m ³ density, thermal conductivity 0.037 W/MK or better at 20 deg mean temperature class 'O' insulation applied by suitable adhesive complete including repairing of damage to building etc. as per specifications and as required complete in all respect. Note:-The Pipes of sizes 150 mm & below shall be M.S. 'C' class as per IS : 1239 and pipes size above 150 mm shall be welded black steel pipe heavy class as per IS: 3589, from minimum 6.35 mm thick M.S. Sheet for pipes upto 350 mm dia. and from minimum 7mm thick MS sheet for pipes of 400 mm dia and above. Structural Steel for piping supports , Clamps, U-Clamps, PUF& Wooden GATTI, P jointing using welded / threaded joints as per, all accessories as per specifications and any other item required to make the system complete. Nominal Diameters of Pipes in mm x Thickness of Pipes in mm as indicated below:				
1.01		250 x 6.35	Rmt	R/O		
1.02	16.2.5	200 x 6.35	Rmt	100	3504.00	350400
1.03	16.2.6	150 x C Class	Rmt	260	2439.00	634140
1.04	16.2.7	125 x C Class	Rmt	110	2142.00	235620
1.05	16.2.8	100 x C Class	Rmt	185	1705.00	315425
1.06	16.2.9	80 x C Class	Rmt	405	1255.00	508275
1.07	16.2.10	65 x C Class	Rmt	95	1030.00	97850
1.08	16.2.11	50 x C Class	Rmt	175	881.00	154175
1.09	16.2.12	40 x C Class	Rmt	135	702.00	94770
1.10	16.2.13	32 x C Class	Rmt	85	564.00	47940

SCHEDULE OF QUANTITIES FOR HVAC SYSTEM						
PROJECT: REGIONAL SCIENCE MUSEUM, PATAN (GUJARAT)						
S.No	DSR Reference	Description	Units	Quantity	Unit Rate Supply	Total Amount (Supply + Installation Excluding taxes & duties)
2.00		Drain Piping: SITC of uPVC Drain Water Piping complete with fittings (elbows, tees, reducers, sockets etc.), supports, jointing and any other item required to make the system complete.				
		Pipes shall conform to Latest Edition of IS-4985				
		Nominal Dia (mm) x x Rating Duty		R/O		
2.01	NDSR	65 mm x Plumbing Pipes	Rmt	80	425.00	34000
2.02	NDSR	50 mm x Plumbing Pipes	Rmt	35	340.00	11900
2.03	NDSR	40 mm x Plumbing Pipes	Rmt	170	300.00	51000
2.04	NDSR	25 mm x Plumbing Pipes	Rmt	25	220.00	5500
		Insulated Valves & Accessories: Same as Piping insulation works				
		SITC of following Valves/ Strainers/ Pipe Flexible Connectors/ Gauges / Thermometers etc. complete with fittings/flanges, nuts, bolts, gasket, supports, all accessories as per specifications and any other item required to make the system complete.				
3.00		SITC of Wafer Type Butterfly Valves - Cast Iron Body, SG Iron Epoxy Coated Disc, Replaceable Seat, Stainless Steel Shaft, Gear Unit Operated, Minimum PN-16 rated - Nominal Diameters in mm as indicated below:				
3.01	16.7.1.1	200	Nos.	4	11102.00	44408
4.00		BUTTERFLY VALVE (MANUAL) with C I body SS Disc, Nitrile Rubber Seal & O- Ring PN 16 pressure rating for chilled water circulation as specified				
4.01	16.7.1.2	150	Nos.	4	6625.00	26500
4.02	16.7.1.3	125	Nos.	30	5780.00	173400
4.03	16.7.1.4	100	Nos.	6	5330.00	31980
4.04	16.7.1.5	80	Nos.	12	3719.00	44628
4.05	16.7.1.6	65	Nos.	8	3359.00	26872
5.00		SITC of Gun Metal / Brass Body Screwed Ends Balancing Valves - Non Rising Stainless Steel Spindle, Cast Metal Digital Hand Wheel, with drain cock, Gun Metal Seat, Teflon Seal, with pressure test cocks, Minimum PN-16 rated - Nominal Diameters in mm as indicated below:				
5.01	16.7.2.1	200	Nos.	R/O	48763.00	
5.02	16.7.2.2	150	Nos.	2	23798.00	47596
5.03	16.7.2.3	125	Nos.	2	18608.00	37216
5.04	16.7.2.4	100	Nos.	R/O	11945.00	
5.05	16.7.2.5	80	Nos.	4	7395.00	29580
5.06	16.7.2.6	65	Nos.	3	7101.00	21303

SCHEDULE OF QUANTITIES FOR HVAC SYSTEM						
PROJECT: REGIONAL SCIENCE MUSEUM, PATAN (GUJARAT)						
S.No	DSR Reference	Description	Units	Quantity	Unit Rate Supply	Total Amount (Supply + Installation Excluding taxes & duties)
6.00		SITC of Gun Metal / Brass Body Screwed Ends Balancing Valves - Non Rising Stainless Steel Spindle, Cast Metal Digital Hand Wheel, with drain cock, Gun Metal Seat, Teflon Seal, with pressure test cocks, Minimum PN-16 rated - Nominal Diameters in mm as indicated below:				
6.01	16.7.2.7	50	Nos.	2	6386.00	12772
6.02	16.7.2.8	40	Nos.	7	3115.00	21805
6.03	NDSR	32	Nos.	4	2715.00	10860
7.00		NON - RETURN VALVE with duel plate of C I body SS plates vulcanized NBR seal flanged end & PN 16 pressure rating for chilled / hot water circulation including insulation as specified.				
7.01	16.7.3.1	200	Nos.	R/O	9655.00	
7.02	16.7.3.2	150	Nos.	3	6477.00	19431
7.03	16.7.3.3	125	Nos.	6	5163.00	30978
8.00		SITC of Gun Metal Body Gate Valves - as per IS778 Class 2, Integral Seat, Solid Wedge, Copper Alloy Trim, 21 Kg/Sqcm (Body) & 16 Kg/Sqcm (seat) Hydraulic Pressures, Screwed in bonnet, Inside screw, Non-rising stem - Nominal Diameters in mm as indicated below:				
8.01	NDSR	50	Nos.	6	5200.00	31200
8.02	NDSR	40	Nos.	14	4850.00	67900
8.03	NDSR	32	Nos.	8	3500.00	28000
8.04	NDSR	25	Nos.	65	1850.00	120250
9.00		SITC of Mild Steel Body Flanged Y-Strainers - Permanent Magnet Type, Minimum PN-16 rated, Perforated stainless steel grade 304, minimum 1.2 mm thick Screen / Basket - Nominal Diameters in mm as indicated below:				
9.01	16.7.4.1	200	Nos.	R/O	20853.00	
9.02	16.7.4.2	150	Nos.	2	10530.00	21060
9.03	16.7.4.3	125	Nos.	8	9880.00	79040
9.04	16.7.4.4	100	Nos.	R/O	6918.00	
9.05	16.7.4.5	80	Nos.	4	5026.00	20104
9.06	16.7.4.6	65	Nos.	3	4434.00	13302
9.07	16.7.4.7	50	Nos.	2	3516.00	7032
9.08	16.7.4.8	40	Nos.	7	2478.00	17346
9.09	NDSR	32	Nos.	4	2142.00	8568

SCHEDULE OF QUANTITIES FOR HVAC SYSTEM						
PROJECT: REGIONAL SCIENCE MUSEUM, PATAN (GUJARAT)						
S.No	DSR Reference	Description	Units	Quantity	Unit Rate Supply	Total Amount (Supply + Installation Excluding taxes & duties)
10.00		SITC of Neoprene Rubber Type Flexible Pipe Connections with Metal Retaining Rings and Control Rods, Minimum PN-16 rated - Nominal Diameters in mm as indicated below:				
10.01	NDSR	200	Nos.	R/O	20000.00	
10.02	NDSR	150	Nos.	6	11500.00	69000
10.03	NDSR	125	Nos.	18	10700.00	192600
10.04	NDSR	100	Nos.	R/O	8500.00	
10.05	NDSR	80	Nos.	8	7800.00	62400
10.06	NDSR	65	Nos.	6	7000.00	42000
10.07	NDSR	50	Nos.	4	6500.00	26000
10.08	NDSR	40	Nos.	14	5800.00	81200
10.09	NDSR	32	Nos.	8	4900.00	39200
11.00		Pressure Gauges:				
11.01	16.80	SITC of Industrial Type 100 mm Dial Pressure Gauges complete with syphons, gauge cocks, fittings, all accessories as per specifications and any other item required to make the system complete.	Nos.	32	973.00	31136
12.00		Thermometers:				
12.01	16.90	SITC of Industrial Stem Type (150 mm Length) Thermometers complete with thermo wells, fittings, all accessories as per specifications and any other item required to make the system complete.	Nos.	18	707.00	12726
13.00		Brass Body Auto Air Vent Valves:				
		SITC of Auto Air Vent Valves complete with nipples, sockets, fittings, all accessories as per specifications and any other item required to make the system complete - Nominal Diameters in mm as indicated below:				
13.01	NDSR	10	Nos.	25	750.00	18750
14.00		SITC of Ball Valves with & without strainer for Ceiling Suspended AHUs / Other Equipment:				
		For Sizes up to 25 mm: Ball Valves - CIM Red 5/Equal, Ball Valves with inbuilt Strainer - CIM 620/Equal				
		For Sizes 32 to 50 mm: 2 x Ball Valves CIM Red 5 / Equal & 1 x Strainer CIM74A/Equal				
		For Sizes 65 & 80 mm: 2 x Ball Valves CIM Red 5/1 (with Butterfly Handles) / Equal & 1 x Strainer CIM74A/Equal:				
		Nominal Diameters in mm as indicated below:				
14.01	NDSR	50	Sets	2	14500.00	29000
14.02	NDSR	40	Sets	7	13800.00	96600
14.03	NDSR	32	Sets	4	11750.00	47000
15.00		Open Type Expansion / Make Up Water Tanks:				
		SITC of Water Expansion / Make Up tank made out of 6 mm thick mild steel plates, fabricated using all welded joints complete with necessary connections for piping with vent, man hole cover, make up connection with gate valve, quick fill connection valve, float valve, drain connection with valve, overflow connection, fittings, insulation, all accessories as per specifications and any other item required to make the system complete. Including suitable size of pressurization unit with 1w+1SB pump, Pressure transmitter etc. complete in all respect				
15.01	NDSR	Size: 1000 x 1000 x 1000 mm	Sets	1	125000.00	125000
16.00		Copper Refrigerant Piping with Insulation for High Wall Split AC Units:				
		SITC of Copper Refrigerant piping for Cooling Coil of Indoor Unit & Condensing Unit Systems complete with fittings, supports, jointing, minimum 9 mm thick insulation with Nitrile rubber, wiring to interconnect including gas charging, as per specifications, all accessories as per specifications and any other item required to make the system complete.				
		Note: 1 Rmt shall mean distance between the AHU / Indoor unit and Outdoor Condensing unit measured along the route of the refrigerant piping, irrespective of number of refrigeration circuits.				
16.01	NDSR	For 2.00TR Split AC Units	Rmt	20	1824.00	36480
16.02	NDSR	For 2.00 TR Split AC Units	Rmt	20	1824.00	36480
E		Insulation Works:				
1.00		Thermal Insulation of Indoor Ducts with Nitrile Rubber Insulation:				
		SITC of Duct Thermal Insulation on various ducts using Class O Nitrile Rubber Insulation complete with all accessories and finishes as per specifications and any other item required to make the system complete. Thickness of Insulation in mm as indicated below:				
		Facing / Lamination: Aluminium Foil				
1.01	4016	9 mm Thick	Sqm	5028.1	371.00	1865425.1

SCHEDULE OF QUANTITIES FOR HVAC SYSTEM						
PROJECT: REGIONAL SCIENCE MUSEUM, PATAN (GUJARAT)						
S.No	DSR Reference	Description	Units	Quantity	Unit Rate Supply	Total Amount (Supply + Installation Excluding taxes & duties)
2.00		Thermal Insulation of Ducts exposed to atmosphere with Nitrile Rubber Insulation:				
		SITC of Duct Thermal Insulation on various ducts using Class O Nitrile Rubber Insulation complete with all accessories and finishes as per specifications and any other item required to make the system complete. Thickness of Insulation in mm as indicated below:				
		Facing / Lamination: Aluminium Foil				
		Rates shall include for SITC of Protective Coating on the insulated ducts with lagging fabric and Starbond 30-36 / equal coating as per specifications:				
2.01	NDSR	16 mm Thick	Sqm	75	1057.00	79275
3.00		Acoustic Insulation of Ducts:				
		SITC of Duct Acoustic Insulation with Fiberglass Insulation of Density 32 Kg/cum. in various ducts complete with all accessories & finishes as per specifications and any other item required to make the system complete. Thickness of Insulation in mm as indicated below:				
3.01	16.23.2	25 mm Thick	Sqm	250	1034.00	258500
4.00		Acoustic Insulation of Rooms:				
		Supplying, fixing acoustic lining on wall and ceiling of AHU rooms with 50 mm thick, density 32 kg/cu.m resin bonded glass fiber insulation friction fixed in 610 mm x 610 mm frame work made of 25X50X50X50X25 mm made out of 0.6mm thick GI sheet U shaped channel and covered with reinforced fiber glass tissue and finished with 0.80 mm perforated aluminium sheet etc. Complete as required and as per specifications.. Thickness of Insulation in mm as indicated below:				
4.01	16.22	AC Plant Room: 50 mm Thick	Sqm	380	870.00	330600
5.00		Thermal Insulation of Piping with Nitrile Rubber:				
6.00		Thermal Insulation of Valves:				
		SITC of Thermal Insulation on various Valves using Insulation material & Finish as that of the connecting Pipes complete with accessories as per specifications. Type of Valves and Nominal diameter of Valves in mm as indicated below:				
6.01		Insulation of Butterfly Valves:				
a	NDSR	200	Nos.	4	1737.00	6948
b	NDSR	125	Nos.	30	1214.00	36420
c	NDSR	150	Nos.	4	1150.00	4600
d	NDSR	100	Nos.	6	1020.00	6120
e	NDSR	80	Nos.	14	1438.00	20132
f	NDSR	65	Nos.	8	1281.00	10248
6.02		Insulation of Flanged Balancing Valves:				
a	NDSR	200	Nos.	R/O	1737.00	
b	NDSR	125	Nos.	2	1214.00	2428
c	NDSR	150	Nos.	2	1475.00	2950
d	NDSR	100	Nos.		1020.00	0
e	NDSR	80	Nos.	4	1438.00	5752
f	NDSR	65	Nos.	3	1281.00	3843
6.03		Insulation of Screwed Balancing Valves:				
a	NDSR	50	Nos.	2	1165.00	
b	NDSR	40	Nos.	7	970.00	6790
c	NDSR	32	Nos.	4	825.00	3300
6.04		Insulation of Dual Plate Check Valves:				
a	NDSR	200	Nos.		1737.00	
b	NDSR	150	Nos.	3	1475.00	4425
c	NDSR	125	Nos.	6	1214.00	
6.05		Insulation of Flanged Y-Strainers:				
a	NDSR	200	Nos.		1737.00	0
b	NDSR	150	Nos.	2	1214.00	2428
c	NDSR	125	Nos.	8	1475.00	
d	NDSR	100	Nos.		1020.00	0
e	NDSR	80	Nos.	4	1438.00	5752
f	NDSR	65	Nos.	3	1281.00	3843
g	NDSR	50	Nos.	2	1165.00	2330
h	NDSR	40	Nos.	7	970.00	6790
i	NDSR	32	Nos.	4	825.00	3300
6.06		Insulation of Gate Valves:				
a	NDSR	50	Nos.	R/O	1165.00	
b	NDSR	25	Nos.	65	500.00	32500

SCHEDULE OF QUANTITIES FOR HVAC SYSTEM						
PROJECT: REGIONAL SCIENCE MUSEUM, PATAN (GUJARAT)						
S.No	DSR Reference	Description	Units	Quantity	Unit Rate Supply	Total Amount (Supply + Installation Excluding taxes & duties)
6.07		Insulation of Ball Valves with & without strainer:				
a	NDSR	50	Sets	6	1165.00	6990
b	NDSR	40	Sets	14	970.00	13580
c	NDSR	32	Sets	8	825.00	6600
6.08		Insulation of Motorized Butterfly Valves:				
a	NDSR	150	Nos.	2	1475.00	2950
b	NDSR	125	Nos.	2	1214.00	2428
6.09		Insulation of 2-Way Valves:				
a	NDSR	100	Nos.	R/O	1525.00	
b	NDSR	80	Nos.	4	1438.00	5752
c	NDSR	65	Nos.	3	1281.00	3843
d	NDSR	50	Nos.	2	1165.00	2330
e	NDSR	40	Nos.	7	1050.00	7350
f	NDSR	32	Nos.	4	950.00	3800
7.00		Thermal Insulation of Drain Piping with Nitrile Rubber:				
		SITC of Thermal Insulation on various pipes using Insulation material as specified below complete with accessories as per specifications. Nominal diameter of Pipes and insulation thickness (minimum) in mm as indicated below:				
		Protective Facing on Insulation Material: None				
7.01	NDSR	65 x 9 mm	Rmt	80	225.00	18000
7.02	NDSR	50 x 9 mm	Rmt	35	175.00	6125
7.03	NDSR	40 x 9 mm	Rmt	170	142.00	24140
7.04	NDSR	25 x 9 mm	Rmt	25	104.00	2600
F		Electrical Works:				
1.00		HVAC Electrical Control Panels:				
		SITC of HVAC Electrical Control Panels complete with all components, power and control wiring, starters, all accessories as per specifications & schedule of electrical panels including any other item required to make the system complete.				
		Description of Panels is given in a Separate Annexure - Schedule of HVAC Electrical Panels				
1.01	NDSR	PGF-ACP-1	Sets	1	635375.00	635375
1.02	NDSR	PGF-ACP-2	Sets	1	122187.50	122187.5
1.03	NDSR	PGF-ACP-3	Sets	1	107525.00	107525
1.04	NDSR	P1F-ACP-1	Sets	1	39100.00	39100
1.05	NDSR	P1F-ACP-2	Sets	1	39100.00	39100
1.06	NDSR	P1F-ACP-3	Sets	1	11730.00	11730
1.07	NDSR	P2F-ACP-1	Sets	1	39100.00	39100
1.08	NDSR	P2F-ACP-2	Sets	1	39100.00	39100
1.09	NDSR	P2F-ACP-3	Sets	1	39100.00	39100
1.10	NDSR	P2F-ACP-4	Sets	1	45942.50	45942.5
1.11	NDSR	P3F-ACP-1	Sets	1	39100.00	39100
1.12	NDSR	P3F-ACP-2	Sets	1	41055.00	41055
1.13	NDSR	P3F-ACP-3	Sets	1	39100.00	39100
1.14	NDSR	TF-ACP-1	Sets	1	131962.50	131962.5
1.15	NDSR	TF-ACP-1	Sets	1	119255.00	119255
1.16	NDSR	Timer Control Panel for Auto Duty Sharing & Auto Start / Standby Application of Split AC Units of IT Server Room & Battery Room - Each Panel shall be with 24 Hour Digital Timer, necessary relays and bypass arrangement for 1 Working & 1 Standby High Wall Split AC Unit.	Sets	2	5109.00	10218
1.17	NDSR	UT-ACP-1: Panel for Utility Building Panel & Pump Room Exhaust Air Axial Fan	Sets	1	47000.00	47000
2.00		Electrical Isolators for Outdoor Condensing Units of Air Cooled Split AC Units:				
		SITC of Weather Proof (IP-55 for Outdoor Duty) Electrical Isolators:				
		No. of Poles & Type of the Electrical Isolator shall meet the requirements of the equipment & its cabling.				
		TR x Phase x Location				
2.01	NDSR	2.00 TR Nominal Capacity Unit x 1 Phase Power Supply x Outdoor	Sets	2	3808.00	7616
2.02	NDSR	2.00 TR Nominal Capacity Unit x 1 Phase Power Supply x Outdoor	Sets	2	3808.00	7616

SCHEDULE OF QUANTITIES FOR HVAC SYSTEM						
PROJECT: REGIONAL SCIENCE MUSEUM, PATAN (GUJARAT)						
S.No	DSR Reference	Description	Units	Quantity	Unit Rate Supply	Total Amount (Supply + Installation Excluding taxes & duties)
3.00		Electrical (Non Fused) Isolators for Various Equipment:				
		SITC of Weather Proof (IP-55 for Outdoor Duty) or Non Weather Proof (IP-44 for Indoor Duty) Isolators:				
		No. of Poles & Type of the Electrical Isolator shall meet the requirements of the equipment & its cabling.				
		Equipment x KW x Phase x Location				
3.01	NDSR	Cooling Tower Fan x 5.50 x Three x Outdoor	Sets	2	4639.00	9278
3.02	NDSR	Atrium Smoke Exhaust Fan x 3.7 x Three x Outdoor	Sets	2	4639.00	9278
3.03	NDSR	Battery Room Exhaust Fan x 0.08 x One x Indoor	Sets	1	2285.00	2285
3.04	NDSR	Toilets Supply Air Fan Units x 1.20 x One x Indoor	Sets	7	2285.00	15995
3.05	NDSR	Terrace HRU -Fresh Air Unit - Return Air Fan x 7.5 x Three x Outdoor	Sets	2	4639.00	9278
3.06	NDSR	Terrace HRU -Fresh Air Unit - Return Air Fan x 2.2 x Three x Outdoor	Sets	2	3048.00	6096
3.07	NDSR	Primary Pumps x 10 x Three x Indoor	Sets	3	4774.00	14322
3.08	NDSR	Secondary Pumps x 15 x Three x Indoor	Sets	3	4774.00	14322
3.09	NDSR	Condenser Pumps x 18.5 x Three x Indoor	Sets	3	4974.00	14922
3.10	NDSR	Toilets Exhaust Air Fan Units x 3.7 x Three x Indoor	Sets	2	4639.00	9278
3.11	NDSR	Toilets Exhaust Air Fan Units x 2.2 x Three x Indoor	Sets	2	3048.00	6096
3.12	NDSR	CSU's x0.55 x Three x Indoor	Sets	1	3048.00	3048
3.13	NDSR	Kitchen Exhaust Fan-1.2xThreex indoor	Sets	1	3048.00	3048
3.14	NDSR	CSU's x2.2 x Three x Indoor	Sets	9	3048.00	27432
3.15	NDSR	Lift Well Pressurization Fans x 7.5 x Three x Outdoor	Sets	6	4639.00	27834
4.00		Power and Control Cabling - Normal Duty:				
	NDSR	SITC of 1.1 KV grade, PVC Insulated, Armoured, Fire Resistant Low Smoke Type Power / Control cabling including supply of cables & cable trays, supports, installation, saddles, cable ties, cable tags, ferrules, cable glands, lugs, nuts/bolts/hardware etc. complete in all respects as per specifications and any other item required to make the system complete.	Lot	1	1096240.90	1096240.9
		Bidder has to work out the cable & Cable tray quantity as per the panel schedule & the drawings provided. And provide the offer accordingly.				
		NOTE- 1.0 Cable size including & below 16 Sqmm shall be of Copper 2.0 Cable size including & above 25 Sqmm shall be of Aluminium 3.0 Chiller cable shall be of Copper or as per Manufacturer std.				
5.00		Power and Control Cabling - Emergency / Fire Duty:				
	NDSR	SITC of 1.1 KV grade, Fire Survival / Circuit Integrity Cables (Rated for 650 Deg. C for 3 hours as a minimum), with standard annealed copper conductor, Glass Mica Tape / Equivalent Fire Resistant Barrier over Conductor, XLPE Insulated, Cores Laid Up, Extruded Zero Halogen Compound Inner Sheathed, Fibre Glass Taped, Galvanized Steel armouring, Overall Extruded Zero Halogen Compound Outer Sheathed, As per IS 7098 (Part 1) & Fire Survival Properties as per IEC 60331 - Power / Control cabling including supply of cables & cable trays, supports, installation, saddles, cable ties, cable tags, ferrules, cable glands, lugs, nuts/bolts/hardware etc. complete in all respects as per specifications and any other item required to make the system complete.	Lot	1	509733.05	509733.05
		Bidder has to work out the cable & Cable tray quantity as per the panel schedule & the drawings provided. And provide the offer accordingly.				
		NOTE- 1.0 Cable size including & below 16 Sqmm shall be of Copper 2.0 Cable size including & above 25 Sqmm shall be of Aluminium				
6.00		Earthing:				
		SITC of GI Earthing including supply of bare GI strips/ wires, supports, installation, saddles, ties, tags, ferrules, terminations, lugs, nuts/bolts/hardware etc. complete in all respects as per specifications and any other item required to make the system complete.				
		Bidder has to work out the quantity as per the panel schedule & the drawings provided, And provide the offer accordingly.				
6.01	NDSR	25 mm x 6 mm Strip	Lot	1	22666.10	22666.1
6.02	NDSR	25 mm x 3 mm Strip	Lot	1	68000.00	68000
6.03	NDSR	6 SWG Wire	Lot	1	107440.00	107440
7.00		Power & Control Cabling / Wiring & Earthing for Various Types of Split AC Units:				
		SITC of Power and Control cabling / wiring and Earthing including supply of cables / wires & Earthing Materials & cable trays/ saddles/ clamps etc. as required by the site conditions, supports, installation, saddles, cable ties, cable tags, ferrules, cable glands, lugs, nuts/bolts/hardware etc. complete in all respects as per specifications and any other item required to make the system complete.				

SCHEDULE OF QUANTITIES FOR HVAC SYSTEM						
PROJECT: REGIONAL SCIENCE MUSEUM, PATAN (GUJARAT)						
S.No	DSR Reference	Description	Units	Quantity	Unit Rate Supply	Total Amount (Supply + Installation Excluding taxes & duties)
		Note: Single Point Power Supply shall be provided by the client terminating in the weather proof electrical isolator to be provided by the HVAC contractor (as detailed separately in the BOQ above). Further Distribution of Power shall be carried out by the HVAC Contractor				
		High Wall Type Split AC Units:				
7.01	NDSR	2.00 TR Nominal Capacity Unit	Sets	2	2500.00	5000
7.02	NDSR	2.0 TR Nominal Capacity Unit	Sets	2	2500.00	5000
8.00		Power & Control Wiring for Single Phase / Low Voltage Equipment & Controls:				
8.01		Power & Control Wiring & Earthing of Motorized Butterfly Valves:				
a	NDSR	SITC of Power and Control wiring & Earthing for Motorized Butterfly Valves including raceways complete in all respects as per specifications and any other item required to make the system complete.	Sets	4	1250.00	5000
8.02		Power & Control Wiring & Earthing of Single Phase Propeller Fans of Electrical Room (Utility Building):				
		Note: The Power Wiring of Propeller Fans of AC Plant Room is included in Cabling & Earthing Items 4.00 to 6.00 above.				
a		SITC of Power and Control wiring and earthing of Single Phase Fans including, supply and fixing of 3 pin 15A plug top, supply and installation of wiring with raceways between 3-pin plug, Fan motor etc. complete in all respects as per specifications and any other item required to make the system complete.	Sets	6	1250.00	7500
G		Building Management System:				
1.00		Central Equipment:				
1.01	NDSR	SITC of Desk Top Personal Computer with Intel i7 Processor, 3.4 GHz or better, Original Intel Motherboard, 4 GB RAM, 52 X DVD Writer with ROM, Minimum 1 TB Hard Disk, Minimum 2 serial; 1 parallel & 3 USB Ports on front of CPU, Inbuilt Speakers, Original Windows Operating System & MS Office Package, 21 Inch LED Colour Monitor, Wireless Mouse, & Wireless Key Board	Sets	1	180284.00	180284
1.02	NDSR	SITC of Desk Top B&W Laser Printer A-4 Size	Nos.	1	11781.00	11781
1.03	NDSR	SITC of 1 KVA Online UPS for above Computer & Printer with minimum 20 minutes power back up	Nos.	1	25355.00	25355

SCHEDULE OF QUANTITIES FOR HVAC SYSTEM						
PROJECT: REGIONAL SCIENCE MUSEUM, PATAN (GUJARAT)						
S.No	DSR Reference	Description	Units	Quantity	Unit Rate Supply	Total Amount (Supply + Installation Excluding taxes & duties)
1.04		SITC of DDC Control Panels complete with Data Gathering Equipment, Powder Coated Sheet Enclosures (as per specifications of Panels given under Electrical Works Section), UL/CE Listed Standalone DDC Controllers as per Data Point Schedule, Input/Output Relays as required, Power Supply Modules with necessary Step Down Transformers, Controllers to be with inbuilt real time clock & peer to peer communication capability & with 32 bit processors etc. complete in all respects as required to make the system complete. The panels shall be suitable for 230 V, Single Phase, 50 Hz Power Supply. The internal wiring shall be suitably segregated as per their voltages to avoid any signal interference.				
a	NDSR	GF-DDC Control Panel 01	Sets	1	600000.00	600000
b	NDSR	GF-DDC Control Panel 02	Sets	1	210000.00	210000
c	NDSR	GF-DDC Control Panel 03	Sets	1	210000.00	210000
d	NDSR	FF-DDC Control Panel 01	Sets	1	219000.00	219000
e	NDSR	FF-DDC Control Panel 02	Sets	1	235000.00	235000
f	NDSR	FF-DDC Control Panel 03	Sets	1	220000.00	220000
g	NDSR	SF-DDC Control Panel 01	Sets	1	232000.00	232000
h	NDSR	SF-DDC Control Panel 02	Sets	1	232000.00	232000
i	NDSR	SF-DDC Control Panel 03	Sets	1	200000.00	200000
j	NDSR	SF-DDC Control Panel 04	Sets	1	200000.00	200000
k	NDSR	3F-DDC Control Panel 01	Sets	1	190000.00	190000
l	NDSR	3F-DDC Control Panel 02	Sets	1	200000.00	200000
m	NDSR	3F-DDC Control Panel 03	Sets	1	195000.00	195000
n	NDSR	Terrace F-DDC Control Panel 01	Sets	1	200000.00	200000
o	NDSR	Terrace F-DDC Control Panel 02	Sets	1	200000.00	200000
p	NDSR	Utility- DDC Control Panel 01	Sets	1	335000.00	335000
1.05	NDSR	Hand Held Portable Terminal for above DDC Controllers	Nos.	1	67120.04	67120.0375
1.06	NDSR	SITC of Network Control Unit with connectivity to the DDC Controllers	Lot	1	81947.74	81947.735
1.07	NDSR	Software & 3rd Party integration Hardware:	Lot	1	356000.00	356000
a		SITC of Colour Graphic BMS Software for Control & Monitoring of the BMS System, operating on Windows platform				
b		SITC of all necessary Hardware & Software for the interface of the above systems and Third Party System Integration (As per Data Point Schedule) including providing of necessary adaptors / integrator / modules.				
c		software shall be sized to accommodate 800 Hardware points & additional software points up to 1000 Nos				
2.00		Peripherals:				
2.01	NDSR	SITC of Water Duty Immersion type temperature sensors with thermowells for measuring Chilled water & condenser water supply and return temperature (Range 32-160 deg. F)	Nos.	8	4255.00	34040
2.02	NDSR	SITC of Water Duty Differential Pressure Sensors (Transmitters if required), for measuring pressure for Secondary Chilled Water Pump Control (0 to 2.5 Kg / Sqcm)	Nos.	2	32472.00	64944
2.03		SITC of Two way Motorized On-Off Type Butterfly Valves complete with linkage and motorized on-off actuator complete in all respects as per specifications and any other item required to make the system complete. Valves shall be of PN16 rating & shall be with IP-65 Housing. (Nominal Dia in mm as indicated below):				
a	NDSR	150	Nos.	4	72386.00	289544
b	NDSR	125	Nos.	R/O	56513.00	
2.04	NDSR	SITC of Low Water Level Switch with IP-65 Housing for indicating Water level in Cooling towers, sumps and tanks.	Nos.	4	16000.00	64000
2.05	NDSR	SITC of Ambient Temperature cum Humidity sensors with IP-65 Housing for measuring outside air temperature and humidity (Range 35-130 deg. F)	Nos.	1	29263.00	29263
2.06	NDSR	SITC of Differential Pressure Type Dirty Filter Switch across the Air Handling Unit filters, for indicating the filter status.	Nos.	25	25000.00	625000
2.07	NDSR	SITC of Differential Pressure Type Air Flow Switch across the fans of Air Handling Units for Fan's Air Flow Status	Nos.	25	2500.00	62500
2.08	NDSR	SITC of Air Duty Temperature Sensor - Duct / Wall Mounted (As required by the duty) (Range 40 - 150 deg. F)	Nos.	25	4000.00	100000
2.09	NDSR	SITC of pressure Sensor - Duct / Wall Mounted (As required by the duty)	Nos.	20	4200.00	84000

SCHEDULE OF QUANTITIES FOR HVAC SYSTEM						
PROJECT: REGIONAL SCIENCE MUSEUM, PATAN (GUJARAT)						
S.No	DSR Reference	Description	Units	Quantity	Unit Rate Supply	Total Amount (Supply + Installation Excluding taxes & duties)
2.10		2 Way Chilled Water Duty Modulating Valves with Actuators:				
		SITC of 2 Way Modulating Valve with Linkages and Actuator compatible with the signal being received from BMS suitable for 24 V or 230 V AC power supply, suitable for accepting input of 0 to 10 V DC complete in all respects as per specifications and any other item required to make the system complete. Valves shall be of PN16 rating. The actuator shall have required shut off capability of minimum 5-bar rating.				
		Cast Iron Body Flanged Valves (Nominal Dia in mm as indicated below):				
a	16.11.3.7	100	Nos.	R/O	30586.00	
b	16.11.3.8	80	Nos.	4	13078.00	52312
c	16.11.3.9	65	Nos.	3	12952.00	38856
d	16.11.3.10	50	Nos.	2	12587.00	25174
e	NDSR	40	Nos.	7	11800.00	82600
f	NDSR	32	Nos.	4	11225.00	44900
2.11	16.11.3	Motorised Butterfly Valves with Actuators:				
		SITC of motorised butterfly Valve with Linkages and Actuator compatible with the signal being received from BMS suitable for 24 V or 230 V AC power supply, suitable for accepting input of 0 to 10 V DC complete in all respects as per specifications and any other item required to make the system complete. Valves shall be of PN16 rating. The actuator shall have required shut off capability of minimum 5-bar rating.				
		BUTTERFLY VALVE (motorised) with C I body SS Disc, Nitrile Rubber Seal & O- Ring PN 16 pressure rating for chilled water circulation as specified				
2.11.1	16.11.3.5	150	Nos.	2	31436.00	62872
2.11.2	16.11.3.6	125	Nos.	2	31465.00	62930
3.00		Cablings, Wiring & Conduiting:				
3.01		SITC of BMS Communication Cabling for DDC Networking	Rmt	600	71.00	42600
3.02		SITC of PVC Sheathed, insulated, Copper Conductor, 2 C x 1.0 Sqmm, unarmored, shielded twisted pair, signal cabling for connecting field devices	Rmt	8300	35.00	290500
3.02		SITC of PVC Sheathed, insulated, Copper Conductor, 4C x 1.0 Sqmm, unarmored, shielded twisted pair, signal cabling for connecting field devices	Rmt	2000	55.00	110000
3.03		SITC of Conduits including all supports & fittings such as clamps, bends, elbows, junctions, junction boxes etc.				
a		25 mm Dia GI Conduits	Rmt	5500	222.00	1221000
b		25 mm Dia Flexible GI Conduits	Rmt	300	81.00	24300
4.00		Cable Trays				
	4.6	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray along with all accessories such as Tees, Bends etc. (galvanisation thickness not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required.				
	4.6.1	100 mm width X 50 mm depth X 1.6 mm thickness	Rmt	500	436	218000
	4.6.2	150 mm width X 50 mm depth X 1.6 mm thickness	Rmt	R/O	504	
	4.6.4	300 mm width X 50 mm depth X 1.6 mm thickness	Rmt	R/O	703	
	4.6.6	450 mm width X 50 mm depth X 2.0 mm thickness	Rmt	R/O	1024	
	4.6.7	600 mm width X 50 mm depth X 2.0 mm thickness	Rmt	R/O	1257	
	NDSR	50 mm width X 50 mm depth X 1.6 mm thickness	Rmt	350	335	117250
		Grand Total:				39940239.82

NOTE-

1.0 Structural Steel required for supporting with painting for Ducting, Piping, cable trays, equipments etc, shall be consider in the respective boq line items. No separate claim shall be Entertained

2.0 NDSR- Non DSR Items

3.0 Over deck insulation shall be part of civil scope

SCHEDULE OF QUANTITIES FOR PUMP HOUSE EQUIPMENTS, PIPING, WATER TREATMENT PLANT FOR UNDERGROUND TANK						
PROJECT: RSM, PATAN (GUJARAT)						
S.No	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation excluding taxes & duties)
A		PUMPS, PANELS AND RELATED PIPES & ACCESSORIES (WITHIN DOMESTIC WATER SUPPLY PUMP ROOM)				
1	MR	Providing, fixing, jointing and testing in position ISI marked (IS : 1239) G.I pipes (Heavy class-C) (with screwed jointing by teflon tape) complete with all necessary G.I fittings i.e. sockets, elbows, tees, bends, reducers, unions, plugs, supports, clamps, Hangers etc. The Galvanization shall conform to IS : 4736. The work shall include the painting with two coats enamel paint of approved quality and shade over a coat of primer on exposed pipe works, complete as required by the Engg- <i>is charge for proper completion of the work</i>				
		50mm	RM	70.00	625.00	43,750.00
		65mm	RM	20.00	800.00	16,000.00
		80mm	RM	35.00	1,020.00	35,700.00
		100mm	RM	10.00	1,400.00	14,000.00
2	MR	Supply of Cast Iron / Ductile Iron double water seal type 600 x 600 mm Manhole Covers with frame for Underground Tank . The installation of the manholes covers shall be carried out by the Civil Contractor in accordance to the Civil drawings at required position				
		Heavy Duty (210 Kg)	Nos.	8.00	10,080.00	80,640.00
3	MR	Providing and fixing in position M.S. (hot dip galvanized) pipe one side flanged sleeves as per drawing with M.S. puddle flange fabricated out of 6 mm thick MS plate in RCC walls of water tanks / retaining walls during the time of casting.				
		65 NB (IS 1239 - C Class)	Nos.	RO	1,800.00	
		80 NB (IS 1239 - C Class)	Nos.	6.00	2,500.00	15,000.00
		100 NB (IS 1239 - C Class)	Nos.	12.00	3,500.00	42,000.00
		150 NB (IS 1239 - C Class)	Nos.	3.00	4,800.00	14,400.00
		200 NB (219.1 OD) (IS: 3589, 6.3 mm thick)	Nos.	RO	6,500.00	
4	MR	Providing and fixing in position M.S. (hot dip galvanized) pipe both side flanged sleeves as per drawing with M.S. puddle flange fabricated out of 6 mm thick MS plate in RCC walls of water tanks / retaining walls during the time of casting.				
		65 NB (IS 1239 - C Class)	Nos.	2.00	2,400.00	4,800.00
		80 NB (IS 1239 - C Class)	Nos.	4.00	3,000.00	12,000.00
		100 NB (IS 1239 - C Class)	Nos.	RO	4,200.00	
		150 NB (IS 1239 - C Class)	Nos.	8.00	5,500.00	44,000.00
		250 NB (IS 1239 - C Class)	Nos.	2.00	6,875.00	13,750.00
5		Providing and fixing in position M.S. (hot dip galvanized) pipe sleeves as per drawing in RCC walls of water tanks / retaining walls during the time of casting.				

SCHEDULE OF QUANTITIES FOR PUMP HOUSE EQUIPMENTS, PIPING, WATER TREATMENT PLANT FOR UNDERGROUND TANK						
PROJECT: RSM, PATAN (GUJARAT)						
S.No	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation excluding taxes & duties)
		100 NB (IS 1239 - C Class)	Nos.	4.00	3,000.00	12,000.00
6	MR	Providing and fixing in position vent connection to water storage tanks comprising two elbows of 50 mm dia. And mosquito proof brass wire mesh fixing in frame and welded to upstand pipe complete as required. (Length of pipe involved shall be measured seperately under item piping).	Nos	12	600.00	7,200.00
7	MR	Providing and fixing in position of approved quality high pressure rated Custom fabricated stainless steel Float Valve with 400 mm diameter stainless steel ball float and brass rods of required length suitable for test pressure of not less than 10 Kg/sqcm including teflon gasket, GI slip on flanges ANSI b16.5 class150, GI nuts, bolts, washers, etc complete as specified and shown in drawings. Contractor to share design details, test and calibration certificate with warranty of min 5 years. (For UCT)	Nos	5	25,000.00	1,25,000.00
8	MR	Supply & fixing in position ISI marked cast iron Wafer type butterfly valves (PN 16) as per IS:13095, with SS disc, SS shaft, SS seating rings, SS internal fastening, EPDM seat, CS external nuts-bolts including transporting to worksite etc. including testing, Complete as per drawings & directions of the Engineer-in-charge.				
		65 MM NB	Nos.	4.00	2,580.00	10,320.00
		80 MM NB	Nos.	12.00	3,170.00	38,040.00
		100 MM NB	Nos.	1.00	4,360.00	4,360.00
9	MR	Supply & fixing in position cast iron body dual plate wafer type check valve (NRV) (PN 16) with SS disc, SS stem, EPDM seat, spring & pin, SS stem, SS internal fastening, CS external fastening, including transportation to worksite, supply & fixing complete with testing as per direction of the Engineer - in - charge.				
		65 mm nominal dia	Nos.	4.00	2,320.00	9,280.00
10	MR	Providing & fixing cast iron body strainer made up of SS 304 screen having perforation of 500 micron, tested to a min. pressure of 15 kg/sqcm complete with flanged ends as required.				
		80 mm nominal bore	Nos.	4.00	4,648.00	18,592.00
		100 mm nominal bore	Nos.	RO	5,810.00	
11	MR	Providing, fixing & testing of Bulk water meter removable mechanism type with magnetic drive & vaccum sealed register, conforms to ISO 4064 class B, with necessary test certificate from local municipal authorities.				
		50 mm nominal bore	Nos.	2.00	12,500.00	25,000.00
		80 mm nominal bore	Nos.	RO	13,515.00	

SCHEDULE OF QUANTITIES FOR PUMP HOUSE EQUIPMENTS, PIPING, WATER TREATMENT PLANT FOR UNDERGROUND TANK						
PROJECT: RSM, PATAN (GUJARAT)						
S.No	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation excluding taxes & duties)
12	MR	Providing, fixing, jointing and testing in position flowguard UPVC sch 40 pipes with sch 80 fittings , UV stabilized, confirming to ASTM D 1785 & ASTM D 2467 suitable for dewatering pump discharge pipe in exposed works complete with all necessary fittings i.e. elbows, tees, bends, couplers, reducers, unions, plugs, transition fittings, clamps including jointing the pipe and fittings by solvent cement over primer coat as per ASTM D 2564 including proper support and clamped complete				
		65 mm Nominal Size	RM	5.00	400.00	2,000.00
		100 mm Nominal Size	RM	30.00	720.00	21,600.00
13	MR	Providing & fixing of hand lever operated uPVC ball valve type isolating valve (for dewatering pumps) including solvent welded joint as required.				
		65 mm nominal bore	Nos.	2.00	2,030.00	4,060.00
14	MR	Supply, installing, testing and commissioning of non clog submersible type drainage / dewatering pump suitable for automatic operation, float valve operated, automatic / manual operation, including NRV & all accessories, inlet & outlet arrangements, required cable etc. complete in all respects.				
		1 nos. Dewatering Pump Control unit for two nos. three phase pumps, to operate Pumps alternatively and in case of Excess inflow into the Sump, Both Pumps Will Start Automatically With Audio, Visual & Alarm Including All Standard Accessories Like Ammeter, Auto Manual switch, DOL Starter, Indicating Lights, And Pumps On/ Off Lights, Protection MCB, Dry Running Protection Etc.				
		8 lps at 14 meter , 10 mm min particle size, 50 Hz, 400 volts, IP 68, F/B insulation, Float level switches, impeller in CI / Polypropylene, casing in CI / polyurethan and shaft in stainless steel (1 set comprises of two number dewatering pumps & 1 no. control unit - for pump house drainage)	Set	1.00	1,40,979.30	1,40,979.30
15	MR	Providing, fixing, testing and commissioning of Compact Self Contained Skid Mounted - In-Line, Multisage, centrifugal pumps centrifugal, 2 pole, 50 HZ, AC, Hydro pneumatic pump, C.I. casing and frame, stainless steel shaft, bronze / SS impeller, TEFC induction motor directly coupled to the pump, IP44 protection, class B insulated, C.I. body, hydraulically and dynamically balanced to give vibration free operation, with mechanical seal arrangement, fixed on a base plate with suitable vibration eliminator pads complete with PCC foundation, bolts grouted in CC blocks of 1:2:4, suitably rated DOL / star-delta starter fixed inside main electrical panel complete with level controller, necessary wiring, pressure gauge on the delivery side and strainer on suction side, including non-return valve and isolating valves on suction and delivering sides as required, including suction and delivery headers complete in all respects. (The cost of necessary pipes and valves shall be separate). The duty of pump shall be -				

SCHEDULE OF QUANTITIES FOR PUMP HOUSE EQUIPMENTS, PIPING, WATER TREATMENT PLANT FOR UNDERGROUND TANK						
PROJECT: RSM, PATAN (GUJARAT)						
S.No	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation excluding taxes & duties)
		Domestic Water Supply Pumps - 2 nos. (1 working + 1 standby), having discharge : 2.71 LPS (each) at 48 meter head	Set	1.00	3,46,584.70	3,46,584.70
		External Pump mounted or wall mounted microprocessor PID controller and frequency inverter integrated in a single body or as separate components with pressure sensor transmitter minimum two lined LCD display, diodes to indicate pump ready, pump running and fault and capable to communicate with other controllers following MODBUS-RTU or BACNET Class-2 protocol through RS485 port. System should be capable to compensate for frictional losses at lower flows. All alarms and meters should be displayed in the controller. System should be equipped with dry running protection. Hooter alarm if any of the pump trips. all the pump status, KW rating, no of hrs run of pump to be available on panel as per requirement of client. The panel should have a 3 way switch for auto manual				
		Complete (Skid mounted wall mounted / floor mounted) electrical control panel comprising of all accessories such as PLCs(Allen bradley), pressure switches, control cabling/wiring, power cables, sensors/electrodes, float switches and any other necessary imports etc. (list to be provided by the vendor). Isolator switch on Panel MCCB with overload protection, earthfault & instantaneous protection. panel shall have energy meter. Panel shall have Tower lamp with on, off & trip indication & buzzer. Additional tower lamp with buzzer including reset/accept push button at 100m distance. The panel shall have with magnetic type level controllers and digital type level indicators. The panel will be suitable for automatic start-stop arrangement of water supply pumps and other equipments as required. The panel will have necessary indication & protection, digital ammeter & voltmeter with selector switches on incoming and ammeter with selector switch on all outgoing pump feeders with CT's, PT's, protective fuses, phase indicating lights, pump ON / OFF lights, switches for auto-manual operation of pumps, overload relays, single phasing preventor, dry suction cut off for Filter Feed Pumps & Domestic Water Supply Pumps necessary contactors inclusive of SS level sensing probes to be installed in water reservoirs for the proper completion of the system.				
		Panel shall be BMC compatible in case of emergency				
		Precharged diaphragm pressure vessel with food grade membrane, charging connection, connected to outlet header with necessary slip on flanges ANSI b16.5 class150, teflon gaskets, drain piping, isolating valves, nuts/bolts etc complete. Contractor should provide the calculation for sizing of vessel and test certificate i.e. for				
		Set of accessories such as Anti vibration pads, pressure switches, inter connecting power and control cabling etc. complete				

SCHEDULE OF QUANTITIES FOR PUMP HOUSE EQUIPMENTS, PIPING, WATER TREATMENT PLANT FOR UNDERGROUND TANK

PROJECT: RSM, PATAN (GUJARAT)

S.No	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation excluding taxes & duties)
		Contractor should provide test certificate and minimum of 2 years of warranty certificate. And spares list with part numbers and also list of authorised service providers and response time .				
16	MR	Providing, fixing, testing and commissioning of Compact Self Contained Skid Mounted - In-Line, Multisage, centrifugal pumps centrifugal, 2 pole, 50 HZ, AC, monoblock pumps (as per IS : 9079) incorporating C.I. casing and frame, stainless steel shaft, bronze / SS impeller, TEFC induction motor directly coupled to the pump, IP44 protection, class B insulated, C.I. body, hydraulically and dynamically balanced to give vibration free operation, with mechanical seal arrangement, fixed on a base plate with suitable vibration eliminator pads complete with PCC foundation, bolts grouted in CC blocks of 1:2:4, suitably rated DOL / star-delta starter fixed inside main electrical panel complete with level controller, necessary wiring, pressure gauge on the delivery side and strainer on suction side, including non-return valve and isolating valves on suction and delivering sides as required, including suction and delivery headers complete in all respects. (The cost of necessary pipes and valves shall be seperate). The duty				
		2 nos. (1 working + 1 standby), having discharge : 2.71 lps (each) at 48 meter head (for HVAC-makeup	Set	1.00	3,46,584.70	3,46,584.70
		External Pump mounted or wall mounted microprocessor PID controller and frequency inverter integrated in a single body or as separate components with pressure sensor transmitter minimum two lined LCD display, diodes to indicate pump ready, pump running and fault and capable to communicate with other controllers following MODBUS-RTU or BACNET Class-2 protocall through RS485 port. System should be capable to compensate for frictional losses at lower flows. All alarms and meters should be displayed in the controller. System should be equipped with dry running protection. Hooter alarm if any of the pump trips. all the pump status, KW rating, no of hrs run of pump to be available on panel as per requirement of client.The panel should have a 3 way switch for auto manual				

SCHEDULE OF QUANTITIES FOR PUMP HOUSE EQUIPMENTS, PIPING, WATER TREATMENT PLANT FOR UNDERGROUND TANK

PROJECT: RSM, PATAN (GUJARAT)

S.No	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation excluding taxes & duties)
		Complete (Skid mounted wall mounted / floor mounted) electrical control panel comprising of all accessories such as PLCs(Alen bradley), pressure switches, control cabling/wiring, power cables, sensors/electrodes, float switches and any other necessary imports etc. (list to be provided by the vendor). Isolator switch on Panel MCCB with overload protection, earthfault & instentaneous protection. panel shall have energy meter.Panel shall have Tower lamp with on, off & trip indication & buzzer. Additional tower lamp with buzzer including reset/accept push button at 100m distance. The panel shall have with magnetic type level controllers and digital type level indicators. The panel will be suitable for automatic start-stop arrangement of water supply pumps and other equipments as required. The panel will have necessary indication & protection, digital ammeter & voltmeter with selector switches on incomer and ammeter with selector switch on all outgoing pump feeders with CT's, PT's, protective fuses, phase indicating lights, pump ON / OFF lights, switches for auto-manual operation of pumps, overload relays, single phasing preventor, dry suction cut off for Filter Feed Pumps & Domestic Water Supply Pumps necessary contactors inclusive of SS level sensing probes to be installed in water reservoirs for the proper completion of the system.				
		Precharged diaphragm pressure vessel with food grade membrane, charging connection, connected to outlet header with necessary slip on flanges ANSI b16.5 class150, teflon gaskets,drain piping, isolating valves, nuts/bolts etc complete. Contractor should provide the calculation for sizing of vessel and test certificate i.e. for				
		Set of accessories such as Anti vibration pads, pressure switches, inter connecting power and control cabling etc. complete				
		Contractor should provide test certificate and minimum of 2 years of warranty certificate. And spares list with part numbers and also list of authorised service providers and response time .				
17	MR	Providing, fixing, testing and commissioning of centrifugal pumps - 2 nos (1W+1S) having discharge : 2.7lps (each) at 15 meter head including all valves &	Nos.	2.00	76,000.00	1,52,000.00

SCHEDULE OF QUANTITIES FOR PUMP HOUSE EQUIPMENTS, PIPING, WATER TREATMENT PLANT FOR UNDERGROUND TANK						
PROJECT: RSM, PATAN (GUJARAT)						
S.No	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation excluding taxes & duties)
18	MR	Design, manufacture, supply, storing, inspection, handling, assembling, installation in correct alignment, position, affecting proper connections, testing and commissioning of 14 SWG CRCA sheet steel fabricated cubical type Electrical Control Panel for water supply pumps / equipments , floor mounting, dust & vermin proof, front operated construction, enclosure class - IP 4X, powder coated after proper treatment with 9 tank process' compartmentized having separate bus bar and cable alley chamber with top/bottom removable gland plates, as required, double compression type cable glands, earth bus, hinged and lockable doors to achieve dust and vermin proof complete with all inter connections small wiring by min. 1.5 sq. mm. FRLS copper wires, ckt labels etc. The panel feeders shall be suitable for terminating suitable nos. 3 / 3.5 / 4 core armoured aluminium cable				
		The panel shall have with magnetic type level controllers and digital type level indicators. The panel will be suitable for automatic start-stop arrangement of water supply pumps and other equipments as required. The panel will have necessary indication & protection, digital ammeter & voltmeter with selector switches on incomer and ammeter with selector switch on all outgoing pump feeders with CT's, PT's, protective fuses, phase indicating lights, pump ON / OFF lights, switches for auto-manual operation of pumps, overload relays, single phasing preventor, dry suction cut off for Filter Feed Pumps & Domestic Water Supply Pumps necessary contactors inclusive of SS level sensing probes to be installed in water reservoirs for the proper completion of the system.				
		The panel will include Digital type multi level indicator (5 levels) display system of water levels for 4 nos underground water tanks / compartments.				
		Starter - Star delta starters for above 7.5 HP pumps & DOL Starters for upto 7.5 HP pumps to be installed as mentioned in outgoing feeders.				
		Incoming MCCB shall be thermomagnetic based with E/F protection & All outgoings MCCB's shall be thermal magnetic. All MCCB's shall be Ics = 100% Icu, with rotary handle & pad locking arrangement. The breaking capacity specified id Ics values. All TP MCCB shall be with heavy duty solid isolable neutral link.				
		The fault withstanding capacity of panel shall be 15 KA rms for 1 sec.				
		Electrical Energy Metering will be provided in all booster / filter feed pump feeders for energy consumption record.				
		The following pumps shall be controlled by the panel :				

SCHEDULE OF QUANTITIES FOR PUMP HOUSE EQUIPMENTS, PIPING, WATER TREATMENT PLANT FOR UNDERGROUND TANK						
PROJECT: RSM, PATAN (GUJARAT)						
S.No	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation excluding taxes & duties)
		(a) Four sets of centrifugal water transfer pumps each set having 1 working and 1 stand by. (To cut off pump when water level is high (full level) in delivery tank or low (10% fill) in suction tank and start when delivery water tank level is low (25% fill)) (1 set of pump for Gallery-1 & balance 3 sets provision for other 3 Galleries)				
		(b) One set of filter feed pump of water treatment unit having 1 working & 1 standby pumps. (To cut off pump when water level is high (full level) in delivery tank and start when delivery water tank level is low (10% fill))				
		(c) 1 nos. Dewatering Pump Control unit for two nos. three phase pumps.				
		Notes : - 1) Water Levels as specified for automation are recommendatory which may change as per site conditions with prior approval. 2) Audible alarm also to be provided at low level (10% fill) & overflow situation in Raw & Treated Water Tanks.				
		INCOMER : 125 AMP FP MCCB (25 KA)				
		BUS BAR : 200 AMP, 500 Volts, 3 phase 50 HZ FP high conductivity electrolytic Aluminium bus bar of suitable length, insulated by heat shrinkable sleeves. The current density of bus bar shall be minimum 1.00 sq mm / amp.				
		OUT GOINGS :				
		2 nos 32 AMP TP MCB (15 KA) - for domestic water supply pumps along with starter				
		2 nos 32 AMP TP MCB (15 KA) - for Hvac makeup - water supply pumps along with starter				
		2 no 32 AMP TP MCB (15 KA) - for filter feed pumps along with starter				
		1 no 25 AMP TP MCB (15 KA) - for dewatering pumps control panel				
		2 no 32 AMP TP MCB (15 KA) - for Ventilation feeder				
		3 no 32 AMP TP MCB (15 KA) - spares	Set	RO	4,80,000.00	
19	MR	Supply, installation, testing & commissioning of magnetic type level controllers to be installed in various tanks and digital type level indicators (for 6 Nos Underground Tank & 6 nos. Over Head Tank) inclusive of SS level sensing probes with suitable arrangement for automatic start-stop of water supply pumps and other equipments as required. (Note : - Vendor should also consider the future provision of level	Set	1.00	50,000.00	50,000.00

SCHEDULE OF QUANTITIES FOR PUMP HOUSE EQUIPMENTS, PIPING, WATER TREATMENT PLANT FOR UNDERGROUND TANK						
PROJECT: RSM, PATAN (GUJARAT)						
S.No	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation excluding taxes & duties)
20	MR	Supply & Laying of ISI marked aluminium conductor XLPE insulated cable as per IS 7098, armoured, served, sheathed 1100 volts grade for power supply to various pumps and equipments from WTP panel to respective equipments. The job will include the supply and installation of lugs and double compression glands.	Lot	1.00	25,000.00	25,000.00
21	MR	Supply & Laying of ISI marked Copper conductor PVC insulated control cable as per IS 1554 PVC sheathed 1100 volts grade for controlling of various equipments / level controller / level indicator etc as required to complete the work.	Lot	1.00	30,000.00	30,000.00
22	MR	G.I. EARTHING				
		i) Providing and laying suitable dia G.I. wire on surface, in recess or in ground including connections for loop earthing as required.	Lot	1.00	1,500.00	1,500.00
		ii) Providing & fixing suitable size G.I. strip on surface, in recess or in ground including connections etc. as required.	Lot	1.00	5,000.00	5,000.00
23	MR	Supply and erection of Perforated type cable trays made out of prefabricated Galvanized sheet steel of suitable sizes including tees, bends, crossings, reducers, couplings to be installed over head on wall or hanged from ceiling including all necessary supports, brackets at every 1500 mm c/c, grouting, levelling, suspension and fixing arrangements, dash fastners, G.I.	Lot	1.00	15,000.00	15,000.00
B		WATER FILTERATION PLANT				
		Supplying, installing, testing & commissioning of water filtration plant (for 50 KL per Day) comprising of the following including all necessary inter connecting piping, control valves, electrical cables, control cables, other accessories etc. as directed and required at site to complete the work.				
1		FILTER FEED PUMPS				
		Providing, fixing, testing and commissioning of single stage, horizontal, centrifugal, 2 pole, 50 HZ, AC, monoblock pumps (as per IS : 9079) incorporating C.I. casing and frame, stainless steel shaft, bronze / SS impeller, TEFC induction motor directly coupled to the pump, IP44 protection, class B insulated, C.I. body, hydraulically and dynamically balanced to give vibration free operation, with mechanical seal arrangement, fixed on a base plate with suitable vibration eliminator pads complete with PCC foundation, bolts grouted in CC blocks of 1:2:4, suitably rated DOL / star-delta starter fixed inside main electrical panel complete with level controller, necessary wiring, pressure gauge on the delivery side and strainer on suction side, including non-return valve and isolating valves on suction and delivering sides as required, including suction and delivery headers complete in all respects.				

SCHEDULE OF QUANTITIES FOR PUMP HOUSE EQUIPMENTS, PIPING, WATER TREATMENT PLANT FOR UNDERGROUND TANK						
PROJECT: RSM, PATAN (GUJARAT)						
S.No	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation excluding taxes & duties)
		Filter Feed Pumps - 2 nos (1W+1S), having discharge : 10,000 lit/hr (each) at 35 meter head				
2		<p>MULTI GRADE FILTER - 1 nos.</p> <p>Supply, installation & testing and commissioning of vertical floor mounted mild steel pressure type Multi Grade filter of suitable size, provided with an inlet distributor. The vessel is painted externally with epoxy paint with primer and internally with 2 mm thick FRP lining with frontal piping & valves, back wash system & filter media etc. complete with standard fittings like manhole cover, pressure gauge at inlet & outlet, sampling cock, rinse drain valve, air vent valve with piping bolts, nuts & rubber gaskets</p> <p>Flow rate = 10000 Lit/hr at 5 hrs operation</p> <p>Vessel Dia = 1000 mm</p> <p>HOS = Min. 1500 mm</p> <p>Filtration rate = 16 M3/M2/Hr</p> <p>Shell/ Dish thickness = 6 / 8 mm</p> <p>Working pressure = 3.5 Kg/Sq.cm.</p> <p>Test pressure = 5.5 Kg/Sq.cm.</p>				
3		<p>ACTIVATED CARBON FILTER - 1 nos.</p> <p>Supply, installation & testing and commissioning of vertical floor mounted mild steel pressure type Activated Carbon filter of suitable size, provided with an inlet distributor. The vessel is painted externally with epoxy paint with primer and internally with 2 mm thick FRP lining with frontal piping & valves, back wash system & activated carbon media etc. complete with standard fittings like manhole cover, pressure gauge at inlet & outlet, sampling cock, rinse drain valve, air vent valve with piping bolts, nuts & rubber gaskets</p> <p>Flow rate = 10000 Lit/hr at 5 hrs operation</p> <p>Vessel Dia = 1000 mm</p> <p>HOS = Min. 1500 mm</p> <p>Filtration rate = 15 M3/M2/Hr</p> <p>Shell/ Dish thickness = 6 / 8 mm</p> <p>Working pressure = 3.5 Kg/Sq.cm.</p> <p>Test pressure = 5.5 Kg/Sq.cm.</p>				
4		<p>Providing and fixing all piping (GI Piping -Class C) (with screwed jointing by teflon tape) and isolation control Ball / butterfly valves (Min. PN 10) with SS disc of required sizes and numbers with all accessories, fittings, supports, clamps, double flanged flexicon rubber expansion joint with rubber gasket as per system pressure, nuts, bolts, washers, puddle flanges for all tanks, other flanges, check valve with SS disc, flow control valves, flow measurement device, SS 304 screen strainers at suction of clear water pumps for making the system complete in all respects with anti corrosive protection. Battery Limit for WTP Piping is from Filter Feed Pump Suction including Butterfly Valve & Strainer at main suction line till outlet pipe into under <u>ground tank from Filter header.</u></p> <p>Butterfly Valve : Cast Iron Wafer type butterfly valves (PN 10) as per IS:13095, with SS disc, SS shaft, SS seating rings, SS internal fastening, EPDM seat, CS external nuts-bolts.</p>				

SCHEDULE OF QUANTITIES FOR PUMP HOUSE EQUIPMENTS, PIPING, WATER TREATMENT PLANT FOR UNDERGROUND TANK						
PROJECT: RSM, PATAN (GUJARAT)						
S.No	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation excluding taxes & duties)
		Check Valve : Cast Iron body dual plate wafer type check valve (NRV) (PN 10) with SS disc, SS stem, EPDM seat, spring & pin, SS stem, SS internal fastening, CS external fastening.				
		The various pipe sizes should be selected that the Maximum velocity in any pipe should not exceed 1.50				
5		Contractor shall include all electrical and mechanical items as required to operate the system automatically/ manually and also include in his rates all water level controller for automatic operation of pumps, electrical wiring, armoured aluminium power cables and copper control cables between panel to various pumps & equipments, cable terminations, double compression glands, GI perforated cable trays to carry cables from panel to various equipments including supports, with all accessories complete as required. Only main power supply upto the WTP panel shall be provided by the owner.				
6		The Contractor shall have to submit detailed GA drawings, P & I diagram, schematic diagram and shop drawings of the water treatment plant indicating all component, piping, valves etc for the complete working				
7		The entire installation shall be complete in all respects including all interconnecting pipe line, control valves, pressure gauge, meters, etc at suitable places including electrical control panel for pumps and plant. The system should be complete in all respects.	Job	1.00	6,50,000.00	6,50,000.00
8		Supplying, installing, testing and commissioning of softner with Indion -220 Na cation resin, fabricated with one mild steel pressure vessel provided with an inlet distributor, The vessel is painted externally with epoxy paint with primer and internally with 2 mm thick FRP lining with frontal piping & valves, one water meter for checking rate and recording total quantity of soft water generated, pressure gauges with isolation valves on inlet and outlet, with initial charge of filter media and resins, suitable brine HDPE tank & injector assembly with hose pipe orifice board, necessary piping, agitator, testing kit etc. complete. and any other accessories, raw materials, salt required (first charge) for the successful commissioning and operation of the system complete in all respects.				
		Flow rate = 10 M3 / hr at 5 hrs operation				
		OBR = 50 m3				
		Resin Qty. = 550 ltrs.				
		Vessel Dia = 800 mm				
		HOS = 1800 mm				
		Brine Tank Cap. = 1000 Ltrs.				
		Raw water hardness = 600 ppm (assumed)				
		Soft water hardness < 100 ppm				
		Shell / Dish thickness = 6 / 8 mm				
		Working pressure = 3.5 Kg/Sq.cm.				
		Test pressure = 5.5 Kg/Sq.cm.				
		Qty = 1 Set	Set	1.00	6,00,000.00	6,00,000.00
		Note: - In the absence of Water Test Report we have taken softening plant by assuming Raw Water Hardness at 600 ppm. Softener dia will change in case				

SCHEDULE OF QUANTITIES FOR PUMP HOUSE EQUIPMENTS, PIPING, WATER TREATMENT PLANT FOR UNDERGROUND TANK						
PROJECT: RSM, PATAN (GUJARAT)						
S.No	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation excluding taxes & duties)
		GRAND TOTAL (Rs.)				29,76,140.70

SCHEDULE OF QUANTITIES FOR PLUMBING WORKS

PROJECT: RSM, PATAN (GUJARAT)

S.No	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation excluding taxes & duties)
A						
WATER SUPPLY PIPES AND FITTINGS						
1	18.7	Providing, fixing chlorinated polyvinyl Chloride (CPVC) pipes , having thermal stability for hot and cold water supply including all CPVC plain and brass threaded fittings including fixing the pipes with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in charge.				
		Internal work-exposed on wall				
	18.7.1	15mm nominal outer dia pipes	R.M.	290	142.95	41,455.50
	18.7.2	20mm nominal outer dia pipes	R.M.	180	179.95	32,391.00
	18.7.3	25mm nominal outer dia pipes	R.M.	80	216.20	17,296.00
	18.7.4	32mm nominal outer dia pipes	R.M.	30	289.05	8,671.50
	18.7.5	40mm nominal outer dia pipes	R.M.	50	385.50	19,275.00
2	18.8	Providing, fixing chlorinated polyvinyl Chloride (CPVC) pipes , having thermal stability for hot and cold water supply including all CPVC plain and brass threaded fittings including fixing the pipes with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer in charge.				
		Concealed work including cutting chase and making good the wall etc.				
	18.8.1	15mm nominal outer dia pipes	R.M.	780	246.20	1,92,036.00
	18.8.2	20mm nominal outer dia pipes	R.M.	320	284.85	91,152.00
B						
SUPPLY OF SANITARY FIXTURES, ACCESSORIES AND BATHROOM FITTINGS						
1	MR	Providing & fixing white vitreous china wall hung type European W.C. pan suitable for concealed flushing cistern with white plastic seat and lid with C.P. brass hinges & rubber buffers, bracket / support for fixing of WC of standard make of approved municipal design complete, including all fittings and brackets,connectors, cutting and making good the walls and floors wherever required. Colour Starwhite				
		Make: Hindware				
		Cat No- 20105(P-23.5)	Nos	47	5,874.00	2,76,078.00
2	MR	Providing & fixing 3/6 litre dual flush type low level concealed flushing cistren 80mm (2.5 / 5 ltrs per flush) with flush plate, fittings and Fasteners, over flow arrangement with specials of standard make of approved municipal design complete, including all fittings and brackets, cutting and making good the walls and floors wherever required.				
		Make: Hindware				
		Cat No- Concealo 80mm	Nos	47	4,870.00	2,28,890.00
3	MR	Providing C.P. Brass health faucet for ablution ABS with Double lock 1.2m stainless steel flexible hose & Wall hook , hand shower, couplings, and other accessories complete in all respect as per the direction of Engineer in Charge .				
		Make: Hindware				
		Cat No-F160001	Nos	47	812.00	38,164.00
4	MR	Providing & Fixing of white vitreous china Oval / Round wash basin (Zen undercounter basin) of size 560 x 450 mm dia including C.P. brass waste coupling but without C. P. brass pillar tap, complete in all respect as per the direction of Engineer in Charge . Colour starwhite				

S.No	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation excluding taxes & duties)
		Make: Hindware				
		Cat No- 10049 Under Counter Basin	Nos	57	1,885.00	1,07,445.00
		Cat No-F850002 (Full thread waste coupling)	Nos	57	302.00	17,214.00
5	MR	Providing C.P. Brass Pillar Cock (Sensor Type) battery operated with 6V battery for wash basin having flow rate of 5.0 Lpm at 3 Bar pressure, confirming to IS standards complete in all respect as per the direction of Engineer in Charge .				
		Make: Hindware				
		Cat No- F240001	Nos	57	2,376.00	1,35,432.00
6	MR	Providing & Fixing of 32mm dia CP brass Bottle Trap with 125mm &175mm long with wall connecting pipe & wall flange for Wash Basin and Sink, complete in all respect as per the direction of Engineer in Charge.				
		Make: Hindware				
		Cat No- F850015	Nos	57	982.00	55,974.00
7	MR	Providing & fixing white vitreous china battery based infrared sensor operated urinal Hindware FLOW Urinal of approx size 295x325x575mm having pre & post flushing with water (250 ml & 500 ml consumption), having water inlet from back side, including fixing to wall with suitable brackets all as per manufacturers specification and direction of Engineer-in-charge.				
		Make: Hindware				
		Cat No- 60021	Nos	75	7,509.00	5,63,175.00
8	MR	Providing & Fixing of white vitreous china Janitor sink of supported CI/MS brackets duly painted, C.P. cast brass bottle trap with extension piece, rubber adopter, wall flange, union, C.P. brass chain rubber plug complete as required.	Nos	7	6,850.00	47,950.00
9	MR	Supplying, Installing & testing 15 mm CP bib cock with CP flanges including necessary fixing materials etc., complete. (AHU Room)				
		Make: Hindware				
		Cat No- F200003	Nos	14	690.00	9,660.00
10	MR	Supplying, Installing & testing Two way bib cock including necessary fixing materials etc., complete.				
		Make: Hindware				
		Cat No-F200004FT	Nos	47	1,090.00	51,230.00
11	MR	Providing & Fixing of S.S. Grating for Toilet drain of approved brand, complete in all respect as per the direction of Engineer in Charge .				
		Make: Jayna, Chilly, Hightech				
		Model: TGS 150H	Nos	RO	610.00	-
12	MR	Supplying automatic 'NO-Touch ' ABS electric hand-driers complete with all accessories & fittings.				
		Make: Euronics, Jaquar				
		Model:EH-22 (EURONICS)	Nos	14	4,934.00	69,076.00
13	MR	Providing & Fixing of SS body liquid soap dispenser , complete in all respect as per the direction of Engineer in Charge .				
		Make: EURONICS				
		Model: ES-05 (S.S - 800ML)	Nos	28	1,550.00	43,400.00
14	MR	Providing & Fixing of CP brass Toilet Roll Holder with Flap , complete in all respect as per the direction of Engineer in Charge				
		Make: Hindware				
		Cat no-F880003	Nos	47	1,027.00	48,269.00
15	MR	Providing & Fixing of Stainless steel wall mount Paper dispenser (capacity: 450-500 papers towels) including all fittings and accessories, complete in all respect as per the direction of Engineer in Charge				
		Make: EURONICS				
		Model: EP-01	Nos	14	3,030.00	42,420.00

S.No	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation excluding taxes & duties)
16	MR	Providing & fixing stainless steel A ISI 304 (18/8) kitchen sink with drain board as per IS :13983 with C.I. brackets and stainless steel plug 40 mm, including painting of fittings and brackets, cutting and making good the walls wherever required. Size: 1065x510x250				
		Make: Jayna, Nirali, Franke				
		Model: SBS06	Nos	3	8,730.00	26,190.00
17	MR	Providing & Fixing of CP brass Classik Kitchen Sink Mixer with swivel casted spout (Wall Mounted) including all fittings, complete in all respect and as per the satisfaction of Engineer-in-charge.				
		Make: Hindware				
		Cat no-F200023	Nos	3	1,850.00	5,550.00
18	MR	Providing & fixing unplasticised CP connection pipe with brass unions 45 cm in length and 15mm nominal bore, complete in respect and as per the satisfaction of engineer-in-charge.	Nos	50	200.00	10,000.00
19	MR	Providing & Fixing of Robe hook complete with all accessories & fittings				
		Make: Hindware				
		Cat no-F870007	Nos	47	850.00	39,950.00
20	MR	Providing 750 mm long SS-304 swing type grab bar suitable for wall mounting installation. (For WC), complete in all respect as per the direction of Engineer in Charge				
		Make: Euronics				
		Model No: : EGR 01 (EURONICS)	Nos	47	1,702.00	79,994.00
21	MR	Providing 450 mm long SS-304 grab bar (Straight Hand Rail) suitable for wall mounting installation. (For Wash Basin), complete in all respect as per the direction of Engineer in Charge				
		Make: Euronics,				
		Model No: : EGR 01 (EURONICS)	Nos	47	1,262.00	59,314.00
22	MR	Providing & fixing 15 mm nominal bore C.P brass angle valve for basin mixer and geyser points of approved quality conforming to IS 8931.				
		Make: Hindware				
		Cat no- F850073	Nos	122	520.00	63,440.00
23	MR	Providing & Fixing Handicapped toilet complete with				
		Make: Hindware				
		Mat code - 70002, EWC (P-18)				
		1. Wash Basin : 46 x 36 cm, WB 46 x 36 with one pair mounting brackets, and other accessories complete as				
		2. EWC & Cistern complete with fittings & seat cover,				
3. Fixing one no. hinged rail 76 cm						
4. Fixing 4 nos. of grab rails 60 cm.	Nos	7	39,711.00	2,77,977.00		
C		WATER SUPPLY PIPES AND FITTINGS				

S.No	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation excluding taxes & duties)
1	MR	<p>Supplying, Installing, Testing and Commissioning approved make Heavy quality (Class C') GI pipes and fittings with socket welded joints upto 40 mm and welded joint GI seamless fittings above 50 mm diameter pipe. Fittings upto 50 mm diameter shall be as per IS:1239, Parts I & II, Malleable Specials such as tees, elbows, checknuts, unions, slip on slip on flanges ANSI b16.5 class150, nipples, etc. Fittings shall comply to ASTM A105 & ASTM A234 Gr. WPB. slip on flanges ANSI b16.5 class150 shall be as per ASTM A105 & IS: 2062. slip on flanges ANSI b16.5 class150 shall be dimensionally as per ANSI B16.5, 150#. Installation shall include cutting, threading, fixing in/ on walls, ceiling, underfloor, etc. as per drawing.</p> <p>The quoted rate shall include for necessary excavation in any type of soil and back filling, chasing the walls, making bore in walls, etc. and making good the chased surfaces and bores in cement mortar, etc. , testing the system complete.</p> <p>Note: Rate shall be inclusive of all fabricated mild steel hot dip galvanised metal supports, fasteners, hardware</p> <p>FROM UGR TO OHT</p>				
		50mm nominal bore	R.M.	350	840.40	2,94,141.19
2	GWSSB SOR Section A Item no. 6	<p>GWSSB SOR Section -A Item no. 6 Providing & supplying in standard length ISI mark high density polyethylene HDPE pipes suitable for potable water as per IS specification no. 4984/4995 including all local & central taxes , transportation, freight charges, octroi, inspection charges, loading , unloading, conveyance to the dept. stores etc. complete.</p>				
		50mm nominal bore	R.M.	451	129.00	58,179.00
3	MR	<p>Providing, fixing, jointing and testing in position UPVC sch 40 pipes with sch 80 fittings, UV stabilized, conforming to ASTM D 1785 & ASTM D 2467 suitable for cold water supply in concealed or exposed works complete with all necessary fittings i.e. elbows, tees, bends, couplers, reducers, unions, plugs, transition fittings, clamps including jointing the pipe and fittings by solvent cement over primer coat as per ASTM D 2564 including proper support and clamped complete as required (inside ducts these shall be properly clamped through duct walls by rubber lined G.I. U strap clamp / bracket) on 40x40x3 mm G.I slotted angle included threaded fittings with or without brass inserts as required by the Engg-in-charge for proper completion of the work. All termination points for installation of faucets shall have brass terminal fittings. (The price excludes cutting chases and making good the walls)</p> <p>FOR FRESH/ RECYCLED WATER INSIDE SHAFT AND TERRACE</p>				
		20 mm	R.M.	119	179.53	21,363.83
		25 mm	R.M.	10	238.35	2,383.54
		32 mm	R.M.	70	320.57	22,439.73
		40 mm	R.M.	45	384.92	17,321.26
		50 mm	R.M.	92	522.14	48,036.67
		65 mm	R.M.	80	743.98	59,518.05
4		<p>Supplying and wrapping 13 mm thick closed cell elastomeric tube insulation "Class O" for concealed hot water pipes as per manufacturer's instructions and as specified.</p> <p>Pipe sizes mentioned below are Nominal Size. (For hot water)</p>				
		20 mm OD	R.M.	10	350.00	3,500.00
		25 mm OD	R.M.	10	450.00	4,500.00
		32 mm OD	R.M.	RO	550.00	-
		40 mm OD	R.M.	RO	750.00	-

S.No	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation excluding taxes & duties)
5	MR	Supplying, Installing and Testing approved make forged brass ball valves quarter turn lever operated, full bore, two piece design, screwed female end conforming to IS: 554, chrome plated ball, PTFE Body rings and gland packing, chrome finish with all necessary fittings and accessories i.e, unions, connectors, adapters, PTFE tape, etc., complete as directed and specified.				
		15 mm nominal bore	Nos.	7	240.00	1,680.00
		20 mm nominal bore	Nos.	9	310.00	2,790.00
		25 mm nominal bore	Nos.	10	390.00	3,900.00
		32 mm nominal bore	Nos.	9	510.00	4,590.00
		40 mm nominal bore	Nos.	4	760.00	3,040.00
		50 mm nominal bore	Nos.	17	1,250.00	21,250.00
		65 mm nominal bore	Nos.	RO	2,030.00	-
6	MR	Providing & fixing of hand lever operated uPVC (Sch 80) ball valve type isolating valve (PN16) including solvent welded joint as required.				
		15 mm nominal bore	Nos.	RO		-
		20 mm nominal bore	Nos.	RO		-
		25 mm nominal bore	Nos.	RO		-
		32 mm nominal bore	Nos.	RO		-
		40 mm nominal bore	Nos.	RO		-
		65 mm nominal bore	Nos.	RO		-
7	MR	Providing and fixing of cast iron Manhole Cover with frame for overhead / underground water storage tanks. The fixing of frame shall be done during the casting of the RCC slab of the tank. (For OHT)				
		450 x 600 mm (38 Kg)	NOS	10	2,480.00	24,800.00
8	MR	Providing & fixing air release valve with forged brass body full way ball valve type isolating valve, flanges / union, suitable for sprinkler / wet riser / down comer system with all necessary connections complete in all respects.				
		25 mm dia air release valve	NOS	4	1,500.00	6,000.00
9	MR	Supply & fixing in position ISI marked cast iron Wafer type butterfly valves (PN 16) as per IS:13095, with SS disc, SS shaft, SS seating rings, SS internal fastening, EPDM seat, CS external nuts-bolts including transporting to worksite etc. including testing. Complete as per drawings & directions of the Engineer-in-charge.				
		50 mm dia.	nos	RO	2,300.00	-
		65 mm dia.	nos	14	2,580.00	36,120.00
10	MR	Providing and fixing C I body flanged strainer fabricated out of 1.6 mm thick Stainless Steel 304 sheet having 0.6 mm to 0.8 mm dia perforations complete. (Make : Advance / Audco / SKS / Lehry)				
		50 mm dia.	nos	4	3,840.00	15,360.00
		65 mm dia.	nos	1	4,530.00	4,530.00
11	MR	Providing and fixing in position of approved quality high pressure rated Gun Metal Solenoid valves with high and low level electrodes and control cables of required length with housing suitable for test pressure of not less than 15 Kg/cm ² of the following sizes:				
		40 NB	nos	RO		
		50 NB	nos	5	59,200.00	2,96,000.00

S.No	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation excluding taxes & duties)
12	MR	Providing and fixing in position of approved quality high pressure rated Custom fabricated stainless steel Float Valve with 400 mm diameter stainless steel ball float and brass rods of required length suitable for test pressure of not less than 10 Kg/sqcm including teflon gasket, GI slip on flanges ANSI b16.5 class150, GI nuts, bolts, washers, etc complete as specified and shown in drawings. Contractor to share design details, test and calibration certificate with warranty of min 5 years.				
		40 NB	nos	RO		
		50 NB	nos	7	25,000.00	1,75,000.00
13	MR	Providing and fixing in position M.S. / G.I. pipe flanged / threaded sleeves of upto 600 mm long (heavy class) with M.S. puddle flange fabricated out of 6 mm thick MS plate in RCC walls of water tanks / retaining walls during the time of casting the same including hot dipped galvanization after fabrication and painting with two coats of anti corrosive paint over primer.				
		50 NB	Nos	27	1,500.00	40,500.00
		65 NB	Nos	2	1,800.00	3,600.00
		80 NB	Nos	RO	2,500.00	-
		150 NB	Nos	3	4,500.00	13,500.00
14	MR	Providing and fixing in position vent connection to water storage tanks comprising two elbows of 50 mm dia. And mosquito proof brass wire mesh fixing in frame and welded to upstand pipe complete as required. (Length of pipe involved shall be measured seperately under item piping).	Nos	14	600.00	8,400.00
15	MR	Supplying and fixing Full Stainless Steel Water cooler with purifiers having cooling capacity 150 ltrs/hr and storage capacity 150 ltrs, including SS tank, trough & Faucets, CTC free refrigerant, high quality copper tubes with rippled Aluminium fins with adustable legs.				
		Make: VOLTAS				
		Model No: :	Nos	4	89,280.00	3,57,120.00
16	MR	Supplying and fixing Hot water Geyser (For Pantry) having Storage capacity 100 ltrs and , having SS-304 stainless steel tank, complete with all accessories and fittings and as per the satisfaction of Engineer-in charge.				
		Make: HAVELLS				
		Model No: :	Nos	1	27,685.00	27,685.00
17	MR	Supplying and fixing package type RO System (For Drinking purpose) having purification capacity 100 ltrs/hr and suitable for water upto 1600 ppm, complete with all accessories and fittings and as per the satisfaction of Engineer-in charge.				
		Make: ION -EXCHANGE				
		Model No: :	Nos	RO	1,50,250.00	-
D		SOIL , WASTE, VENT & RAIN WATER PIPES AND FITTINGS - SWR				
1	MR	Providing, fixing, jointing and testing in position of ISI marked UV stabilized UPVC pipes for soil, waste, vent & rain water pipe Type-B as per IS : 13592 suitable for rubber ring joints for vertical pipes and solvent cement joints for horizontal pipes, including all neccessary specials and fittings (confirming to IS:14735) i.e. bends, tees, junctions (with or without doors), reducers, WC connectors, couplers, cowels, clamps, long radius / swept bend at bottom of pipe, (All connections from horizontal to vertical stacks must be through swept type fitting) hangers, rubber rings, clean outs, C P Grating for any waste connection from washing machine etc. fixing at wall / ceiling / floor level supported by clamp & hangers etc. inside duct / suspended from floor under false ceiling for proper completion of the work. The rubber ring shall confirm to IS:5382				

S.No	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation excluding taxes & duties)
		The Pipes will be supported by either G.I. U strap clamps on 40x40x3 mm G.I. slotted angle duly painted (for a group of pipes) or G.I. rubber lined split clamp (for independent pipes). The cost will include all support arrangements. The work includes cutting holes in wall/ floors/ slabs and making good the same with cement concrete 1:2:4 complete as required. The work includes commissioning of all pipes lines as per drawings and specifications and as directed by engg-in-charge at site.				
		160 mm dia	RM	310	1,098.51	3,40,538.89
		110 mm dia	RM	750	564.23	4,23,170.40
		75 mm dia	RM	620	425.94	2,64,081.79
2	MR	Providing, fixing, jointing and testing in position ISI marked (IS:4985) UPVC pipes of min 6 Kg/ Sq cm rating with fitting for waste pipe from fixtures to floor trap including reduces, enlarger, socket, couplers, bends, tees etc including fixing at wall/ ceiling level supported by clamp & hangers etc. The work includes cutting holes in wall/ floors/ slabs and making good the same with cement concrete 1:2:4 complete as required.				
		50 mm dia.	RM	150	125.00	18,750.00
		32 mm dia.	RM	1010	105.00	1,06,050.00
3	MR	Providing, fixing, jointing, testing and commissioning spun/centri C.I. pipe for soil, waste & vent pipes installation conforming to IS:3989 cut to required lengths including all necessary fittings and specials such as Bends, junctions, offsets, access pieces (plain or door) & vent cowl. Fixing at wall/ceiling level supported by galvanized steel clamps & hangers etc. duly epoxy coated. Making proper connection with drip seal PJS joint or pig lead joint of required depth as per manufacturer. Cutting, chases/holes in floors / walls / slab. Providing GI pipe sleeves of suitable higher size wherever pipes crossing a fire rated wall / floor slab and sealing of space around pipe and pipe sleeve with glass wool in between and fire proof sealant at either end to the satisfaction of the Project Manager / Consultants and making good the same after pipes have been duly laid and testing complete. Cost shall also be inclusive of painting the pipes & fittings with two coats of synthetic enamel paint of approved				
		75 mm dia	RM	30	2,250.00	67,500.00
		110 mm dia	RM	30	2,475.00	74,250.00
4	18.10	Providing, fixing G. I. pipes complete with G. I. fittings and clamps including cutting and making good the walls etc.				
		Internal work-exposed on wall				
	18.10.6	50mm dia nominal bore	R.M.	10	527.20	5,272.00
5	18.38	Painting G. I. pipes and fittings with synthetic enamel white paint with two coats over a ready mixed priming coat, both of approved quality for new work.				
	18.38.6	50mm dia nominal bore	R.M.	10	24.75	247.50
6	MR	Supplying, Installing, Testing and Commissioning of ACO (MOBILE GREASE SEPERATOR) -Model: MOBILE -TYPE 0.3, capacity NS 0.3 (Item No. 3700.01.00)	Nos	1	42,000.00	42,000.00
7	MR	Providing, fixing and testing unplasticised PVC deep seal floor drain / MFT / NT of self cleansing design with arm with provision for connection G.I. / PVC inlet fitting complete including cost of cutting and making good the walls and floors wherever required.				
		Nhani Floor Trap 110 x 110 mm	Nos	18	650.00	11,700.00
		Multi Floor Trap 110 x 110 mm	Nos	121	750.00	90,750.00

S.No	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation excluding taxes & duties)
8	MR	Providing and fixing uPVC Clean Out Plug comprising UPVC extension piece, reducer/adopter/connector fittings matching pipe material, upvc female threaded socket matching pipe material caulked/joined to pipe and cast brass plug with suitable arrangement to open with inlet key/ wrench to open male threaded joint, complete as shown in drawing & specified.				
		110 mm dia	Nos	25	173.00	4,325.00
		75 mm dia	Nos	30	95.00	2,850.00
9	MR	Supplying, Installing, testing & Commissioning UPVC Vent cowl as per IS 14735 inclusive of all fittings etc for installation as specified & shown in drawings complete				
		160 mm dia	Nos	14	135.00	1,890.00
		110 mm dia	Nos	26	90.00	2,340.00
		75 mm dia	Nos	9	55.00	495.00
10	MR	Supplying and fixing of approved make dome type rain water outlet, CI body with Aluminium dome grating with SS screw inclusive of lead sheet 3 mm thick cladding all fittings required for installation as specified & shown in drawings complete.				
		160 mm dia	Nos	32	4,893.00	1,56,576.00
11	MR	Supplying, Fixing and Testing CI 'P' trap with SS floor grating with SS screws of size 125 mm x 125 mm, inlet 75 mm and outlet of 75 mm diameter. Quoted rate shall include necessary GI hopper i.e. GI threaded heavy class pipe connector and welded GI couplings for waste pipe connections from wash and Kitchen area, etc., complete.	Nos	3	6,500.00	19,500.00
12	MR	Supplying and fixing of approved make- rain water Khurra outlet, CI body complete with all necessary accessories ,etc as specified & shown in drawings complete	Nos	RO		-
GRAND TOTAL (Rs.)						59,08,603.86

SCHEDULE OF QUANTITIES FOR SEWAGE TREATMENT PLANT						
PROJECT: RSM, PATAN (GUJARAT)						
S.NO	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation including taxes & duties)
I		SEWAGE TREATMENT PLANT				
		Design, Engineering, supplying, installation, testing and commissioning of aerobic Sewage Treatment Plant based on FAB Technology process (with air diffuser system), completely below ground with total effluent handling capacity of 60 m3 per day. The raw effluent collection / equalization sump with screen shall be a part of the STP. The STP shall be designed as water retaining structures in RCC structure as required by the manufacture design				
		The Plant shall be complete with a central Electrical Power and Control panel fully pre/site wired and with all power and control cables to all pumps and equipment including all instrumentation, water level controllers and other controls. All the equipment, piping, pumps, blowers and electrical are to be housed in a plant room to be built below grade level. Puddle flange, inlet, outlet overflow, vent, M.S. cover, drain channel with M.S. gratings, rungs, sump to house pumps will be included.				
		Nature of Effluent : Domestic sewage from toilet use.				
		The rates will include all pumps, piping, valves, controls, reactor and tube settler media, blowers, diffusers, central Electrical Power and Control panel with all power and control cables to all pumps and equipment including all instrumentation, water level controllers and other				
		The RCC work will be done by the client as per the design submitted by the vendor including lighting etc. The entire civil work will be done as per 60 KLD as per the design submitted by the vendor.				
		BASIC DATA ON INFLUENT RAW WASTE WATER Total Suspended Solids (TSS) : 250 - 450 mg/lit BOD5 : 250 - 350 mg/lit COD : 500 - 700 mg/lit pH : 6.0 - 8.5 Oil / Grease : upto 50 mg/lit Inflow time : 8 HRS Peak factor : 3 Temperature : Ambient				
		TREATED EFFLUENT WASTE WATER QUALITY As stipulated by State Pollution Control Board (PCB), the treated effluent quality shall be within the following values for various parameters, for both present and future. The treated water quality should be fit for Recycling in A C makeup, Flushing and Landscaping - pH : 7 - 8 Total Suspended Solids (TSS) : < 10 mg/lit BOD5 : < 5 mg/lit (after tertiary treatment) COD : < 50 mg/lit Oil / Grease : < 10 mg/lit Total hardness : < 50 mg/lit (for AC makeup usage) Colour : Colourless Odor : unobjectionable E.coli : Nil				
		The STP shall be designed based on the attached details and parameters. The capacities of various tanks and pumps are guidelines to the vendor. The contractor has to submit detailed calculations of system and equipment he proposes to install.				
		The inlet of raw sewage pipe is about 3.00 to 3.50 meter from ground level. However, the exact Invert level of incoming sewage should be taken before start of work.				

S.NO	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation including taxes & duties)
		Technical support while taking Approval from pollution board at initial & various other stages of works including preparation of report / drawings as per pollution board requirement, arrangement of raw sewage for testing & commissioning. Contractor shall include the cost of all chemicals consumed during testing & commissioning and the cost of such items of works which are not explicitly mentioned above, but are mandatory to have pollution board approval. (All relevant fee for PCB Approval shall be paid by client).				
		The STP should follow all the concern Indian and Local norms.				
		The Contractor shall have to submit detailed civil GA drawings (Plan & Section), P & I diagram, schematic diagram and shop drawings of the plant indicating all sleeves etc for the various component and additional component if so required for the complete working of the STP also indicating all components in plant room required for present & future expansion including recycle supply pumps for flushing, horticulture and AC makeup water. The drawings will have to submit for approval before start of work.				
		Bypass arrangement shall be provided so that raw sewage transfer pumps can be used to pump out sewage to external manhole incase of maintenance of STP (Battery Limit = From Raw Sewage Transfer Pumps to upto 2 meters outside from STP unit).				
		The scope of work includes design, drawings, coordinating during construction, erection, commissioning, trial run and obtaining test results of completely below ground sewage treatment plant with electrical, mechanical, piping and controls.				
		The work is required to be carried out on a turnkey basis covering a guarantee of satisfactory performance as per the standards laid for a minimum of One year.				
		The contractor will be solely responsible for smooth running of the sewage treatment plant and overall functioning of STP. In case it is found in the later stage that some additional fixtures / equipment are required to be added in order to achieve desired quality, the contractor would be liable to provide without any extra				
		Ventilation of the plant room / tanks including exhaust fans, ducts etc. shall be coordinated with the Ventilation Consultant.				
		The STP shall consist of following units but not limited to these unit as may be required by the manufacturer's design to achieve the desired quality parameters in				
ASSOCIATED CIVIL WORK (Client Scope)						
a		Bar Screen chamber suitable for 2 nos. bar screen with suitable lifting arrangements complete as required.				
b		Oil / Grease removal chamber complete in all respect.				
c		Raw sewage Collection cum Equalization tank for housing of submersible sewage lifting pumps. Provision for aeration of sump will be kept with adequate numbers of coarse air bubble air diffusers to avoid any smell and sedimentation problems. (Capacity based on 60 KLD)				
d		FAB tanks with air diffusion system and piping complete of adequate capacity based on 60 KLD				
e		Secondary settling tank (clarifier) (Tube Settler / Lamella Settler) having hopper bottom, baffle wall, outlet launders with arrangement of lifting sludge from the bottom complete as required.				
f		Filter Feed Tank with suitable inlets, outlets, drain, overflow facility complete as required.				

S.NO	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation including taxes & duties)
g		Sludge thickener cum digester (Sludge Holding tank) with provision of inlet, outlet, drain, overflow, supernatant withdrawal arrangement with provision of air diffusers for aeration.				
h		Treated water storage tank to collect treated water with inlet, outlet, drain, overflow facility complete.				
i		Plant room drainage sump to collect the waste water from the back washes, drains etc.				
j		Stairs, Railing, Sheds, Foot rests, Manhole covers, Maintenance Platform, equipments foundation etc is the scope of Civil Contractor.				
ELECTRO MECHANICAL WORKS						
		Supply, installation, testing and commissioning of following electro mechanical works and equipments -				
a		1 nos. S.S. 304 bar screen having 10 mm opening of suitable size with suitable lifting arrangements complete as required.	Nos.	1.00	18,000.00	18,000.00
b		Air diffuser system with Twin type rotary air blowers capable of delivering min. 110 cum/hr (each) of free air at 0.5 kg/cm ² driven through "V" belt or directly coupled through flexible coupling to a TEFC motor of suitable HP Suitable for 415 + 10% volts, 3 phase, 50 cycles A/C supply fine bubble membrane type diffusers complete with valves & air distribution grid complete as required. (Note:- At present, STP contractor shall quote/supply 3 nos. Air Blower as per 1st module. Balance 1 No. Air Blower shall be supplied at the time of future expansion)	Nos.	2.00	75,000.00	1,50,000.00
c		Non clog type air dispersion system capable of handling desired cfm of air. Air dispersion grid shall be assembled in modular form so that they can be replaced/ repaired easily from platform at the top. Air dispersion system shall be provided coarse air bubble type diffusers for raw sewage equalization tank & sludge holding tank and fine bubble type diffusers for FAB Tank. (Note:- At present, STP contractor shall quote/supply 1 Lot of Air Diffusion System as per 1st module. Balance 1 Lot of Air Diffusion System shall be supplied at the time of future expansion of plant.)	Lot	1.00	65,000.00	65,000.00
d		Non clogging type submersible raw sewage pumps for transfer of raw sewage to fab tank capable of handling solids minimum 50 mm, in CI casing and impeller, SS shaft, IP 68, Class F / B insulation, mechanical seal complete with all accessories, motor of required capacity, Pressure gauge on delivery line with isolation valve, level controller (with wiring) to control the level of sump automatically including bypass line from pump outlet to outer sewer line as per site with all valves. (for Bypass connection, battery limit of STP vendor is From Raw Sewage Transfer Pumps to upto 2 meters outside from STP unit). Flow rate : 3 Cu M / Hr at 12 meter head. Qty : 2 nos (1W+1S) (Note:- At present, STP contractor shall quote/supply the 2 nos. pumps as per 1st Module. 1 No. pump shall be supplied at the time of future expansion of plant.)	Nos.	2.00	65,000.00	1,30,000.00
e		Non clogging type horizontal centrifugal Sludge transfer / disposal / recirculation pumps capable of handling solids upto 8 mm, having C.I. casing, C.I. impeller, SS shaft, chrome steel shaft sleeve, IP 55, Class B insulation, mechanical seal complete with all accessories, motor of required capacity, Pressure gauge on delivery line with isolation cock, level controller (with wiring) to control the level of sump automatically. Flow rate : 2 Cu M / Hr at 10 meter head. Qty : 2 nos (1W+1S) (Note:- At present, STP contractor shall quote/supply the 2 nos. pumps as per 1st Module. 1 No. pump shall be supplied at the time of future expansion of plant.)	Nos.	2.00	35,000.00	70,000.00

S.NO	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation including taxes & duties)
f		Non clogging type horizontal screw type filter press feed pumps capable of handling solids upto 8 mm having capacity 2 cuM/hr at 35 meter head. Qty : 2 nos (1W+1S) to feed filter press having C.I. MOC complete with all accessories, Pressure gauge on delivery line with isolation cock, level controller (with wiring) to control the level of sump automatically.	Nos.	2.00	55,000.00	1,10,000.00
g		Providing, fixing, testing and commissioning of hydraulic type filter press for drying the organic sludge from tube settler of 23 nos of 24"x 24" sizes PP/PVC plates. The filter press should be with filter cloth, handle effluent water tray, sludge disposal tray, motor, poly dosing system complete in all respects.	Set	1.00	3,70,000.00	3,70,000.00
h		Providing, fixing, testing and commissioning of single stage, horizontal, centrifugal, 2 pole, 50 HZ, AC, monoblock pumps (as per IS : 9079) incorporating C.I. casing and frame, stainless steel shaft, bronze / SS impeller, TEFC induction motor directly coupled to the pump, IP44 protection, class B insulated, C.I. body, hydraulically and dynamically balanced to give vibration free operation, with mechanical seal arrangement, fixed on a base plate with suitable vibration eliminator pads complete with PCC foundation, bolts grouted in CC blocks of 1:2:4, suitably rated DOL / star-delta starter fixed inside main electrical panel complete with level controller, necessary wiring, pressure gauge on the delivery side and strainer on suction side, including non-return valve and isolating valves on suction and delivering sides as required, including suction and delivery headers complete in all respects.				
		(i) Filter Feed Pumps - 2 nos (1W+1S), having discharge : 4000lit/hr (each) at 30 meter head	Nos.	2.00	45,000.00	90,000.00
		(ii) Irrigation Water Transfer Pumps to irrigation network - 2 nos (1W+1S) having discharge : 7000 lit/hr (each) at 45 meter head including all valves & fixtures.	Nos.	2.00	76,000.00	1,52,000.00
i		Providing, fixing, testing and commissioning of In-Line, Multisage, centrifugal(Vertical) pump, 2 pole, 50 HZ, AC,Hydrodynamic pumps incorporating C.I. casing and frame, stainless steel shaft, bronze / SS impeller, TEFC induction motor directly coupled to the pump, IP44 protection, class B insulated, C.I. body, hydraulically and dynamically balanced to give vibration free operation, with mechanical seal arrangement, fixed on a base plate with suitable vibration eliminator pads complete with PCC foundation, bolts grouted in CC blocks of 1:2:4, suitably rated DOL / star-delta starter fixed inside main electrical panel complete with level controller, necessary wiring, pressure gauge on the delivery side and strainer on suction side, including non-return valve and isolating valves on suction and delivering sides as required, including suction and delivery headers complete in all respects.				
		1) Flushing Water Transfer Pumps - 2 nos (1W+1S), 2.71 lps at 50 meter head	Set	1.00	3,46,584.70	3,46,584.70
		(Vendor to submit performance curves and technical catalogue of the proposed model for review &				
		The pump shall be selected for performance at best efficiency point. However, the pump selection shall be suitable for performance with set point @ + 20% of the rated head.				

S.NO	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation including taxes & duties)
		External Pump mounted or wall mounted microprocessor PID controller in a single body or as separate components with pressure sensor transmitter minimum two lined LCD display, diodes to indicate pump ready, pump running and fault and capable to communicate with other controllers following MODBUS-RTU or BACNET Class-2 protocol through RS485 port. System should be capable to compensate for frictional losses at lower flows. All alarms and meters should be displayed in the controller. System should be equipped with dry running protection. Hooter alarm if any of the pump trips. all the pump status, KW rating, no of hrs run of pump to be available on panel as per requirement of client. The panel should have a 3 way switch for auto manual operation of				
		Complete (Skid mounted wall mounted / floor mounted) electrical control panel comprising of all accessories such as PLCs, pressure switches, control cabling/wiring, power cables, sensors/electrodes, float switches and any other necessary imports etc. (list to be provided by the vendor). Isolator switch on Panel MCCB with overload protection, earthfault & instantaneous protection. panel shall have energy meter. Panel shall have Tower lamp with on, off & trip indication & buzzer. Additional tower lamp with buzzer including reset/accept push button at 100m distance. The panel shall have with magnetic type level controllers and digital type level indicators. The panel will be suitable for automatic start-stop arrangement of water supply pumps and other equipments as required. The panel will have necessary indication & protection, digital ammeter & voltmeter with selector switches on incomer and ammeter with selector switch on all outgoing pump feeders with CT's, PT's, protective fuses, phase indicating lights, pump ON / OFF lights, switches for auto manual operation of pumps, overload relays, single phasing preventor, dry suction cut off for Filter Feed Pumps & Domestic Water Supply Pumps necessary contactors inclusive of SS level sensing probes to be				
		Precharged diaphragm pressure vessel with food grade membrane, charging connection, connected to outlet header with necessary slip on flanges ANSI b16.5 class150, teflon gaskets, drain piping, isolating valves, nuts/bolts etc complete. Contractor should provide the calculation for sizing of vessel and test certificate i.e. for				
		Set of accessories such as Anti vibration pads, pressure switches, inter connecting power and control cabling etc. Complete				
		Contractor should provide test certificate and minimum of 2 years of warranty certificate. And spares list with part numbers and also list of authorised service providers and response time				
j		Supply, installing, testing and commissioning of non clog submersible type drainage / dewatering pump suitable for automatic operation, float valve operated, automatic / manual operation, including NRV & all accessories, inlet & outlet arrangements, required cable etc. complete in all respects.				
		1 nos. Dewatering Pump Control unit for two nos. three phase pumps, to operate Pumps alternatively and in case of Excess inflow into the Sump, Both Pumps Will Start Automatically with Magnetic Water Level Controllers, Audio, Visual & Alarm Including All Standard Accessories Like Ammeter, Auto Manual switch, DOL Starter, Indicating Lights, And Pumps On/ Off Lights, Protection MCB, Dry Running Protection Etc. complete in all respect.				

S.NO	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation including taxes & duties)
		8 lps at 14 meter , 10 mm min particle size, 50 Hz, 400 volts, IP 68, F/B insulation, Float level switches, impeller in CI / Polypropylene, casing in CI / polyurethan and shaft in stainless steel (1 set comprises of two number dewatering pumps & 1 no. control unit - for pump house drainage)	Set	1.00	1,40,979.30	1,40,979.30
k		Supply, installation, testing & commissioning of Random Media for attached growth process (FAB Technology) MOC = PP, Specific Gravity = 0.93 - 0.95, Surface Area = 400 sq.mtr / cum.mtr.	Lot	1.00	2,00,000.00	2,00,000.00
		(Note:- At present, STP contractor shall quote/supply 1 Lot of FAB media as per 1st Module. Balance Lot of media shall be supplied at the time of future expansion of				
l		Supply, installation, testing and commissioning of PVC tube deck settling media to be installed in secondary settling tank. VH-750 mm, Angle of Inclination - 60° slope, Shape - Hexagonal Chevron	Lot	1.00	80,000.00	80,000.00
		(Note:- At present, STP contractor shall quote/supply 1 Lot of Tubedeck media as per 1st Module. Balance Lot of media shall be supplied at the time of future expansion				
m		Supply, installation & testing and commissioning of vertical floor mounted mild steel Epoxy pressure type Multi Grade filter of suitable size for required flow and head, provided with an inlet distributor. The vessel is painted externally and internally with epoxy paint with primer with frontal piping & valves, back wash system & filter media etc. complete with standard fittings like cover, pressure gauge at inlet & outlet, sampling cock, rinse drain valve, air vent valve with piping, bolts, nuts & rubber gaskets				
		Flow rate = 4 M3 / hr at 16 hrs operation				
		Vessel Dia = 600 mm				
		HOS = Min. 1500 mm				
		Filtration rate = 16 M3/M2/Hr				
		Shell / Dish thickness = 6 / 8 mm				
		Working pressure = 3.5 Kg/Sq.cm.				
		Test pressure = 5.5 Kg/Sq.cm.				
		Qty = 1 Set	Set	1.00	1,80,000.00	1,80,000.00
n		Supply, installation & testing and commissioning of vertical floor mounted mild steel Epoxy pressure type Activated carbon filter of suitable size for required flow and head, provided with an inlet distributor. The vessel is painted externally and internally with epoxy paint with primer with frontal piping & valves, back wash system & filter media etc. complete with standard fittings like cover, pressure gauge at inlet & outlet, sampling cock, rinse drain valve, air vent valve with piping, bolts, nuts & rubber gaskets				
		Flow rate = 19 M3 / hr at 16 hrs operation				
		Vessel Dia = 1300 mm				
		HOS = Min. 1500 mm				
		Filtration rate = 15 M3/M2/Hr				
		Shell / Dish thickness = 6 / 8 mm				
		Working pressure = 3.5 Kg/Sq.cm.				
		Test pressure = 5.5 Kg/Sq.cm.				
		Qty = 1 Set	Set	1.00	2,00,000.00	2,00,000.00
o		Supply, installation, testing & commissioning of Ozonator (1 Set) to treat suitable for waste water application. The system should be complete consisting of Ozone Generator, Oxygen Generator, Air Compressor, Water Chilling System, Ozone Diffusers, Pipeline & fittings, Central Control Panel etc with Re-circulation based Ozone mixing system comprising of Re-circulation Pump, Ventury Injector, Static Mixer etc complete in all respect				
		Capacity = 100 grms / hr	Set	1.00	3,40,000.00	3,40,000.00

S.NO	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation including taxes & duties)
p		Providing and fixing all piping (as described below) and isolation control Ball / butterfly valves (Min. PN 10) of required sizes and numbers with all accessories, fittings, supports, clamps, double flanged flexicon rubber expansion joint with rubber gasket as per system pressure, nuts, bolts, washers, puddle flanges for all tanks, other flanges, NRV's, flow control valves, flow measurement device, SS 304 screen strainers at suction of clear water pumps, for making the system complete in all respects with anti corrosive protection.				
		Butterfly Valve : Cast Iron Wafer type butterfly valves (PN 10) as per IS:13095, with SS disc, SS shaft, SS seating rings, SS internal fastening, EPDM seat, CS external nuts-bolts.				
		Check Valve : Cast Iron body dual plate wafer type check valve (NRV) (PN 10) with SS disc, SS stem, EPDM seat, spring & pin, SS stem, SS internal fastening, CS external fastening.				
		PVC Flexible Breaded Hose Pipe : Submerged piping for raw sewage transfer pumps / Submerged piping for				
		MS Epoxy coated (Class 'B') : All non submerged piping before filter feed tank.				
		GI Piping (Class 'B') : All piping after filter feed tank.				
		MS Epoxy coated (Class 'B') : Air grid piping-non				
		uPVC (Sch 80) : Riser Pipe Dia from Fab Tank-1 to Fab Tank-2 and from Fab Tank-2 to Tubesettler.				
		uPVC (Sch 40) : Pipe for Dewatering Pumps.				
		The various pipe sizes should be selected that the Maximum velocity in any pipe should not exceed 1.50 mps. Min. 80 mm pipe dia is required in individual line of raw sewage transfer pumps and min. 65 mm uPVC Sch 40 pipe to be considered for each dewatering pumps outlet and common header will be 80 mm dia.	Lot	1.00	4,00,000.00	4,00,000.00
		(Note:- At present, STP contractor shall quote/supply 1st lot of Piping, valves & related accessories as per 1st Module. Balance lot of pipe & fittings shall be supplied at the time of future expansion of plant.)				
q		Supply & fixing in position ISI marked cast iron Wafer type butterfly valves (PN 16) as per IS:13095, with SS disc, SS shaft, SS seating rings, SS internal fastening, EPDM seat, CS external nuts-bolts including transporting to worksite etc. including testing, Complete as per drawings & directions of the Engineer-in-charge. (to be installed at raw sewage inlet line)				
		200 MM NB (gear operated)	Nos.	1.00	12,700.00	12,700.00
r		Supply Installation, testing & commissioning of Electrical Control Panel suitable for 415 V, 3 Phase, 4 wires, 50Hz, fabricated out of 16 SWG CRCA sheet steel, IP52, wall / floor mounting type. The sheet steel shall undergo minimum nine tank treatment followed by finishing powder coating of min 60 micron thickness. The board includes removable gland plates, cable glands, including connection with outgoing feeders complete in all respect. The outgoing from the panel shall be suitable for all equipments, various pumps, blowers with suitable capacity star delta / DOL starters, plant lighting, ventilation, treated water transfer pumps to horticulture and flushing system etc. Adequate size cable alley shall be provided for each cable bending & termination.				
		The incoming MCCB shall be of Four Pole microprocessor based with inbuilt O/L & S/C release with E/F protection and all Outgoings MCCB's shall be of Three Pole thermal-magnetic based with inbuilt O/L &				

S.NO	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation including taxes & duties)
		All MCCB's shall be of min lcs = 50 KA breaking capacity , lcs = 100% lcu, with rotary handle & pad locking arrangement, with adjustable O/L & S/C trip setting as per load requirement. All TP MCCB shall be with solid isolable neutral link. The breaking capacity				
		Cyclic timers will be provided for all type of pumps for alternate working of stand by pumps.				
		The fault withstanding capacity of panel shall be 50 KA rms for 1 sec.				
		BUS BAR of suitable current rating at 500 Volts, 3 phase 50 HZ TPN high conductivity electrolytic Aluminium bus bar with conductivity on min 57 to 58% of suitable length, insulated by heat shrinkable sleeves. The current density of bus bar shall be minimum 1.00 sq				
		The Maximum allowable temperature for the Bus bar to be restricted to 85 deg C. The temperature rise should be restricted to 35 deg C above ambient temperature.				
		The above board shall be complete with 3 nos. phase indicating lights, flush mounted Ammeter, Voltmeter, CT's, PT's, selector switches, protective fuses etc. at Incomer with all inter connections by min. 1.5 sq.mm.				
		Panel shall have necessary arrangement to operate the system automatically / manually. Only main power supply upto the STP shall be provided by the owner. All required items like water level controller Digital type level indicator with magnetic SS level probes for Filter feed tank & Treated Water Storage Tank , electrical wiring, armoured aluminium power cables and copper control cables between panel to various pumps & equipments, cable terminations, double compression glands, double GI plate earthing with GI strips, GI perforated cable trays to carry power and control cables from panel to various equipments including supports, with all accessories shall be quote separately as per item given in the BOQ.				
		KWHR meter with RS 485 communication port, CT's with accuracy class 1.0 will be provided in Flushing water supply pumps, AC Makeup water supply pumps and Horticulture pump feeders for energy consumption				
		The following pumps shall be controlled by the panel : (The ampere rating will be as per the final selection of				
		(a) Raw Sewage Pumps - 3 Nos.				
		(b) Air Blowers - 4 Nos.				
		(c) Sludge Disposal Pumps - 3 Nos.				
		(d) Screw Pumps - 2 Nos.				
		(e) Hydraulic Filter Press - 1 Nos.				
		(f) Filter Feed Pumps - 2 Nos.				
		(g) Irrigation Water Transfer Pumps - 8 nos. (25 Amp TP MCCB 50 KA)				
		(h) Flushing Water Transfer Pumps - 8 nos. (32 Amp TP MCCB 50 KA)				
		(i) Dewatering Pumps Unit (for 2 Nos. Dewatering				
		(j) Ozonator - 1 Nos.				
		(k) Doser - 1 Nos.				
		(l) Plant room lighting and power Feeders - 6 no 10 / 20 amp SP MCCB.				
		(m) STP Ventilation Feeders - 2 no 63 amp TP MCCB				
		(n) Spare Feeders - 2 nos 40 amp TP MCCB	Set	1.00	6,00,000.00	6,00,000.00
s		Supply, installation, testing & commissioning of magnetic type level controllers to be installed in various tanks and digital type level indicators (for Filter Feed Tank, Treated Water Tank, 2 No. Overhead Tank (Flushing) and 1 No. Overhead Tank (AC Makeup Water)) inclusive of SS level sensing probes with suitable arrangement for automatic start-stop of water supply pumps and other equipments as required. (Note : Vendor should also consider the future provision of level controller & indicators for other 2 galleries)	Lot	1.00	50,000.00	50,000.00

S.NO	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation including taxes & duties)
t		Supply & Laying of ISI marked aluminium conductor XLPE insulated cable as per IS 7098, armoured, served, sheathed 1100 volts grade for power supply to various pumps and equipments from STP panel to respective equipments. The job will include the supply and installation of lugs and double compression glands.	Lot	1.00	70,000.00	70,000.00
u		Supply & Laying of ISI marked Copper conductor PVC insulated control cable as per IS 1554 PVC sheathed 1100 volts grade for controlling of various equipments / level controller / level indicator etc as required to complete the work.	Lot	1.00	30,000.00	30,000.00
v		G.I. EARTHING				-
		i) Providing and laying suitable dia G.I. wire on surface, in recess or in ground including connections for loop earthing as required.	Lot	1.00	7,500.00	7,500.00
		ii) Providing & fixing suitable size G.I. strip on surface, in recess or in ground including connections etc. as	Lot	1.00	15,000.00	15,000.00
w		Supply and erection of Perforated type cable trays made out of prefabricated Galvanized sheet steel of suitable sizes including tees, bends, crossings, reducers, couplings to be installed over head on wall or hanged from ceiling including all necessary supports, brackets at every 1500 mm c/c, grouting, levelling, suspension and fixing arrangements, dash fasteners, G.I.	Lot	1.00	40,000.00	40,000.00
x		Supply of MS (hot dipped galvanized) puddle flanges as required to be provided (in the structural slab and wall) of various diameters. Puddle flanges shall be provided for all the structural component of the STP. The installation of the puddle flanges shall be carried out by the Civil Contractor in accordance to the Civil GA drawings (to be prepared by the STP contractor) at the required levels and position : under the supervision of the civil contractor	Lot	1.00	80,000.00	80,000.00
y		Supply, Installation, testing & commissioning of electromagnetic type flow meter to be installed at raw sewage pump outlet line.	Set	1.00	96,000.00	96,000.00
z		Supply, Installation, testing & commissioning of Bulk Water meter in horticulture feeder line, flushing water supply lines & AC Makeup water supply line.	Set	3.00	30,000.00	90,000.00
II STP VENTILATION						
		Supply, Installation, Testing & Commissioning (referred to as "SITC" here after) of following Equipment; Materials & Accessories as per specifications including supply, installation, testing & commissioning of any materials & accessories required to make the system complete in all respects:				
A		Equipment:				
1.00		Axial Flow Fans - Non Fire Rated:				
		SITC of AMCA Certified Axial Flow fan complete with mounting accessories, vibration isolators, all accessories as per specifications and any other item required to make the system complete. Fans shall be suitable for 415V, 3 Phase, 50 Hz AC power supply.				
		Type: Normal				
		Noise: Low (Fans shall be carefully selected for lowest possible noise level)				
1.01		Fans with 25 mm WG Static Pressure				
		Fan Speed / No. of Motor Poles shall be as per the manufacturer's selections subject to that the Motor KW & Noise Pressure Levels mentioned below are not				
		CFM x Motor KW (Maximum) x Maximum Noise Pressure Level @ 3 m distance (Hemispherical Propagation in Reverberant Room Conditions)				
a		5000 x 2.20 x 72	Sets	2.00	40,000.00	80,000.00

S.NO	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation including taxes & duties)
B		Ducting:				
1.00		GSS Factory Fabricated Ducting:				
		SITC of GSS Rectangular Ducting (Factory Fabricated) complete with fittings, flanges, bracings, supports, all accessories as per specifications and any other item required to make the system complete.				
		It is to be noted that nothing extra shall be paid on account of site fabricated small ducts / collars / to suit pieces etc. Further, for payment purposes, the gauge / type / rates for these site made pieces shall be considered as per the fabrication table of factory made ducts irrespective of the actual gauge / type used for fabrication.				
1.01		26 G (0.50 mm) C&SS - 0 to 750 mm	Sqm	50.00	680.00	34,000.00
1.02		26 G (0.50 mm) TDF - 751 to 1000 mm	Sqm	100.00	735.00	73,500.00
1.03		24 G (0.63 mm) TDF - 1001 to 1200 mm	Sqm	15.00	820.00	12,300.00
1.04		24 G (0.63 mm) TDF - 1201 to 1500 mm	Sqm	500.00	820.00	4,10,000.00
C		Air Distribution:				
1.00		Duct Flexible Connectors:				
1.01		SITC of Fire Retardant Duct Flexible Connectors complete with fittings, flanges, supports, all accessories as per specifications and any other item required to make the system complete.	Sqm	1.50	3,800.00	5,700.00
2.00		Manual Volume Control Duct Dampers:				
2.01		SITC of 16 G GI Flanged Frame / 24 G GI aerofoil blades type Volume Control Duct Dampers complete with linkages, levers, fittings, supports, all accessories as per specifications and any other item required to make the system complete.	Sqm	1.00	5,500.00	5,500.00

S.NO	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation including taxes & duties)
3.00		Discreet Grilles:				
3.01		SITC of Extruded Aluminium Discreet Air Grilles (5 mm Blades @ 12.5 mm Pitch) without volume control dampers complete with mounting arrangement, wooden/ steel/ aluminium frame work (if required), all accessories as per specifications and any other item required to make the system complete.	Sqm	2.20	5,500.00	12,100.00
3.02		SITC of black mat finish 20 G GI (for GI ducting) volume control dampers for discreet grilles complete with mounting arrangement, wooden/ steel/ aluminium frame work (if required), all accessories as per specifications and any other item required to make the system	Sqm	2.20	3,500.00	7,700.00
4.00		Louvers:				
4.01		SITC of Extruded Aluminium Louvers with Bird Screen but without Volume Control Dampers complete with mounting arrangement, wooden/ steel/ aluminium frame work (if required), all accessories as per specifications and any other item required to make the system	Sqm	3.20	7,500.00	24,000.00
5.00		Non Return Dampers:				
5.01		SITC of 16 G GI Frame / 22 G GI blades type Non Return Type Gravity Duct Dampers complete with linkages, levers, fittings, supports, all accessories as per specifications and any other item required to make the	Sqm	0.80	7,000.00	5,600.00
D		Electrical Works:				
1.00		Electrical Control Panels:				
		SITC of Electrical Control Panels complete with all components, power and control wiring, starters, all accessories as per specifications including any other item required to make the system complete.				
1.01		Panel for 2 Nos. Axial Flow Fans of 2.20 KW Rating Each for STP Room Exhaust Air - Panel in STP Room in	Set	1.00	25,000.00	25,000.00
2.00		Power and Control Cabling - Normal Duty:				
		SITC of 1.1 KV grade, PVC Insulated, Armoured, Fire Resistant Low Smoke Type Power / Control cabling including supply of cables & cable trays, supports, installation, saddles, cable ties, cable tags, ferrules, cable glands, lugs, nuts/bolts/hardware etc. complete in all respects as per specifications and any other item required to make the system complete.				
2.01		3C x 4 Sqmm Aluminium	RM	30.00	235.00	7,050.00
3.00		Earthing:				
		SITC of GI Earthing including supply of bare GI strips/ wires, supports, installation, saddles, ties, tags, ferrules, terminations, lugs, nuts/bolts/hardware etc. complete in all respects as per specifications and any other item required to make the system complete.				
3.01		6 SWG Wire	RM	60.00	40.00	2,400.00
III		PIPES & ACCESSORIES (WITHIN FLUSHING WATER SUPPLY PUMP ROOM)				
1	MR	Providing, fixing, jointing and testing in position ISI marked (IS : 1239) G.I pipes (Heavy class-C) (with screwed jointing by teflon tape) complete with all necessary G.I fittings i.e. sockets, elbows, tees, bends, reducers, unions, plugs, supports, clamps, Hangers etc. The Galvanization shall conform to IS : 4736. The work shall include the painting with two coats enamel paint of approved quality and shade over a coat of primer on exposed pipe works, complete as required by the Engg- in charge for proper completion of the work.				
		50mm	RM	25.00	625.00	15,625.00
		65mm	RM	20.00	800.00	16,000.00
		80mm	RM	15.00	1,020.00	15,300.00

S.NO	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation including taxes & duties)
		100mm	RM	RO	1,400.00	
2	MR	Supply of Cast Iron / Ductile Iron double water seal type 600 x 600 mm Manhole Covers with frame for <u>Underground Tank</u> The installation of the manholes covers shall be carried out by the Civil Contractor in accordance to the Civil drawings at required position				
		Heavy Duty (210 Kg)	Nos.	4.00	10,080.00	40,320.00
3	MR	Providing and fixing in position M.S. (hot dip galvanized) pipe one side flanged sleeves as per drawing with M.S. puddle flange fabricated out of 6 mm thick MS plate in RCC walls of water tanks / retaining walls during the time of casting.				
		65 NB (IS 1239 - C Class)	Nos.	RO	1,800.00	
		80 NB (IS 1239 - C Class)	Nos.	2.00	2,500.00	5,000.00
		100 NB (IS 1239 - C Class)	Nos.	2.00	3,500.00	7,000.00
		150 NB (IS 1239 - C Class)	Nos.	RO	4,800.00	
		200 NB (219.1 OD) (IS: 3589, 6.3 mm thick)	Nos.	RO	6,500.00	
4	MR	Providing and fixing in position M.S. (hot dip galvanized) pipe both side flanged sleeves as per drawing with M.S. puddle flange fabricated out of 6 mm thick MS plate in RCC walls of water tanks / retaining walls during the time of casting.				
		65 NB (IS 1239 - C Class)	Nos.	2.00	2,400.00	4,800.00
		80 NB (IS 1239 - C Class)	Nos.	2.00	3,000.00	6,000.00
		100 NB (IS 1239 - C Class)	Nos.	RO	4,200.00	
		150 NB (IS 1239 - C Class)	Nos.	4.00	5,500.00	22,000.00
		250 NB (IS 1239 - C Class)	Nos.	RO	6,875.00	
5	MR	Providing and fixing in position M.S. (hot dip galvanized) pipe sleeves as per drawing in RCC walls of water tanks / retaining walls during the time of casting.				
		100 NB (IS 1239 - C Class)	Nos.	2.00	3,000.00	6,000.00
6	MR	Providing and fixing in position vent connection to water storage tanks comprising two elbows of 50 mm dia. And mosquito proof brass wire mesh fixing in frame and welded to upstand pipe complete as required. (Length of pipe involved shall be measured seperately under item piping).	Nos	4.00	600.00	2,400.00
7	MR	Supply & fixing in position ISI marked cast iron Wafer type butterfly valves (PN 16) as per IS:13095, with SS disc, SS shaft, SS seating rings, SS internal fastening, EPDM seat, CS external nuts-bolts including transporting to worksite etc. including testing, Complete as per drawings & directions of the Engineer-in-charge.				
		65 MM NB	Nos.	4.00	2,580.00	10,320.00
		80 MM NB	Nos.	10.00	3,170.00	31,700.00
		100 MM NB	Nos.	RO	4,360.00	
8	MR	Supply & fixing in position cast iron body dual plate wafer type check valve (NRV) (PN 16) with SS disc, SS stem, EPDM seat, spring & pin, SS stem, SS internal fastening, CS external fastening, including transportation to worksite, supply & fixing complete with testing as per direction of the Engineer - in - charge.				
		65 mm nominal dia	Nos.	4.00	2,320.00	9,280.00
9	MR	Providing & fixing cast iron body strainer made up of SS 304 screen having perforation of 500 micron, tested to a min. pressure of 15 kg/sqcm complete with flanged ends as required.				
		80 mm nominal bore	Nos.	4.00	4,648.00	18,592.00
		GRAND TOTAL (Rs.)				50,48,951.00

SCHEDULE OF QUANTITIES FOR FIRE PROTECTION SYSTEM

PROJECT: REGIONAL SCIENCE MUSEUM AT PATAN (GUJARAT)

S.No	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation including taxes & duties)
A		FIRE FIGHTING SYSTEM				
1		Supply & erection of ISI marked portable fire extinguishers , confirming to IS:15683, wall mounted type, wall brackets complete in all respect as per standard item with all accessories, delivery hose & nozzle wherever required, including fixing on walls as per the directions of Engineer-in-charge.				
		CO2 TYPE 4.5KG	NOS	22	6750.00	148500.00
		Water CO ₂ type. 9 Lt. capacity	NOS	4	2500.00	10000.00
		D.C.P. Type ABC 6 kg. capacity	NOS	36	2900.00	104400.00
		D.C.P. Type 25 kg. capacity -Trolley mounted	NOS	36	16000.00	576000.00
2		Supply & fixing of fire buckets , round bottom made of G. I. Sheet 9 - 11 litres capacity duly painted as per fire brigade design, supported on hanging bracket chained and locked, initially filled with fine river sand, water as per directions of Engineer-in-charge.	Each	2	5150.00	10300.00
3		Supply, erection and testing of ISI marked ERW M.S. pipes (Class C - heavy duty) and specials etc. (as per IS:1239 for upto 150 mm dia and IS:3589 for 200 mm and above) for above ground laying for hydrants system including transportation of materials upto the worksite, cutting the pipes to required length, edge preparation, welding, fixing / erection of pipes including specials i.e. bends, tees, reducers, flanges, expansion joints and bellows wherever required, washers, nuts, bolts etc. in proper position including all supports. jointing by welding, aligning the pipe line, painting with two primer coat by zinc chromate primer and two coats of synthetic enamel fire red colour, providing tapping for pressure gauges and for other instruments etc. Hydrostatic testing of system at 1.5 times of operating pressure or 15 kg / sq cm whichever is higher and as specified, flushing & cleaning by water etc. complete as per drawings & direction of the Engineer-in-charge.				
		The pipes and accessories will be provided with all type of supports (Maximum Support spacing = up to 25 mm dia @ 2 m, 32 mm to 100 mm dia @ 2.5 m, 150 mm & above dia @ 3 m) by minimum 3 mm thick G.I. clevis / sprinkler hangers / clamps / Tie rod supports with G.I. nuts, bolts, anchor / dash fastner and washer for hydrant / sprinkler piping, for 150 mm dia pipe the support will be through 50x50x6 mm painted / pre galvanized MS angle iron along with G.I. U clamp, nuts, washers, anchor fasteners etc as the case may be.				
		25 NB (IS: 1239, 4.0 mm thick)	M	1371	385.00	527835.00
		32 NB (IS: 1239, 4.0 mm thick)	M	10	490.00	4900.00
		40 NB (IS: 1239, 4.0 mm thick)	M	456	625.00	285000.00
		50 NB (IS: 1239, 4.5 mm thick)	M	329	585.00	192465.00
		65 NB (IS: 1239, 4.5 mm thick)	M	140	750.00	105000.00
		80 NB (IS: 1239, 4.8 mm thick)	M	196	895.00	175420.00
		100 NB (IS: 1239, 5.4 mm thick)	M	475	1260.00	598500.00
		150 NB (IS: 1239, 5.4 mm thick)	M	65	1800.00	117000.00
		200 NB / 219.10 OD (IS: 3589, 6.3 mm thick)	M	25	2780.00	69500.00
		250 NB / 273.00 OD (IS: 3589, 6.3 mm thick)	M	10	3470.00	34700.00
4		Same as in item above but of G. I. Class B - medium duty for drainage pipe .				
		80 NB (IS: 1239, 4.0 mm thick)	M	40	1020.00	40800.00

SCHEDULE OF QUANTITIES FOR FIRE PROTECTION SYSTEM

PROJECT: REGIONAL SCIENCE MUSEUM AT PATAN (GUJARAT)

S.No	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation including taxes & duties)
5		Supply, laying & jointing of ISI marked ERW Mild Steel pipes (class C - heavy duty) (as per IS:1239 for upto 150 mm dia and IS:3589 for 200 mm and above) including all fittings i.e. reducer, elbows, tees, flanges, washers, nuts, boltsetc. below ground including transportation of all materials to work site, earth work in excavation in all kinds of soil upto 1.50 meter depth, edge preparation, jointing by welding, laying the pipes in trenches in proper alignment, back filling the trenches in layers of 20 cms, consolidation of each deposited layer, watering, ramming, disposal of surplus earth within a lead of 200 m and as directed, Hydrostatic testing of system at 1.5 times of operating pressure or 15 kg / sq cm whichever is higher and as specified, providing 1:2:4 concrete thrust blocks of suitable size at all bends, tees and junctions with form works, completing the work in all respect as per drawings &				
		The rates will include providing and laying 4 mm thick "Pypkote" tar based polymeric corrosion protection tape over coat of zinc chromate primer as per manufacturers specs, as directed and as per IS:10221.				
		80 NB (IS: 1239, 4.8 mm thick)	M	106	940.00	99640.00
		150 NB (IS: 1239, 5.4 mm thick)	M	536	1725.00	924600.00
6		Providing & fixing neoprene rubber double flanged rubber expansion joint (anti vibration bellow) of standard length as per manufacturers specifications. suitable for hydrostatic test pressure of 21 kg/sqcm including all necessary fittings i.e. rubber gasket, nuts, bolts, washers etc complete as required.				
		80 mm dia.	NOS	4	4500.00	18000.00
		150 mm dia.	NOS	3	6000.00	18000.00
		200 mm dia.	NOS	3	7400.00	22200.00
7		Supply & installation of ISI marked single headed 63 mm dia. Stainless steel Hydrant Valve (Type A) suitable for hydrostatic test pressure of 21 kg/sqcm, 80 mm dia flanged inlet with 63 mm female instantaneous outlet confirming to IS : 5290 on the fire wet riser/down comer, including making 80 NB pipe flange connection with riser, fixing the landing valves in proper positions, including supply of nuts, bolts, gaskets, caps, chains etc. testing the hydrant and completing the work in all respect as per directions of the Engineer-in-charge.	NOS	23	7250.00	166750.00
8		Supply & fixing in position ISI marked cast iron double flanged butterfly valves as per IS:13095, (PN 16) with SS disc, shaft, seating rings, nitrile rubber lining, internal fastening, nuts, bolts including transporting to worksite, 3 mm thick rubber gaskets etc. including testing, Complete as per drawings & directions of the Engineer-in-charge.				
		50 MM NB	NOS	2	2300.00	4600.00
		80 MM NB	NOS	10	3170.00	31700.00
		100 MM NB	NOS	16	4360.00	69760.00
		150 MM NB	NOS	8	6700.00	53600.00
		200 MM NB	NOS	6	12700.00	76200.00
9		Supply & fixing in position cast iron body double flange dual plate wafer type check valve (NRV) (PN 16), with SS 304 plates, hinges, pins, springs, nitrile rubber lining, including transportation to worksite, supply & fixing SS nuts, SS bolts, 3 mm thick rubber gaskets, complete with testing as per direction of the Engineer - in - charge.				
		50 NB	NOS	1	1840.00	1840.00
		80 NB	NOS	2	2700.00	5400.00
		150 NB	NOS	4	7100.00	28400.00
		200 NB	NOS	1	12300.00	12300.00

SCHEDULE OF QUANTITIES FOR FIRE PROTECTION SYSTEM

PROJECT: REGIONAL SCIENCE MUSEUM AT PATAN (GUJARAT)

S.No	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation including taxes & duties)
10		Supply, fixing, testing & commissioning of 20 mm bore and 30 meter long hose (high pressure rubber braided hose pipe as per IS:444 or Thermo plastic (Textile reinforced) fire hose pipe as per IS 12585) and hose reel , (The complete assembly shall be capable of withstanding the hydrostatic test pressure 21 kg/sqcm), for first aid fire fighting conforming to IS : 884, with 180° full swing drum, fixing brackets, 5 mm dia shut off Stainless steel nozzle, connecting directly from the riser through 40 mm dia. MS (Class C) pipe with sockets, elbows, nipples, 40x20 mm reducer, 20 dia pipe, 20 mm dia. hand lever operated isolating ball valve, etc. including providing operating instructions on a metal plate and fixing it near hose reel. The system shall be complete in all respects as per drawings and directions of Engineer-in-charge.	NOS	14	8685.00	121590.00
11		Providing Stainless steel ISI marked 63 mm. dia. male Instantaneous pattern short branch pipes with 15 mm dia. Nozzle as per IS : 903, suitable for hydrostatic test pressure 21 kg/sqcm and suitable for interconnections to hose pipe coupling as required.	NOS	23	1820.00	41860.00
12		Providing ISI marked RRL (IS : 636, type-A) fire hose pipe 15 meter long and 63 mm dia with ISI marked (IS : 903) suitable for hydrostatic test pressure 21 kg/sqcm, Stainless steel male and female coupling bound and rivetted to hose pipes with copper rivets and copper wire complete as required.	NOS	46	5375.00	247250.00
13		Providing & fixing standard carbon steel fireman axe with rubber insulated handle tested to 20000 Volts.	NOS	14	940.00	13160.00
14		Supply & installation of 15 mm Air Release Valve for risers, suitable for pressure not less than 15 Kg/Sq.cm. inclusive of ball valve and barrel nipple as per specification	NOS	6	2575.00	15450.00
15		Providing & fixing 100 mm dia dial pressure gauge including making connections with MS pipe complete in all respects.	NOS	10	650.00	6500.00
16		Supply & installation of cast iron body 150NB flanged 4 way 63 mm dia male instantaneous inlet coupling complete with inbuilt NRV, cap and chain for fire brigade connection conforming to IS : 904 and making connection with fire fighting pipe or under ground water tank, completing the work in all respect as per the directions of the Engineer-in-charge.	NOS	2	13800.00	27600.00
17		Providing and fixing of cast iron body 100 mm dia Draw out connection in Under ground water storage tank with heavy class MS suction pipe of required length, foot valve , suction coupling in conformity with local regulations complete in all respects.	NOS	2	5500.00	11000.00
18		Supply, fixing, testing & commissioning of cast iron body and brass/bronze working parts, UL listed installation control valve assembly, suitable for hydrostatic test pressure 21 kg/sqcm, complete with Hydraulic Alarm motor & hydraulically driven mechanical gong bell to sound continuous alarm when sprinkler system activates, butterfly valve, alarm valve, test valve, pressure gauge, emergency releases, pressure switch, 50 mm dia drain valve, flanges, gasket etc. to complete the system as required, as per manufacturers specifications.				
		150 mm diameter	NOS	1	38000.00	38000.00

SCHEDULE OF QUANTITIES FOR FIRE PROTECTION SYSTEM

PROJECT: REGIONAL SCIENCE MUSEUM AT PATAN (GUJARAT)

S.No	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation including taxes & duties)
19		Supply, fixing, testing & commissioning of C.P. bronze / gun metal standard response Standard coverage type Sprinklers as per IS : 9972, comprises of 15mm dia conventional pattern, (K=80), 68°C, glass bulb type sprinklers, UL / FM listed / approved. The jointing shall be done by teflon tape and the installation shall be complete as per the drawings with positioning of sprinklers as per final coordinated plan and requirement of IS : 15105, local fire service & Engineer-in-charge.				
		Upright sprinkler	NOS	624	255.00	159120.00
		Pendant sprinkler	NOS	624	260.00	162240.00
		Side wall sprinkler	NOS	18	260.00	4680.00
20		Supply, fixing of CP cap for sprinkler heads to be mounted at false ceiling / vertical.	NOS	626	40.00	25040.00
21		Supply, fixing, testing & commissioning of UL / FM listed / approved SS 304 braided sprinkler flexible hose having branch line inlet of 25 mm dia and sprinkler head outlet of 15 mm dia, suitable for hydrostatic test pressure 21 kg/sqcm. The installation shall be complete as per the drawings with positioning of sprinklers as per final coordinated plan and requirement of IS : 15105, local fire service & Engineer-in-charge.				
		1000 mm length	NOS	300	1100.00	330000.00
		1500 mm length	NOS	324	1400.00	453600.00
22		Providing & fixing UL listed water flow detectors / switches (Vane type) and test and drain connection for sprinkler system, shall have sensitivity in the range of 4 to 10 US gallon per minute and static pressure rating of 450 PSI including accessories, junction box, suitable for indoor / outdoor mounting. The detector shall respond to water flow in the specified direction after a preset time delay that is field adjustable, complete as required suitable for fixing on fire				
		for 100 mm diameter pipe	NOS	7	5500.00	38500.00
23		Providing and fixing weather proof standard fire hose cabinet (750 mm x 600 mm x 250 mm) outdoor type made of not less than 16 SWG MS sheet having glassed hinged door (5 mm thick glass) including necessary locking arrangement with handle for housing two nos.15 meter long fire hose pipes, branch pipe as required as per drawings, including brackets for mounting accessories, painting (one coat primer and two coat of fire red colour). The cabinet shall be mounted on self standing mounted type MS Angle iron frame as required. The words " FIRE HOSE " to be painted on the box.	NOS	9	4850.00	43650.00
24		Providing and fixing standard fire hose cabinet door with frame (900 mm x 2000 mm) or (suitable to fit in the duct made of not less than 16 SWG MS sheet having glass hinged door (5 mm thick glass) including necessary locking arrangement with handle as required as per drawings, including brackets for mounting accessories, painting (one coat primer and two coats of fire red colour). The door shall be fixed in the masonry wall or as required. The words " FIRE HOSE " to be painted on the box.	NOS	14	5000.00	70000.00
25		Designing, Supply and installation Orifice plate made out of stainless stand plate (thickness as per specification) for following size of pipe to reduce pressure upto 3.5 Kg/sqcm complete in all respects	NOS	9	1900.00	17100.00
B		PUMP HOUSE				

SCHEDULE OF QUANTITIES FOR FIRE PROTECTION SYSTEM

PROJECT: REGIONAL SCIENCE MUSEUM AT PATAN (GUJARAT)

S.No	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation including taxes & duties)
26		Supply, installation and testing of cylindrical type flanged pressure vessel tank , 450 mm dia, 2 m long and of 10 mm thick M.S., common for a set of fire pumps including flanged connection, suitable supporting legs with MS plate of size 75x75x5 mm at the bottom and grouted in CC foundation. The air vessel tank shall be provided with air release valve, stop cock, safety valve, pressure gauge, 50 mm dia drain valve, suitable length of connecting pipe and valve from delivery header to vessel tank, suitable pressure switches to operate all pumps (1 nos each), tested to min 25 KG/cm ² complete including painting with synthetic enamel paint of approved shade with all accessories as per direction of the Engineer-in-charge. (For Pump House)	NOS	1	33900.00	33900.00
27		Providing and fixing C I body flanged S S strainer fabricated out of 1.6 mm thick Stainless Steel 304 sheet with 3 mm dia hole complete.				
		150 mm dia	NOS	1	10700.00	10700.00
		200 mm dia	NOS	2	21200.00	42400.00
28		Supply, Fixing, Testing & Commissioning of electrical motor driven fire pump , suitable for automatic operation consisting of following : (Main Pump for hydrant system)				
		(a) Horizontally mounted, Two stage-split casing , 1500 RPM Centrifugal fire pump , as per IS:1520 complete for delivery of under mentioned discharge against desired mentioned head so as to ensure a minimum pressure of 35 meter at the highest and farthest outlet at the specified flow complete with necessary strainers, 100 mm dia dial pressure gauge of calibration 0-15 kg/sq cm including bypass arrangement for periodic testing of the working of the pumpset as well as testing of automation with required length and size of MS pipe and control valves for proper completion of work. The pump shall be capable of giving 150% of rated discharge at head not less than 65% of rated head. The pump shall be provided with Mechanical seals. The impeller shall be enclosed type and accurately balanced dynamically. The pump casing shall be of cast iron, impeller shall be of bronze and shaft shall be of stainless steel.				
		(b) Squirrel cage, TEFC induction motor as per IS : 325, suitable for 415 V +/- 10%, 3 Phase, synchronous speed as per pump, IP 55 protection and class 'F' insulation, vacuum impregnated windings with heat and moisture resisting varnish for the above pump and flexible coupling with the pump. The motor shall be rated for continuous duty and shall have HP rating necessary to drive the pump at 150% of it's rated discharge at 65% of rated head.				
		(c) Common bed plate of fabricated mild steel channel or cast iron type, coupling, coupling guard ets as required.				
		(d) Suitable vibration clamping arrangement as required. with foundation bolts, anti vibration pads, washers etc.				
		Discharge : 2850 liter per minute				
		Head : 70 meter	SET	2	306180.00	612360.00
29		Supply, Fixing, Testing & Commissioning of fire authority approved Diesel Engine driven Fire Pump , suitable for automatic operation consisting of following : (Stand by pump).				

SCHEDULE OF QUANTITIES FOR FIRE PROTECTION SYSTEM

PROJECT: REGIONAL SCIENCE MUSEUM AT PATAN (GUJARAT)

S.No	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation including taxes & duties)
		(a) Horizontally mounted, Single stage-End suction type, 1800-2300 RPM Centrifugal fire pump , as per IS:1520 complete for delivery of under mentioned discharge against desired mentioned head so as to ensure a minimum pressure of 35 meter at the highest and farthest outlet at the specified flow complete with necessary strainers, 100 mm dia dial pressure gauge of calibration 0-15 kg/sq cm including bypass arrangement for periodic testing of the working of the pumpset as well as testing of automation with required length and size of MS pipe and control valves for proper completion of work. The pump shall be capable of giving 150% of rated discharge at head not less than 65% of rated head. The pump shall be provided with Mechanical seals. The impeller shall be enclosed type and accurately balanced dynamically. The pump casing shall be of cast iron, impeller shall be of bronze and shaft shall be of				
		(b) Radiator cooled Diesel engine developing suitable BHP for the above pump set, RPM to be as per pump, including engine control panel with manual and automatic starting mechanism, auto/manual selector switch, 3 attempt starting device, timers, relays, push buttons, start/stop in manual mode, 2 nos. SMF lead acid batteries of 12 / 24 V & of 180 AH capacity, battery charger unit with boost & trickle charger, selector switch, 2 mm thick welded steel fabricated Diesel tank for two hours capacity complete with inlet and outlet connections, fuel tubings to the engine of MS C clas, fuel filter, fuel injection pump, oil level indication gauge, residential exhaust silencer, fly wheel, air intake manifold, air cleaner, radiator, radiator fan, lub. oil pressure gauge, filter, cooling water temperature gauge and all other accessories required to complete the system. The diesel engine shall be rated for continuous duty and shall have BHP rating necessary to drive the pump at 150% of it's rated discharge at 65% of rated head.				
		(c) Diesel engine Exhaust system of required length of Class `B' MS pipe of suitable diameter with bends upto out side of pump house as required, expansion joints including providing suitable supporting arrangements at suitable intervals, with glass wool insulation 50 mm thick on all sides of exhaust pipe and silencer, with chicken mesh wrapping and 1 mm thick aluminium sheet cladding complete as required.				
		(d) Supply, installation, testing and commissioning of Fire pump control panel complete with necessary relays like no volt relay, over voltage and low voltage relays, contactors, timer, pressure switch etc. as required for the auto start of the diesel engine in case of power failure complete with all accessories, wiring & cabling including connection to diesel engine complete as required all in conformity with the local Fire regulations. The diesel engine driven fire pump will start automatically in the event of pressure drop beyond preset limit or on mains failure or failure of electric driven pumps to start.				
		(e) Common bed plate of fabricated mild steel channel or cast iron type, <u>coupling, coupling guard</u> ets as required.				
		(f) Suitable vibration clamping arrangement as required. with foundation bolts, anti vibration pads, washers etc. (Civil work shall be excluded from Vendor scope)				
		Discharge : 2850 liter per minute				
		Head : 70 meter	SET	1	536340.00	536340.00
30		Supply, Fixing, Testing & Commissioning of electrical motor driven fire pump, suitable for automatic operation consisting of following : (JOCKEY PUMP).				

SCHEDULE OF QUANTITIES FOR FIRE PROTECTION SYSTEM

PROJECT: REGIONAL SCIENCE MUSEUM AT PATAN (GUJARAT)

S.No	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation including taxes & duties)
		(a) Horizontally mounted, end suction type / Multi stage pump (Vertical pump should not be selected) Centrifugal fire pump with operating speed of 2900 rpm, as per IS:1520 complete for delivery of under mentioned discharge against desired mentioned head so as to ensure a minimum pressure of 35 meter at the highest and farthest outlet at the specified flow complete with necessary strainers , 100 mm dia dial pressure gauge of calibration 0-15 kg/sq cm including bypass arrangement for periodic testing of the working of the pumpset as well as testing of automation with required length and size of MS pipe and control valves for proper completion of work. The pump shall be capable of giving 150% of rated discharge at head not less than 65% of rated head. The pump shall be provided with Mechanical seals. The impeller shall be enclosed type and accurately balanced dynamically. The pump casing shall be of cast iron, impeller shall be of bronze and shaft shall be of				
		(b) Squirrel cage, TEFC induction motor as per IS : 325, suitable for 415 V +/- 10%, 3 Phase, synchronous speed 2900 rpm, IP 55 protection and class 'F' insulation, vacume impregnated windings with heat and moisture resisting varnish for the above pump and flexible coupling with the pump. The motor shall be rated for continuous duty and shall have HP rating necessary to drive the pump at 150% of it's rated discharge at 65% of rated head.				
		(c) Common bed plate of fabricated mild steel channel or cast iron type, coupling, coupling guard ets as required.				
		(d) Suitable vibration clamping arrangement as required. with foundation bolts, anti vibration pads, washers etc. (Civil work shall be excluded from Vendor scope)				
		Discharge : 180 liter per minute				
		Head : 70 meter	SET	2	64820.00	129640.00
31		Design, manufacture, supply, storing, inspection, handling, assembling, installation in correct alignment, position, affecting proper connections, testing and commissioning of 14 SWG CRCA sheet steel fabricated cubical type Electrical Control Panel for fire fighting pumps , floor mounting, dust & vermin proof, front operated construction, enclosure class - IP 4X, powder coated after proper treatment with 9 tank process with top/bottom removable gland plates, as required, double compression type cable glands, earth bus, hinged and lockable doors to achieve dust and vermin proof complete with all inter connections small wiring by min. 2.5 sq. mm. FRLS copper wires, ckt labels etc. The panel feeders shall be suitable for terminating suitable nos. 3 / 3.5 / 4 core armoured				
		All MCCB's shall be microprocessor based, motor protection category, current limiting type with earth fault protection. All MCCB's shall be Ics = 100% Icu, with rotary handle. All TP MCCB shall be with heavy duty solid isolable neutral link. The panel shall be provided with suitable relays including contactors, Star Delta for all pumps as applicable, 3 nos. phase indicating lamps, ammeter, voltmeter, selector switches, CT's, PT's, protective fuses, indicating lights for incoming and outgoing feeders, 1 Set of indication lamps for mains ON/OFF/Trip conditions, auxillary switches, dry suction cut off, single phase preventer etc. The under voltage release and no volt coil shall not be provided in the MCCB's				

SCHEDULE OF QUANTITIES FOR FIRE PROTECTION SYSTEM

PROJECT: REGIONAL SCIENCE MUSEUM AT PATAN (GUJARAT)

S.No	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation including taxes & duties)
		The panel shall be provided with interlocking arrangement between electric motor driven and diesel engine driven pumps so that only one pump can operate at one time and in case of any failure in electric motor driven pump the diesel engine driven pump shall operate automatically. The system controller should be capable to control operation of various pumps in sequence as per standards consisting of relays, timers, sensors, annunciation window for fault indication complete in all respects.				
		For controlling operation of pumps and indicating fault, system annunciation shall be provided. The system shall consist of relays timer, contactors etc and shall be designed to operate the fire pumps with interlocking and fault indication Annunciation window shall be provided to indicate following faults. Low water level in UG tank. Main pump failed to start. Main pump failed during operation. Diesel pump failed to start. Diesel pump failed during operation. Supply to Main Pump failed. Supply to Pressurization Pump failed. Supply to Terrace Pump failed. Suitable sensors, differential pressure switches, monitors shall be provided at respective location, the control system shall be operational on 12 / 24 volt DC batteries of engine starting. Battery chargers shall be provided to ensure that batteries remain charged. Batteries shall be sealed				
		Provisions shall be made for providing potential free contacts to all pump starters for connection to building automation system / Fire alarm control panel.				
		The rates shall include necessary interconnecting armoured copper control cables of suitable sizes within the panel and from panel to various motors and engines, pressure switches, level switches of water tanks, cable trays etc required to complete the entire installation upto the satisfaction of engg-in-charge.				
		The fault withstanding capacity of panel shall be 15 KA rms for 1 sec.				
		Following Fire fighting pumps shall have to be controlled -				
		2 set of Electric motor driven pump for hydrant & sprinkler				
		1 set of diesel engine driven stand by pump				
		2 set of electric motor driven jockey pump				
		Incomer :				
		630 AMP FP MCCB (25 KA) with flush mounting square CT operated ammeter with selector switch, Voltmeter with selector switch, protective fuses and phase indicating lamps				
		Bus Bar :				
		630 AMP TPN, 415 volt, 3 phase, 4 wire, 50 HZ electrolytic high conductivity Copper with SMC / DMC supports, with colour coating and insulated by heat shrinkable sleeves and clips on shrouds for joints. The current density of copper bus bar shall not exceed 1.25 amp/sqmm.				
		Outgoings :				
		2 nos. 250 AMP TP MCCB (25 KA) with star delta starter of suitable HP for main fire pump with over load protection, single phase preventor complete for automatic operation, selector switch for local/remote, auto/manual/off operation, with CT operated ammeter with selector switch and indication lamps for "On" "Off" and "Trip" mounted on the cubicle door.				

SCHEDULE OF QUANTITIES FOR FIRE PROTECTION SYSTEM

PROJECT: REGIONAL SCIENCE MUSEUM AT PATAN (GUJARAT)

S.No	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation including taxes & duties)
		2 nos. 63 AMP TP MCCB (25 KA) with star delta starter of suitable HP for jockey pump with over load protection, single phase preventor complete for automatic operation, selector switch for local/remote, auto/manual/off operation, with CT operated ammeter with selector switch and indication lamps for "On" "Off" and "Trip" mounted on the cubicle door.				
		1 nos. 63 AMP TP MCCB (25 KA) as spare				
		1 nos. 13 AMP TP MPCB (25 KA) For Axial Fan				
		1 nos. 16 AMP DP MCB (15 KA) for HVAC fan				
		1 nos. 25 AMP DP MCB (15 KA) for supply to annunciation/AMF panel of diesel engine driven stand by fire pump. The diesel engine driven fire pump will start automatically in the event of pressure drop beyond preset limit or on mains failure or failure of electric driven pumps to start.	Set	1	500000.00	500000.00
32		Supplying and laying of 1000 mm wide x 2 mm thick insulated mat made from highly electrical resistant elastomer of tested quality to withstand 30 KV dielectric strength as per IS 15652 complete in all respects. (For control Panel)	M	2	1,700.00	3400.00
33		Providing and fixing danger notice plate of 200 mm X 150 mm made of mild steel at least 2 mm thick vitreous enamelled, white on both sides and with inscription in signal red colour on front side as required.	Nos	1	320.00	320.00
34		providing and fixing of shock treatment chart written in English and Hindi both properly framed and glass covered as required.	Nos	1	740.00	740.00
35		Providing and laying of ISI marked Aluminium conductor, XLPE insulated, armoured, served, sheathed Cable 1100 V grade with terminal joints by palm or pin type cable sockets (lugs), insulating with tapes, flame proof double compression type brass and nickle plated compression glands. On surface, the cable run shall be on MS cable tray or fixed on M.S. clamps etc.of suitable size or as directed by engineer-in- charge, complete in all respects. The armouring shall be properly connected with the earth conductor by clamps etc.				
		16 sqmm 3 core	M	20	200.00	4000.00
		240 sqmm 3 core	M	25	1250.00	31250.00
36		Supply and erection of Perforated type cable trays made out of prefabricated Galvanized sheet steel including tees, bends, crossings, reducers, couplings installed over head on wall or hanged from ceiling including all necessary supports, brackets at every 1500 mm c/c, grouting, levelling, suspension and fixing arrangements, dash fastners, G.I. nuts & bolts complete in all respects.				
		The support for 450 mm wide cable tray will be by 40 x 40 x 5 mm MS angle, for 300mm wide cable tray will be by 32 x 32 x 5 mm MS angle, for 150mm wide cable tray will be by 25 x 25 x 4 mm MS angle.				
		300 mm (W) X 35 mm (H) X 1.5 mm (T)	M	10	750.00	7500.00
		150 mm (W) X 35 mm (H) X 1.5 mm (T)	M	15	550.00	8250.00
37		Supply & burrying of 600mmx600mmx6mm G.I. plate, vertically for earthing with its top at least 3m below ground level complete 20mm dia. G.I.pipe and funnel for watering and 300mm square C.I. box with hinged cover, masonry housing alternate layer of charcoal/coke and salt atleast 150mm thick around etc. as per the direction of engineer-in-charge complete in all respect .	Nos	2	5,500.00	11000.00
38		Supply & Fixing of 25mm x 5 mm G.I. strip for earthing purpose to be laid on surface or below ground as required at site.	M	25	110.00	2750.00

SCHEDULE OF QUANTITIES FOR FIRE PROTECTION SYSTEM**PROJECT: REGIONAL SCIENCE MUSEUM AT PATAN (GUJARAT)**

S.No	DSR Item No.	Description	Units	Quantity	Unit Rate	Total Amount (Supply + Installation including taxes & duties)
39		Supplying structure steel (Fe-415) for extra support of MS pipes in pump room, complete with all labour, tools and plants, etc.	Kg	250	60.00	15000.00
		GRAND TOTAL				8309200.00

**SCHEDULE OF QUANTITIES FOR ELECTRICAL WORKS
PROJECT:- REGIONAL SCIENCE MUSEUM - PATAN**

Sr. No.	DSR Item	Description of Work	Units	Quantity	Unit Rate (Supply + Installation) (in INR)	Total Amount (Supply + Installation excluding taxes & duties) (in INR)
1.0	NDSR	2 POLE STRUCTURE & METERING				
		The following BOQ given is for reference only. The Bidder shall make his own estimate of quantities for all items, systems. It should be clearly understood that the contract for this system will be on 'EPC' (lump sum) basis and no variation will be allowed for items of works not foreseen or omitted by the Bidder at the proposal stage. Even if all components of a system are not explicitly identified and/or listed herein, these shall be supplied under this contract to ensure completeness of the system and facilitate proper operation and easy maintenance of the system. The BOQ shall be submitted by the Bidder along-with the Proposal. Bidder to note that supply & installation of 11kV cable and its termination is accounted separately in BOQ. So shall not be considered in the lumpsum pricing.				
1.1	NDSR	Supply and Installation of two pole structure comprising of 2 Nos. of "I" -beams (150X80X4.8mm/ 150X75X 5mm) 9mtrs length and 5 Nos. of M.S. channels (75X50X5mm/ 75X40X6mm) 3mtr. length complete with PCC foundation in 1:3:6, proportion, Danger board, anti-climbing device and other fixing material, Clamps, nut bolts, cross arms, base plates painting etc. for mounting GOD, LA & DO Fuse as per I.S. specification & I.E. Rules.				
1.2	NDSR	Supply, Installation, Testing and Commissioning of Gang operated Air Break Switch+Earth Switch outdoor type, triple pole, suitable for vertical installation fitting type, single break provided with locking arrangement at both ON & OFF position consisting of MS Channel, HT post double insulator, copper or copper alloy high pressure heavy contract assembly, rod, operating handle & two length of 32mm dia GI pipe confirming to IS1818 1961, 6 Nos. of insulator on each phase, rated voltage 11kV, 400A complete.	Set	1	250,000	250,000
1.3	NDSR	Supply, Installation, Testing, and commissioning of Drop out fuses expulsion type suitable for vertical installation consisting of GI channel base, two insulator per phase complete with fuse carrier bakelite to be with heavily tinned non ferrous metal bar, spring loaded phosphor bronze contacts, complete manufactured as per relevant I.S. Specification with suitable fuse element:-200A rated voltage 11kV complete.				
1.4	NDSR	Supply, Installation, Testing and commissioning of Lightning arrestor station class, 10kA, 9kV, effectively grounded system as per I.S.3070 part I. Suitable for 11kV.				
1.5	NDSR	Supply and fixing of 6mX12mX2.4m high, security fencing with 50X50X6mm angle Iron poles grounded at suitable interval fixed with hard drawn steel chain-link (50X50X5mm) mesh on angle iron by M.S.flats. The overhang portion should be in the form of 'Y' towards both directions barbed wire fixed on it. It is to be provided around the meter room where there is no building wall. Fencing shall be with lockable gate, danger boards and painting. A separate man entry gate shall be provided from external approach road to metering kiosk.	Set	1	15,000	15,000
1.6	NDSR	Supply and Installation of GEB approved TVM/TOD meter along necessary CT/PT with approved class of accuracy. (to be installed in Meter Room) - Contractor shall get approval for CT/PT ratio from GEB before placing order for the meter. GEB approved compact HT metering cubicle / kisok shall be provided.	Set	1	115,000	115,000
1.7	NDSR	Supply of compact circular Aluminium conductor, provided with conductor screening of semi-conducting compound, XLPE insulated, provided with insulation screening over individual cores, consisting of extruded semi-conducting compound followed by copper tape, cores laid up together with extruded PVC inner sheath along with fillers., galvanised steel strip armoured and overall PVC outer sheathed cable with anti rodent and anti termite properties., suitable for 11 kV (E) system, confirming to is:7098(part-II) Cable Size = 3C X 300 sq.mm. (This is estimated length. Contractor shall verify route and length of this cable from site before procurement. Entire cable shall be supplied in single length only)	Meter	100	1,150	115,000
1.8	8.1	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 11 kV grade of following size direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc. as required.				
(a)	8.1.2	As above but 3C X 120 sq. mm and upto 3CX400 sq. mm	Meter	100	298	29,800

SCHEDULE OF QUANTITIES FOR ELECTRICAL WORKS
PROJECT:- REGIONAL SCIENCE MUSEUM - PATAN

Sr. No.	DSR Item	Description of Work	Units	Quantity	Unit Rate (Supply + Installation) (in INR)	Total Amount (Supply + Installation excluding taxes & duties) (in INR)
1.9	10.4	Supplying and making indoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for following size of 3 core, XLPE aluminium conductor cable of 11 kV grade as required.				
(a)	10.4.4	3CX300 sq. mm	Nos.	2	6,457	12,914
1.10	10.5	Supplying and making outdoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for following size of 3 core, XLPE aluminium conductor cable of 11 kV grade as required.				
(a)	10.5.4	3CX300 sq. mm	Nos.	2	9,464	18,928
1.11	5.6	Earthing with copper earth plate 600 mm X 600 mm X 3 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 meter long etc. with charcoal/ coke and salt as required.	Set	5	8,289	41,445
1.12	5.4	Earthing with G.I. earth plate 600 mm X 600 mm X 6 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 meter long etc. with charcoal/ coke and salt as required.	Set	7	4,327	30,289
1.13	NDSR	Supply and Installation of 50 x 6 mm hot dipped galvanised (70 micron thickness) GI earth strip for main earth grid around 2 pole structure. Including necessary excavation and backfilling as required.	Meter	50	258	12,900
1.14	NDSR	Supply and Installation of 25 x 3 mm Copper earth strip for connection of various equipments to main earth grid.	Meter	50	580	29,000
1.15	NDSR	Supply and Installation of 25 mm size gravel metal for yard.	LS	1	5,250	5,250
2.0		HT CABLES				
2.1	NDSR	Supply and Installation of compact circular Aluminium conductor, provided with conductor screening of semi-conducting compound, XLPE insulated, provided with insulation screening over individual cores, consisting of extruded semi-conducting compound followed by copper tape, cores laid up together with extruded PVC inner sheath along with fillers., galvanised steel strip armoured and overall PVC outer sheathed cable with anti rodent and anti termite properties., suitable for 11 kV (E) system, confirming to is:7098(part-II) Cable Size = 3CX300 sq.mm.(Contractor shall verify route and length of this cable from site before procurement. Entire cable shall be supplied in single length only)	Meter	110	1,150	126,500
2.2	8.1	Laying of one number power cable of 11 kV grade of following size direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc. as required.				
(a)	8.1.2	As above but 3C X 120 sq. mm and upto 3CX400 sq. mm	Meter	110	298	32,780
2.40	10.4	Supplying and making indoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for following size of 3 core, XLPE aluminium conductor cable of 11 kV grade as required.				
(a)	10.4.3	3CX300 sq. mm	Each	3	6,457	19,371
2.5	10.5	Supplying and making outdoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for following size of 3 core, XLPE aluminium conductor cable of 11 kV grade as required.				
(a)	10.5.3	3CX300 sq. mm	Each	1	9,464	9,464
2.6	10.6	Supplying and making straight through cable jointing with heat shrinkable jointing kit complete with all accessories including ferrules suitable for following size of 3 core, XLPE aluminium conductor cable of 11 kV grade as required.				
(a)	10.6.3	3CX300 sq. mm	Each	UR	10,640	-
3.0		HT PANEL				
3.1	NDSR	Supply of 11 kV, 630 amp, 26.3 kA Indoor compact switchgear as per details in SLD and Specification. - In built power pack shall be provided for indicationg, closing and tripping circuit.	No.	1	750,000	750,000
3.2	NDSR	Installation shall include Unloading, handling, storage at site, shifting from place of storage to place of installation, assembly, erection, conducting pre-commissioning test as per relevant IS Standard, commissioning & performance demonstration of 11kV Switchgear Panel. Testing kit shall be arranged by Contractor.	No.	1	30,000	30,000
4.0		TRANSFORMER				
4.1	NDSR	Supply, testing & commissioning of Outdoor type 1250kVA, 11 kV / 433 Volt Distribution Transformer (as per IS : 2026, P1 to P5), 3 phase, 5% impedance, Dyn 11 vector group, 50Hz, oil immersed naturally cooled (ONAN), copper wound, continuous duty, temperature rise above 50°C in oil by thermometer 40°C, in winding by resistance 45°C and other standard accessories as required including but not limited to followings:-				

**SCHEDULE OF QUANTITIES FOR ELECTRICAL WORKS
PROJECT:- REGIONAL SCIENCE MUSEUM - PATAN**

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-		The Transformer losses should confirm to IS : 1180 (Part 1)-2014.				
		a) HT Cable Termination box with disconnecting facility for 11 kV 3CX300 sq.mm. XLPE cable at 11 kV side				
		b) LV side box suitable for 2000Amp bus duct termination				
		c) Automatic On Load Tap Changer +10% to -10% @ 1.25% in 16 equal steps with RTCC Panel (Remote tap changer control panel) consisting of followings -				
		(i) High torque, electric motor suitable for 415V 3 Ph. 50 Hz., AC supply.				
		(ii) Motor drive and energy accumulator.				
		(iii) Monitor isolating device with overload protection.				
		(iv) Contactors for Forward & Reverse operations of motor.				
		(v) "RAISE / LOWER" control for local operation.				
		(vi) "LOCAL / REMOTE" control selector switch.				
		(vii) "RAISE / LOWER" limit switches.				
		(viii) Stepping Relay.				
		(ix) Auxiliary Transformer.				
		d) Bidirectional rollers.				
		e) Oil Conservator with filter cap, drain plug & oil level gauge				
		f) Earthing terminals 2 nos for body earthing.				
		g) Neutral separately bought out on a bushing for neutral earthing.				
		h) Neutral CT as required.				
		i) Pressure release device. Double diaphragm explosion vent.	Set	1	1,625,000	1,625,000
		j) Radiators Detachable type with top & bottom shut off valve.				
		k) First filling of filtered dehydrated oil as per IS : 335 including make up fill during installation & 10% extra.				
		l) Silica gel breather with connecting pipe & oil seal.				
		m) Rating, Diagram & Terminal marking plate of SS.				
		n) Sampling Valves for filtration, drainage and filling with plugs.				
		o) Air release plugs.				
		p) Thermometer pocket with plug.				
		q) Lifting Lugs.				
		r) Double float Buchholz relay with gas release cock, alarm & shut off valve on either side with separate set of contacts for trip and alarm.				
		s) Oil Surge Relay				
		t) 150 mm Winding temperature indicator (WTI) with alarm.				
		u) 150 mm Oil temperature indicator (OTI) with alarm				
		v) Marshalling Box.				
		w) Clamping device.				
		x) Jacking Pads.				
		y) Ladder with safety device for access to the top of transformer tank.				
		The work shall be complete in all respects up to the satisfaction of Engg-in-charge.				
4.2	NDSR	Instalation of Transformer - The instalation of Transformer will include receiving, storing, handling, installation, testing and commissioning, affecting proper connections with the power and control cables, coordination with the transformer manufacturers / supplier, civil contractors etc complete in all respects. The small items / accessories required for erection of transformer will be included in the rates. Testing kit shall be arranged by Contractor. Carrying out oil filtration test if required. (The civil work for the foundation will be separate)				
4.2.1	(a)	1250 kVA	Set	1	40,000	40,000
5.0		Main L.T. Panel / SUB LT Panels (Floor Mounted Panels)				
		Design, manufacture, supply, installation, factory inspection, handling, assembling, testing and commissioning of 14 SWG CRCA sheet steel fabricated compartmentalized / cubical type L.T. Panels , floor mounting, dust & vermin proof, front operated construction, enclosure class - IP 42, powder coated after proper treatment with 9 tank process with top/bottom removable undrilled gland plates, earth bus, hinged and lockable doors to achieve dust and vermin proof complete with all inter connections. The Aluminium Bus Bar shall be of suitable length, 415 volts, 3 phase 50 Hz TPN, electrolytic aluminium as per IS 8623, with 0.7A/sq.mm current density. The panel feeders shall be suitable for terminating suitable nos. 3.5 / 4 core armoured aluminium cable or Bus Duct as required. Panel shall be of form 3B as per IEC 61439-1. Closing and Tripping circuit of ACBs shall be on DC. Suitable in built power pack shall be provided. Spring charging motor and indications shall be on AC.				

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Sr. No.	DSR Item	Description of Work	Units	Quantity	Unit Rate (Supply + Installation) (in INR)	Total Amount (Supply + Installation excluding taxes & duties) (in INR)
		All Incoming / Outgoings ACB's shall have inbuilt microprocesor based Over load protection (L), Short Circuit protection (S), Instantaneous Short Circuit protection (I), Earth Fault protection (G), Shunt Trip releases. All ACB should have Ics=Icu=Icw=50 kA for 1 sec, fully rated at 50 deg C ambient temperature & shall be supplied with adopter terminal connection whose orientation can be changed at site. All ACB shall be supplied with all standard accessories i.e. auxillary switch with minimum 4NO + 4NC contacts, cradle, handle, safety shutter in confirmity with IS:60947.				
		MCCB's upto 200 Amps shall have in built, thermal magnetic based O/L and S/C Release. MCCBs above 250A shall be microprocessor based with O/L & S/C release with E/F protection.				
		All MCCB's shall be Ics = 100% Icu, with rotary handle & pad locking arrangement, with adjustable O/L & S/C trip setting as per load requirement. All TP MCCB shall be with heavy duty solid isolable neutral link.				
		The breaking capacity specified for all ACB's and MCCB's breakers is Ics value (service rating).				
		The instrument chamber shall be separate and shall comprise of flush type ammeter, voltmeter, selector switches, cast resin type CT's & PT's, etc. Separate CT's shall be provided for protective and measuring system and for APFCR of capacitor bank with suitable VA.				
		Each section of Panel shall have door opearted light of sufficent lux to illumunate that section & each section of capacitor, buscoupler, transformer and DG incomers shall have exhaust fans for ventilation purpose.				
		The fault withstanding capacity of panels shall be as shown on SLD.				
		The maximum height of the panel should not exceed 2200 mm unless specifically approved.				
		All incoming and outgoing feeders of Main LT Panel and Incomers of other Floor Panels (Sub LT Panels) shall be available for monitoring on BMS (monitoring only, no control from BMS)				
		GA drawings approval from Owners / Architects / Consultants shall be taken before fabrication by contractor.				
		For configuration of each Panel, refer Single Line Diagram				
5.1	NDSR	Main LT Panel	Nos.	1	1,995,000	1,995,000
5.2	NDSR	Sub LT Panel - Ground Floor (M001)	Nos.	1	651,000	651,000
5.3	NDSR	Sub LT Panel - First Floor (M101)	Nos.	1	500,000	500,000
5.4	NDSR	Sub LT Panel - Second Floor (M201)	Nos.	1	510,000	510,000
5.5	NDSR	Sub LT Panel - Third Floor (M301)	Nos.	1	651,000	651,000
5.6	NDSR	Sub LT Panel - Utility	Nos.	1	495,000	495,000
5.7	NDSR	DG Synchronizing cum load sharing panel	Nos.	1	2,190,552	2,190,552
5.8	NDSR	Outdoor Lighting Panel (ODLP) - Indoor wall mounted panel with timer as per SLD	Nos.	2	35,550	71,100
6.0		HARMONIC FILTER CUM APFC CAPACITOR CONTROL PANEL				
		Design, manufacture, supply, installation, inspection, handling, assembling, testing and commissioning of cubical type 500 kVAR APFC Panel . Required Capacitor banks and 7 % de-tuned reactors shall be mounted at Bottom. Constructional features shall be similar to other floor mounted panels as above.				
		Capacitor duty contactors should be used for switching individual capacitor banks.				
		Each section of capacitor panel shall have Verticle hood & exhaust fans for ventilation purpose.				
		Micro procesor based automatic power factor control relay (3 phase) in 12 steps. APFC Relay shall display (digitally) PF of the system. The APFC relay shall have dual power factor settings for grid and DG operation. All associated auxiliary contactors / relays shall be provided with in the scope of work.				
		Phase indicating lamps with HRC fuses, and indicating lamps in each capacitor chamber unit to indicate ON/OFF status of capacitor unit.				
		Outgoing Feeder shall consists of MCCB, Capacitor Duty Contactor , MPP resin filled, super heavy duty ,525V capacitor bank with 7% detuned filters, auto-manual selector switch, start /stop push button for manual operation including on/off indicating lamps and delay timer. Rating of various components shall be as per SLD.				
6.1	NDSR	For Details of panel refer Single Line Diagram.	Nos.	1	1,850,000	1,850,000
7.0		LT BUS DUCT - SANDWICH TYPE				
		Supply of Sandwich type Bus Ducts				

SCHEDULE OF QUANTITIES FOR ELECTRICAL WORKS
PROJECT:- REGIONAL SCIENCE MUSEUM - PATAN

Sr. No.	DSR Item	Description of Work	Units	Quantity	Unit Rate (Supply + Installation) (in INR)	Total Amount (Supply + Installation excluding taxes & duties) (in INR)
7.1	NDSR	Design & Supply of 3 pole and Neutral, totally enclosed, dust and vermin proof aluminium busduct with IP 55 ingress protection, 415 Volts operational, 1000 Volts insulation, 50 Hz, 1.6 mm thick G.I. housing, Epoxy powder coated over 9 tank pre treatment process, outdoor / Indoor mounting, Compact Sandwich type Bus Duct with Aluminium bus bars with 0.7A/sq.mm current density and rated as under to withstand the stresses of symmetrical fault level for 1 sec at 415 volts including the cost of phase change over, bends, flanged ends, thermal stickers, canopy over bus duct and all necessary accessories to connect the bus duct to the transformer and Main LT Panel complete including accessories as required. 2 nos. 50 x 6 mm Al. earth strip shall run out side the enclosure. The Bus Duct shall be designed as per IEC 60439-1&2 & IEC 60529 with Class F insulation.				
7.1.1	(a)	2000 Amp (50 kA) - from Transformer to Main LT Panel	Meter	30	42,336	1,270,080
7.1.2	(b)	2500 Amp (50 kA) -from DG Panel to Main LT Panel	Meter	10	26,460	264,600
7.2	NDSR	Design & Supply of flexible joint, elbow,end feed unit & Std Suspension Brackets with tinned copper conductor to connect the bus duct to end flanges of Panel / Transformer from top as per site condition including end connection. For 2000 / 2500 Amp (50 kA)				
7.2.1	(a)	Flexible joints	Nos	4	80,766	323,064
7.2.2	(b)	Elbow / Bend	Nos	6	24,206	145,236
7.2.3	(d)	Std Suspension Brackets	Nos	30	578	17,340
7.2.4	(e)	Phase cross-over chamber	Nos.	1	90,000	90,000
7.3		Installation Testing & Commissioning of Sandwiched Bus Ducts				
	NDSR	The installation of Sandwiched Bus ducts and accessories will include receiving, storing, handling, installation, testing and commissioning, coordination with the Fabricators / manufacturers, civil contractors etc complete in all respects. The installation shall be done with necessary supports, required civil work for hanging / support arrangements, phase cross-over chamber, flexible joints, coupling, expansion joints, elbows, end cover etc. complete in all respect for proper completion of the work including connections.The small items such as nut, bolts and other accesories required for erection will be included in the rates.				
7.3.1	(a)	2000 / 2500 Amp	Meter	40	2,500	100,000
8.0		DISTRIBUTION BOARDS				
8.1	2.5	Supplying and fixing of following ways surface/ recess mounting, vertical type, 415 V, TPN MCB distribution board of sheet steel, dust protected, duly powder painted, inclusive of 200 A, tinned copper bus bar, common neutral link, earth bar, din bar for mounting MCBs (but without MCBs and incomer) as required. (Note : Vertical type MCB TPDB is normally used where 3 phase outlets are required.)				
8.1.1	NDSR	4 way (4 + 4 + 12) Double door - Refer SLD	Nos	7	4,505	31,535
8.1.2	NDSR	6 way (4 + 4 + 18) Double door - Refer SLD	Nos	16	5,674	90,784
8.1.3	NDSR	8 way (4 + 4 + 24) Double door - Refer SLD	Nos	4	8,215	32,860
8.2	2.10	Supplying and fixing 5 A to 32 A rating, 240/415 V, 10 kA, "C" curve, miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
8.2.1	2.10.1	Single Pole				
(a)	-	16A	Nos.	342	173	59,166
(b)	-	10A	Nos.	126	173	21,798
8.2.2	2.10.5	Four Pole				
(a)		63A	Nos.	20	891	17,820
(b)		40A	Nos.	7	891	6,237
8.3	2.15	Supplying and fixing following rating, four pole, (three phase and neutral), 415 V, residual current circuit breaker (RCCB), having a sensitivity current 100 mA in the existing MCB DB complete with connections, testing and commissioning etc. as required.				

SCHEDULE OF QUANTITIES FOR ELECTRICAL WORKS
PROJECT:- REGIONAL SCIENCE MUSEUM - PATAN

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(a)	2.15.3	63A	Nos.	20	2,302	46,040
(b)	2.15.2	40A	Nos.	7	2,131	14,917
9.0		DG SET				
9.1	NDSR	Supply, testing and Commissioning of Silent type Diesel Generating Set at minimum 0.8 PF, 415 Volts, 50 cycles per second, 1500 rpm, 3 phase, suitable for parallel operation / PLC based synchronization, 0.85 load factor including circuit breaker for isolation, sound proof acoustic and weather proof enclosure, residential type silencer (as per CPCB norms-2) fabricated out of CRCA sheet of 14 / 16 SWG thickness with 9 tank pretreated before powder coating with ventilation system complete in all respects comprising of the following.				
9.1.1	NDSR	Diesel Engine -				
		Diesel Engine suitable for driving alternator, compression ignition, 4 stroke cycle, Radiator cooled, turbo charged, battery starting, 1500 RPM, suitable for output of alternator at 40°C, 50% RH & at 210 M MSL and confirming to BS 5514, BS 649, IS 10000, capable of taking 10% overloading for one hour after 12 hrs of prime continuous loading, complete with all the accessories i.e. tachometer with hour meter, flexible coupling with guard, crank case of steel, crank shaft, connecting rods, electronic governing system, dynamically balanced flywheel, air intake manifold, Air cleaner, anti vibration pads, starter motor, including all other accessories required to complete the system.				
		Instrument Panel - Engine mounted Instrument Panel fitted with and having digital display for followings :				
		Start stop switch with key				
		Water temperature indication				
		Lubrication oil pressure indication.				
		Lubrication oil temperature indication.				
		Battery charging indication				
		RPM indication				
		Over speed indication				
		Low Lube oil trip indication				
		Engine hours indication				
9.1.2	NDSR	Alternator -				
		Synchronous Alternator at minimum 0.8 PF, 3 phase, 415 volts, 50 cycles, 4 wire, 1500 RPM, suitable for operation at 40 deg C, 50% RH & at 210 meter above MSL, capable of taking 10% overloading for one hour after 12 hrs of prime continuous loading, brushless, self excited, self regulated through AVR, continuous duty confirming to IS 4722, BS 2613 suitable for tropical conditions, class H insulation, including terminal box suitable for termination of given number of cables.				
		Note :- Alternator should have all other accessories as per specified in Technical specifications / as shown in SLD / accessories as required for smooth operation of DG Set.				
		CT's - As shown in SLD				
		Base Frame - Both the engine and alternator shall be mounted on suitable base frame made of MS channel which shall be installed on cement concrete foundation and vibration isolating arrangement as per recommendations of manufacturer.				
		Power Controller For DG synchronization				
		Microprocessor based Power command controller (P.C.- 3.3 Jakson or equivalent) suitable for auto / manual synchronization & auto load sharing.				
		In Built service Fuel tank of 990 liters capacity fabricated out of 2 mm thick MS sheet complete with inlet and outlet connections, oil indication gauge, drain plug, air breather, provision for fuel transfer system, level indicators and all standard accessories etc. as required.				

SCHEDULE OF QUANTITIES FOR ELECTRICAL WORKS
PROJECT:- REGIONAL SCIENCE MUSEUM - PATAN

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		Exhaust Silencer - Exhaust manifold with residential silencer.				
		The DG set should be supplied with all required hardware for external PLC based auto synchronization, auto load sharing, auto load management system.				
		Starting system - 24 Volt DC starting system comprising of starter motors : voltage regulator and arrangement for initial excitation complete with 12/24 Volts suitable nos. lead acid type batteries of suitable AH.				
		Ventillation System - Arrangement for fresh air intake for cooling of the engine & alternator, extraction, discharging hot air into the atmosphere as per standard specifications.				
(a)	NDSR	600 kW / 750 kVA (with Canopy)	Set	2	3,975,000	7,950,000
(b)	NDSR	160 kW / 200 kVA (with Canopy)	Set	1	1,145,000	1,145,000
9.2		Installation of DG Set - The installation of DG Set shall include receiving, unloading, loading at designated place, installation, testing and commissioning, affecting proper connections with the power and control cables, coordination with the DG Set supplier, civil contractors and including the arrangement of required amount of fuel oil, lubricating oil, artificial load for testing of first run etc. complete in all respects. The small items / accessories required for erection of D G Set will be included in the rates. (The civil work for the DG Set foundation will be seperate)				
(a)	NDSR	600 kW / 750 kVA (with Canopy)	Set	2	835,000	1,670,000
(b)	NDSR	160 kW / 200 kVA (with Canopy)	Set	1	65,050	65,050
9.3		Supply, Fixing, testing and Commissioning of Exhaust gas piping system of Class 'B' MS pipe as per IS:1239 for upto 150 mm dia and for 200 mm dia & above MS pipe as per IS:3589 with welded joints, cut to required lengths with necessary bends, fittings, flanges, painting over primer coat, with mineral wool / rock wool insulation of minimum 75 mm thick of 150 Kg per cu M density on all sides of exhaust pipe, with chicken mesh wrapping and 26 SWG aluminium sheet cladding complete as required. The aluminum foil should be tightly cladded to insulation surface of pipe. The aluminum cladding shall be locked with sheet metal screws with other sections of aluminium foil. The measurement shall be done on the basis of centre line. (Stack height should be in accordance with emission regulations of CPCB, which will go well above the top most terrace or as per applicable standards / regulations) The exhaust piping system should be suitable for upto 550°C temperature, the surface temperature of exhaust pipe shall not exceed more than 60°C. (The rates are inclusive of support structure) The entire MS support structure should be painted by 2 coats of anti corrosive paint over primer coat of approved shade and make. The design of support to be duly approved by the Structural Consultant / Architect before fabrication and installation.				
(a)	NDSR	600 kW / 750 kVA (with Canopy)	Set	2	95,000	190,000
(b)	NDSR	160 kW / 200 kVA (with Canopy)	Set	1	27,000	27,000
9.4		FUEL PIPING				
		Providing and fixing in position the MS pipes class"C" (As per IS : 1239) cut to required lengths and installed with screwed joints including providing and fixing in position the necessary fittings like elbows, tees and reducers, sockets, MS supports and accessories including digging and refilling earth where required for buried pipes / suspended from ceiling including pipe hanger / clamped from wall including hardware complete as per site requirement.				
(a)	NDSR	750 kVA	Set	2	10,850	21,700
(b)	NDSR	200 kVA	Set	1	5,550	5,550
9.5		Testing & Commissioning of DG Set Testing of DG set on site as per applicable IS (or 8hours as minimum). All fuel, oil, other consumables, spares and consumables along with necessary electrical load for this testing and commissioning shall be included in this.				
(a)	NDSR	600 kW / 750 kVA (with Canopy)	Set	2	33,480	66,960
(b)	NDSR	160 kW / 200 kVA (with Canopy)	Set	1	9,000	9,000
		Special Notes : Following is EXCLUDED from DG Vendor Scope. 1) Foundation of DG Set 2) Earth pits 3) Main Power Cable.				

**SCHEDULE OF QUANTITIES FOR ELECTRICAL WORKS
PROJECT:- REGIONAL SCIENCE MUSEUM - PATAN**

Sr. No.	DSR Item	Description of Work	Units	Quantity	Unit Rate (Supply + Installation) (in INR)	Total Amount (Supply + Installation excluding taxes & duties) (in INR)
10.0		UPS				
10.1	NDSR	Supply, Installation, Testing & Commissioning of on line UPS with ACDB as per conceptual block diagram				
		Input :-				
		a) Voltage : 415 V / 3 Phase				
		b) Voltage Variation : - 20% to + 20%				
		c) Input Frequency : 50 Hz.				
		d) Frequency Variation : +/- 5%				
		e) Automatic phase sequence correction facility				
		Output :-				
		a) Voltage : 415 V / 3 Phase				
		b) Voltage Variation : +/- 1%				
		c) Frequency Variation : 50 Hz. + 0.1%				
		Overall Efficiency : > 90%				
		Charger : Should have built in charger to suit system requirement.				
		Battery type : Sealed Maintenance Free - SMF (Global Yuasa / Exide / or Equivalent)				
		Back-up time : 30 Minutes with SMF batteries.				
		Display : Should have LCD display with event logging facility.				
10.1.1	NDSR	Rating : 40 kVA	Set	1	1,657,865	1,657,865
11.0		LV CABLES				
11.1		SUPPLY OF CABLES & ACCESSORIES				
11.1.1	NDSR	The voltage grade shall be 1100V. 1.1 kv Grade multi stranded Al/Cu conductor, XLPE insulated , extruded pvc (Type-ST2) inner & outer sheathed,galvanised steel round wire / flat strip armoured cable. (As per IS 7098, Part I) Notes- All cables / wires shall be FRLS insulated.				
(a)	NDSR	3C X 2.5 - Copper	Meter	500	102	51,000
(b)	NDSR	3C X 4 - Copper	Meter	500	135	67,500
(c)	NDSR	3C X 6 - Copper	Meter	UR	215	0
(d)	NDSR	3.5C X 50 - Aluminium	Meter	410	187	76,670
(e)	NDSR	3.5C X 95 - Aluminium	Meter	UR	315	0
(f)	NDSR	3.5C X 150 - Aluminium	Meter	UR	467	0
(g)	NDSR	3.5C X 240 - Aluminium	Meter	UR	733	0
(h)	NDSR	3.5C X 300 - Aluminium	Meter	3100	905	2,805,500
(i)	NDSR	4C X 2.5 - Copper	Meter	UR	111	0
(j)	NDSR	4C X 6 - Copper	Meter	850	242	205,700
(k)	NDSR	4C X 16 - Copper	Meter	2000	555	1,110,000
(l)	NDSR	4C X 25 - Aluminium	Meter	3000	127	381,000
(m)	NDSR	12C X 2.5 - Copper	Meter	200	440	88,000
		Earthing Cable - Green / Yellow outer cover				
(n)	NDSR	1C X 4 - Copper	Meter	120	135	16,200
(o)	NDSR	1C X 16 - Copper	Meter	100	205	20,500
11.2		INSTALLATION OF CABLES & ACCESSORIES				
11.2.1	7.1	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 kV grade of following size direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc. as required.				
(a)	7.1.1	Upto 35 sq. mm	Meter	1500	206	309,000
(b)	7.1.2	Above 35 sq. mm and upto 95 sq. mm	Meter	150	214	32,100
(c)	7.1.3	Above 95 sq. mm and upto 185 sq. mm	Meter		223	0
(d)	7.1.4	Above 185 sq. mm and upto 400 sq. mm	Meter	350	248	86,800
11.2.2	7.2	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 kV grade of following size direct in ground in the same trench in additional one tier horizontal formation including excavation, sand cushioning, protective covering and refilling the trench etc. as required.				
(a)	7.2.1	Upto 35 sq. mm	Meter	700	141	98,700
(b)	7.2.2	Above 35 sq. mm and upto 95 sq. mm	Meter	175	149	26,075
(c)	7.2.3	Above 95 sq. mm and upto 185 sq. mm	Meter		158	0
(d)	7.2.4	Above 185 sq. mm and upto 400 sq. mm	Meter	2650	183	484,950
11.2.3	7.3	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 kV grade of following size direct in ground including excavation and refilling the trench etc. as required, but excluding sand cushioning and protective covering.				
(a)	7.3.1	Upto 35 sq. mm	Meter	50	97	4,850
(b)	7.3.2	Above 35 sq. mm and upto 95 sq. mm	Meter	50	106	5,300
(c)	7.3.3	Above 95 sq. mm and upto 185 sq. mm	Meter	50	114	5,700

**SCHEDULE OF QUANTITIES FOR ELECTRICAL WORKS
PROJECT:- REGIONAL SCIENCE MUSEUM - PATAN**

Sr. No.	DSR Item	Description of Work	Units	Quantity	Unit Rate (Supply + Installation) (in INR)	Total Amount (Supply + Installation excluding taxes & duties) (in INR)
(d)	7.3.4	Above 185 sq. mm and upto 400 sq. mm	Meter	50	139	6,950
11.2.4	7.4	Laying of one number additional PVC insulated and PVC sheathed / XLPE power cable of 1.1 kV grade of following size direct in ground in the same trench in one tier horizontal formation including excavation and refilling the trench etc. as required, but excluding sand cushioning and protective covering.				
(a)	7.4.1	Upto 35 sq. mm	Meter	50	61	3,050
(b)	7.4.2	Above 35 sq. mm and upto 95 sq. mm	Meter	50	70	3,500
(c)	7.4.3	Above 95 sq. mm and upto 185 sq. mm	Meter	50	78	3,900
(d)	7.4.4	Above 185 sq. mm and upto 400 sq. mm	Meter	50	104	5,200
11.2.5	7.5	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 kV grade of following size in the existing RCC/ HUME/ METAL pipe as required.				
(a)	7.5.1	Upto 35 sq. mm	Meter	400	18	7,200
(b)	7.5.2	Above 35 sq. mm and upto 95 sq. mm	Meter	100	28	2,800
(c)	7.5.3	Above 95 sq. mm and upto 185 sq. mm	Meter	50	37	1,850
(d)	7.5.4	Above 185 sq. mm and upto 400 sq. mm	Meter	200	65	13,000
11.2.6	7.7	Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 kV grade of following size on wall surface as required.				
(a)	7.7.1	Upto 35 sq. mm (clamped with 1mm thick saddle)	Meter	50	25	1,250
(b)	7.7.2	Above 35 sq. mm and upto 95 sq. mm (clamped with 25x3mm MS flat clamp)	Meter	50	72	3,600
(c)	7.7.3	Above 95 sq. mm and upto 185 sq. mm (clamped with 25/ 40x3mm MS flat clamp)	Meter	50	84	4,200
(d)	7.7.4	Above 185 sq. mm and upto 400 sq. mm (clamped with 40x3mm MS flat clamp)	Meter	50	120	6,000
11.2.7	7.8	Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 kV grade of following size on cable tray as required.				
(a)	7.8.1	Upto 35 sq. mm (clamped with 1mm thick saddle)	Meter	2000	21	42,000
(b)	7.8.2	Above 35 sq. mm and upto 95 sq. mm (clamped with 25x3mm MS flat clamp)	Meter	200	49	9,800
(c)	7.8.3	Above 95 sq. mm and upto 185 sq. mm (clamped with 25/40x3mm MS flat clamp)	Meter	50	61	3,050
(d)	7.8.4	Above 185 sq. mm and upto 400 sq. mm (clamped with 40x3mm MS flat clamp)	Meter	200	96	19,200
11.2.8	7.9	Supplying and making cable route marker with cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) of size 60 cm X 60 cm at the bottom and 50 cm X 50 cm at the top with a thickness of 10cm including inscription duly engraved as required.	Each	30	333	9,990
11.3		CABLE TERMINATION				
11.3.1	NDSR	Termination of 1.1 kv grade cables with double compression type glands for the cable sizes as indicated below. Termination rate shall include installation of crimping type lugs of required sizes. Material of lugs shall be same as that of cable conductor. The termination rate shall include drilling of undrilled gland plates and termination of cables, inside panel / terminal box. Gland shall be brass nickel plated . Rubber hood shall be provided for outdoor terminations.				
(a)	NDSR	3C X 2.5 - Copper	Nos	30	270	8,100
(b)	NDSR	3C X 4 - Copper	Nos	28	256	7,168
(c)	NDSR	3C X 6 - Copper	Nos	UR	475 -	
(d)	NDSR	3.5C X 50 - Aluminium	Nos	6	883	5,298
(e)	NDSR	3.5C X 95 - Aluminium	Nos	UR	1,225 -	
(f)	NDSR	3.5C X 150 - Aluminium	Nos	UR	1,575 -	
(g)	NDSR	3.5C X 240 - Aluminium	Nos	UR	2,259 -	
(h)	NDSR	3.5C X 300 - Aluminium	Nos	46	2,906	133,676
(i)	NDSR	4C X 2.5 - Copper	Nos	UR	252 -	
(j)	NDSR	4C X 6 - Copper	Nos	24	360	8,640
(k)	NDSR	4C X 16 - Copper	Nos	84	730	61,320
(l)	NDSR	4C X 25 - Aluminium	Nos	710	540	383,400
(m)	NDSR	12C X 2.5 - Copper	Nos	6	665	3,990
(n)	NDSR	Earthing Cable connection with required hardware				0
(n)	NDSR	1C X 4 - Copper	Nos	10	100	1,000
(o)	NDSR	1C X 16 - Copper	Nos	10	120	1,200
12.0		CABLE TRAY				
12.1	4.6	Supply and Installation of following size of perforated Hot Dipped Galvanised Iron cable tray (galvanisation thickness not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required.				
(a)	4.6.1	100 mm width X 50 mm depth X 1.6 mm thickness	Meter	100	436	43,600
(b)	4.6.2	150 mm width X 50 mm depth X 1.6 mm thickness	Meter	70	504	35,280
(c)	4.6.4	300 mm width X 50 mm depth X 1.6 mm thickness	Meter	1700	703	1,195,100

**SCHEDULE OF QUANTITIES FOR ELECTRICAL WORKS
PROJECT:- REGIONAL SCIENCE MUSEUM - PATAN**

Sr. No.	DSR Item	Description of Work	Units	Quantity	Unit Rate (Supply + Installation) (in INR)	Total Amount (Supply + Installation excluding taxes & duties) (in INR)
(d)	4.6.6	450 mm width X 50 mm depth X 2.0 mm thickness	Meter	500	1,024	512,000
(e)	4.6.7	600 mm width X 50 mm depth X 2.0 mm thickness	Meter	100	1,257	125,700
12.2	4.7	Supply and Installation following size of perforated Hot Dipped Galvanised Iron cable tray "bends" (galvanisation not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required.				
(a)	4.7.1	100 mm width X 50 mm depth X 1.6 mm thickness	Each	5	817	4,085
(b)	4.7.2	150 mm width X 50 mm depth X 1.6 mm thickness	Each	5	976	4,880
(c)	4.7.4	300 mm width X 50 mm depth X 1.6 mm thickness	Each	65	1,447	94,055
(d)	4.7.6	450 mm width X 50 mm depth X 2.0 mm thickness	Each	20	2,184	43,680
(e)	4.7.7	600 mm width X 50 mm depth X 2.0 mm thickness	Each	5	2,731	13,655
12.3	4.8	Supply and Installation of following size of perforated Hot Dipped Galvanised Iron cable tray "Tee" (galvanisation not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required.				
(a)	4.8.1	100 mm width X 50 mm depth X 1.6 mm thickness	Each	5	941	4,705
(b)	4.8.2	150 mm width X 50 mm depth X 1.6 mm thickness	Each	5	976	4,880
(c)	4.8.4	300 mm width X 50 mm depth X 1.6 mm thickness	Each	40	1,695	67,800
(d)	4.8.6	450 mm width X 50 mm depth X 2.0 mm thickness	Each	15	2,576	38,640
(e)	4.8.7	600 mm width X 50 mm depth X 2.0 mm thickness	Each	4	3,228	12,912
12.4	4.9	Supply and Installation of following size of perforated Hot Dipped Galvanised Iron cable tray "Cross member" (galvanisation not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required.				
(a)	4.9.1	100 mm width X 50 mm depth X 1.6 mm thickness	Each	2	941	1,882
(b)	4.9.2	150 mm width X 50 mm depth X 1.6 mm thickness	Each	3	976	2,928
(c)	4.9.4	300 mm width X 50 mm depth X 1.6 mm thickness	Each	20	1,695	33,900
(d)	4.9.6	450 mm width X 50 mm depth X 2.0 mm thickness	Each	10	2,576	25,760
(e)	4.9.7	600 mm width X 50 mm depth X 2.0 mm thickness	Each	5	3,227	16,135
12.5	4.10	Supply and Installation of following size of perforated Hot Dipped Galvanised Iron cable tray "Reducer to next (lower) size" (galvanisation not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required.				
(a)	4.10.2	150 mm width X 50 mm depth X 1.6 mm thickness	Each	10	1,988	19,880
(b)	4.10.4	300 mm width X 50 mm depth X 1.6 mm thickness	Each	20	2,954	59,080
(c)	4.10.6	450 mm width X 50 mm depth X 2.0 mm thickness	Each	35	3,776	132,160
(d)	4.10.7	600 mm width X 50 mm depth X 2.0 mm thickness	Each	15	5,227	78,405
13.0		EARTHING / LIGHTNING PROTECTION				
13.1	5.6	Earthing with copper earth plate 600 mm X 600 mm X 3 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 meter long etc. with charcoal/ coke and salt as required.	Set	10	8,289	82,890
13.2	5.4	Earthing with G.I. earth plate 600 mm X 600 mm X 6 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 meter long etc. with charcoal/ coke and salt as required.	Set	40	4,327	173,080
13.3	NDSR	Providing & fixing 32mm x 6mm G.I. strip in cable trays including connections etc. as required .	Meter	2750	120	
13.4	NDSR	Providing & fixing 50mm x 6mm G.I. strip on surface, in recess or in ground including connections etc. as required .	Meter	450	255	114,750
13.5	NDSR	Providing & fixing 50mm x 6mm G.I. strip in cable trays including connections etc. as required .	Meter	100	208	
13.6		LIGHTNING CONDUCTOR				
13.6.1	6.2	Providing and fixing of lightning conductor finial, made of 25 mm dia 300 mm long, G.I. tube, having single prong at top, with 85 mm dia 6 mm thick G.I. base plate including holes etc. complete as required.	Each	8	304	2,432
13.6.2	6.3	Fixing of lightning conductor finial (single prong) with base plate including holes etc. complete as required.	Each	8	170	1,360
13.6.3	6.4	Joining copper / G.I. tape (with another copper/ G I tape, base of the finial or any other metallic object) by riveting / nut bolting/ sweating and soldering etc. as required.	Each	8	57	456
13.6.4	NDSR	Providing and fixing G.I. tape 20 mm X 5 mm thick on parapet or on surface of wall for lightning conductor complete as required.(For horizontal run)	Meter	450	66	29,700
13.6.5	6.14	Providing and laying G.I. tape 32 mm X 6 mm from earth electrode directly in ground as required.	Meter	650	112	72,800

**SCHEDULE OF QUANTITIES FOR ELECTRICAL WORKS
PROJECT:- REGIONAL SCIENCE MUSEUM - PATAN**

Sr. No.	DSR Item	Description of Work	Units	Quantity	Unit Rate (Supply + Installation) (in INR)	Total Amount (Supply + Installation excluding taxes & duties) (in INR)
13.6.6	NDSR	Providing and fixing testing joint, made of 20 mm X 5 mm thick G.I. strip, 125 mm long, with 4 Nos. of G.I. bolts, nuts, chuck nuts and spring washers etc. complete as required.	Nos.	20	73	1,460
14.0		RACEWAY				
14.1	NDSR	Supply and fixing of aluminium extruded under floor raceway / cable management system of rectangular shape with openable top for power, voice and data cables complete in all respects with suitable size junction boxes, risers, couplers having margin for tile or carpet, corner pieces, caps, end covers, cross overs, access outlets, counter sunk screws etc. The system is intended for laying on structural slab/floor prior to the screed being poured. The minimum screed cover over channel should be 25 mm.				
		Single Compartment Type				
14.1.1	NDSR	Under ground race ways of aluminium section, 100 X 45 mm with 2.0 mm wall thickness	Meter	1200	800	960,000
14.2	NDSR	Junction box, 16 SWG CRCA powder coated, 300 X 300 X 50 mm (LxWxH), detachable access plate at four side suitable for 100 x 45 mm race way. 14 SWG gasket with SS top cover. Top cover shall be easily accessible for maintenance. The required floor cutting for raceway & junction box shall be included in scope.				
14.2.1	NDSR	300 X 300 X 50 mm (LxWxH)	Nos	50	4,500	225,000
14.3	NDSR	Supply and fixing of floor boxes with reversible stainless steel cover or cover for carpet or parquet with blanking plates consisting off 3 slots each of 4 modules compatible to connect 1 no single and 2 nos double compartment raceways full backbox for screed floor 3 compartments (for ducting upto 225 mm). Height adjustable to screed height 65 to 90 mm with all accessories complete as required.				
14.3.1	NDSR	12 modules (for installing 8x3 modules mosaic)	Nos	40	7,445	297,800
15.0		INTERNAL LIGHTING SYSTEM				
15.1	NDSR	Supply, Packing, Forwarding and delivery from place of storage/ manufacturer's works to erection site including transit insurance, unloading, storage at site, shifting from the storage place to erection site, assembly, assistance for erection, testing and commissioning at site. Precommissioning tests as per IS, commissioning and performance demonstration of luminaires, terminal connectors, lamp and other accessories as specified below. Rates quoted for installation of lighting fixtures shall include the down rod, supporting chain, SS hardware, clamps/ connectors & all other accessories required for proper fixing of the lighting luminaires.				
15.1.1	NDSR	36W LED 2X2 Luminary suitable for Recessed on Grid / POP ceiling. Wipro Cat. No. CRCO10R038HP 57 or equivalent	Nos.	425	5,790	2,460,750
15.1.2	NDSR	Recess mounted 17W circular LED downlighter Wipro Cat. No. CRDL11R023HP57 or equivalent	Nos.	375	2,690	1,008,750
15.1.3	NDSR	12W Surface Mounted Circular LED Down Lighter Wipro Cat. No. LD80-101-XXX-60-SM or equivalent	Nos.	275	1,890	519,750
15.1.4	NDSR	22W Circular LED Down lighter with dimming options like Phase -Cut, Analog and DALI. Make : Philips-DN 395B LED 20S-6500 PSD WH or equivalent	Nos.	300	4,280	1,284,000
15.1.5	NDSR	Industrial integral LED Channel (38W LED Tube light) – suitable for surface / suspended mounting Wipro make LE10-491-XXX-57-XX or equivalent	Nos.	200	4,850	970,000
15.1.6	NDSR	Exit Light - Surface mounted maintained, suitable for 10W LED with decorative type mounting arrangement including connection from socket to fixture (Cat No. - Prolite make PEL LED 120 NE (S)) OR EQUIVALENT	Nos.	30	7,250	217,500
15.1.7	NDSR	Compact, sturdy, general purpose weather proof flood Light with integral mounted control gearbox with unique flood optics, pressure die cast aluminium housing & high efficiency glass cover (IP 66) Suitable for use with high power 70W LED with electronic driver inside PDC housing with less than 20% THD & PF above 0.95. Philips Cat No. BVP120 LED 70 CW NB FG S1 PSU GR OR EQUIVALENT. (Colour temperature = >=5000K & Lumen output/lamp = 7000) OR EQUIVALENT	Nos.	15	13,550	203,250
15.1.8	NDSR	50W LED White Powder coated recess mounting pressure die-cast aluminium housing. Bajaj make BRDCSL 50W WH Equivalent	Nos.	42	5,200	218,400
16.0		EXTERNAL LIGHTING SYSTEM				
		Contractor shall note that below mentioned type of light fixtures, poles and accessories are indicative. These may change at later date as per further development of landscape design and client's inputs / approval.				
		Decorative & Landscape Light Fittings supply and installation is a part of Architectural BOQ				

**SCHEDULE OF QUANTITIES FOR ELECTRICAL WORKS
PROJECT:- REGIONAL SCIENCE MUSEUM - PATAN**

Sr. No.	DSR Item	Description of Work	Units	Quantity	Unit Rate (Supply + Installation) (in INR)	Total Amount (Supply + Installation excluding taxes & duties) (in INR)
16.1	NDSR	7M decorative galvanised steel octagonal pole with embedded 2 way junction box with IP65 protection, hot dip galvanised internally & externally to 80 microns DFT (suitable for looping & termination of 4CX25 sq.mm. armoured AL cable and minimum 2Nos. light fixtures with 3CX2.5 sq.mm. cable) for street lighting with mounting height of 7M above ground level. (Price shall be inclusive of Junction box, earthing to pole).				
16.1.1	NDSR	As above with Single Arm	Nos.	51	18,173	926,823
16.1.2	NDSR	As above with Double Arm	Nos.	7	18,605	130,235
16.2	NDSR	12M decorative galvanised steel octagonal pole with embedded 2 way junction box with IP65 protection hot dip galvanised internally & externally to 80 microns DFT (suitable for looping & termination of 4CX25 sq.mm. armoured AL cable and minimum 2Nos. light fixtures with 3CX2.5 sq.mm. cable) for flood lighting with mounting height of 12M above ground level. (Price shall be inclusive of Junction box, earthing to pole). (1, 2 Nos flood light luminaires per pole).	Nos.	2	34,173	68,346
16.4	NDSR	70W LED, IP65 Street Light suitable for pole mounting Wipro Cat. No. LR02-781-XXX-57-XX or equivalent	Nos.	70	12,550	878,500
16.6	NDSR	80W, IP65 LED Flood Light Wipro Cat. No. LF19-931-060-57-XX or equivalent	Nos.	5	11,390	56,950
16.7	NDSR	210W, IP65 LED Flood Light Wipro Cat. No. LF07-282-XXX-50-V5 or equivalent	Nos.	5	34,150	170,750
17.0		POINT WIRING				
17.1	NDSR	Supply, installation, testing and commissioning of 3Cx2.5 sq.mm. Cu flexible FR PVC insulated cable. From LDB / ELDB to first light fitting, to be layed in trays (trays separately considered) All light points in this category shall be operated on MCB.	Meter	5800	86	498,800
17.2	NDSR	Point Wiring (looping) for light point with 2x2.5+1x1.5 sq.mm FRLS PVC insulated copper conductor wires in surface / recessed medium class FR PVC conduit, operated on MCBs and earthing the point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable etc. Supply & Installation of conduits and accessories not measured seperately.				
17.2.1	NDSR	Group A (Average length up to 5mtr)	Nos	375	750	281,250
17.3	NDSR	Same as above but for Emergency Lighting				
17.3.1	NDSR	Group C (Average length up to 15mtr)	Set	300	980	294,000
17.4	NDSR	Wiring for circuit/ submain wiring alongwith earth wire with the following sizes of FRLS PVC insulated copper conductor, single core cable in surface/ recessed medium class PVC conduit as required. (From LDB / ELDB to Switchboard) Supply & Installation of conduits and accessories not measured seperately.				
17.4.1	NDSR	2 X 2.5 sq. mm + 1 X 2.5 sq. mm earth wire	Meter	3500	230	805,000
17.5	NDSR	Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable in surface / recessed medium class PVC conduit, with modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable etc. as required. (Multiple switches in one room shall be combined based on final layout. Wires, Conduits, Modular switches, concealed boxes and necessary hardwares are not measured separately. For normal and emergency lighting)				
17.5.1	NDSR	Group A	Point	230	748	172,040
17.5.2	NDSR	Group B	Point	220	815	179,300
17.5.3	NDSR	Group C	Point	115	957	110,055
17.6	NDSR	Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable in surface / recessed GI conduit, with modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable etc. as required. (Utility / Plant / Electrical Rooms) Multiple switches in one room shall be combined based on final layout. Wires, Conduits, Modular switches, concealed boxes and necessary hardwares are not measured separately.				
17.6.1	(a)	Group A	Point	10	752	7,520
17.6.2	(b)	Group B	Point	30	930	27,900
17.7	NDSR	Point wiring including supply and installation of UPS sockets/ raw power receptacles including all accessories to fix switch board for workstations / in office area				

**SCHEDULE OF QUANTITIES FOR ELECTRICAL WORKS
PROJECT:- REGIONAL SCIENCE MUSEUM - PATAN**

Sr. No.	DSR Item	Description of Work	Units	Quantity	Unit Rate (Supply + Installation) (in INR)	Total Amount (Supply + Installation excluding taxes & duties) (in INR)
17.7.1	NDSR	Point wiring from UPS DB to first UPS sockets in Under ground raceways including supply and installation - 0.75 kV grade FRLS stranded 3C X 4 sq mm copper flexible cable with all accessories including switch board, UPS socket point consisting of 2 nos.16A Sockets on 1No. piano switch with indicator, 1 no. white plate with frame for 6 module and flush mounting box for 6 module complete with all internal wiring (for office areas, exhibit areas, etc.)	No.	25	1,520	38,000
17.7.2	NDSR	Point wiring from UPS socket to another UPS sockets in Under ground raceways including supply and installation - 0.75 kV grade FRLS stranded 3C X 2.5 sq mm copper flexible cable with all accessories including switch board, UPS socket point consisting of 2 nos.16A Sockets on 1No. piano switch with indicator, 1 no. white plate with frame for 6 module and flush mounting box for 6 module complete with all internal wiring (for office areas, exhibit areas, etc.) (Length up to 7mtr)	No.	75	1,100	82,500
17.7.3	NDSR	Point wiring from PDB to first Raw power sockets in Under ground raceways including supply and installation - 0.75 kV grade FRLS stranded 3C X 4 sq mm copper flexible cable with all accessories including switch board, socket point consisting of 1 nos.16A Sockets on 1No. piano switch with indicator, 1 no. white plate with frame for 3 module and flush mounting box for 3 module complete with all internal wiring (for office areas, exhibit areas, etc.)	No.	25	1,750	43,750
17.7.4	NDSR	Point wiring from one Raw power socket to another Raw power sockets in Under ground raceways including supply and installation - 0.75 kV grade FRLS stranded 3C X 2.5 sq mm copper flexible cable with all accessories including switch board, socket point consisting of 1 nos.16A Sockets on 1No. piano switch with indicator, 1 no. white plate with frame for 3 module and flush mounting box for 3 module complete with all internal wiring (for office areas, exhibit areas, etc.) (Length up to 10mtr.)	No.	75	1,075	80,625
17.7.5	NDSR	Point wiring from PDB to first Raw power sockets in FR PVC Conduit surface / concealed including supply and installation - 0.75 kV grade FRLS stranded 2 X 4 sq. mm + 1 X 2.5 copper wire with all accessories including switch board, socket point consisting of 1 nos.16A Sockets on 1No. piano switch with indicator, 1 no. white plate with frame for 3 module and flush mounting box for 3 module complete with all internal wiring (for wall mounted AC units, internal rooms, toilets, etc.)	No.	20	2,590	51,800
17.7.6	NDSR	Point wiring from one raw power socket to another Raw power sockets in FR PVC Conduit surface / concealed including supply and installation - 0.75 kV grade FRLS stranded 2 X 4 sq. mm + 1 X 2.5 copper wire with all accessories including switch board, socket point consisting of 1 nos.16A Sockets on 1No. piano switch with indicator, 1 no. white plate with frame for 3 module and flush mounting box for 3 module complete with all internal wiring (for internal rooms, toilets, etc.) (Length up to 15mtr)	No.	27	2,190	59,130
17.7.7	NDSR	1 X 20A, 3 pin, 230 V, 1-phase sheet steel enclosed metallic industrial type plug socket provided with neutral links, 20A DP RCBO (30mA), 2 nos earthing terminals and provided with chain and cover including accessories for completion of receptacle box. Legrand Metra Model or equivalent.	No.	15	3,350	50,250
17.7.8	NDSR	1 X 32 A, 5 pin, 415V, 3- phase sheet steel enclosed metallic industrial type plug socket provided with neutral links, 32A FP MCB, 2 nos earthing terminals and provided with chain and cover including accessories for completion of receptacle box. Legrand Metra Model or equivalent.	No.	10	4,700	47,000
17.7.9	NDSR	Point wiring for Lift Shaft- Item shall include complete set of Bulkhead light fixtures controlled by 6A switch & 6/16A-2/3 pin shuttered socket controlled by 16A switch. Wired from nearest LDB using 2X2.5+1X1.5 Sq.mm. Cu cable along with GI conduit. One light point and switch socket combination per floor per lift shall be provided. All the points of one lift shall be looped together.	No.	24	1,875	45,000
17.7.10	NDSR	Wiring for light point / fan point / exhaust fan point / call bell point for auditorium with dimmable DALI / equivalent control system and with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable in surface / recessed medium class FR PVC conduit, operated on 1 phase or 3 phase MCBs and earthing the point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable etc. as per the applicable dimmable controller. Note: These points shall be operated from one central system. Average circuit lengths shall be approximately 45mtr with average looping length shall be approximately 10mtr.				
(a)	NDSR	Group C	No.	40	1,775	71,000
(b)	NDSR	Dimmable DALI / equivalent control system as per auditorium lighting requirement.	No.	300	875	262,500
17.8	1.19	Supplying and drawing co-axial TV cable RG-6 grade, 0.7 mm solid copper conductor PE insulated, shielded with fine tinned copper braid and protected with PVC sheath in the existing surface/ recessed steel/ PVC conduit as required.	Meter	350	29	10,150

SCHEDULE OF QUANTITIES FOR ELECTRICAL WORKS
PROJECT:- REGIONAL SCIENCE MUSEUM - PATAN

Sr. No.	DSR Item	Description of Work	Units	Quantity	Unit Rate (Supply + Installation) (in INR)	Total Amount (Supply + Installation excluding taxes & duties) (in INR)
17.9	NDSR	Supplying and fixing of following sizes of GI conduit along with accessories in surface/recess including painting in case of surface conduit, or cutting the wall and making good the same in case of recessed conduit as required.				
(a)	NDSR	25 mm	Meter	50	147	7,350
(b)	NDSR	32 mm	Meter	50	198	9,900
17.10	1.21	Supplying and fixing of following sizes of medium class PVC conduit along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.				0
(a)	1.21.2	25 mm	Meter	10	69	690
(b)	1.21.3	32 mm	Meter	10	89	890
17.11	1.24	Supplying and fixing following modular switch/ socket on the existing modular plate & switch box including connections but excluding modular plate etc. as required.				
(a)	1.24.7	TV antenna socket outlet	Each	10	97	970
(b)	1.24.8	Bell push	Each	1	114	114
17.12	NDSR	Supplying, installation & testing of two module stepped type electronic fan regulator with one switch, 3 module box with cover plate, GI box, etc. with required point wiring using 2X2.5+1X1.5 Cu wire in concealed / surface conduit, up to fan point as required.	Each	10	1,250	12,500
17.13	1.45	Installation, testing and commissioning of ceiling fan, including wiring the down rods of standard length (upto 30 cm) with 1.5 sq. mm FRLS PVC insulated, copper conductor, single core cable, including providing and fixing phenolic laminated sheet cover on the fan box etc. as required.	Each	10	132	1,320
17.14	1.38	Supplying and fixing call bell/ buzzer suitable for single phase, 230 V, complete as required. (Point wiring as per light point)	Each	1	61	61
17.15	1.50	Installation of exhaust fan in the existing opening, including making good the damage, connection, testing, commissioning etc. as required.				
(a)	1.50.1	Upto 450 mm sweep	Each	5	224	1,120
17.16	1.51	Extra for fixing the louvers/ shutters complete with frame for a exhaust fan of all sizes.	Each	5	99	495
17.17	1.57	Supplying & fixing suitable size GI box with modular plate and cover in front on surface or in recess including providing and fixing 25 A modular socket outlet and 25 A modular SP MCB, "C" curve including connections, painting etc. as required.	Each	5	533	2,665
18.0		MISCELLANEOUS				
18.1	14.16	Supplying and laying of following size DWC HDPE pipe ISI marked along with all accessories like socket, bend, couplers etc. conforming to IS 14930, Part II complete with fitting and cutting, jointing etc..direct in ground (75 cm below ground level) including excavation and refilling the trench but excluding sand cushioning and protective covering etc., complete as required.				

**SCHEDULE OF QUANTITIES FOR ELECTRICAL WORKS
PROJECT:- REGIONAL SCIENCE MUSEUM - PATAN**

Sr. No.	DSR Item	Description of Work	Units	Quantity	Unit Rate (Supply + Installation) (in INR)	Total Amount (Supply + Installation excluding taxes & duties) (in INR)
(a)	14.16.4	160 mm dia (OD-160 mm & ID-135 mm nominal)	Meter	50	313	15,650
(b)	14.16.5	200 mm dia (OD-200 mm & ID-175 mm nominal)	Meter	50	415	20,750
18.2	Note (i)	Providing and fixing M.S. Fan clamp type I or II of 16 mm dia M.S. bar, bent to shape with hooked ends in R.C.C. slabs or beams during laying, including painting the exposed portion of loop, all as per standard design complete as required.	Each	10	250	2,500
18.3	Note (ii)	Providing and fixing circular/ Hexagonal GI box for ceiling fan clamp, of internal dia 140 mm, 73 mm height, top lid of 1.5 mm thick GI sheet with its top surface hacked for proper bonding, top lid shall be screwed into the GI box by means of 3.3 mm dia round headed screws, one lock at the corners, clamp shall be made of 12 mm dia M.S. bar bent to shape as per standard drawing.	Each	10	650	6,500
19.0		SAFETY EQUIPMENTS				
19.1	NDSR	900 mm wide, 12kV grade, insulating mats confirming to IS 15652. The mats should have been type tested by CPRI or another third party lab of equivalent statute. The mats shall be moisture proof, fire retardant and resistant to acids, alkalies & transformer oil. Mats to be spread in front of the 11 kV Panels etc. Make : Electromat or equiv.	Meter	2	3,085	6,170
19.2	NDSR	900 mm wide, 1.1kV grade, insulating mats confirming to IS 15652. The mats should have been type tested by CPRI or another third party lab of equivalent statute. The mats shall be moisture proof, fire retardant and resistant to acids, alkalies & transformer oil. Mats to be spread in front of the 415 V floor mounted panels, etc.	Meter	30	2,113	63,390
19.3	NDSR	S/F of shock treatment chart (prescribed under I.E.rules) duly framed with glass and supported from back with hard board with supply of all material labour T & P etc for proper completion of work. (Approx front area = 1.20 sq M)	Nos	5	740	3,700
19.4	NDSR	Supply and fixing of First aid box as approved by Indian red cross conforming to IS : 2217.	Nos	5	1,000	5,000
19.5	NDSR	Danger boards for Electrical Systems. The boards shall be in English, Hindi & Local Language.				
(a)	NDSR	415V system	Nos	10	205	2,050
(b)	NDSR	11kV system	Nos	4	205	820
19.6	NDSR	Supply of rubber gloves of 11 kV grade as per IS : 4770.	Set	1	500	500
20.0		Liasoning and statutory approval activities				
20.1	NDSR	Contractor's scope includes drawing submission and getting approval from electrical inspector for entire electrical system (including DG set). Statutory fee will be paid separately by client.	LS	1	150,000	150,000
		GRAND TOTAL				51,377,281

NOTES:

- The quantities given in this BOQ are as per present design of the building. Any changes in building interior, will have changes in above BOQ and same shall be addressed through ammendments. This BOQ including its ammendments shall form part of the tender.
- Contractor shall furnish sample for all major items proposed for the project for purchaser's approval before procurement.
- Installation rates are inclusive of all hardware necessary for installation including anchor fasteners as required.
No separate rates shall be payable for these items.
- Installation rates for receptacles, luminaires, JB, decorative switches shall be inclusive of termination (with lugs- including supply).
Termination rates shall not be payable for these items.
- Earth pit installation rate shall be inclusive of all civil work such as excavation and chamber. No civil items shall be payable against work done for earth pits.
- Conduit rates shall be inclusive of bends, JBs, pull box, covers, hardware, accessories, GI Pull wire, saddle, spacer, etc.

SCHEDULE OF QUANTITIES FOR SUPPLYING, INSTALLATION, TESTING & COMMISSIONING OF FIRE ALARM & PUBLIC ADDRESS SYSTEM					
PROJECT:- PROPOSED REGIONAL SCIENCE MUSEUM, PATAN, GUJARAT					
S.No	Description of Work	Unit	Total Quantity	Unit Rate	Total Amount (Supply + Installation including taxes & duties)
A	SUB-HEAD -1 : DETECTORS & EQUIPMENTS				
1	Supply, installation, testing and commissioning of UL listed & FM approved Analogue addressable intelligent, automatic adaptable to varying environmental conditions, Optical type smoke detectors , with decentralise intelligence, with soft addressing, mounting base complete as required.	Nos	230	3,310	761387
2	Supply, installation, testing and commissioning of UL listed & FM approved Analogue addressable intelligent, automatic adaptable to varying environmental conditions, multicriteria combination of Smoke & heat type photothermal detectors , with decentralise intelligence, with soft addressing, mounting base complete as required.	Nos	230	3,374	776015
3	Supply, installation, testing and commissioning of UL listed & FM approved Analogue addressable, intelligent, automatic adaptable to varying environmental conditions, Fixed cum Rate of rise type heat detectors , with decentralise intelligence, with soft addressing, mounting base complete as required.	Nos	30	3,292	98771
4	Supply, installation, testing and commissioning of Conventional Beam smoke detector with transmitter & receiver having protection range upto 100 meter, calibrated test filter, LED alarm indicator, trouble indicator, normal indicator, alignment LED etc. with addressable control relay module with the complete system as required. (Shall not be UL & FM Listed & Range shall be upto 70 Mtrs.)	Nos	3	53,528	160584
5	Supply, fixing, testing and commissioning of UL listed & FM approved addressable fault isolator , shall initiate a trouble signal and shall isolate that circuit from the rest of the system. The Fault Isolator Device shall detect and isolate a short-circuited segment of a fault-tolerant loop. The device shall automatically determine a return to normal condition of the loop and restore the isolated segment.	Nos	30	2,737	82108
6	Supply, installation, testing and commissioning of UL & FM approved Analogue Addressable control relay module , soft addressing, 1 amp contact rating & 2 NO, 2 NC, all accessories required for controlling AHUs, dampers, pressurisation fans, Elevators, hooters cum strobe, integration with PA system complete including accessories like power supply, relays etc as required.	Nos	20	4,894	97880
7	Supply, installation, testing and commissioning of UL & FM Approved Analogue Addressable monitor module with indicating lamp , soft addressing, all accessories required for monitoring of flow switches, fire exit doors etc. complete as required.	Nos	10	3,845	38446
8	Supply, installation, testing and commissioning of UL & FM Approved Addressable Manual call point with soft addressing, inbuilt fault isolator complete as required.	Nos	30	5,380	161385
9	Supply, installation, testing and commissioning of UL & FM Approved Electronic Hooters cum strobe complete as required. (sound output of minimum 90 db).	Nos	30	5,087	152610
10	Providing,fixing,testing and commissioning of response indicators with dual LED suitable for operation on 12/24 volts D.C., sheet steel / Polymer housing suitable for surface / recess / false ceiling mounting including making connections with wires complete in all respects.	Nos	230	347	79723
B	SUB-HEAD -2 : PANELS				
11	Supply, Installation,Testing & Commissioning of UL & FM approved Microprocessor based 5 Loop fire alarm control panel expendable upto 10 loops, fully networkable with each loop capable of taking minimum 150 detectors and devices, 8 line x 40 character alpha-numeric liquid 6" LCD display crystal display .The panel shall be soft addressable type. The panel shall be able to give pin point location of all fire/fault conditions. Further, the panel must be able to automatically switch off respective control switches when ever any alarm is triggered. The panel shall have in built rectifier, Loop cards,provision for external & internal printer (if required), Provision for integration with PA System, L C D unit to indicate Fire/Fault Signal with address and analog output, built in printer to log all fire or fault events complete in all respects, integral SMF lead acid batteries with sealed cells of 24 V sufficient for 48 hours normal working conditions and then be capable of operating the system for 30 minutes during an emergency conditions at full load with automatic integral battery charger complete as required and as per specification. The panel shall be compatile to integrate with BMS system on BACnet /MODBUS. Fire vendor shall provide the integrator / card for the integration.	Set	1	4,50,935	450935
12	Providing, fixing, testing and commissioning of PC interface to panel complete with minimum i5 processor, 4 GB DDR RAM, 500 GB HDD computer with 21" TFT monitor, ATX Cabinet, 1 KVA on line UPS with 30 min backup complete with optical mouse and key board, DVD RW with multi media, A4 size colour deskjet printer etc. and connecting to Fire Alarm Panel, complete in all respects.	Set	1	64,858	64858
13	Providing and commissioning of graphic software for fire alarm system.	Set	1	74,822	74822
14	Supply, Installation,Testing & Commissioning of ACTIVE Repeater Panel (LCD indicator panel) with 2 line X 20 characters alpha numeric LCD display with all commands such as reset, mute, silence with suitable battery backup complete as required.	Nos	1	63,248	63248
15	Supply, Installation, Testing and Commissioning of Power Amplifier , minimum 4 x 500W, Class D Amplification, Built in DSP with equalizer, 100/70V Speaker out, complete with all accessories required as per specification.	Nos.	1	1,14,795	114795
16	Supply, Installation, Testing & Commissioning of Hardware Digital PA Controller or PC based digital PA controller for class D amplifiers.	Nos.	1	3,25,068	325068

S.No	Description of Work	Unit	Total Quantity	Unit Rate	Total Amount (Supply + Installation including taxes & duties)
17	Supply, Installation, Testing and Commissioning of Digital Call Stations with High Quality Condenser Microphone on gooseneck, Touchpad / Keypad for min 8 zone selection, relay of pre recorded messages/Alarm messages/tones/call routines, upgradable to any number of zone selection by adding keypad etc, complete with all accessories required as per specification.	Set	1	65,035	65035
18	12 Zone Talk back control Panel expandable upto 16 zones, having the following features : .capable of phase wise evacuation and playing up to 4 simultaneous messages : .Built in PTT microphone .Built in zone selection panel .Automatic evacuation messaging .8X16 built-in audio matrix for easy routing of BGM music .Project Configuration software .Fully monitored paging selector with goose neck microphone & Suitable amphiphire for 300 Speakers with suitable sized mounting rack complete. The Panel shall be suitable for integration with the main Fire Alarm Control panel / Building BMS.	Set	1	1,44,605	144605
C	SUB-HEAD -3 : SPEAKERS.HOOTERS & AUDIO JACK				
19	Supply, installation, testing and commissioning of Two way talk back wall mounted Jack complete as required.	Nos	25	1,836	45898
20	Supply, installation, testing and commissioning of Two way communication Handset for Fireman complete as required.	Nos	25	3,456	86390
21	Supply, installation, testing and commissioning of Master unit for Two way communication to be installed in Control room complete as required.	Set	1	1,29,842	129842
22	Supply, installation, testing and commissioning of Music Source to play DVD/CD/MP3/Pendrive input with all connecting cables complete as required.	Nos	1	8,244	8244
23	Supply, installation, testing and commissioning of False ceiling mounted 6 watt ceiling speaker with 2 tapping complete as required with necessary connections.	Nos	210	1,470	308700
24	Supply, installation, testing and commissioning of Wall / ceiling mounted 15 watt horn speaker with 2 tapping complete as required with necessary connections.	Nos	15	4,368	65520
D	SUB-HEAD -4 : WIRING & CONDUITING				
25	Supply & Laying of 2CX 1.5sqmm Fire Survival Armoured cable shall be of 600/1000V rated with Class2 Copper conductor as per BS EN 60228 having Mineral ceramic glass fire barrier tape covered by an extruded layer of Cross-linkable Low smoke Zero halogen (LSZH) insulation as per BS EN 50363 and LSZH inner & outer sheath. LPCB-FPC certificate required. Outer sheath should be Anti-Rodent. Should retain circuit integrity when tested as per PH-120 in accordance to clause 26.2 BS 5839-1, complete as per specification.				
	2C x 1.5 sq. mm	Meter	6250	98	612500
26	Supply & laying of 2C X 1.5sq mm Fire Survival Unarmoured speaker cable shall be of 300/500V rated with Class2 Copper conductor as per BS EN 60228 having Mineral ceramic glass fire barrier tape covered by an extruded layer of Ceramified Silicone insulation as per BS EN 50363, uninsulated circuit protective ATC conductor of 1.5 sq.mm, aluminium tape screening having (LSZH) outer sheath. LPCB-FPC certificate required. Outer sheath should be Anti-Rodent. Should retain circuit integrity when tested as per PH-120 in accordance to clause 26.2 BS 5839-1, can be laid on directly wall /ceiling without use of conduit /or existing conduit/raceways.	Meter	4200	98	411600
27	Supplying and fixing of following sizes of steel conduit along with accessories in surface/recess including painting in case of surface conduit, or cutting the wall and making good the same in case of recessed conduit as required.				
(a)	20 mm	Meter	10	70	700
(b)	25 mm	Meter	10	100	1000
(c)	32 mm	Meter	10	125	1250

S.No	Description of Work	Unit	Total Quantity	Unit Rate	Total Amount (Supply + Installation including taxes & duties)
28	Supplying and fixing of following sizes of medium class PVC conduit along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.				
(a)	20 mm	Meter	10	30	300
(b)	25 mm	Meter	10	40	400
(c)	32 mm	Meter	10	50	500
29	Providing and fixing of self contained emergency lighting "EXIT" signs in flush / semi flush mounting with 5 watt CFL/LED lamp, complete unit with diffuser, mounting accessories fixed on the wall / suspended from ceilings as required and as directed at site.	Nos	30	3,750	112500
30	Supplying and fixing following way, single pole and neutral, sheet steel, MCB distribution board, 240 V, on surface/ recess, complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/Isolator)				
(a)	6 way, Double door	Each	1	942	942
31	Supplying and fixing 5 A to 32 A rating, 240/415 V, 10 kA, "C" curve, miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
(a)	Single pole	Each	6	173	1038
(b)	Double pole	Each	1	463	463
32	Supplying and fixing following rating, double pole, (single phase and neutral), 240 V, residual current circuit breaker (RCCB), having a sensitivity current 30 mA in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
(a)	40 A	Each	1	1719	1719
33	Wiring for circuit/ submain wiring alongwith earth wire with the following sizes of FRLS PVC insulated copper conductor, single core cable in surface/ recessed steel conduit as required.				
(a)	2 X 1.5 sq. mm + 1 X 1.5 sq. mm earth wire	Meter	50	181	9050
(b)	2 X 6 sq. mm + 1 X 6 sq. mm earth wire	Meter	100	324	32400
34	Supplying and fixing metal box of following sizes (nominal size) on surface or in recess with suitable size of phenolic laminated sheet cover in front including painting etc. as required.				
(a)	75 mm X 75 mm X 60 mm deep	Each	5	95	475
35	Supplying and fixing following modular switch/ socket on the existing modular plate & switch box including connections but excluding modular plate etc. as required.				
(a)	5/6 A switch	Each	5	34	170
(b)	3 pin 5/6 A socket outlet	Each	5	42	210
36	Supplying and fixing following Modular base & cover plate on existing modular metal boxes etc. as required.				
(a)	3 Module	Each	5	91	455
37	Supplying and drawing of UTP 4 pair CAT 6 LAN Cable in the existing surface/ recessed Steel/ PVC conduit as required.				
(a)	1 run of cable	Meter	100	34	3400
38	Power Supply Unit for Control Module 24 V 5 Amp DC	Nos.	3	3500	10500
	TOTAL (FIRE ALARM SYSTEM + PA SYSTEM)				5558441

SCHEDULE OF QUANTITIES FOR SUPPLYING, INSTALLATION, TESTING & COMMISSIONING OF ACCESS CONTROL SYSTEM					
PROJECT:- PROPOSED REGIONAL SCIENCE MUSEUM, PATAN, GUJARAT					
S.No	Description of Work	Unit	Total Quantity	Unit Rate	Total Amount (Supply + Installation including taxes & duties)
1	Supply, Installation, Testing & Commissioning of EM Lock for Single Leaf Door with 600 lbs holding force, 12VDC Power Input, LED Status including with complete accessories as required at site	Nos	18	3721	66978
2	Supply, Installation, Testing & Commissioning of EM Lock for Double Leaf Door with 600 lbs holding force, 12VDC Power Input, LED Status including with complete accessories as required at site	Nos	24	7937	190488
3	Supply, Installation, Testing & Commissioning of Door Magnetic Contact with complete accessories as required at site	Nos	10	1250	12500
4	Supply, Installation, Testing & Commissioning of UL Listed Micro processor based Access Control Reader Module, Each reader module should support 2 Door 2 Reader. Should have 8 supervised Inputs, Inputs may be assigned to door related functions or general purpose I/O, should have 2 dedicated alarm inputs for tamper detection and power loss, should have 2 general purpose output relay, form C, 5 A 28 VDC, should have - 4 general purpose output relay, form C, 2 A 28 VDC. In the event that communication to the intelligent control module is lost, the card access readers can be individually configured to allow entrance based on security needs. This customization allows for a door to be configured as locked, unlocked, or access only via valid facility code.	Nos	16	64402	1030432
5	Supply, Installation, Testing & Commissioning of UL Listed Micro processor based Access Control Input / Output Module, module shall have inbuilt 16 Ports for the connection of Input/ Output.	Nos	1	64402	64402
6	Supply, Installation, Testing & Commissioning of Push Button Steel Body, for Door Exit with Required all accessories for Mounting	Nos	29	964	27956
7	Supply, Installation, Testing & Commissioning of Dual Emergency Break Glass Unit, Green Color with Resettable Key, Plastic Body, Unbreakable Glass, Door Release label & Required all accessories for Mounting	Nos	27	2166	58482
8	Supply, Installation, Testing & Commissioning of UL Listed Micro processor based Access Control Master Controller with support for 32 readers per controllers along with 50000 card capacity & 50,000 transaction. Shall support both single & dual reader module, Alarm Input & Output modules, should support - Anti-passback support - free pass and exempt flags, last area accessed, last reader accessed and time/date of last access, Four-state alarm input circuits -normally opened, normally closed, non-supervised, supervised (w/EOL), System off-line modes customizable per reader include facility code access, locked (no access), and unlocked (full-access).	Nos	2	102568	205136
9	Supply, Installation, Testing & Commissioning of Access Control Software. Software should include Reader License as required & Client License along with Required Database Software, Software Should include Time and Attendance and Badging Station Software, It should also include Base Server License & 5 Client License along with required reader licenses. Note: Access control software & Controller shall be of same make.	Nos	1	118668	118668
10	Supply, Installation, Testing & Commissioning of SMPS 240 VAC- 12 VDC 5 Amp. with complete accessories as required at site	Nos	6	6442	38652

S.No	Description of Work	Unit	Total Quantity	Unit Rate	Total Amount (Supply + Installation including taxes & duties)
11	Supply, Installation, Testing & Commissioning of Smart Card Reader, 2-3" read range, with LED indicator as per Technical Specification & approved make.	Nos	28	7537	211036
12	Supply, Installation, Testing & Commissioning of Biometric Card Reader, 10,000 templates (5,000 users, 2 fingerprints per user) 2,000 match in 1 second, 50,000 events storage, Operation Mode - Fingerprint, RF Card, RF card + Fingerprint, Wiegand Configurable up to 64 bits, LAN Base with Wiegand Output with LED indicator as per Technical Specification & approved make.	Nos	3	47800	143400
13	Supply, Installation, Testing & Commissioning of Smart Card (blank faced)	Nos	100	192	19200
14	Supply, Installation, Testing & Commissioning of 8C X 0.75 Sq. mm Flexible Copper cable	Meter	1550	100	155000
15	Supply, Installation, Testing & Commissioning of 4C X 1.0 Sq. mm Flexible Copper cable	Meter	1550	111	172050
16	Supply, Installation, Testing & Commissioning of 2C X 1.5 Sq. mm Flexible Copper Cable	Meter	3250	88	286000
17	Supply, Installation, Testing & Commissioning of 2C X 1.0 Sq. mm Flexible Tinned Copper, Shielded Cable	Meter	750	69	51750
18	Supplying and drawing of UTP 4 pair CAT 6 LAN Cable in the existing surface/ recessed Steel/ PVC conduit as required.				
(a)	1 run of cable	Meter	50	34	1700
(b)	2 run of cable	Meter	50	59	2950
(c)	3 run of cable	Meter	50	84	4200
19	Supply, Installation, Testing & Commissioning of Network 6U Rack with complete accessories.	Nos	1	5534	5534
20	Supply, Installation, Testing & Commissioning of 16 Port Layer-2 Semi Managed Switch	Nos	1	13901	13901
21	Supplying and fixing following way, single pole and neutral, sheet steel, MCB distribution board, 240 V, on surface/ recess, complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/Isolator)				
(a)	6 way, Double door	Each	1	942	942
22	Supplying and fixing 5 A to 32 A rating, 240/415 V, 10 kA, "C" curve, miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
(a)	Single pole	Each	6	173	1038
(b)	Double pole	Each	1	463	463
23	Wiring for circuit/ submain wiring alongwith earth wire with the following sizes of FRLS PVC insulated copper conductor, single core cable in surface/ recessed steel conduit as required.				
(a)	2 X 1.5 sq. mm + 1 X 1.5 sq. mm earth wire	Meter	650	181	117650
(b)	2 X 6 sq. mm + 1 X 6 sq. mm earth wire	Meter	100	324	32400
24	Supplying and fixing of following sizes of steel conduit along with accessories in surface/recess including painting in case of surface conduit, or cutting the wall and making good the same in case of recessed conduit as required.				
(a)	20 mm	Meter	50	126	6300
(b)	25 mm	Meter	4500	147	661500
25	Supplying and fixing of following sizes of medium class PVC conduit along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.				
(a)	20 mm	Meter	50	30	1500
(b)	25 mm	Meter	200	40	8000

SCHEDULE OF QUANTITIES FOR SUPPLYING, INSTALLATION, TESTING & COMMISSIONING OF CCTV

PROJECT:- PROPOSED REGIONAL SCIENCE MUSEUM, PATAN, GUJARAT

S.No	Description of Work	Unit	Total Quantity	Unit Rate	Total Amount (Supply + Installation including taxes & duties)
1	Supply, Installation, Testing & Commissioning of UL listed, IK 10, 4 MP IP IR Dome Camera, Motorized Varifocal lens 2.8-12 mm, 128GB SD card slot, WDR (120DB) , IR Range 25-30 mtr, 3DNR, Network loss detection, triple stream support H.264, PoE, DC12V/AC24V, ONVIF profile S & G with all accessories like tamper proof screws, clamps, wiring etc. complete as required.	Nos	51	22300	1137300
2	Supply, Installation, Testing & Commissioning of UL listed 4 MP IP IR Bullet Camera, Motorized Varifocal lens 2.7-12 mm, 128GB SD card slot, WDR (120DB) , 3DNR, IR Range 60 Mtr Network loss detection, triple stream support, IP66 housing, H.264, PoE, DC12V/AC24V, ONVIF profile S & G, with all accessories like tamper proof screws, clamps, wiring etc. complete as required.	Nos	8	24064	192512
3	Supply, Installation, Testing & Commissioning of UL listed 2 MP (1080P) IP IR PTZ Camera, 25X optical Zoom, 120 DB WDR, 128GB SD card slot, 3DNR, IR Range 100mtr Two way Audio , Network loss detection, triple stream support, IP66 housing, H.264, PoE, DC12V/AC24V, ONVIF profile S & G, Data encryption with all accessories like tamper proof screws, clamps, wiring etc. complete as required.	Nos	2	70034	140068
4	Supply, Installation, Testing & Commissioning of UL listed NVR with capacity to record 64 camera's, should support RAID (RAID 0/1/5/6/10) redundancy, should have 8 Sata slots & e-sata for further expansion. The NVR shall be able to support 4K Camera upto 12MP. Should have 2 HDMI ports. Recording should be for 30 days. Calculation to be submitted	Nos	2	242334	484668
5	Supply, Installation, Testing & Commissioning of Special/ Enterprise Surveillance Grade HDD , 6 TB or more	Nos	4	25867	103468
6	Supply, Installation, Testing & Commissioning of workstation along with CCTV management Software. The workstation shall have the following specifications:- Processor Intel ® i5 750 2.66 GHz with internal memory of 4 GB RAM. Operating system Windows® 7 Professional 64-bit (WOW64mode) OR Windows® 7 Professional 32-bit. NVIDIA 1GB Independent Graphic Card. Resolution support for cameras 2560 x 1600 display resolution capable and directX true colour 32 bit. Dual Link VDI outputs. Client PC shall support Dual monitors. PC shall include keyboard, Mouse , including 1000 GB HDDD. CCTV Management Software shall be able to manage NVR's from 1 PC. Software shall be capable of managing at least 300 Video Channel connection. Controlling of PTZ shall be done through the Software.	Nos	1	195568	195568
7	Supply, Installation, Testing & Commissioning of 32" 4k resolution Professional LED Television suitable for the connection with NVR, Each Screen shall display not more than 32 Cameras	Nos	3	86828	260484
8	Supplying and drawing of UTP 4 pair CAT 6 LAN Cable in the existing surface/ recessed Steel/ PVC conduit as required.				
(a)	1 run of cable	Meter	1500	34	51000
(b)	2 run of cable	Meter	1500	59	88500
(c)	3 run of cable	Meter	2500	84	210000

S.No	Description of Work	Unit	Total Quantity	Unit Rate	Total Amount (Supply + Installation including taxes & duties)
9	Supplying and fixing of following sizes of steel conduit along with accessories in surface/recess including painting in case of surface conduit, or cutting the wall and making good the same in case of recessed conduit as required.				
(a)	20 mm	Meter	1500	126	189000
(b)	25 mm	Meter	10	147	1470
10	Supplying and fixing of following sizes of medium class PVC conduit along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.				
(a)	20 mm	Meter	50	57	2850
(b)	25 mm	Meter	50	69	3450
11	Supply, Installation, Testing & Commissioning of CAT-6 IO with Box and Face Plate	Nos	61	359	21899
12	Supply, Installation, Testing & Commissioning of pre- Fab 2 Mtrs. Long CAT-6 Cable	Nos	122	167	20374
13	Supply, Installation, Testing & Commissioning of 24 Port Patch Panel	Nos	5	3274	16370
14	Supply, Installation, Testing & Commissioning of 6U Network Rack with complete accessories	Nos	5	6200	31000
15	Supply, Installation, Testing & Commissioning of 24 Port Layer 2 Semi Managed Ethernet Switch shall support 10/100/1000 Mbps, switch shall have 4 SFP Ports, switch shall have POE Budget of 370W, Switch shall have Diagnostic LED's, Switch shall be cUL, CE Certified	Nos	5	58668	293340
16	Supply, Installation, Testing & Commissioning of 24 Port Layer 3 Managed Ethernet Switch, switch shall have 4 SFP Ports, shall have switch capacity of 128 GBPS, Switch shall be CE, cUL Certified.	Nos	1	180335	180335
17	Supply, Installation, Testing & Commissioning of Power Supply 220 VAC- 24 VAC	Nos	2	2312	4624
18	Supplying and fixing following way, single pole and neutral, sheet steel, MCB distribution board, 240 V, on surface/ recess, complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/Isolator)				
(a)	6 way, Double door	Each	1	942	942
19	Supplying and fixing 5 A to 32 A rating, 240/415 V, 10 kA, "C" curve, miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
(a)	Single pole	Each	6	173	1038
(b)	Double pole	Each	1	463	463
20	Wiring for circuit/ submain wiring alongwith earth wire with the following sizes of FRLS PVC insulated copper conductor, single core cable in surface/ recessed steel conduit as required.				
(a)	2 X 1.5 sq. mm + 1 X 1.5 sq. mm earth wire	Meter	750	181	135750
(b)	2 X 6 sq. mm + 1 X 6 sq. mm earth wire	Meter	100	324	32400
	GRAND TOTAL				3798873

SCHEDULE OF QUANTITIES FOR SUPPLYING, INSTALLATION, TESTING & COMMISSIONING OF TICKETING SOFTWARE**PROJECT:- PROPOSED REGIONAL SCIENCE MUSEUM, PATAN, GUJARAT**

S.No	Description of Work	Unit	Total Quantity	Unit Rate	Total Amount (Supply + Installation including taxes & duties)
1	Desktop PC for Ticketing Software : Intel Quad Core Processor with minimum 8 GB RAM, 100 GB HDD, Graphics Card, DVD Combo Drive, 32" Monitor, cordless mouse and Keyboard. Complete with Windows XP / Windows 7 license.	Nos	2	41568	83136
2	Thermal Printer or equivalent	Nos	2	28569	57138
3	Ticketing Software with provision to create 10 different types of tickets	Nos	2	37568	75136
	GRAND TOTAL				215410

SCHEDULE OF QUANTITIES FOR EXTERNAL PLUMBING WORKS						
PROJECT- REGIONAL SCIENCE MUSEUM PATAN						
S.No		Description	Units	Quantity	Unit Rate	Total Amount
A		EXTERNAL WATER SUPPLY SYSTEM				
1	DSR 15-16 2.10	Excavating trenches upto 1.5 meter depth in all kind of soil of required width for pipes. including excavation for sockets and dressing of sides ramming of bottoms including getting out the excavated soil & then returning the soil as required, in layers not exceeding 20 cm in depth including consolidating each deposited layer by ramming, watering, etc & disposing of surplus excavated soil as directed within a lead of 50m.				
	2.10.1.1	(i) Pipes etc not exceeding 80 mm dia.	RM	50	138.05	6902.50
2		Domestic/ Recycled (Flushing + Irrigation)/ Soft/ Municipal Water				
	GWSSB SOR Section A Item no. 6	Providing & supplying in standard length ISI mark high density polyethylene HDPE pipes suitable for potable water as per IS specification no. 4984/4995 including all local & central taxes , transportation, freight charges, octroi, inspection charges, loading , unloading, conveyance to the dept. stores etc. complete.				
	3.00	75mm dia nominal bore	RM	50	129.00	6450.00
3	GWSSB SOR Section D Item no. 4	Lowering , layng & jointing of HDPE pipes & specials of following class & diameter (by butt fusion welding method) including cost of conveyance from stores to site of works including cost of labour,material,giving satisfactory hydraulic testing etc. comp.				
	3.00	75 mm dia.	RM	50	7.00	350.00
4	GWSSB SOR Section D Item no. 5.8	Providing, supplying & fixing sluice valve PN 1.0 Including cost of valve/specials/nut bolts/rubber packing / key to operate valves incl. all labour, equipments, materials required.	Nos	1	5,500.00	5500.00
5	DSR 15-16 18.33.1	Constructing brick masonry chamber 600 x 600 x 750 mm inside with F.P.S. brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for Sluice Valve , with C. I. surface box 100 mm top diameter, 160 mm bottom diameter and 180mm deep (inside) with chained lid and RCC top slab with 1 : 2 : 4 mix (1 cement : 2 coarse sand : 4 grade stone aggregate 20 mm nominal size); necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand: 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1 : 3 (1 cement : 3 coarse sand) 12 mm thick finished with a floating coat of neat cement complete as per standard design	Nos	1	6,849.60	6849.60
6	DSR 15-16 Item no. 18.14+ 7418	Providing, supplying & fixing water meter Including cost of specials/rubber packing including Fixing stop cock in HDPE pipe line including cutting and threading the pipe and making long screws etc. complete,incl. all labour, equipments, materials required.	Nos	1	2,477.70	2477.70
7	DSR 15-16 18.37.1	Constructing brick masonry chamber 600 x 450 x 500 mm, inside with F.P.S. brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for Water Meter complete with C. I. double flap surface box 400x200x200 mm (inside) with locking arrangement and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 grade stone aggregate 20mm nominal size) necessary excavation, foundation concrete 1:5:10 (1 cement :5 fine sand: 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick finished with a floating coat of neat cement complete as per standard design	Nos	1	6,088.60	6088.60
B		SEWERAGE AND STORM WATER DRAINAGE SYSTEM				
		EXTERNAL WORKS				
1	DSR 15-16 code no.2.10	Excavating trenches in all kind of soil of required width for pipes. including excavation for sockets and dressing of sides, ramming of bottoms, including getting out the excavated soil & then returning the soil as required, in layers not exceeding 20 cm in depth including consolidating each deposited layer by ramming, watering, etc & disposing of surplus excavated soil as directed within a lead of 50m.				
		up to 1.50 m depth				
	2.10.1.2	Pipes 80 mm to 300 mm diameter	Cum	1130	225.45	254668.32
	2.10.1.3	Pipes exceeding 300 mm diameter	Cum	333	352.00	117145.60
		1.50 m to 3.00 m depth				
	2.10.1.2 + 2.11	Pipes 80 mm to 300 mm diameter	Cum	225	511.77	114994.72
	2.10.1.3 + 2.11	Pipes exceeding 300 mm diameter	Cum	188	799.00	150132.10
2	DSR 15-16 code no.2.20	Open timbering in trenches including strutting and shoring complete. (Measurement to be taken of the face area timbered)				
	2.20.1	Depth not exceeding 1.5 meter	SQM	2589	55.90	144752.57
	2.20.2	Depth 1.5 to 3.00 meter	SQM	1749	60.00	104938.96
3	GWSSB SOR Section C Item no. 5D	Providing & supplying ISI standard RCC class NP3 pipes (of sulphate resisting cement) in standard lengths of following class and diameter suitable for either collar joints or rubber ring joints including all taxes , insurance, transportation , freight charges , octroi, inspection charges, loading, unloading, conveyance to departmental stores , stacking etc. complete. Note: One collar should be supplied with each full length plain ended RCC pipe , cost included in rates below. One rubber ring should be supplied with each full length socked pipe cost included in rates below.				
	1.00	150 mm. dia.	M.	128	495.00	63261.00
	5.00	300 mm dia.	M.	1227	1,128.00	1383672.48
	6.00	350 mm dia.	M.	186	1,314.00	244180.62
	7.00	400 mm dia.	M.	87	1,718.00	149929.86
	8.00	450 mm dia.	M.	62	2,032.00	124968.00
	9.00	500 mm dia.	M.	19	2,218.00	41276.98
	10.00	600 mm dia.	M.	167	2,907.00	486050.40

4	GWSSB 14-15 SOR Item no. 5 B	Lowering, laying & jointing RCC pipes in C.M. 1:1 1/2 of following diameters in proper position grade & alignment as directed by Engineer-in-charge including conveyance from stores to site of work, labour, giving hydraulic testing as per ISI code.				
	3.00	150mm	RMT	128	67.00	8562.60
	6.00	300 mm dia.	RMT	1227	127.00	155785.82
	7.00	350 mm dia.	RMT	186	142.00	26387.86
	9.00	400 mm dia.	RMT	87	162.00	14137.74
	10.00	450 mm dia.	RMT	62	182.00	11193.00
	11.00	500 mm dia.	RMT	19	202.00	3759.22
	13.00	600 mm dia.	RMT	167	243.00	40629.60
5	GWSSB 14-15 SOR Item no. sec. A item 1A-(I)-2 & item no.7 (2)	Providing, fixing, laying & jointing and testing in position ISI marked PVC pipes (as per IS 4985, 4 Kg / Sq cm) with necessary fitting for footpath / pathway as directed by Engineer incharge.				
		75 mm dia.	RMT	26	84.00	2209.20
6	AP 16-17 item no. 015	Providing granular bedding having width = outer dia. of pipe (Bc) + 0.2mm or 1.25 Bc , thickness below pipe = 0.25 Bc or 100mm (whichever is higher) & haunching = 0.5 Bc , with graded hard crusher broken stone of 100% passing through 20mm sieve, 20 to 50% passing through 10mm sieve & 100% retain on 6.3mm sieve, with close graded granular sub base material 26.5mm to 9.5mm (excluding Seigniorage Charges), laying in layers of thickness 10/15cm including ramming, consolidation etc. complete as per drawing & or as directed by Engineer incharge.				
		For Pipe Bedding	CUM.	363	711.00	258380.53
7	DSR 15-16 4.1.8	Providing and laying in position cement concrete excluding the cost of centering and shuttering. (in all type of work upto plinth level) by 1:4:8 (1 cement : 4 coarse sand : 8 graded stone agg. 40 mm nominal size) for PCC below chamber.	CUM.	35	4,478.15	157400.69
8	DSR 15-16 code no.19.7	Constructing brick masonry manhole with F.P.S. bricks in cement mortar 1 : 4 (1 cement : 4 coarse sand) RCC top slab with 1 : 2 : 4 mix (1 cement : 2 coarse sand : 4 grade stone aggregate 20mm nominal size); foundation concrete 1:4:8 mix (1 cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size) inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement and making channels in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement complete as per standard design				
	DSR 15-16 19.7.1.1	Inside size 90 x 80 cm & 45 cm deep including CI / DI grating with frame (heavy duty) 455 x 610mm internal dimension total wt. of cover & frame to be not less than 38 kg (wt. of cover 23 kg and wt. of frame 15 kg) complete as per standard design.	Nos	86	8,634.10	741669.19
	DSR 15-16 19.7.3.1	Inside size 1.2 M X 90 cm and 90 cm deep including C.I./ DI grating with frame (heavy duty) 560mm internal diameter total weight of cover & frame to be not less than 208 kg (wt. of cover 108 kg and wt. of frame 100 kg)	Nos.	46	22,983.25	1048036.20
9		Extra for depth for manhole with F.P.S. bricks				
	19.8.1.1	size 90 X 80 cm	M	21	5,718.60	117308.50
	19.8.2.1	size 1.2m X 90 cm	M	35	6,850.70	236599.20
10	DSR 15-16 code no.19.9	Constructing brick masonry circular type manhole 0.91 M. internal dia at bottom and 0.56 M. dia at top with F.P.S. bricks in cement mortar 1:4 (1 cement: 4 coarse sand) inside cement plaster 12 mm thick with cement mortar 1:3 (1 cement: 3 coarse sand) finished with a floating coat of neat cement, foundation concrete 1:3:6 mix (1 cement :3 coarse sand: 6 graded stone aggregate 40mm nominal size) and making necessary channel in cement concrete 1:2:4 (1 cement:2 coarse sand: 4 graded stone aggregate 20mm nominal size) finished with a floating coat of neat cement all complete as per standard design				
	19.9.1.1	0.91 M deep with S.F.R.C. cover and frame (heavy duty, HD-20 grade designation) 560 mm internal diameter conforming to IS : 12592, total weight of cover and frame to be not less than 182 kg., fixed in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate of 20 mm nominal size) including centering shuttering all complete. (Excavation, footrest and 12 mm thick cement plaster at the external surface shall be paid for separately)	Nos	6	8,683.75	47760.63
11	19.10.1	Extra depth for circular type manhole 0.91 M internal dia (at bottom) with F.P.S. bricks beyond 0.91 M to 1.2 M.	M	2	4,911.80	7817.13
12	DSR 15-16 code no.19.11	Constructing brick masonry circular manhole 1.22 M. internal dia at bottom and 0.56 M. dia at top with F.P.S. bricks in cement mortar 1:4 (1 cement: 4 coarse sand) inside cement plaster 12 mm thick with cement mortar 1:3 (1 cement: 3 coarse sand) finished with a floating coat of neat cement, foundation concrete 1:3:6 mix (1 cement :3 coarse sand: 6 graded stone aggregate 40mm nominal size) and making necessary channel in cement concrete 1:2:4 (1 cement:2 coarse sand: 4 graded stone aggregate 20mm nominal size) finished with a floating coat of neat cement all complete as per standard design				
	19.11.1.1	1.2 M deep with S.F.R.C. cover and frame (heavy duty, HD-20 grade designation) 560 mm internal diameter conforming to IS : 12592, total weight of cover and frame to be not less than 182 kg., fixed in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate of 20 mm nominal size) including centering shuttering all complete. (Excavation, footrest and 12 mm thick cement plaster at the external surface shall be paid for separately)	Nos	5	16,560.80	79491.84
13	19.12.1	Extra depth for circular type manhole 1.22 M internal dia (at bottom) with F.P.S. bricks beyond 1.2 M to 2.29 M.	M	4	6,362.65	28231.08
14	DSR 15-16 19.16	Providing orange colour safety foot rest of minimum 6 mm thick plastic encapsulated as per IS:10910, on 12 mm dia. Steel bar conforming to IS:1786, having minimum cross section as 23mm x 25 mm and overall minimum length 263 mm and width as 165 mm with minimum 112 mm space between protruded leg having 2 mm tread on top surface by ribbing or chequering besides necessary and adequated anchoring projections on tail length on 138 mm as per standard drawing and suitable to with stand the bend test and chemical resistance test as per specifications and having manufacture's permanent identification mark to be visible even after fixing, including fixing in manholes with 30x20x15 cm cement concrete block 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) complete as per design.	Nos	322	327.90	105529.15

15	DSR 15-16 19.4	Providing and fixing square mouth S. W. Gully trap class SP-1 complete with C.I. grating brick masonry chamber with F.P.S bricks and water tight CI cover with frame of 300 x 300 mm size (inside) the weight of cover to be not less than 4.50 kg and frame to be not less than 2.70 kg as per standard design				
	19.4.3.1	180 x 150 mm. size P type	Nos	4	1,706.55	6826.20
		AUTOMATIC IRRIGATION SYSTEM BY RECYCLED WATER				
1	DSR 15-16 2.10	Excavating trenches upto 1.5 meter depth in all kind of soil of required width for pipes. including excavation for sockets and dressing of sides ramming of bottoms including getting out the excavated soil & then returning the soil as required, in layers not exceeding 20 cm in depth including consolidating each deposited layer by ramming, watering, etc & disposing of surplus excavated soil as directed within a lead of 50m.				
	2.10.1.1	(i) Pipes etc not exceeding 80 mm dia.	RM	1101	138.05	151993.05
	2.10.1.2	(ii) Pipes 80 mm to 300 mm diameter	RM	14	225.45	3156.30
2		Providing, fixing, jointing and testing in position ISI marked UPVC pipes (as per IS 4985, 6 Kg / Sq cm) with necessary fitting for Irrigation in external, including reduces, enlarger, socket, couplers, bends, tees, long radius / swept bend.				
	MR	20mm dia 6 Kg/cm ²	M	473	18.85	8916.05
	MR	40mm dia 6 Kg/cm ²	M	93	36.00	3348.00
	MR	63mm dia 6 Kg/cm ²	M	535	83.00	44405.00
	MR	90mm dia 6 Kg/cm ³	M	14	244.50	3423.00
3		Providing & fixing of hand lever / butterfly handle operated uPVC ball valve type garden hydrant valve with PVC hose nippal.				
	MR	20mm nominal bore	Nos	3	125.00	375.00
4		Providing & fixing of hand lever operated uPVC (Sch 80) ball valve type isolating valve including solvent welded joint as required.				
	MR	20 mm nominal dia	Nos	26	787.50	20475.00
	MR	40 mm nominal dia	Nos	4	1,050.00	4200.00
5		Supply and Fixing of Solenoid valve for fixing in uPVC pipe for automatic operation of sprinkler zone, complete with labour charge for fixing including all tools and plants.				
	MR	63 mm nominal dia	Nos	3	15,680.00	47040.00
6	MR	Supply and Fixing of sprinkler of 12m radius throw for uniform water distribution for grass.	Nos	30	1,450.00	43500.00
		GRAND TOTAL (SCHEDULED + NON SCHEDULED ITEMS)				6,843,137

PROJECT: RSM PATAN , GUJRAT			
Sl. No.	DESCRIPTION	Lump Sum	Total Amount (Including taxes)
	Operation Maintenance		
1	Operation and Comprehensive Maintenance as defined in Schedule-2 & 3 for 5 years from completion of construction works (&M for exhibit is part of exhibit BOQ provided separately)	50000000.00	50000000.00
TOTAL SUMMARY			5,00,00,000.00

SCHEDULE-10

EXHIBIT DETAILED REPORT

CHAPTER 8: EXHIBIT BOQ

S.N O	LOCATION	ITEM DESCRIPTION	QTY	TOTAL COST	TOTAL Amt
	DINOSAUR GALLERY				
	ENTRANCE FOYER				
1	DINO-EX-16	<p>Apatosaurus Skeleton</p> <p>General Information: Apatosaurus meaning "deceptive lizard") is a genus of extinct sauropod dinosaurs that lived in America during the Late Jurassic period.</p> <p>Description: 12-15 m long Apatosaurus Skeleton for Outdoor Exhibit. Glass fiber replica Apatosaurs skeleton, Tied by the Vertebral Column for outdoor exhibition</p> <p>Material :Anti Rust Steel Frame, Acrylic Paint, Talcum Powder, Resin, Fiberglass Fabric</p> <p>Mode option: 1.Invisible frame skeleton(suitable for outdoor)</p> <p>Bone Option: 1.Empty bone(advantage: low cost, light, easy transportation)</p> <p>Accessories: Metal frame, metal holder, screw, assembly instruction sheet, etc.</p> <p>Service: Manufacture, transportation assistance, installation, maintenance training, 2-5 years maintenance, design, etc.</p> <p>Exhibit Size with Environment: Size: 12-15m long, 8m High</p> <p>Durability: 1.Temperature: adapt to a temperature of - 20° C to 40 ° C. 2. Weather: resist rain, sunspot, snow, storm, etc extreme weather.</p> <p>Suggested Vendor or Equivalent: Gengudino (Zigong Gengu Co. Ltd.) -Item Code (#GG-1868), Sichuan Lituo Landscape Science And Technology Co., Ltd., (Model Number: LT-BB-APTLGJ-H11), Zigong Jurassic Dinosaur Landscape Manufacture Co., Ltd. Model Number: JD-DFR-C45, Kanosaur</p> <p>Kindly refer the following image.</p>	1		

SCHEDULE-10

EXHIBIT DETAILED REPORT



Atrium/Lobby

2 DINO-EX-1

Triceratops Skeleton

1

General information: Triceratops is a genus of herbivorous ceratopsid dinosaur that first appeared during the late Maastrichtian stage of the late Cretaceous period, about 68 million years ago (mya) in what is now North America. It is one of the last known non-avian dinosaur genera, and became extinct in the Cretaceous–Paleogene extinction event 66 million years ago.

Description: 4-5 m long Triceratops Skeleton for Indoor Exhibit with Base.

Glass fiber replica Triceratops skeleton, Tied by the Vertebral Column for Indoor exhibition

Material :Anti Rust Steel Frame, Acrylic Paint, Talcum Powder, Resin, Fiberglass Fabric

Mode option: 1.Visible frame skeleton(suitable for indoor)

Bone Option: 1.Empty bone(advantage: low cost, light, easy transportation)

Accessories: Metal frame, metal holder, screw, assembly instruction sheet, etc.

Service: Manufacture, transportation assistance, installation, maintenance training, 2-5 years maintenance, design, etc.

Exhibit Size with Environment: 4-5 m long and 2-3 m high, with a base and protected surrounding of the skeleton through railing barriers so physical contact may not happen to disrupt the skeleton.

Size: 4-5m long, 2-3m High

Durability:

1.Temperature: adapt to a temperature of - 20° C to 40 ° C.

2. Weather: resist rain, sunspot, snow, storm, etc extreme weather.

SCHEDULE-10

EXHIBIT DETAILED REPORT

Suggested Vendor or Equivalent: Gengudino (Zigong Gengu Co. Ltd.) -Item Code (#GG-1869), **Sichuan Lituo Landscape Science And Technology Co., Ltd.**, (Model Number: LT-BB-SJLGJ-H10), Zigong Jamy Science & Technology Co., Ltd.(Model Number JM-ID-SJLGJ-03).
Kindly refer the following image.



JURASSIC TRAIL

3 DINO-EX-24

Brachiosaurus (Animatronics' Life Sized)

1

Description: Brachiosaurus are known to have been herbivores dinosaur that lived 155.7 million to 150.8 million years ago during the mid- to late Jurassic Period. They were massive animals that stood about 23 feet high. Brachiosaurus is known for its long neck—which made it look very much like a giraffe—and its short hindlegs.

Material: Steel Frame, Acrylic Paint, Talcum Powder, Resin, Fiberglass Fabric

Durability: Waterproof, Sunproof, Snowproof, and temperature adaptability (-20° C to 40 ° C)

Skin proof: Waterproof, Snowproof, Sunproof.

Color: Light greyish-sap brown

Size: 25-30m Long, 5-6m High

Weight: 50 kg ~ 75kg

Normal Movements:

- 1.Mouth open and close with synchronized sound
- 2.Head moving left to right
- 3.Eyes blink
- 4.Foreleg moving
- 5.Tail swaying

Customized Movements:

- 6.Neck up down
- 7.Body moving up and down
- 8.Breathing

SCHEDULE-10

EXHIBIT DETAILED REPORT

9. Water or smoke spraying
 Sounds: 1. Vivid Roaring and Breathing. 2. Custom other sound.
 Power: 110/220vac 50/60hz .
Accessories:
 1. Control Box
 2. Sensor Infrared Control/Remote Control
 3. Metal Base
 4. Repair Box(Repair Parts)
 5. Artificial Stone(Cover Control Box and Speaker)
Weight:
Suggested Vendor or Equivalent: Kanosaur, Chengdu Shuxiping Co. Ltd (KANOSAUR0034)
Gengudino (Zigong Gengu Co. Ltd.) -Item Code (AD-1X-DINO-3097), My Dinosaurs art and culture co. ltd.
[\(https://mydinosaurs.com/product/jurassic-dinosaur-park-dinosaur-573/\)](https://mydinosaurs.com/product/jurassic-dinosaur-park-dinosaur-573/)
Kindly refer the following image

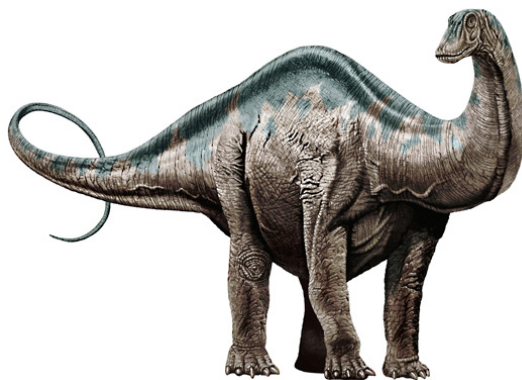


4	DINO-EX-23	Apatosaurus (Animatronic Life Sized)	1		
		<p>General Information: Apatosaurus meaning "deceptive lizard") is a genus of extinct sauropod dinosaurs that lived in America during the Late Jurassic period.</p> <p>Material: Steel Frame, Acrylic Paint, Talcum Powder, Resin, Fiberglass Fabric</p> <p>Durability: Waterproof, Sunproof, Snowproof, and temperature adaptability (-20° C to 40 ° C)</p> <p>Skin proof: Waterproof, Snowproof, Sunproof.</p> <p>Color: Light greyish-sap brown</p> <p>Size: 25-30m Long, 5-6m High</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT

Weight: 50 kg ~ 75kg
Normal Movements:
 1.Mouth open and close with synchronized sound
 2.Head moving left to right
 3.Eyes blink
 4.Foreleg moving
 5.Tail swaying
Customized Movements:
 6.Neck up down
 7.Body moving up and down
 8.Breathing
 9.Water or smoke spraying
 Sounds: 1. Vivid Roaring and Breathing. 2.Custom other sound.
 Power: 110/220vac 50/60hz .
Accessories:
 1.Control Box
 2.Sensor Infrared Control/Remote Control
 3.Metal Base
 4.Repair Box(Repair Parts)
 5.Artificial Stone(Cover Control Box and Speaker)
Weight:
Suggested Vendor or Equivalent: Sichuan Lituo Landscape Science And Technology Co., Ltd., (Model Number: LT-GD-APT-H17), Gengudino (Zigong Gengu Co. Ltd.) -Item Code (AD-1X-APAT-2693), Zigong Dino Walk Science & Technology Inc. (DWZ-0230)
Kindly refer the following image

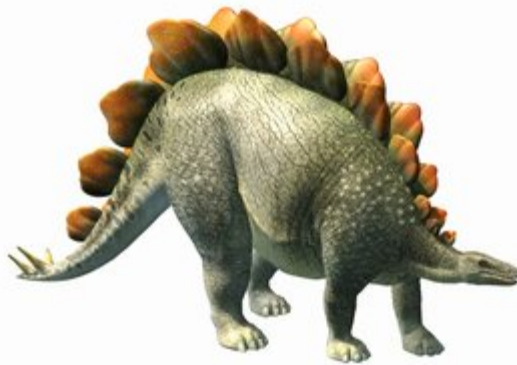


5	DINO-EX-25	Stegosaurus (Animatronic Life Sized)	1		
		<p>Description: Stegosaurus is a genus of armored dinosaur. Fossils of this genus date to the Late Jurassic period, where they are found in Kimmeridgian to early Tithonian aged strata, between 155 and 150 million years ago.</p> <p>Material: Steel Frame, Acrylic Paint, Talcum Powder, Resin, Fiberglass Fabric</p> <p>Durability: Waterproof, Sunproof, Snowproof, and</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT

temperature adaptability (-20° C to 40 ° C)
Skin proof: Waterproof, Snowproof, Sunproof.
Color: Light greyish-sap brown
Size: 6-8 m Long, 2-3m High
Weight: 30 kg ~ 45kg
Normal Movements:
1.Mouth open and close with synchronized sound
2.Head moving left to right
3.Eyes blink
4.Foreleg moving
5.Tail swaying
Customized Movements:
6.Neck up down
7.Body moving up and down
8.Breathing
9.Water or smoke spraying
Sounds: 1. Vivid Roaring and Breathing. 2.Custom other sound.
Power: 110/220vac 50/60hz .
Accessories:
1.Control Box
2.Sensor Infrared Control/Remote Control
3.Metal Base
4.Repair Box(Repair Parts)
5.Artificial Stone(Cover Control Box and Speaker)
Suggested Vendor or Equivalent: Kanosaur, Chengdu Shuxiping Co. Ltd (Model Number: KANO6143),
Gengudino (Zigong Gengu Co. Ltd.) -Item Code (AD-1X-STEG-1650), Zigong Jamy Science & Technology Co., Ltd. (JM-ID-KL-257)
Kindly refer the following image



6	DINO-EX-22	Protoceratops/STYRACOSAURUS (Static Life Sized)	1		
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SCHEDULE-10

EXHIBIT DETAILED REPORT

Description: Protoceratops genus of sheep-sized (1.8 m long) herbivorous ceratopsian dinosaur, from the Upper Cretaceous Period

Material: Steel Frame, Acrylic Paint, Talcum Powder, Resin, Fiberglass Fabric Steel, skeleton, high-density foam, advanced silicone rubber.

Durability: Waterproof, Sunproof, Snowproof, and temperature adaptability (-20° C to 40 ° C)

Size: 3-4 m Long, 2-3m High

Weight: 18 kg ~ 25 kg

Suggested Vendor or Equivalent: Kanosaur, Chengdu Shuxiping Co. Ltd (https://www.alibaba.com/product-detail/KANOSAUR7677-Dinosaur-Park-Hot-Sale-Animatronic_60688760892.html?spm=a2700.7724857.main07.177.21c7e2ccIVdT15)

Zigong Huilongtang Culture&Art Co. (https://www.alibaba.com/product-detail/Smaller-dinosaur-in-the-outdoor-exhibition_1086339258.html?spm=a2700.7724857.main07.204.21c7e2ccIVdT15)

Zigong Gengu Dino Co. Ltd (https://www.alibaba.com/product-detail/The-protoceratops-model-life-size-dinosaur_1076189717.html?spm=a2700.7724857.main07.413.21c7e2ccIVdT15)

Kindly refer the following image



7	DINO-EX-26	Parasaurolophus	1		
		<p>Description: Parasaurolophus meaning "near crested lizard" in reference to Saurolophus) is a genus of ornithomimid dinosaur. Parasaurolophus was a hadrosaurid, part of a diverse family of Cretaceous dinosaurs known for their range of bizarre head adornments. This genus is known for its large, elaborate cranial crest, which at its largest forms a long curved tube projecting upwards and back from</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT

the skull. Charonosaurus from China, which may have been its closest relative, had a similar skull and potentially a similar crest.

Material: Steel Frame, Acrylic Paint, Talcum Powder, Resin, Fiberglass Fabric, Foam, Motor, Rubber, Electric parts.

Durability: Waterproof, Sunproof, Snowproof, and temperature adaptability (-20° C to 40 ° C)

Exhibit Size with Environment:Exhibit Size with Environment:

Durability: Waterproof, Sunproof, Snowproof, and temperature adaptability (-20° C to 40 ° C)

Size : 6-8 m Long, 2-3m High

Weight: 18 kg ~ 25 kg

Suggested Vendor or Equivalent: My Dinosaurs art and culture co. ltd.

[\(https://mydinosaurs.com/product/traveling-exhibition-life-sized-exhibition-dinosaur-parasaurolophus/\)](https://mydinosaurs.com/product/traveling-exhibition-life-sized-exhibition-dinosaur-parasaurolophus/)

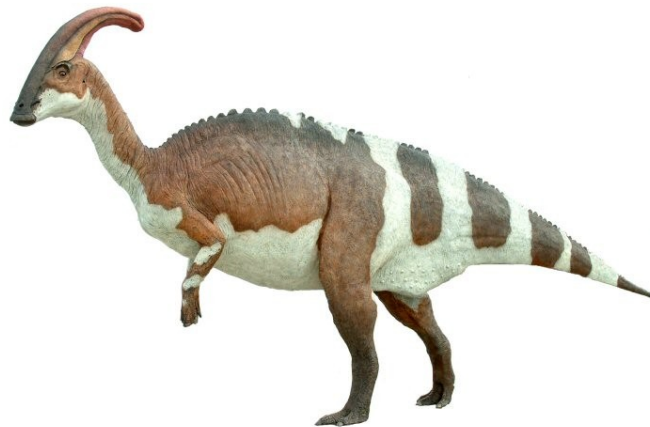
Zingong Gengu Dino Co. Ltd.

[\(http://www.gengutech.com/html/product/2016-8-8/1281.html\)](http://www.gengutech.com/html/product/2016-8-8/1281.html)

KANOSAUR.com

[\(http://www.kanosaur.com/PRODUCTS/Fiberglass_Statue/39.html\)](http://www.kanosaur.com/PRODUCTS/Fiberglass_Statue/39.html)

Kindly refer the following image



8	DINO-EX-21	Stegosaurus (Static replica)	1		
		<p>Description: Stegosaurus is a genus of armored dinosaur. Fossils of this genus date to the Late Jurassic period, where they are found in Kimmeridgian to early Tithonian aged strata, between 155 and 150 million years ago.</p> <p>Material: Steel Frame, Acrylic Paint, Talcum Powder, Resin, Fiberglass Fabric</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT

Exhibit Size with Environment:

Durability: Waterproof, Sunproof, Snowproof, and temperature adaptability (-20° C to 40 ° C)

Size: 6-8 m Long, 2-3m High

Weight: 18 kg ~ 25 kg

Suggested Vendor or Equivalent: My Dinosaurs art and culture co. ltd.

(<https://mydinosaurs.com/product/playground-full-scale-fiberglass-dinosaur-stegosaurus-model-431/>)

Zingong Gengu Dino Co. Ltd.

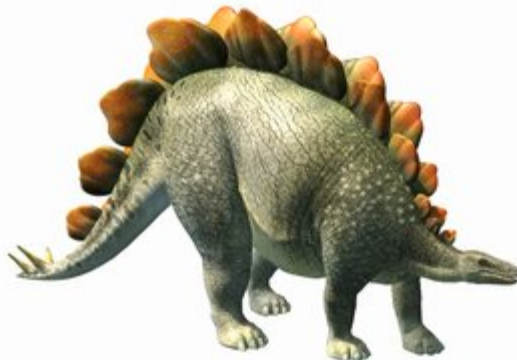
([https://www.alibaba.com/product-detail/theme-park-fiberglass-big-size-stegosaurus_742667875.html?spm=a2700.7724857.m](https://www.alibaba.com/product-detail/theme-park-fiberglass-big-size-stegosaurus_742667875.html?spm=a2700.7724857.main07.98.70a7f8f66af26n)

[ain07.98.70a7f8f66af26n](https://www.alibaba.com/product-detail/OAD2117ocean-art-forest-park-dino-fiberglass_60684060301.html?spm=a2700.7724857.main07.70.70a7f8f66af26n))

Zigong Ocean Dinosaur Manufacture Co. Ltd.

([https://www.alibaba.com/product-detail/OAD2117ocean-art-forest-park-dino-fiberglass_60684060301.html?spm=a2700.7724857.m](https://www.alibaba.com/product-detail/OAD2117ocean-art-forest-park-dino-fiberglass_60684060301.html?spm=a2700.7724857.main07.70.70a7f8f66af26n)

Kindly refer the following image



9 DINO-EX-20

Velociraptor (Static replica)

1

Description: Velociraptor is

a genus of dromaeosaurid theropod dinosaur that lived approximately 75 to 71 million years ago during the later part of the Cretaceous Period

Material: Steel Frame, Acrylic Paint, Talcum Powder, Resin, Fiberglass Fabric (the dinosaur's skin can be customized with special thick cloth)

Environment: Outdoor

Durability: Waterproof, Sunproof, Snowproof, and temperature adaptability (-20° C to 40 ° C)

Size: 3-4m Long, 2-3 m High

Weight: 18 kg ~ 25 kg

Suggested Vendor or Equivalent: Zigong Ocean Dinosaurs Manufacturers Co. ,

Cetnology-Iron Finger, Model Number: Cet-M1-380, KANOSAUR (KANO9085)

Kindly refer the following image

SCHEDULE-10

EXHIBIT DETAILED REPORT



10	DINO-EX-19	Raptor(Static Life Sized)	1		
		<p>Description: Raptor was between 7.5 and 10 m (25 and 33 ft) long and weighed between 1.2 and 1.7 t (1.3 and 1.9 short tons), but the holotype specimen may not have been fully grown. It had a long, low snout and narrow jaws, which have been compared to those of a gharial.</p> <p>Material: Steel Frame, Acrylic Paint, Talcum Powder, Resin, Fiberglass Fabric</p> <p>Exhibit Size with Environment: Outdoor Environment</p> <p>Durability: Waterproof, Sunproof, Snowproof, and temperature adaptability (-20° C to 40 ° C)</p> <p>Size: 5-6m Long, 2-3 m High</p> <p>Weight: 18 kg ~ 25 kg</p> <p>Suggested Vendor or Equivalent: Kanosaur, Chengdu Shuxiping Co. Ltd , KANOSAUR0690, Ocean Art, Model Number: OA2629, Kindly refer the following image</p>			
11	DINO-EX-18	Dilophosaurus (Animatronic replica)	1		

SCHEDULE-10

EXHIBIT DETAILED REPORT

Description: *Dilophosaurus* was among the largest carnivores of its time (about 7 meters long) and had a pair of rounded crests on its skull.

Dilophosaurus measured about 7 metres (23 ft) long and weighed about 400 kilograms (880 lb)

Material: Steel Frame, Acrylic Paint, Talcum Powder, Resin, Fiberglass Fabric

Durability: Waterproof, Sunproof, Snowproof, and temperature adaptability (-20° C to 40 ° C)

Skin proof: Waterproof, Snowproof, Sunproof.

Color: Light greyish-sap brown

Size: 6-8 m Long, 2-3m High

Weight: 30 kg ~ 45kg

Normal Movements:

- 1.Mouth open and close with synchronized sound
- 2.Head moving left to right
- 3.Eyes blink
- 4.Foreleg moving
- 5.Tail swaying

Customized Movements:

- 6.Neck up down
- 7.Body moving up and down
- 8.Breathing
- 9.Water or smoke spraying

Sounds: 1. Vivid Roaring and Breathing. 2.Custom other sound.

Power: 110/220vac 50/60hz .

Accessories:

- 1.Control Box
- 2.Sensor Infrared Control/Remote Control
- 3.Metal Base
- 4.Repair Box(Repair Parts)
- 5.Artificial Stone(Cover Control Box and Speaker)

Suggested Vendor or Equivalent: Ocean Art, (OA1689),

Zingong Gengu Dino Co. Ltd.

(<http://www.gengutech.com/html/product/2017-6-30/1885.html>), ONLYDINOSAURS, MDZ-25, <http://www.made-in-china.com/showroom/onlydinasaurseric/product-detailiidQrJPTvEck/China-Animatronic-Life-Size-Dinosaur-Dilophosaurus.html>

Kindly refer the following image

SCHEDULE-10

EXHIBIT DETAILED REPORT



12. DINO-EX-17

T-REX (Animatronic replica)

1

Description: The species *Tyrannosaurus rex* is one of the well-represented of the large theropods. *Tyrannosaurus* lived throughout what is now western North America, on what was then an island continent known as Laramidia. *Tyrannosaurus* had a much wider range than other tyrannosaurids.

Material: Steel Frame, Acrylic Paint, Talcum Powder, Resin, Fiberglass Fabric, Foam, Motor, Rubber, Electric parts.

Durability: Waterproof, Sunproof, Snowproof, and temperature adaptability (-20° C to 40 ° C)

Skin proof: Waterproof, Snowproof, Sunproof.

Color: Light greyish-sap brown

Size: 12-15m Long, 5-6m High

Weight: 30 kg ~ 45kg

Normal Movements:

- 1.Mouth open and close with synchronized sound
- 2.Head moving left to right
- 3.Eyes blink
- 4.Foreleg moving
- 5.Tail swaying

Customized Movements:

- 6.Neck up down
- 7.Body moving up and down
- 8.Breathing
- 9.Water or smoke spraying

SCHEDULE-10

EXHIBIT DETAILED REPORT

Sounds: 1. Vivid Roaring and Breathing. 2. Custom other sound.

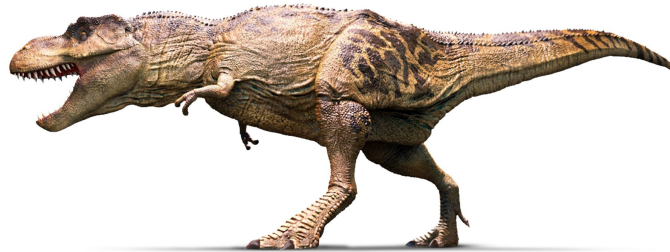
Power: 110/220vac 50/60hz .

Accessories:

- 1. Control Box
- 2. Sensor Infrared Control/Remote Control
- 3. Metal Base
- 4. Repair Box(Repair Parts)
- 5. Artificial Stone(Cover Control Box and Speaker)

Suggested Vendor or Equivalent: KANOSAUR (KANO9118), Ocean Art (OAV1037), **Zingong Gengu Dino Co. Ltd.** (GG-1244)

<http://www.gengutech.com/html/product/2016-8-8/1244.html>



LAND OF DINOSAURS INDOOR GALLERY

13. FOSSIL-EX-2-3

Realistic Dino Buried Bones Wall Mounted Dinosaur Fossil

2

Material: Steel Frame, Acrylic Paint, Talcum Powder, Resin, Fiberglass Fabric, Fossilated Finish Buried In Sand or Strata Media. Authentic Buried Fossil Finish.
Exhibit Size with Environment: Interior Wall Mounted Fossil (4000mm X4000mm dimension with 500mm depth base)

Durability: temperature adaptability (-20° C to 40 ° C)

Bones Mode: Hollow Bones for Light Wight

Weight: 5 kg ~ 10 kg

Suggested Vendor or Equivalent:

Kanosaur, MY DINO(CY-015)

https://wholesaler.alibaba.com/product-detail/MY-Dino-JL467-realistic-dinosaur-bone_60527125682.html?spm=a2700.7782932.1998701000.103.187bd15bhjkuh, https://www.alibaba.com/product-detail/MY-Dino-Amusement-park-dinosaur-world_60170616362.html?spm=a2700.details.maylikever.11.e594ebbTOcm1A, **Zingong Gengu Dino Co. Ltd.** (GG-1499)

SCHEDULE-10

EXHIBIT DETAILED REPORT



14.	FOSSIL-EX-4	Coelophysis Skull Fossil with Eggs Fossil Set	1 Set		
		<p>Description: Handmade Realistic replica of Coelophysis Skull (250mm X 250mm) with Dinosaur Eggs Fossil Set (4 Eggs of 50mm Diameter embedded in Fossilated Base)</p> <p>Exhibit Size with Environment: Interior Surface mounted Fossilated Exhibit. Exhibit Displayed on Illumintaed base stand at 900mm high from floor finish level.</p> <p>Durability: temperature adaptability (-20° C to 40 ° C)</p> <p>Bones Mode: Hollow Bones for Light Wight</p> <p>Weight: 5 kg ~ 7 kg</p> <p>Suggested Vendor or Equivalent: Baystate Replicas (http://www.baystatereplicas2.com/product/coelophysis-skull/), Pre-Historic Store (http://www.prehistoricstore.com/item.php?item=766), The Dinosaur Store (http://www.dinosaurstore.com/COELOPHYSIS-REPLICAS.htm)</p>			
15.	DINO-EX-5	Coelophysis Dinosaur Replica Model	1		
		<p>Description: <i>Coelophysis</i> is an extinct genus of coelophysid theropod dinosaur tha t lived approximately 203 to 196 million years ago during the latter part of the Triassic Period in what</p>			



SCHEDULE-10

EXHIBIT DETAILED REPORT

is now the southwestern United States
Material: Steel Frame, Acrylic Paint, Talcum Powder, Resin, Fiberglass Fabric (the dinosaur's skin can be customized with special thick cloth)
Environment: Indoor Coelophysis Dinosaur Model With base nad artificial plants and rock to create similar scenario of Triassic Age. With Back pasted Dinosaur theme Triassic Vinyl on the Wall and an 55 inch LED display 2 min playback video of Dinosaurs of Triassic Era in loop.
Durability: temperature adaptability (-20° C to 40 ° C)
Size: 2-3m Long, 1.2-1.5 m High
Weight: 7.5 kg ~ 15 kg
Suggested Vendor or Equivalent: Dinosaurs World (<http://www.dinosaurs-world.com/Life-Size-animatronic-dinosaurs-Coelophysis-DWD006.html>), Dinoworld: (LX-BWL-002) (https://wholesaler.alibaba.com/product-detail/Museum-Exhibits-Coelophysis-Zigong-Animatronic-Dinosaur_60433047088.html) , Gengu Dino (SD-DINO-1207)



16.	FOSSIL-EX-6	Mid size T-Rex Fossil Skull Fossil and Claws Set	1	
		<p>Description: Handmade Realistic replica of T-Rex Skull (550mm X 550mm) with T-Rex Claw Set (2 claws/Nail 50mm embedded in Fossilised Base) Exhibit Size with Environment: Interior based Surface mounted Fossilised Exhibit. Exhibit Displayed on Illumintaed base stand at 900mm high from floor finish level. Durability: temperature adaptability (-20° C to 40 ° C) Bones Mode: Hollow Bones for Light Wight Weight: 5 kg ~ 10 kg Suggested Vendor or Equivalent: Gengu Dino http://www.gengutech.com/html/product/2016-8-11/1484.html), Ocean Art (OA6333) (https://wholesaler.alibaba.com/product-detail/OA6333-Exhibition-Dinosaur-Bone-Head-Fossil_60523876920.html?spm=a2700.7782932.1998701000.37.187bd15bhjkuh)</p>	1	

SCHEDULE-10

EXHIBIT DETAILED REPORT



17.	FOSSIL-EX-8	Pterodactyl Fossil			
		<p>Description: Handmade Realistic replica of Pterodactyl Fossil on Base (750mm X 1250mm) in Fossilised Base.</p> <p>Exhibit Size with Environment: Interior based Surface mounted Fossilised Exhibit. Exhibit Displayed on Illumintaed base stand at 900mm high from floor finish level.(To be Surface Mounted not suspended)</p> <p>Durability: temperature adaptability (-20° C to 40 ° C)</p> <p>Bones Mode: Hollow Bones for Light Wight</p> <p>Color: Light soil textured-sand finish</p> <p>Weight: 5 kg ~ 10 kg</p> <p>Suggested Vendor or Equivalent: Gendu Dino https://www.alibaba.com/product-detail/Science-museum-high-simulation-pterosaur-fossil_1806796569.html?spm=a2700.7724838.2017115.1.3c93b095gPrPp5&s=p , MY-DINO (SF-11) https://www.alibaba.com/product-detail/MY-Dino-SF-11-Flying-Dinosaur_60671650502.html?spm=a2700.7724838.2017115.15.3c93b095gPrPp5.</p>	1		

SCHEDULE-10

EXHIBIT DETAILED REPORT



18. DINO-EX-5

Allosaurus Interior Based Fibre Glass Model

Description: *Allosaurus* was among the earliest dinosaur discoveries, and fossils are plentiful, making it a darling of paleontologists, as well as amateur dinosaur observers.

This large theropod (bipedal, carnivorous dinosaur), which is Utah's state fossil, lived 155.7 million to 150.8 million years ago during the late Jurassic Period. *Allosaurus* is the most common dinosaur fossil found in Utah's Cleveland-Lloyd Quarry, a site containing the densest concentration of Jurassic dinosaur bones in the world.

Material: Steel Frame, Acrylic Paint, Talcum Powder, Resin, Fiberglass Fabric (the dinosaur's skin can be customized with special thick cloth)

Environment: Indoor *Allosaurus* Dinosaur Model With base and artificial plants and rock to create similar scenario of Jurassic Age. With Back pasted Dinosaur theme Triassic Vinyl on the Wall and an 55 inch LED display 2 min playback video of Dinosaurs of Jurassic Era in loop.

Durability: temperature adaptability (-20° C to 40 ° C)

Size: 2.5-3.5m Long, 1.5-2.2 m High

Weight: 7.5 kg ~ 15 kg

Suggested Vendor or Equivalent: Gengu Dino

(<http://www.gengutech.com/html/product/2016-8-9/1390.html>), Litu Dinosaurus

(https://www.alibaba.com/product-detail/Exhibition-Silicone-Rubber-Artificial-Dinosaur-Model_60142611088.html?spm=a2700.7724838.2017115.1.3c93b0951KvMYv&s=p), Cetnology-Iron Finger


1

SCHEDULE-10

EXHIBIT DETAILED REPORT

(https://www.alibaba.com/product-detail/life-size-dinosaur-robot-rubber-dinosaur_60493767905.html?spm=a2700.7724838.2017115.10.3c93b0951KvMYv&s=p)



19.	FOSSIL-EX-10	Velociraptor Skull Fossil	1		
		<p>Description: Handmade Realistic replica of Velociraptor Skull (550mm X 550mm) Exhibit Size with Environment: Interior based Surface mounted Fossilised Exhibit. Exhibit Displayed on Illuminated base stand at 900mm high from floor finish level. Color: Light soil textured-sand finish Durability: temperature adaptability (-20° C to 40 ° C) Bones Mode: Hollow Bones for Light Wight Weight: 5 kg ~ 10 kg Suggested Vendor or Equivalent: prehistoric Planet Store (http://www.prehistoricstore.com/item.php?item=48) , Dinosaur Corportaiion.com (http://www.dinosaurcorporation.com/veskdisc.html)</p> 			
20.	DINO-EX-9	Velociraptor Interior Based Fibre Glass Model			

SCHEDULE-10

EXHIBIT DETAILED REPORT

Description: Velociraptor is a genus of dromaeosaurid theropod dinosaur that lived approximately 75 to 71 million years ago during the later part of the Cretaceous Period. **Material:** Steel Frame, Acrylic Paint, Talcum Powder, Resin, Fiberglass Fabric (the dinosaur's skin can be customized with special thick cloth)

Environment: Indoor *Velociraptor* Dinosaur Model With base and artificial plants and rock to create similar scenario of Cretaceous Age. With Back pasted Dinosaur theme Triassic Vinyl on the Wall and a 55 inch LED display 2 min playback video of Dinosaurs of Jurassic Era in loop.

Color: greenish sap brown

Durability: temperature adaptability (-20° C to 40 ° C)

Size: 2.5-3.5m Long, 1.5-2.2 m High

Weight: 7.5 kg ~ 15 kg

Suggested Vendor or Equivalent: Gengu Dino (<http://www.gengutech.com/html/product/2016-8-9/1394.html>), **KANOSAUR** (https://wholesaler.alibaba.com/product-detail/KANO9085-Jurassic-Parties-Silicon-Rubber-Velociraptor_60509414901.html?spm=a2700.7782932.1998701000.40.187bd15bQUjqYP), Ocean Art (https://wholesaler.alibaba.com/product-detail/OAV3406-Amazing-Dinosaur-Costume-Velociraptor-for_60593865895.html?spm=a2700.7782932.1998701000.7.187bd15bQUjqYP)



BestGreenScreen/Shutterstock.com

ActiveWild.com

21.	4d Theatre Ex - 16	4d Theatre for 30 People Occupancy			
		<p>4D Theatre is an entertainment presentation system combining a 3D film with physical effects that occur in the theatre in synchronization with the film. Effects simulated in a 4D film may include rain, wind, strobe lights, and vibration. Seats in 4D venues may vibrate or move a few inches during the presentations. Other common chair effects include air jets, water sprays, and leg and back ticklers.</p> <p>Hall effects may include smoke, rain, lightning, air bubbles, and smell.</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT

4D films are most often presented in custom-built theatres at special.

Environment: 4d Theatre Hall for 30 people Capacity Inclusive of Interior Detailing of the Theatre, Acoustics, Projector and Screen, Seats and Built in Effects.

Movies/Videos: 10 Min playback 4d Simulated movie based on Dinosaurs and Survival System

Suggested Vendor or Equivalent: **3D/ 4D/ 6D/ 9D/ 10D/ 12D** Multidimensional Theater
<https://www.indiamart.com/proddetail/3d-4d-6d-9d-10d-12d-multidimensional-theater-8748611973.html>),
 4D Entertainment Theatre
<https://www.indiamart.com/proddetail/4d-entertainment-theatre-13051290155.html>), Cine Pride
 4d Cinema (<https://www.indiamart.com/devi-architects/entertainment-hospitality-services.html#cin-pride-4-screen-cinema>)

22. ANI-DINO-EX-14 **T-Rex Animatronic Indoor Figure**

Description: The species *Tyrannosaurus rex* is one of the well-represented of the large theropods. *Tyrannosaurus* lived throughout what is now western North America, on what was then an island continent known as Laramidia. *Tyrannosaurus* had a much wider range than other tyrannosaurids.

Material: Steel Frame, Acrylic Paint, Talcum Powder, Resin, Fiberglass Fabric, Foam, Motor, Rubber, Electric parts.

Color: Light greyish-sap brown

Size: 4-5m Long, 2.5 -3m High

Weight: 15 kg ~ 25kg

Normal Movements:

- 1.Mouth open and close with synchronized sound
- 2.Head moving left to right
- 3.Eyes blink
- 4.Foreleg moving
- 5.Tail swaying

Customized Movements:

- 6.Neck up down
- 7.Body moving up and down
- 8.Breathing

Sounds: 1. Vivid Roaring and Breathing. 2.Custom other sound.

Power: 110/220vac 50/60hz .

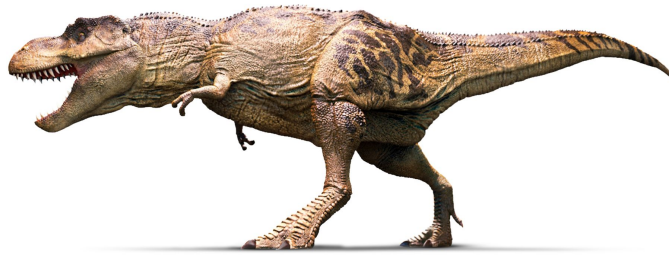
Accessories:

- 1.Control Box
- 2.Sensor Infrared Control/Remote Control

SCHEDULE-10

EXHIBIT DETAILED REPORT

3.Metal Base
 4.Repair Box(Repair Parts)
 5.Artificial Stone(Cover Control Box and Speaker)
Environment: Environment design to be pre-historic Base with Artificial Trees and Rocky Base.
Suggested Vendor or Equivalent: KANOSAUR (KANO9118), Ocean Art (OAV1037), **Zingong Gengu Dino Co. Ltd.** (GG-1244)
<http://www.gengutech.com/html/product/2016-8-8/1244.html>



23.	DINOSAUR EGGS-EX-13	Fiberglass Dinosaur Eggs with Babies Set of 5	1	
		<p>Description: Baby dinosaurs coming out from an egg Material: Steel Frame, Acrylic Paint, Talcum Powder, Resin, Fiberglass Fabric, Foam, Motor, Rubber, Electric parts. Exhibit Size with Environment: Environment design to be pre-historic Base with Artificial Trees and Rocky Base. Movements: Normal movements 1.Mouth open and close with synchronized sound 2.Eyes blink 3.Head moving left to right 4.Neck moving up and down 5.Bodymoving from up to down 6.Abdominal breathing 7.Tail swaying Size: 2 M X 2.5 Size Weight: 4-5 kg Suggested Vendor or Equivalent: Lituo Dinosaurs (https://www.alibaba.com/product-detail/Animatronic-Dinosaur-Egg-of-Growing-Dinosaur_60043844368.html?spm=a2700.7724838.2017115.1.3c93b0953JkF94&s=p) Gengu Dino, Dino Walk (https://www.alibaba.com/product-detail/Dino0004-Museum-Artificial-Growing-Dinosaur-Eggs_1935553811.html?spm=a2700.7724838.2017115.85.3c93b0953JkF94)</p>		

SCHEDULE-10

EXHIBIT DETAILED REPORT



24. FLY-DINO-EX-15

Flying Dinosaur Animatronic

Description: Ceiling Suspended Animatronic Flying Dinosaur (Pterosaur/Pterodactyl) with moving flaps
Material: Steel Frame, Acrylic Paint, Talcum Powder, Resin, Fiberglass Fabric, Foam, Motor, Rubber, Electric parts.

Exhibit Size with Environment: Environment design to be pre-historic Base with Artificial Trees and Rocky Base.

Size: 4 Eggs with baby Dinosaur Coming out, 1.2 M high

Weight: 4-5 kg

Suggested Vendor or Equivalent: Ocean Art.(
https://www.alibaba.com/product-detail/OAD6406-Robotic-Life-Size-Fly-Dinosaur_60685867599.html?spm=a2700.7724838.2017115.46.3c93b0953JkF94) , **Gengu Dino**
https://www.alibaba.com/product-detail/Pterosaur-Dinosaur-Model-Robot-Flying-Dinosaur_60678976559.html?spm=a2700.7724838.2017115.37.3c93b0953JkF94&s=p)



25. Excavation and Dinosaur Construction Ex -12

Dinosaur Digging Site (Indoor Children Play Simulation with Base) along with 2-5 m long Dinosaur Constructive Puzzle to be played outside on occasional Basis

1

SCHEDULE-10

EXHIBIT DETAILED REPORT

Exhibit Size with Environment: Children’s Play Digging Site for excavation (9000mm X3000mm base). Fossilised Bones fixed to the Base with Movable sand and Artificial Soft Foam rock cuts to give an impression of excavation site, and excavation site brushes to be provided to uncover the fossilised bones and clean them.

Durability: temperature adaptability (-20° C to 40 ° C)

Bones Mode: Hollow Bones for Light Wight

Weight: 5 kg ~ 10 kg

Suggested Vendor or Equivalent: Cetnology (CET-N-185) https://www.alibaba.com/product-detail/CET-N-185-Cetnology-Educational-Theme_60497315756.html?spm=a2700.7724838.2017115.109.3c93b0953JkF94, Gengu Dino (<http://www.gengutech.com/html/product/2017-6-30/1867.html>), Kanosaur (http://www.kanosaur.com/PRODUCTS/Dinosaur_Skeleton/36.html)

Dinosaur Constructive Puzzle (Build A dinosaur-Assembly simulation)

Exhibit Size with Environment: Dinosaur Bones with Joinery pegs and medium level complexity to be collected and built from scratch in a group of 10-15 using Strings and Guidance manual to be provided, this exercise can be conducted in the indoor as well as outdoor environment for a duration of 1 and half hour.

Dinosaur Built Size to be 2-3m long and 1.5 m high.

Bones Mode: Hollow Bones for Light Wight

Weight: 5 kg ~ 10 kg

Suggested Vendor or Equivalent: Lisaurus (Lisaurus-L431) https://www.alibaba.com/product-detail/Lisaurus-L431-How-to-build-the_60586851507.html?spm=a2700.7724838.2017115.1.3c93b095yMIGNq,



26.

DINO-EX-14

Artificial Hatching Dinosaur Eggs for Photography

SCHEDULE-10

EXHIBIT DETAILED REPORT

Studio for Kids and Dinosaur Ride



Description: Artificial dinosaur eggs, a set of 2 eggs one with hatching dinosaur coming out and other empty for Kids photography.
Material: Steel Frame, Acrylic Paint, Talcum Powder, Resin, Fiberglass Fabric
Exhibit Size with Environment: Play Environment with Artificial Dinosaur Nest Base.
Size: 1.2 -1.8m h
Weight: 3-5Kg
Suggested Vendor or Equivalent: Ocean Art (OA-DE-160506D02) https://www.alibaba.com/product-detail/High-Quality-Cheap-Fiberglass-Dinosaur-Eggs_60019014125.html?spm=a2700.7724838.2017115.9.3c93b095oKAgCv&s=p, KAWAH (JHAA-DE003) https://www.alibaba.com/product-detail/KAWAH-Dinosaur-Park-Attractive-Lifelike-Realistic_60558693293.html?spm=a2700.7724838.2017115.36.3c93b095oKAgCv&s=p, Dino City(LCKL20170131) https://www.alibaba.com/product-detail/Dinosaur-Park-Lifelike-Fiberglass-Hatching-Dinosaur_60682998773.html?spm=a2700.7724838.2017115.223.3c93b095oKAgCv,

Dinosaur Ride,
Description: Coin Operated Dinosaur Scooter for Kids with Limited Movement and amusement ride. Indoor Based Dinosaur Scooter with realistic mobile facility.
Size: 1.2 -1.8m h
Weight: 25-30Kg
Suggested Vendor or Equivalent: My-dino (DR-018) (https://www.alibaba.com/product-detail/My-dino-Simulation-Animated-Dinosaur-Amusement_60197421364.html?spm=a2700.7724838.2017115.56.3c93b095oKAgCv), KANOSAUR (KANOSAUR0360), https://www.alibaba.com/product-detail/KANOSAUR0360-Coin-Operated-Animatronic-Walking-Dinosaur_60623843553.html?spm=a2700.7724838.2017115.66.3c93b095oKAgCv,



1

27 VR-SIMULATION EX 11

VR Simulation For Dinosaur Survival game

Description: This VR headset will give the visitor an experience of an adventure trip in a jungle full of dinosaurs and Survival from the Carnivorous Dinosaurs.
Exhibit Size with Environment: space for the visitor to move around.
Accessories: Samsung gear VR headset powered by

3


SCHEDULE-10

EXHIBIT DETAILED REPORT

		Oculus technology. Process: Visitors will wear the headset and experience the Jurassic world safari Suggested Vendor or Equivalent: Samsung gear VR, Occulos rift, Microsoft holo			
28		4k Projection system with Screen with speakers (4 nos)			
		Description: 4K Projector system with Surround Sound to display the feature short movies about dinosaurs when the visitors enter the gallery. Exhibit Size with Environment: 8m, 3.6m Screen where the 5 Min feature About Dinosaurs to be Provide. Movie 1: Entrance to the Gallery, The Movie about rise and advent of Dinosaurs on Earth, the earlier off springs and their evolution and the period of ruling on Earth. Movie Duration: 3-5 Min Language: Hindi, Gujarati and English Movie 2: Extinction of Dinosaurs: The Movie about extinction of Dinosaurs from earth due to the comet impact and other reasons and further development od dinosaurs into birds of today. Movie Duration: 3-5 Min Language: Hindi, Gujarati and English Suggested Vendor or Equivalent: Epson, Sony Display type: LED Speakers: 5.1 Multi-media Sound bar Speakers – 4 Nos Soundbar has a 2.0 channel output which offers you one of the best sound qualities in its range. With 3W output power. Suggested Vendor: JBL, Creative or F & D	2		
29		LED 55 Monitors Playing 2-3 Min Video loop Playback for Each Dinosaur Era	3		
		Description: LED Monitors placed on each of the Dinosaur Age would Display a 2-3 Min video Loop of Dinosaurs corresponding to their Era, their Likeness, Habits and Features. Display: LED No Audio Involved: Video loop of 2-3 Min Suggested Vendor or Equivalent: Lg, Sony, Samsung Display type: LED			
	HUMAN SCIENCE GALLERY				
30.		Tissue Slide-EX-1			

SCHEDULE-10

EXHIBIT DETAILED REPORT

	<p>Description: To be Fabricated Dummy Microscope Mechanism to see cell structure. Working: Fabricated which enables to see different cells and tissue forms when different slides mark ups are put below it. Each Slide will consist of Unique Bar coding which when Placed under Microscope Mechanism will show different cells of human body and will give an impression that we are looking into a real slide. Material: High quality PVC with for Framework and 720P Resolution Monitor Below Matte Finish covered with fake base. Cells on Slide type: Blood Cell, Muscle Cell, Skin Cell, nerve Cell, etc. Exhibit Size: (1000mmX1000mm) Surface Mounted Dummy Microscope Mechanism. Suggested Vendor or Equivalent: Dream Design Display, Asian Replicas, GRC India</p>	4		
31.	Foetus Growth-EX-2			
	<p>Description: 3d Model of foetus Cell to Full Grown Baby transformation. Enlarged 3d models of Foetus Cells and Life Size Foetus Growth after 3rd Month. Set of 12 Embryonic Cell-to grown 3d Models. Color and texture: High Quality PVC with Gelatinous material to give an impact of Foetus Development. Exhibit: Embryonic Cell to 4th Week Cellular development phase at 10X Zoomed others at 2X Life size. Exhibit Size: (3500mmX3000mm base) Set of 8-12 Pieces of Cell and Embryonic Develop. Realistic 3d Model. Suggested Vendor or Equivalent: Dream Design Display, Asian Replicas, GRC India</p> 	1 Set		
32.	Skeleton-EX-3	1		
	Description: High quality 180 cm Flexible Human			

SCHEDULE-10

EXHIBIT DETAILED REPORT

Skeleton Model with bone mark-ups. Torso and Legs can be un joined to Display Human Skeleton in Detail. Separate Models of Human Arm and Foot to be kept with foldable mechanism to show the working of arm and leg bones. Cartilages are to pre-painted on them.
Exhibit Size: (Normal Human Body Ration Skeleton) Realistic 3d Model.
Material: Highly Detailed Rubber Finish on PVC
Suggested Vendor or Equivalent: The bone room, Bones clones .inc, GRC India

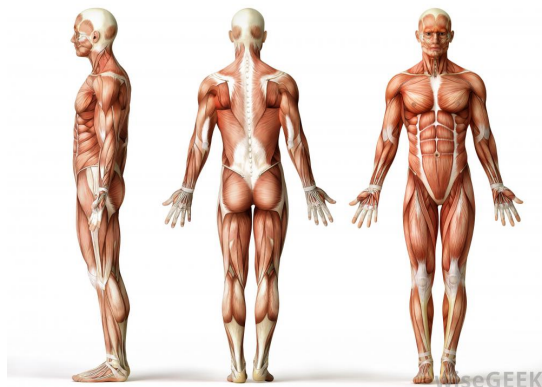


33

Body-EX-4

1

Description: 78cm Human Full Body and Muscles Model, Anatomical Muscles of Male Human. The Model must show different muscles of Human Body with high detailing on red and white muscle fibres.
Exhibit Size: (Normal Human Body Ratio Skeleton) Realistic 3d Model.
Material: Highly Detailed Rubber Finish on PVC
Suggested Vendor or Equivalent: Naugra Export, Universe Surgical, Sanjeev Technocrat, Electrotech Medi Systems,Defensible.co.uk,ballisticdummy.com, artmoulds.com



34

Arm-EX-5

1

Description: Transverse Cut main arm model with different muscle fibres intact and blood vessels shown. The Model must show different muscles of Human Arm with high detailing on red and white muscle fibres. **Exhibit Size:** (650mm-800mm Human Arm) Realistic 3d Model.

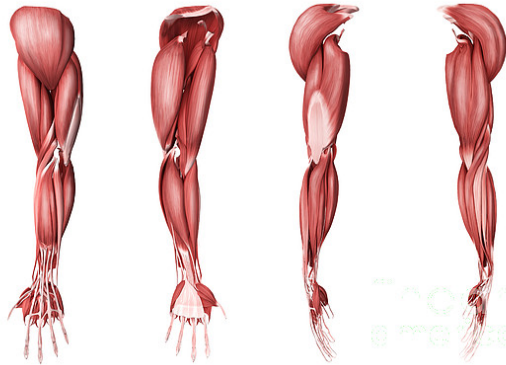
SCHEDULE-10

EXHIBIT DETAILED REPORT

Material: Highly Detailed Rubber Finish on PVC

Suggested Vendor or Equivalent:

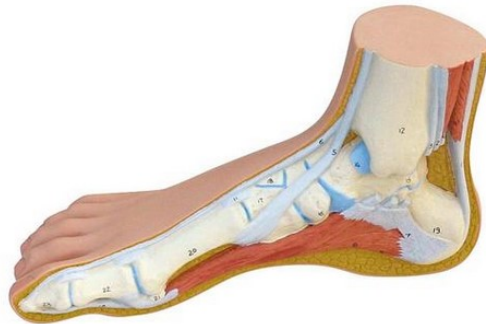
Naugra Export, Universe Surgical, Sanjeev Technocrat,
Electrotech Medi
Systems,Defensible.co.uk,ballisticdummy.com,
artmoulds.com



35		Fist-EX-6	1		
		<p>Description: Transverse Cut Flexible Fist Musculature model with different muscle fibres intact and blood vessels shown. The Model must show different muscles of Human Fist with high detailing on red and white muscle fibres. Exhibit Size: (15mm-20mm Human Fist) Realistic 3d Model.</p> <p>Material: Highly Detailed Rubber Finish on PVC</p> <p>Suggested Vendor or Equivalent: Naugra Export, Universe Surgical, Sanjeev Technocrat, Electrotech Medi Systems,Defensible.co.uk,ballisticdummy.com, artmoulds.com</p>			
36		Foot-EX-7	1		
		<p>Description: Transverse Cut Flexible foot model with different muscle fibres intact and blood vessels shown. The Model must show different muscles of Human foot with high detailing on red and white muscle fibres. Exhibit Size: (25mm-30mm Human foot) Realistic 3d Model.</p> <p>Material: Highly Detailed Rubber Finish on PVC</p> <p>Suggested Vendor or Equivalent: Naugra Export, Universe Surgical, Sanjeev Technocrat, Electrotech Medi Systems,Defensible.co.uk,ballisticdummy.com, artmoulds.com</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT



37

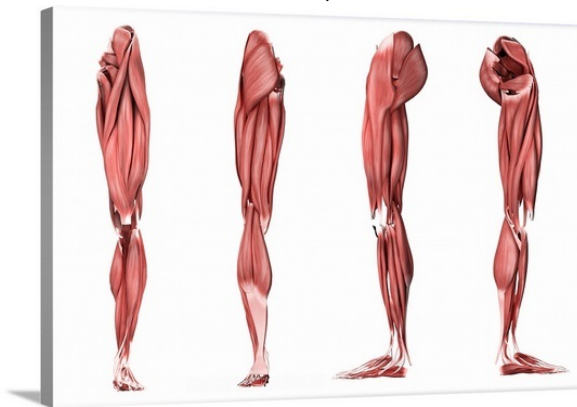
Leg-EX-8

1

Description: Transverse Cut main Flexible model with different muscle fibres intact and blood vessels shown. The Model must show different muscles of Human Arm with high detailing on red and white muscle fibres. **Exhibit Size:** (750mm-100mm Human Arm) Realistic 3d Model.

Suggested Vendor or Equivalent:

Naugra Export, Universe Surgical, Sanjeev Technocrat, Electrotech Medi Systems, Defensible.co.uk, ballisticdummy.com, artmoulds.com
https://www.alibaba.com/product-detail/3d-chart-anatomy-chart-The-Lymphatic_60219277912.html?spm=a2700.7724838.2017115.1.3c93b0959Z109o,



38

Lymph-EX-9

Description: Human Circulatory Sytem display Model with all blood vessles, arteries and veins marked and heart marked up with arrows to show blood movement and Human Electric of Blood Circulation Model, Human Blood Circulatory System Silmulator That Shows the Working of Heart and Pumping of Blood throughout the Body.

1 Set

SCHEDULE-10

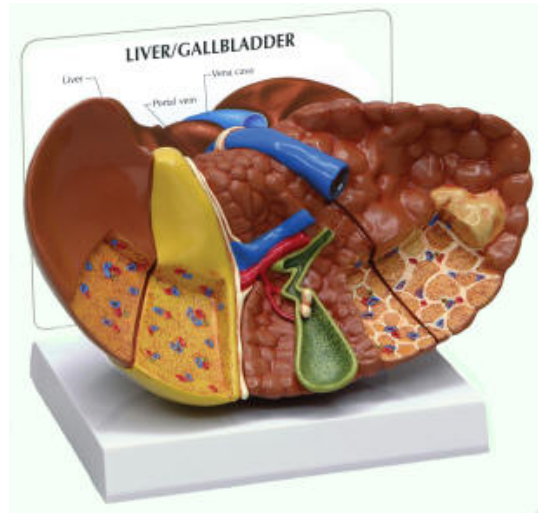
EXHIBIT DETAILED REPORT

Exhibit Size for Human Body Circulatory system 3d:
180cm Human Size model
Circulatory System Simulator Features:
1. Simulate cardiac cycle, greater and lesser circulations.
2. Dimensions: 51 × 23 × 86cm

Suggested Vendor or Equivalent: Shanghai Chinon Medical Model & Equipment Manufacturing Co., Ltd.
https://wholesaler.alibaba.com/product-detail/Electric-human-cardiac-cycle-and-big_60199995203.html
Naugra Export, Universe Surgical, Sanjeev Technocrat, Electrotech Medi Systems
https://www.alibaba.com/product-detail/Advanced-Medical-Teaching-Lymphatic-System-Anatomical_60557060698.html?spm=a2700.7724838.2017115.12.3c93b0959Z109o

39	Gall-EX-10	1		
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Description: Human anatomical and Gall Bladder Model with Transverse Cross Section and Details Marked Up.
Material: Highly Detailed Rubber Finish on PVC
Exhibit Size: Human Life Size Organ
Suggested Vendor or Equivalent:
Naugra Export, Universe Surgical, Sanjeev Technocrat, Electrotech Medi Systems, Defensible.co.uk, ballisticdummy.com, artmoulds.com



40	Liver-EX-11	1		
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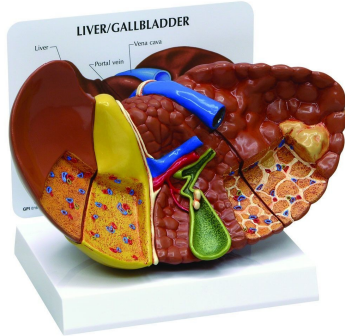
Description: Human anatomical Liver Model with Transverse Cross Section and Details Marked Up.
Material: Highly Detailed Rubber Finish on PVC
Exhibit Size: Human Life Size Organ

SCHEDULE-10

EXHIBIT DETAILED REPORT

Suggested Vendor or Equivalent:

Naugra Export, Universe Surgical, Sanjeev Technocrat, Electrotech
MediSystems,Defensible.co.uk,ballisticdummy.com, artmoulds.com



41

Lung-EX-12

1

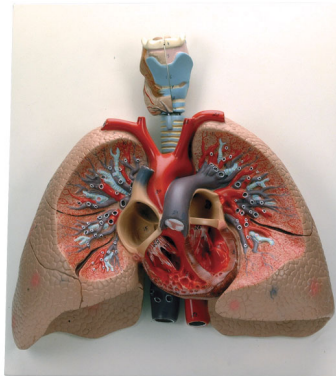
Description: Human anatomical Lungs Model with Transverse Cross Section and Details Marked Up.

Material: Highly Detailed Rubber Finish on PVC

Exhibit Size: Human Life Size Organ

Suggested Vendor or Equivalent:

Naugra Export, Universe Surgical, Sanjeev Technocrat, Electrotech Medi
Systems,Defensible.co.uk,ballisticdummy.com, artmoulds.com



42

Heart-EX-13

1

Description: Human anatomical Heart Model with Transverse Cross Section and Details Marked Up.

Exhibit Size: Human Life Size Organ

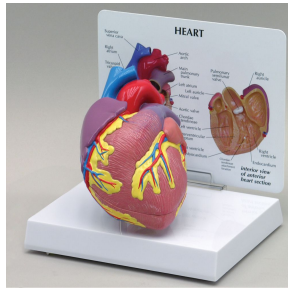
Material: Highly Detailed Rubber Finish on PVC

Suggested Vendor or Equivalent:

Naugra Export, Universe Surgical, Sanjeev Technocrat, Electrotech Medi
Systems,Defensible.co.uk,ballisticdummy.com, artmoulds.com

SCHEDULE-10

EXHIBIT DETAILED REPORT



43	DIG-EX-14	1		
	<p>Description: This model shows alimentary canal from mouth to rectum in median section and includes buccal cavity, pharynx , esophagus with half of the stomach , the opened duodenum, small and large intestine, the opened appendix , the unfolded rectum, the transverse colon, liver and pancreas and it displays around 49 positions Exhibit Size: Human Life Size Organ</p> <p>Suggested Vendor or Equivalent: Naugra Export, Universe Surgical, Sanjeev Technocrat, Electrotech Medi Systems,Defensible.co.uk,ballisticdummy.com, artmoulds.com</p>			
44	DIG-EX-15	11		
	<p>Description: Enlarged Cross Section of Esophagus and half of the stomach. Material: Highly Detailed Rubber Finish on PVC Exhibit Size: Human Life Size Organ Suggested Vendor or Equivalent: Naugra Export, Universe Surgical, Sanjeev Technocrat, Electrotech Medi Systems,Defensible.co.uk,ballisticdummy.com, artmoulds.com</p>			
45	DIG-EX-16	1		
	<p>Description: Enlarged Cross Section of Upper Duodenum and large and small intestines intact. Material: Highly Detailed Rubber Finish on PVC Exhibit Size: Human Life Size Organ Suggested Vendor or Equivalent: Naugra Export, Universe Surgical, Sanjeev Technocrat, Electrotech Medi Systems,Defensible.co.uk,ballisticdummy.com, artmoulds.com</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT



46	DIG-EX-17	1		
	<p>Description: Human Digestive System Simulator. That Shows the Working of Human digestive system starting from mouth till rectum. The Process of Human Digestive System to be marked Through Movement of Led Light Through Various parts of Digestive system showing how it works.</p> <p>Digestive System Simulator Features:</p> <ol style="list-style-type: none"> 1. Simulate cardiac cycle, greater and lesser circulations. 2. Dimensions: 51 × 23 × 86cm <p>Suggested Vendor or Equivalent: Naugra Export, Universe Surgical, Sanjeev Technocrat, Electrotech Medi Systems, Defensible.co.uk, ballisticdummy.com, artmoulds.com</p>			
47	EXC-EX-18	1		
	<p>Description: Various details shown include :-Kidney, Pelvis of Ureter, Renal Artery, Renal Vein, Calyx, Cortex, Ureter, Urinary Bladder, Trigone, Urethra. Numbered with english key card. Mounted on a wooden board.</p> <p>Exhibit Size: Human Life Size Organ</p> <p>Material: Highly Detailed Rubber Finish on Fibre Glass or synthetic polymer.</p> <p>Suggested Vendor or Equivalent: Naugra Export, Universe Surgical, Sanjeev Technocrat, Electrotech Medi Systems, Defensible.co.uk, ballisticdummy.com, artmoulds.com</p>			
48	EXC-EX-19	1		
	<p>Description: Set of Kidney Cross Section and Kidney Microstructure Model. Model Showing Fine Details of</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT

Kidney and Bowman’s Capsule and the Microstructure show the Kidney Lining details. Set of 2-3

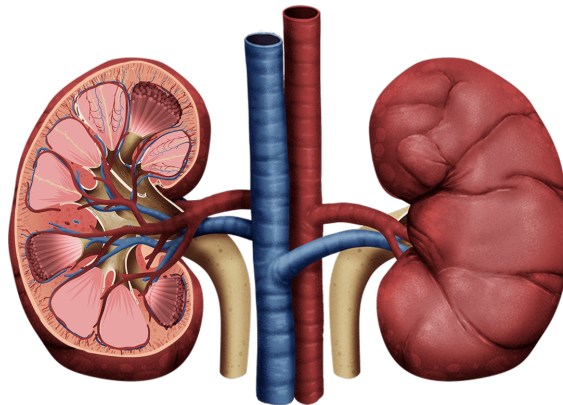
Material: Highly Detailed Rubber Finish on Fibre Glass or synthetic polymer.

Exhibit Size: (250mm X 250mm one transverse Section)

Suggested Vendor or Equivalent:

Naugra Export, Universe Surgical, Sanjeev Technocrat, Electrotech Medi

Systems,Defensible.co.uk,ballisticdummy.com, artmoulds.com



49

REP-EX-20

1

Description: Male Reproductive System Unit/Cross

Section: Various details shown include:-

Pubic Bone, Urethra, Testis, Scrotum, Epididymis, Ureter, Urinary Bladder Spermatic Duct (Vas Deferens), Prostat Gland & Erectile Muscles. Highly detailed 3d Model.

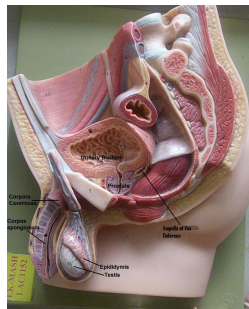
Material: Highly Detailed Rubber Finish on Fibre Glass or synthetic polymer.

Exhibit Size: Human Life Size Organ

Suggested Vendor or Equivalent:

Naugra Export, Universe Surgical, Sanjeev Technocrat, Electrotech Medi

Systems,Defensible.co.uk,ballisticdummy.com, artmoulds.com



50

REP-EX-21

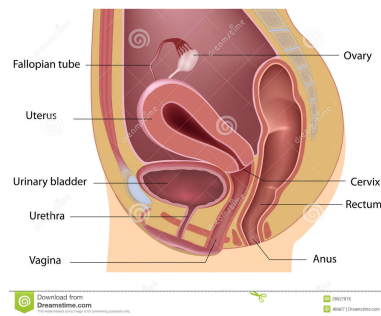
1

Description: Female Reproductive System Unit/cross

SCHEDULE-10

EXHIBIT DETAILED REPORT

section: Various details shown include:- Ureter, Pyramid, Major Calyx, Cortical Substance, Minor Calyx, Artery and Vein, Pelvis & Papilla Highly Detailed 3 d model.
Material: Highly Detailed Rubber Finish on Fibre Glass or synthetic polymer.
Exhibit Size: Human Life Size Organ
Suggested Vendor or Equivalent:
 Naugra Export, Universe Surgical, Sanjeev Technocrat, Electrotech Medi Systems, Defensible.co.uk, ballisticdummy.com, artmoulds.com



51		REP-EX-22	1		
		<p>Description: Embryo Cross Section along with Human Female Pelvis Section: Various details shown include:- 6 Month Developed Embryo with High Detail and Markups in English. Material: Highly Detailed Rubber Finish on Fibre Glass or synthetic polymer. Exhibit Size: Human Life Size Organ Suggested Vendor or Equivalent: Naugra Export, Universe Surgical, Sanjeev Technocrat, Electrotech Medi Systems, Defensible.co.uk, ballisticdummy.com, artmoulds.com.</p>			
52		NER-EX-23	1		
		<p>Description: Human Nervous System with relay of nerves 3d Model. Various details shown include:- Showing brain and details of spinal cord and the nerves in their natural position in the body. Further shows the structure of central nerves, peripheral nerves, including spinal nerves radiated from central system to other parts of body (such as ulnar nerve, radial nerves of branchial plexus, median nerve, ischiadic nerve). Shows 33 positions. Material: Highly Detailed Rubber Finish on Fibre Glass or synthetic polymer.</p>			

SCHEDULE-10

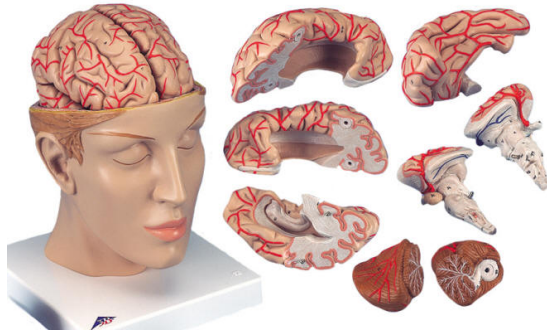
EXHIBIT DETAILED REPORT

		<p>Exhibit Size: Human Life Size Organ Suggested Vendor or Equivalent: Naugra Export, Universe Surgical, Sanjeev Technocrat, Electrotech Medi Systems, Defensible.co.uk, ballisticdummy.com, artmoulds.com</p>			
53		<p>NER-EX-24</p>	1		
		<p>Description: Autonomic Nervous System Model. Various details shown include:- automatic nervous system, including sympathetic nervous system and parasympathetic nervous system. The sympathetic one show in yellow color and parasympathetic one in red and it displays around 53 positions. Led Lights to be provided to show the Nerve Impulse from Brain to different parts of the body according to the action/reaction. Nerve Impulses to be shown through Led lights. Material: Highly Detailed Rubber Finish on Fibre Glass or synthetic polymer. Exhibit Size: Human Life Size Organ Suggested Vendor or Equivalent: Naugra Export, Universe Surgical, Sanjeev Technocrat, Electrotech Medi. Systems, Defensible.co.uk, ballisticdummy.com, artmoulds.com</p>			
54		<p>NER-EX-25</p>	11		
		<p>Description: Human electronic autonomic nervous system Model. It shows the functions of the autonomic nervous system and vegetative nerve , and how it works for human body through Switches and peg and shows function of brain for different parts of the human body and according to the reflex action. Nervous System Simulator Features: 1. Simulate nerve cycle, greater and lesser electric impulses. 2. Dimensions: 51 × 23 × 86cm Suggested Vendor or Equivalent: Shanghai Chinon Medical Model & Equipment Manufacturing Co., Ltd.</p>			
55		<p>NER-EX-26</p>	1		
		<p>Description: Human Brain with Removable parts and dissection. Detailed Parts: Life-sized and highly detailed, this model of the human brain is sagittal sectioned; both halves can be separated into frontal with parental lobes, temporal with occipital lobes, half</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT

of the brain stem, and half of the cerebellum.
Material: Highly Detailed Rubber Finish on Fibre Glass or synthetic polymer.
Exhibit Size: Human Life Size Organ
Suggested Vendor or Equivalent: Naugra Export, Universe Surgical, Sanjeev Technocrat, Electrotech Medi Systems,Defensible.co.uk,ballisticdummy.com, artmoulds.com



56		NER-EX-27	1		
		<p>Description: Enlarged Dendron Nerve Cell and Cross of Central Nervous system Module: Medulla Oblongata and Central nerve System through Spinal Cord. (Visceral nervous system). Detailed Cross Section with Markups.</p> <p>Material: Highly Detailed Rubber Finish on Fibre Glass or synthetic polymer. Exhibit Size: Human Life Size Organ Suggested Vendor or Equivalent: Naugra Export, Universe Surgical, Sanjeev Technocrat, Electrotech Medi Systems,Defensible.co.uk,ballisticdummy.com, artmoulds.com</p>			
57		NER-EX-28	1		
		<p>Description: Miniature Working Electro Encephalograph Module with Head band and Service printer that denotes brain signals and prints on paper. It is a neurological test that uses an electronic monitoring device to measure and record electrical activity in the brain. How it works: An EEG(Electroencephalogram)records the electrical activity of the brain. Highly sensitive and accurate computerized digital monitoring systems record the activity through an array of electrodes placed at measured intervals on the patient's scalp. Suggested Vendor or Equivalent:</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT

		Naugra Export, Universe Surgical, Sanjeev Technocrat, Electrotech Medi Systems,Defensible.co.uk,ballisticdummy.com, artmoulds.com			
58		GEN-EX-29	1		
		<p>Description: An Articulated Model to show the double helix of DNA structure. Includes 15 base pairs to show one and half helix. All components are identified by different colors. The connections between the base pairs are also clearly shown. Mounted on base.</p> <p>Working: Emphasizing the base pair sequence and function of DNA, the sturdy, colorful bases snap together in the correct sequence, and the pairs attach to a center rod representing hydrogen bonds. Two flexible strands signifying alternating pentose and phosphate units attach to the end of each pair, forming the double helix. Once completed the, the model can be rotated on its sturdy base. Includes enough materials to construct one models, a printed instruction manual would be provide.</p> <p>Material: Highly Detailed Rubber Finish on Fibre Glass or synthetic polymer.</p> <p>Exhibit Size: 2.2 M high Mounted on Base Double Helix Model</p> <p>Suggested Vendor or Equivalent: Naugra Export, Universe Surgical, Sanjeev Technocrat, Electrotech Medi Systems,Defensible.co.uk,ballisticdummy.com, artmoulds.com</p>			
59		GEN-EX-30	1		
		<p>Description: Model of DNA. Model showing segment of D.N.A. molecule mechanism of replication, to show the double helix coiling and reforming, nucleotides and the structural formula to show the show the molecule shapes and bond and angles distorted. Complete model arranged on a board.</p> <p>Material: PVC material withy pegs and instruction manual for joining of DNA bonds</p> <p>Exhibit Size: 1500mm X1500mm Board</p> <p>Suggested Vendor or Equivalent: Naugra Export, Universe Surgical, Sanjeev Technocrat, Electrotech Medi Systems,Defensible.co.uk,ballisticdummy.com, artmoulds.com</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT

60	GEN-EX-31	<p>Description: Model of DNA. (Ribonucleic acid) Model showing R.N.A. molecule D.N.A. Template molecule of chromosome, role of messenger and transfer R.N.A. colour key and structural formula. Material: PVC material withy pegs and instruction manual for joining of RNA bonds</p> <p>Material: PVC material withy pegs and instruction manual for joining of DNA bonds</p> <p>Exhibit Size: 1500mm X1500mm Board</p> <p>Suggested Vendor or Equivalent: Naugra Export, Universe Surgical, Sanjeev Technocrat, Electrotech Medi Systems,Defensible.co.uk,ballisticdummy.com, artmoulds.com</p>	1		
61	GEN-EX-32-35	<p>Description: Introduction Genetics, DNA and Rna Sequencing, Genetic Code and Human behavioural Characteristics through Video Play Kiosks.</p> <p>Exhibit Size: (750mmX750mm) Surface Mounted Dummy Kiosk Mechanism with video Playback and Push Button to learn Various Interesting topics and genetics and Human Genome theory and Evolution of Man.</p> <p>Suggested Vendor or Equivalent: Naugra Export, Universe Surgical, Sanjeev Technocrat, Electrotech Medi Systems,Defensible.co.uk,ballisticdummy.com, artmoulds.com</p>	4		
62	EVO-EX-36	<p>Description: Display of Cranio-facial samples of Man, showing the evolution. Skull Samples of: Australopithecus aphaeresis Skull, Zinjanthropus OH-5 Skull, Aegyptopithecus Skull, Half Scale Primate, Hominid and Ape Skulls Set of Nine to fifteen.</p> <p>Museum Quality Skull Length: 11.5 cm (4.5)</p> <p>Skull Samples: set of 10-15</p> <p>Suggested Vendor or Equivalent: The bone room, Bone clone.inc</p>	Set of 15		
63	EVO-EX-37		Set of 8 Mo		

SCHEDULE-10

EXHIBIT DETAILED REPORT

			dels		
		<p>Description: Central Exhibit Model. Showing darwin's Theory of Evolution and How Man came from Apes. So exhibit of 8 Human Life Size Models Starting from Apes, Australopithecus Afarensis, Australopithecus Africanus, Homo Habilis, Homo Erectus, Homo Heidelbergensis, Homo Neanderthalensis and ATlast Homo Sapiens.</p> <p>Exhibit Height: 1.2 -1.8 M, 8 Models, Highly Detailed and Markups provided mounded on a Stone Base .</p> <p>Exhibit Environment: Central Exhibit Space with subject lighting on models showing their features and human evolution tree.</p> <p>Suggested Vendor or Equivalent: The bone room, Bone clone.inc,3d theming.com, asianreplicas .com</p>	Set of 8- Models		
64		AR-EX-38	5		
		<p>Description: This AR headset will give the visitor an experience of Human body and their different organ system and their functions.</p> <p>Exhibit Size with Environment: space for the visitor to move around.</p> <p>Accessories: Holo Lens with Human Body Holographic System demonstrating the working of Human body. Samsung gear VR headset powered by Oculus technology.</p> <p>Process: Visitors will wear the headset and experience the Human bodily Functions and their working in a real life interactive interface.</p> <p>Suggested Vendor or Equivalent: Samsung gear VR, Oculus rift, Microsoft holo.</p>			
65		GAME-EX-39	3		
		<p>Description: Puzzle game of 3d Anatomical Human Body parts with numbering system and assemble the human body with all the organs intact to make a full functional human body in a given time frame.</p> <p>Material: High Quality PVC with groove joint for body part jonery.</p> <p>Exhibit Vendor: Wuxi YanYang International Trading Co., Ltd. https://wholesaler.alibaba.com/product-detail/human-torso-model-anatomical-human-body_60664503965.html?spm=a2700.7782932.0.0.187bd15bOWMa5E https://wholesaler.alibaba.com/product-detail/Vivid-Organs-Digestive-System-Human-Torso_60664730327.html?spm=a2700.wholesale.maylikever.11.49e9a73aUVVv bv</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT

66	<p>4k Projection system with Screen with Speakers (4 nos)</p> <p>Description: 4K Projector system with Surround Sound to display the feature short movie of 3-5min length of Origin of Life on Earth.</p> <p>Exhibit Size with Environment: 8m, 3.6m Screen where the 5 Min feature Creation of Life on Earth and first cell organism formed due to chemical reactions of hydrocarbons and electric discharge. Further development of Microscopic organism to full grown species.</p> <p>Movie: Entrance to the Gallery, The Movie about Origin of Life on earth, how first single celled organisms created and their evolution to multi cell organism.</p> <p>Movie Duration: 3-5 Min</p> <p>Language: Hindi, Gujarati and English</p> <p>Suggested Vendor or Equivalent: Epson, Sony</p> <p>Display type: LED</p> <p>Speakers: 5.1 Multi-media Sound bar Speakers – 4 Nos Soundbar has a 2.0 channel output which offers you one of the best sound qualities in its range. With 3W output power.</p> <p>Suggested Vendor: JBL, Creative or F & D</p>	1		
67	<p>LED 55 Monitors Playing 2-3 Min Video loop Playback for Evolution of Man and Genetics</p> <p>Description: 4-LED Monitors placed on Genetics gallery telling about fundamental of genetics and would Display a 2-3 Min video Loop of Genetics. 4-LED Monitors placed on Evolution gallery telling about fundamental of genetics and would Display a 2-3 Min video Loop of Human Evolution.</p> <p>Display: LED</p> <p>No Audio Involved: Video loop of 2-3 Min</p> <p>Suggested Vendor or Equivalent: Lg, Sony, Samsung</p> <p>Display type: LED</p>	8		
68	<p>LED 32 Inch Interactive Kiosk having information related various Sub galleries. 2-3 Kiosks in each sub gallery for Skeletal, Muscular, Endocrine, Circulatory, and lymphatic, Digestive, Excretory, Nervous and Reproduction to be provide.</p> <p>No Audio Involved: Information Related Touch panel</p> <p>Suggested Vendor or Equivalent: Lg, Sony, Samsung</p> <p>Display type:</p>	6		
	NOBEL PRIZE GALLERY			

SCHEDULE-10

EXHIBIT DETAILED REPORT

69	Jacobus Henricus Van't Hoff NOB-EX-1	1 Set		
	<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: One of the founders of stereochemistry One of the founders of physical chemistry Suggested modern concept of chemical affinity.</p> <p>Environment: 1.5x1.5ft photo of the nobel laureate, with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
70	Hermann Emil Fischer NOB-EX-2	1 Set		
	<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Study of sugars & purines.</p> <p>Environment: 2x2ft photo of the nobel laureate, Dummy models of his books, research paper, instruments or any other object discovered/invented, with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
71	Svante August Arrhenius NOB-EX-3	1 Set		
	<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for: Arrhenius equation Theory of ionic dissociation.</p> <p>Environment: 1x1ft photo of the nobel laureate , with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
72	Sir William Ramsay NOB-EX-4	1 Set		
	<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Founder of Noble gases (He discovered five new elements. These were the noble gases, helium, neon, argon, krypton, and xenon; they added a whole new group to the Periodic Table of the elements).</p> <p>Environment: 2x2ft photo of the nobel laureate, Dummy models of his books, research paper, instruments or any other object discovered/invented, with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus VENDORS FOR MODELS-Asian GRC,Dream Design Display,GRC india</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT

73	Adolf von Baeyer NOB-EX-5	1 Set		
	<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Synthesis of indigo, phenolphthalein and fluorescein; Von Baeyer nomenclature</p> <p>Environment: 1x1ft photo of the nobel laureate, with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
74	Henri Moissan NOB-EX-6	1 Set		
	<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Isolation of fluorine, Moissan went on to study fluorine chemistry in great detail, contributed to the development of the electric arc furnace and attempted to use pressure to synthesize diamonds.</p> <p>Environment: 1x1ft photo of the nobel laureate, with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
75	Eduard Buchner NOB-EX-7	1 Set		
	<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Mannich reaction.</p> <p>Environment: 1x1ft photo of the nobel laureate, with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p> <p>VENDORS FOR 3D BUST-Asian GRC,Dream Design Display,GRC india</p>			
76	Lord Ernest Rutherford NOB-EX-8	1 Set		
	<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Discovery of alpha and beta radioactivity Discovery of atomic nucleus (Rutherford model) Rutherford scattering Rutherford backscattering spectroscopy Discovery of proton Rutherford (unit) Coining the term 'artificial disintegration' 'Scientific discoveries The element rutherfordium, Rf, Z=104. (1997 The rutherford (Rd), an obsolete unit of radioactivity</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT

		<p>equivalent to one megabecquerel. Environment: 3x3ft photo of the nobel laureate, 60cm high bust sculpture mounted on a 1m high platform. Dummy models of his books, research paper, instruments or any other object discovered/invented. A movie running on a tab displaying his life and the works/inventions done by him with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus VENDORS FOR 3D BUST-Asian GRC, Dream Design Display,GRC india</p>			
77		<p>Wilhelm Ostwald NOB-EX-9</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Catalysis Coining the term 'Mole' HSL and HSV Liesegang rings Ostwald dilution law Ostwald process Ostwald ripening Ostwald's rule Ostwald viscometer Ostwald-Folin Pipette Environment: 1x1ft photo of the nobel laureate, with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
78		<p>Otto Wallach NOB-EX-10</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate Achievement: Known for Isoprene rule, He was responsible for naming terpene and pinene, and for undertaking the first systematic study of pinene. Environment: 1x1ft photo of the nobel laureate, with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus VENDORS FOR 3D BUST-Asian GRC,Dream Design Display,GRC india</p>			
79		<p>Maria Skłodowska-Curie NOB-EX-11</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: Radium, The curie (symbol Ci), a unit of radioactivity, is named in honour of her and Pierre (although the commission which agreed on the name</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT

		<p>never clearly stated whether the standard was named after Pierre, Marie or both of them).[91] The element with atomic number 96 was named curium. Three radioactive minerals are also named after the Curies: curite, sklodovskite, and cuprosklodovskite. Environment: 3x3ft photo of the nobel laureate, 60cm high bust sculpture mounted on a 1m high platform. Dummy models of his books, research paper, instruments or any other object discovered/invented. A movie running on a tab displaying his life and the works/inventions done by him with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus VENDORS FOR 3D BUST-Asian GRC,Dream Design Display,GRC india</p>			
80		<p>Victor Grignard NOB-EX-12</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Grignard reaction, Known as Father of organic synthesis. Notable awards Nobel Prize for Chemistry (1912) . Environment: 2x2ft photo of the nobel laureate with biography below it, Dummy models of his books, research paper, instruments or any other object discovered/invented with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
81		<p>Paul Sabatier NOB-EX-13</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Heterogeneous catalysis and Sabatier principle. Environment: 1x1ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
82		<p>Alfred Werner NOB-EX-14</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for configuration of transition metal complexes. Environment: 1x1ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT

83		Theodore William Richards NOB-EX-15	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Atomic weights Thermochemistry Electrochemistry</p> <p>Environment: 3x3ft photo of the nobel laureate, 60cm high bust sculpture mounted on a 1m high platform. Dummy models of his books, research paper, instruments or any other object discovered/invented. A movie running on a tab displaying his life and the works/inventions done by him with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
84		Richard Martin Willstatter NOB-EX-16	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Organic chemistry</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
85		Fritz Haber NOB-EX-17	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Haber process</p> <p>Environment: 2x2ft photo of the nobel laureate with biography below it, Dummy models of his books, research paper, instruments or any other object discovered/invented with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p> <p>VENDORS FOR MODELS -Asian GRC,Dream Design Display,GRC india</p>			
86		Walther Hermann Nernst NOB-EX-18	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Environment: 2x2ft photo of the nobel laureate with biography below it, Dummy models of his books, research paper, instruments or any other object discovered/invented with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors,</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT

		Indiglow Signage, Signagegroup, Creative Signplus VENDORS FOR MODELS -Asian GRC,Dream Design Display,GRC india			
87		Frederick Soddy NOB-EX-19	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Nuclear transmutation Discovery of isotopes Fajans and Soddy law Thermoeconomics Ergosophy Soddy circles Soddy's hexlet Environment: 2x2ft photo of the nobel laureate with biography below it, Dummy models of his books, research paper, instruments or any other object discovered/invented with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
88		Francis William Aston NOB-EX-20	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Mass spectrograph Whole Number Rule. Environment: 1x1ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
89		Fritz Pregl NOB-EX-21	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Microelemental analysis. Environment: 1x1ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
90		Richard Adolf Zsigmondy NOB-EX-22	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: In 1925 Zsigmondy was awarded the Nobel Prize for Chemistry for his work on the heterogeneous nature of colloidal solutions. Environment: 2x2ft photo of the nobel laureate with biography below it, Dummy models of his books,			

SCHEDULE-10

EXHIBIT DETAILED REPORT

		research paper, instruments or any other object discovered/invented SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus VENDORS FOR MODELS -Asian GRC,Dream Design Display,GRC india			
91		Theodor Svedberg NOB-EX-23	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for analytical ultracentrifugation Environment: 1x1ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
92		Heinrich Wieland NOB-EX-24	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Bile acids research. Environment: 2x2ft photo of the nobel laureate with biography below it, Dummy models of his books, research paper, instruments or any other object discovered/invented. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus VENDORS FOR MODELS -Asian GRC,Dream Design Display,GRC india			
93		Adolf Windaus NOB-EX-25	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for his work on sterols and their relation to vitamins. Environment: 1x1ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
94		Hans von Euler-Chelpin NOB-EX-26	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: In 1929, Euler-Chelpin and Arthur Harden received the Nobel Prize in chemistry for research on alcoholic fermentation of carbohydrates and the role of enzymes. Environment: 1x1ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			

SCHEDULE-10

EXHIBIT DETAILED REPORT

95	Arthur Harden NOB-EX-27	1 Set		
	<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: In 1929, Euler-Chelpin and Arthur Harden received the Nobel Prize in chemistry for research on alcoholic fermentation of carbohydrates and the role of enzymes.</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
96	Hans Fischer NOB-EX-28	1 Set		
	<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Fischer's scientific work was mostly concerned with the investigation of the pigments in blood, bile, and also chlorophyll in leaves, as well as with the chemistry of pyrrole from which these pigments are derived. Of special importance was his synthesis of bilirubin and haemin.</p> <p>Environment: 2x2ft photo of the nobel laureate with biography below it, Dummy models of his books, research paper, instruments or any other object discovered/invented.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p> <p>VENDORS FOR MODELS -Asian GRC,Dream Design Display,GRC india</p>			
97	Friedrich Bergius NOB-EX-29	1 Set		
	<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Friedrich Bergius and Carl Bosch won the Nobel Prize in Chemistry in 1931 in recognition of their contributions to the invention and development of chemical high-pressure methods.</p> <p>Environment: 2x2ft photo of the nobel laureate with biography below it, Dummy models of his books, research paper, instruments or any other object discovered/invented.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p> <p>VENDORS FOR MODELS -Asian GRC,Dream Design Display,GRC india</p>			
98	Carl Bosch NOB-EX-30	1 Set		
	<p>Description: Achievement, contribution and work of the nobel laureate.</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT

		<p>Achievement: Friedrich Bergius and Carl Bosch won the Nobel Prize in Chemistry in 1931 in recognition of their contributions to the invention and development of chemical high-pressure methods.</p> <p>Environment: 2x2ft photo of the nobel laureate with biography below it, Dummy models of his books, research paper, instruments or any other object discovered/invented.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p> <p>VENDORS FOR MODELS -Asian GRC,Dream Design Display,GRC india</p>			
99		<p>Irving Langmuir NOB-EX-31</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Inventor of the high-vacuum tube.</p> <p>Environment: 1.5X1.5ft photo of the nobel with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
100		<p>Harold Urey NOB-EX-32</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for discovery of deuterium</p> <p>Environment: 2x2ft photo of the nobel laureate with biography below it, Dummy models of his books, research paper, instruments or any other object discovered/invented.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
101		<p>Frederic Joliot NOB-EX-33</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: known for Atomic nuclei, for their discovery of artificial radioactivity. From 1928 Joliot-Curie and her husband Frédéric combined their research efforts on the study of atomic nuclei. Though their experiments identified both the positron and the neutron. The crater Joliot on the Moon is named after him.</p> <p>Environment: 1.5x1.5ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
102		<p>Irene Joliot-Curie NOB-EX-34</p>	1 Set		

SCHEDULE-10

EXHIBIT DETAILED REPORT

		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: known for Atomic nuclei, for their discovery of artificial radioactivity. From 1928 Joliot-Curie and her husband Frédéric combined their research efforts on the study of atomic nuclei. Though their experiments identified both the positron and the neutron. The crater Joliot on the Moon is named after him.</p> <p>Environment: 1.5x1.5ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
103		<p>Peter Debye NOB-EX-35</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Debye model Debye relaxation</p> <p>Environment: 1.5x1.5ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
104		<p>Sir Walter Haworth NOB-EX-36</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate</p> <p>Achievement:</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
105		<p>Paul Karrer NOB-EX-37</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Vitamins</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
107		<p>Richard Kuhn NOB-EX-38</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for his work on carotenoids and vitamins.</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT

		SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
108		Adolf Butenandt NOB-EX-39	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for the discovery of estrone Environment: 1x1ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
109		Leopold Ruzicka NOB-EX-40	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Terpenes Environment: 1x1ft photo of the nobel laureate with biography below it SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
110		George de Hevesy NOB-EX-41	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for his key role in the development of radioactive tracers to study chemical processes such as in the metabolism of animals. Environment: 1.5x1.5ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
111		Otto Hahn NOB-EX-42	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Discovery of radioactive elements (1905–1921) Radiothorium (1905), Radioactinium (1906), Mesothorium (1907), Ionium (1907), Radioactive recoil (1909) Fajans–Paneth–Hahn Law Protactinium (1917) Nuclear isomerism (1921) Applied Radiochemistry (1936) Rubidium-strontium dating (1938) Nuclear fission (1938) Environment: 2X2ft photo of the nobel laureate with biography below it, Dummy models of his books, research paper, instruments or any other object discovered/invented. SUGGESTED VENDORS - Pavilion and Interiors,			

SCHEDULE-10

EXHIBIT DETAILED REPORT

		Indiglow Signage, Signagegroup, Creative Signplus VENDORS FOR MODELS -Asian GRC,Dream Design Display,GRC india			
112		Artturi Virtanen NOB-EX-43	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for AIV fodder Environment: 1x1ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
113		James Sumner NOB-EX-44	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for First to isolate an enzyme in crystallized form First to show that an enzyme is a protein Environment: 1x1ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
114		John Northrop NOB-EX-45	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Studies of enzymes. In 1929, Northrop isolated and crystallized the gastric enzyme pepsin[3] and determined that it was a protein. In 1938 he isolated and crystallized the first bacteriophage (a small virus that attacks bacteria), and determined that it was a nucleoprotein. Northrop also isolated and crystallized pepsinogen (the precursor to pepsin), trypsin, chymotrypsin, and carboxypeptidase. Environment: 1x1ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
115		Wendell stanley NOB-EX-46	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: Stanley's work contributed to on lepracidal compounds, diphenyl stereochemistry and the chemistry of the sterols. Environment: 1x1ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			

SCHEDULE-10

EXHIBIT DETAILED REPORT

116	Robert Robinson NOB-EX-47	1 Set		
	<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Development of Organic synthesis</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
117	Arne Tiselius NOB-EX-48	1 Set		
	<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Electrophoresis. In 1930 on the moving-boundary method of studying the electrophoresis of proteins.</p> <p>Environment: 1.5x1.5ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
118	William Francis Giauque NOB-EX-49	1 Set		
	<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for his studies in the properties of matter at temperatures close to absolute zero.</p> <p>Environment: 2X2ft photo of the nobel laureate with biography below it, Dummy models of his books, research paper, instruments or any other object discovered/invented.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p> <p>VENDORS FOR MODELS -Asian GRC,Dream Design Display,GRC india</p>			
119	Kurt Alder NOB-EX-50	1 Set		
	<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Diels–Alder reaction. He worked on the synthesis of organic compounds. The lunar crater Alder is named in his honour. The insecticide aldrin, created through a Diels–Alder reaction, is also named after the scientist.</p> <p>Notable awards Nobel Prize for Chemistry (1950)</p> <p>Environment:1x1ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
120	Otto Paul Hermann Diels	1		

SCHEDULE-10

EXHIBIT DETAILED REPORT

		NOB-EX-51	Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievements: He worked with Kurt Alder developing the Diels–Alder reaction</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
121		Edwin McMillan NOB-EX-52	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Discovery of neptunium, the first transuranium element</p> <p>Notable awards Nobel Prize in Chemistry (1951) Atoms for Peace Award (1963) National Medal of Science (1990)</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
122		Glenn T. Seaborg NOB-EX-53	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Discovery of neptunium, the first transuranium element</p> <p>Notable awards Nobel Prize in Chemistry (1951) Atoms for Peace Award (1963) National Medal of Science (1990).</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
123		Archer John Porter Martin NOB-EX-54	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievements: Known for Chromatography.</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
124		Richard Laurence Millington Synge NOB-EX-55	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievements: Known for Chromatography.</p> <p>Environment 1x1ft photo of the nobel laureate with</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT

		biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
125		Hermann Staudinger NOB-EX-56	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Polymer chemistry Environment: 1x1ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus.			
126		Linus Carl Pauling NOB-EX-57	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for the Determination with X-Rays of the Structures of Crystals Notable awards. he worked on Molecular genetics, Biological molecules, Pauling was working on molecular models of the structure of DNA, James Watson and Francis Crick were allowed to make a molecular model of DNA. He also worked on structure of atomic nucleus. Environment: 2x2ft photo of the nobel laureate with biography below it, Dummy models of his books, research paper, instruments or any other object discovered/invented. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus VENDORS FOR MODELS -Asian GRC,Dream Design Display,GRC india.			
127		Vincent Du Vigneaud NOB-EX-58	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievements: Known for his work on biochemically important sulphur compounds, especially for the first synthesis of a polypeptide hormone. Environment: 1x1ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
128		Sir Cyril Hinshelwood NOB-EX-59	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: His early studies of molecular kinetics led to the publication of Thermodynamics for Students of Chemistry and The Kinetics of Chemical Change in 1926.			

SCHEDULE-10

EXHIBIT DETAILED REPORT

		<p>Environment:1x1ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
129		<p>Nikolay Nikolayevich Semenov NOB-EX-60</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for chemical transformation. Environment: 1x1ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
130		<p>Alexander Robertus Todd NOB-EX-61</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for the structure and synthesis of nucleotides, nucleosides, and nucleotide coenzymes. He synthesised adenosine triphosphate (ATP) and flavin adenine dinucleotide (FAD). Notable awards Davy Medal (1949). Environment: 2x2ft photo of the nobel laureate with biography below it, Dummy models of his books, research paper, instruments or any other object discovered/invented. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus VENDORS FOR MODELS -Asian GRC,Dream Design Display,GRC india.</p>			
131		<p>Frederick Sanger NOB-EX-62</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Amino acid sequence of insulin Environment: 1x1ft photo of the nobel laureate with biography below it, along with his research paper SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
132		<p>Jaroslav Heyrovksy NOB-EX-63</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for his discovery and development of the polarographic methods of analysis. Environment: 1x1ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors,</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT

		Indiglow Signage, Signagegroup, Creative Signplus			
133		Willard Libby NOB-EX-64	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known as father of Radiocarbon dating.</p> <p>Environment: 3x3ft photo of the nobel laureate, 60cm high bust sculpture mounted on a 1m high platform. Dummy models of his books, research paper, instruments or any other object discovered/invented. A movie running on a tab displaying his life and the works/inventions done by him.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p> <p>VENDORS FOR MODELS -Asian GRC,Dream Design Display,GRC india</p>			
134		Melvin Calvin NOB-EX-65	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Calvin cycle</p> <p>Environment: 2x2ft photo of the nobel laureate with biography below it, Dummy models of his books, research paper, instruments or any other object discovered/invented.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p> <p>VENDORS FOR MODELS -Asian GRC,Dream Design Display,GRC india.</p>			
135		John Kendrew NOB-EX-66	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Heme-containing proteins. Kendrew determined the structure of the protein myoglobin, which stores oxygen in muscle cells.</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
136		Max Perutz NOB-EX-67	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Heme-containing proteins.</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT

137		Giulio Natta NOB-EX-68	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Ziegler-Natta catalyst.</p> <p>Environment: 1.5x1.5ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
138		Karl Ziegler NOB-EX-69	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Ziegler–Natta catalyst.</p> <p>Environment: 1.5x1.5ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
139		Dorothy Crowfoot Hodgkin NOB-EX-70	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Development of Protein crystallography Determining the structure of Insulin.</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
140		Robert Woodward NOB-EX-71	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Landmark organic syntheses Woodward cis-hydroxylation Molecular structure determination Woodward–Hoffmann rules.</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
141		Robert Mulliken NOB-EX-72	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for molecular orbital theory.</p> <p>Environment: 1.5x1.5ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT

142	Ronald Wreyford Norrish NOB-EX-73	1 Set		
	<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Norrish reaction.</p> <p>Environment: 2x2ft photo of the nobel laureate with biography below it, Dummy models of his books, research paper, instruments or any other object discovered/invented.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
143	Sir George Porter NOB-EX-74	1 Set		
	<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Flash Photolysis</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
144	Manfred Eigen NOB-EX-75	1 Set		
	<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Chemical reactions Quasispecies model</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
145	Lars Onsager NOB-EX-76	1 Set		
	<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Onsager–Machlup function Onsager reciprocal relations, the exact solution to the two-dimensional Ising model and for revealing the physics behind the De Haas–van Alphen effect</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
146	Sir Derek Harold Richard Barton NOB-EX-77	1 Set		
	<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Barton reaction Barton decarboxylation Barton–McCombie deoxygenation Barton–Zard synthesis.</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT

		<p>Environment: 1x1ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
147		<p>Odd Hassel NOB-EX-78</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: Hassel originally focused on inorganic chemistry, but beginning in 1930 his work concentrated on problems connected with molecular structure, particularly the structure of cyclohexane and its derivatives. Environment: 1x1ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
148		<p>Luis Leloir NOB-EX-79</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Galactosemia Lactose intolerance Carbohydrate metabolism. Environment: 1x1ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
149		<p>Gerhard Herzberg NOB-EX-80</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: Herzberg's main work concerned atomic and molecular spectroscopy. He is well known for using these techniques that determine the structures of diatomic and polyatomic molecules Environment: 1x1ft photo of the nobel laureate with with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
150		<p>Christian Anfinsen NOB-EX-81</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Ribonuclease, Anfinsen's dogma Environment: 2x2ft photo of the nobel laureate with biography below it, Dummy models of his books, research paper, instruments or any other object discovered/invented.</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT

		SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus VENDORS FOR MODELS -Asian GRC,Dream Design Display,GRC india.			
151		Stanford Moore NOB-EX-82	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for ribonuclease Environment: 2x2ft photo of the nobel laureate with biography below it, Dummy models of his books, research paper, instruments or any other object discovered/invented. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus VENDORS FOR MODELS -Asian GRC,Dream Design Display,GRC india.			
152		William Stein NOB-EX-83	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: Work on ribonuclease and for their contribution to the understanding of the connection between chemical structure and catalytic activity of the ribonuclease molecule. Environment: 2x2ft photo of the nobel laureate with biography below it, Dummy models of his books, research paper, instruments or any other object discovered/invented. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus VENDORS FOR MODELS -Asian GRC,Dream Design Display,GRC india.			
153		Ernst Otto Fischer NOB-EX-84	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Organometallic compounds Environment: 1x1ft photo of the nobel laureate with biography below it, along with research topic and summary document SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
154		Sir Geoffrey Wilkinson NOB-EX-85	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Homogeneous transition metal catalysis			

SCHEDULE-10

EXHIBIT DETAILED REPORT

		<p>Environment: 1x1ft photo of the nobel laureate with biography below it, along with research topic and summary document.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
155		<p>Paul Flory NOB-EX-86</p>	<p>1 Set</p>		
		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Polymers. Environment: 1x1ft photo of the nobel laureate with biography below it, along with research topic and summary document SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
156		<p>Sir John Cornforth NOB-EX-87</p>	<p>1 Set</p>		
		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Stereochemistry of enzyme-catalysed reactions. Environment: 1.5x1.5ft photo of the nobel laureate with biography below it, along with research topic and summary document. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
157		<p>Vladimir Prelog NOB-EX-88</p>	<p>1 Set</p>		
		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: Organic chemistry Biochemistry Conformational analysis Cahn-Ingold-Prelog priority rules Prelog strain Klyne-Prelog system Prelog's rule. Environment: 2x2ft photo of the nobel laureate with biography below it, Dummy models of his books, research paper, instruments or any other object discovered/invented. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus VENDORS FOR MODELS -Asian GRC,Dream Design Display,GRC india.</p>			
158		<p>William N. Lipscomb, Jr. NOB-EX-89</p>	<p>1 Set</p>		
		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: Nobel Prize in Chemistry(1976)</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT

		<p>Environment: 1x1ft photo of the nobel laureate with biography below it, along with research topic and summary document SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
159		<p>Ilya Prigogine NOB-EX-90</p>	<p>1 Set</p>		
		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: known for Dissipative structures Environment: 1x1ft photo of the nobel laureate with biography below it, along with research topic and summary document SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
160		<p>Peter Mitchell NOB-EX-91</p>	<p>1 Set</p>		
		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for discovery of the mechanism of ATP synthesis Environment: 1x1ft photo of the nobel laureate with biography below it, along with research topic and summary document. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
161		<p>Herbert Charles Brown NOB-EX-92</p>	<p>1 Set</p>		
		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Organoboranes Environment: 1x1ft photo of the nobel laureate with biography below it, along with research topic and summary document SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
162		<p>Georg Wittig NOB-EX-93</p>	<p>1 Set</p>		
		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Wittig reaction Environment: 1x1ft photo of the nobel laureate with biography below it, along with research topic and summary document SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
163		<p>Paul Berg NOB-EX-94</p>	<p>1 Set</p>		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT

		<p>Achievement: Known for Recombinant DNA. Environment: 3x3ft photo of the nobel laureate, 60cm high bust sculpture mounted on a 1m high platform. Dummy models of his books, research paper, instruments or any other object discovered/invented. A movie running on a tab displaying his life and the works/inventions done by him. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus VENDORS FOR MODELS -Asian GRC,Dream Design Display,GRC india.</p>			
164		<p>Walter Gilbert NOB-EX-95</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Amino acid sequence of insulin. Environment: 1.5x1.5ft photo of the nobel laureate with biography below it, along with research topic and summary document. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus.</p>			
165		<p>Frederick Sanger NOB-EX-96</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Frontier orbitals. Environment: 1.5x1.5ft photo of the nobel laureate with biography below it, along with research topic and summary document SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
166		<p>Kenichi Fukui NOB-EX-97</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for reaction mechanisms Environment: 2x2ft photo of the nobel laureate with biography below it, Dummy models of his books, research paper, instruments or any other object discovered/invented. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus VENDORS FOR MODELS -Asian GRC,Dream Design Display,GRC india.</p>			
167		<p>Roald Hoffmann NOB-EX-98</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Crystallographic electron</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT

		microscopy. Environment: 1.5x1.5ft photo of the nobel laureate with biography below it, along with research topic and summary document. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
168		Aaron Klug NOB-EX-99	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Inner sphere electron transfer Environment: 1.5x1.5ft photo of the nobel laureate with biography below it, along with research topic and summary document SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
169		Henry Taube NOB-EX-100	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for solid phase peptide synthesis. Environment: 2x2ft photo of the nobel laureate with biography below it, along with research topic and summary document. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
170		Robert Bruce Merrifield NOB-EX-101	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: Notable awards Nobel Prize in Chemistry Environment: 1.5x1.5ft photo of the nobel laureate with biography below it, along with research topic and summary document SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
171		Herbert Aaron Hauptman NOB-EX-102	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: Environment: 2x2ft photo of the nobel laureate with biography below it, along with research topic and summary document SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
172		Jerome Karle	1		

SCHEDULE-10

EXHIBIT DETAILED REPORT

		NOB-EX-103	Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: he was awarded the Nobel Prize in Chemistry in 1985, for the direct analysis of crystal structures using X-ray scattering techniques.</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
173		Dudley R. Herschbach NOB-EX-104	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Dudley Robert Herschbach is an American chemist at Harvard University. He won the 1986 Nobel Prize in Chemistry jointly with Yuan T. Lee and John C. Polanyi "for their contributions concerning the dynamics of chemical elementary processes</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
174		Yuan Tseh Lee NOB-EX-105			
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for their contributions to the dynamics of chemical elementary processes.</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
175		John Charles Polanyi NOB-EX-106	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Cram's rule</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
176		Donald James Cram NOB-EX-107	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Cryptands</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT

		SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
177		Jean-Marie Lehn NOB-EX-108	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: For their development and use of molecules with structure-specific interactions of high selectivity Environment: 1x1ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
178		Charles J. Pedersen NOB-EX-109	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Crystallisation of membrane proteins. Environment: 1x1ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
179		Hartmut Michel NOB-EX-110	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Crystallography Photosynthesis. Environment: 1.5x1.5ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
180		Johann Deisenhofer NOB-EX-111	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Cyanobacteria Crystallography Environment: 1.5x1.5ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
181		Robert Huber NOB-EX-112	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Ribozymes. Environment: 1.5x1.5ft photo of the nobel laureate with biography and research topics.			

SCHEDULE-10

EXHIBIT DETAILED REPORT

		SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
182		Sidney Altman NOB-EX-113	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Ribozyme Environment: 1.5x1.5ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
183		Thomas R. Cech NOB-EX-114	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: Thomas Robert Cech is an American chemist who shared the 1989 Nobel Prize in Chemistry with Sidney Altman, for their discovery of the catalytic properties of RNA Environment: 1x1ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
184		Elias James Corey NOB-EX-115	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: He won the Nobel Prize in Chemistry "for his development of the theory and methodology of organic synthesis Environment: 1X1ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
185		Richard R. Ernst NOB-EX-116	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievements: Born in Winterthur, Switzerland , Ernst was awarded the Nobel Prize in Chemistry in 1991 for his contributions towards the development of Fourier transform Nuclear Magnetic Resonance (NMR) spectroscopy . Environment: 2x2ft photo of the nobel laureate with biography below it, Dummy models of his books, research paper, instruments or any other object discovered/invented. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus VENDORS FOR MODELS -Asian GRC,Dream Design			

SCHEDULE-10

EXHIBIT DETAILED REPORT

		Display,GRC india.			
186		Rudolph A. Marcus NOB-EX-117	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievements: Known for Invention of polymerase chain reaction. Environment: 2x2ft photo of the nobel laureate with biography below it, Dummy models of his books, research paper, instruments or any other object discovered/invented. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus VENDORS FOR MODELS -Asian GRC,Dream Design Display,GRC india.			
187		Kary B. Mullis NOB-EX-118			
		Description: Achievement, contribution and work of the nobel laureate. Achievement: For contributions to the developments of methods within DNA-based chemistry [...] for his fundamental contributions to the establishment of oligonucleotide-based, site-directed mutagenesis and its development for protein studies Environment: 1x1ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
188		Michael Smith NOB-EX-119	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievements: Known for Carbocations via superacids Environment: 1x1ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
189		George A. Olah NOB-EX-120	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Research on ozone hole Environment: 1.5x1.5ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
190		Paul Crutzen NOB-EX-121	1 Set		
		Description: Achievement, contribution and work of the nobel laureate.			

SCHEDULE-10

EXHIBIT DETAILED REPORT

		<p>Achievement: Known for Researched the threat of CFCs to the ozone layer in the stratosphere.</p> <p>Environment:2x2ft photo of the nobel laureate with biography below it, Dummy models of his books, research paper, instruments or any other object discovered/invented.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p> <p>VENDORS FOR MODELS -Asian GRC,Dream Design Display,GRC india.</p>			
191		<p>Mario Molina NOB-EX-122</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Ozone depletion research</p> <p>Environment:2x2ft photo of the nobel laureate with biography below it, Dummy models of his books, research paper, instruments or any other object discovered/invented.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p> <p>VENDORS FOR MODELS -Asian GRC,Dream Design Display,GRC india.</p>			
192		<p>F. Sherwood Rowland NOB-EX-123</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for fullerene</p> <p>Environment: 1.5x1.5ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
193		<p>Robert F. Curl, Jr. NOB-EX-124</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Buckminsterfullerene</p> <p>Environment: 1.5x1.5ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
194		<p>Sir Harold W. Kroto NOB-EX-125</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for buckminsterfullerene</p> <p>Environment: 1.5x1.5ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT

195	Richard E. Smalley NOB-EX-126	1 Set		
	<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Researching adenosine triphosphate.</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
196	Paul D. Boyer NOB-EX-127	1 Set		
	<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: He shared the 1997 Nobel Prize in Chemistry for research on the "enzymatic mechanism underlying the biosynthesis of adenosine triphosphate (ATP)" (ATP synthase)</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
197	John E. Walker NOB-EX-128	1 Set		
	<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Na⁺,K⁺-ATPase</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
198	Jens C. Skou NOB-EX-129	1 Set		
	<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
199	Walter Kohn NOB-EX-130	1 Set		
	<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Environment: 1.5x1.5ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
200	John A. Pople NOB-EX-131	1 Set		

SCHEDULE-10

EXHIBIT DETAILED REPORT

		<p>Description: Achievement, contribution and work of the nobel laureate. Environment: 1.5x1.5ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
201		<p>Ahmed Zewail NOB-EX-132</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: Ahmed Hassan Zewail was an Egyptian-American scientist, known as the "father of femtochemistry Environment:2x2ft photo of the nobel laureate with biography below it, Dummy models of his books, research paper, instruments or any other object discovered/invented. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus VENDORS FOR MODELS -Asian GRC,Dream Design Display,GRC india.</p>			
202		<p>Paul Sabatier NOB-EX-133</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate. Environment: 1.5x1.5ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
203		<p>Alan J. Heeger NOB-EX-134</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: Alan Jay Heeger is an American physicist, academic and Nobel Prize laureate in chemistry. Environment: 1x1ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
204		<p>Alan G. MacDiarmid NOB-EX-135</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Conductive polymers Environment: 1x1ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
205		<p>Hideki Shirakawa NOB-EX-136</p>	1 Set		

SCHEDULE-10

EXHIBIT DETAILED REPORT

		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: He is best known for his discovery of conductive polymers.</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
206		<p>William S. Knowles NOB-EX-137</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Knowles was one of the recipients of the 2001 Nobel Prize in Chemistry. He shared half the prize with Ryōji Noyori for their work in asymmetric synthesis</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
207		<p>Ryoji Noyori NOB-EX-138</p>			
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known chirally catalysed hydrogenation reactions</p> <p>Environment: 1.5x1.5ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
208		<p>Karl Barry Sharpless NOB-EX-139</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Environment:1x1ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
209		<p>John Fenn NOB-EX-140</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Electrospray ionization</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
210		<p>Koichi Tanaka NOB-EX-141</p>	1 Set		
		<p>Description: Achievement, contribution and work of</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT

		the nobel laureate. Achievement: Known for Soft laser desorption Environment: 1x1ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
211		Kurt Wuethrich NOB-EX-142	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievements: Known for NMR of proteins. Environment: 1x1ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
212		Peter C. Agre NOB-EX-143	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievements: Known for Aquaporins. Environment: 2x2ft photo of the nobel laureate with biography below it, Dummy models of his books, research paper, instruments or any other object discovered/invented. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus VENDORS FOR MODELS -Asian GRC,Dream Design Display,GRC india.			
213		Roderick MacKinnon NOB-EX-144	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievements: Known for Potassium Channel Structure Environment: 1x1ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
214		Aaron J. Ciechanover NOB-EX-145	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievements: Known for ubiquitin-mediated protein degradation. Environment: 1.5x1.5ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
215		Avram Hershko NOB-EX-146	1 Set		

SCHEDULE-10

EXHIBIT DETAILED REPORT

		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for ubiquitin-mediated protein degradation. Environment: 1.5x1.5ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
216		<p>Irwin A. Rose NOB-EX-147</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Ubiquitin-mediated protein degradation Environment: 1.5x1.5ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
217		<p>Yves Chauvin NOB-EX-148</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Deciphering the process of metathesis. Environment: 1x1ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
218		<p>Robert H. Grubbs NOB-EX-149</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Catalysts for olefin metathesis in organic synthesis. Environment: 1x1ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
219		<p>Richard R. Schrock NOB-EX-150</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Organic chemistry Metathesis reaction. Environment: 1x1ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
220		<p>Roger D. Kornberg NOB-EX-151</p>	1 Set		

SCHEDULE-10

EXHIBIT DETAILED REPORT

		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Transmission of genetic information from DNA to RNA.</p> <p>Environment: 1.5x1.5ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
221		Gerhard Ertl NOB-EX-152	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Surface chemistry.</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
222		Roger Y. Tsien NOB-EX-153	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Green fluorescent protein</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
223		Martin Chalfie NOB-EX-154	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Green fluorescent protein</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
224		Osamu Shimomura NOB-EX-155	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: He was awarded the Nobel Prize in Chemistry in 2008 for the discovery and development of green fluorescent protein (GFP) .</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
225		Venkatraman Ramakrishnan NOB-EX-156	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT

		<p>Achievement: Known for Structure and function of the ribosome macromolecular crystallography.</p> <p>Environment: 3x3ft photo of the nobel laureate, 60cm high bust sculpture mounted on a 1m high platform. Dummy models of his books, research paper, instruments or any other object discovered/invented. A movie running on a tab displaying his life and the works/inventions done by him.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p> <p>VENDORS FOR MODELS -Asian GRC,Dream Design Display,GRC india.</p>			
226		<p>Thomas A. Steitz NOB-EX-157</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Bio-crystallography</p> <p>Environment: 3x3ft photo of the nobel laureate, 60cm high bust sculpture mounted on a 1m high platform. Dummy models of his books, research paper, instruments or any other object discovered/invented. A movie running on a tab displaying his life and the works/inventions done by him.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p> <p>VENDORS FOR MODELS -Asian GRC,Dream Design Display,GRC india.</p>			
227		<p>Ada E. Yonath NOB-EX-158</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Cryo bio-crystallography</p> <p>Environment: 3x3ft photo of the nobel laureate, 60cm high bust sculpture mounted on a 1m high platform. Dummy models of his books, research paper, instruments or any other object discovered/invented. A movie running on a tab displaying his life and the works/inventions done by him.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p> <p>VENDORS FOR MODELS -Asian GRC,Dream Design Display,GRC india.</p>			
228		<p>Richard F. Heck NOB-EX-159</p>	1 Set		
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Heck reaction.</p> <p>Environment: 1.5x1.5ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors,</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT

		Indiglow Signage, Signagegroup, Creative Signplus			
229		Ei-ichi Negishi NOB-EX-160	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Negishi coupling. Environment: 1.5x1.5ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
230		Akira Suzuki NOB-EX-161	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Suzuki reaction Environment: 1.5x1.5ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
231		Dan Shechtman NOB-EX-162	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Quasicrystals Environment: 1.5x1.5ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
232		Robert J. Lefkowitz NOB-EX-163	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for G protein coupled receptors beta-arrestins. Environment: 1.5x1.5ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			
233		Brian K. Kobilka NOB-EX-164	1 Set		
		Description: Achievement, contribution and work of the nobel laureate. Achievement: For studies of G-protein-coupled receptors. Notable awards Nobel Prize in Chemistry Environment: 1x1ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus			

SCHEDULE-10

EXHIBIT DETAILED REPORT

234	Martin Karplus NOB-EX-165	1 Set		
	<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: He contributed to many fields in physical chemistry, including chemical dynamics quantum chemistry, and most notably, molecular dynamics simulations of biological macromolecules</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.c</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
235	Michael Levitt NOB-EX-166	1 Set		
	<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: First researchers to conduct molecular dynamics simulations of DNA and proteins and developed the first software for this purpose</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
236	Ariel Warshel NOB-EX-167	1 Set		
	<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Computer simulation, Computational enzymology, electrostatics, enzyme catalysis</p> <p>Environment: 1x1ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
237	Eric Betzig NOB-EX-168	1 Set		
	<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Nanoscopy, fluorescence microscopy, developed Flexible Adaptive Servohydraulic Technology (FAST) ,developed photoactivated localization microscopy (PALM)</p> <p>Environment: 1.5x1.5ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
238	Stefan W. Hell NOB-EX-169			
	<p>Description: Achievement, contribution and work of the nobel laureate.</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT

		<p>Achievement: Known for STED microscopy Environment: 1.5x1.5ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
239		<p>William E. Moerner NOB-EX-170</p>			
		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: He is credited with achieving the first optical detection and spectroscopy of a single molecule in condensed phases, along with his postdoc, Lothar Kador Environment: 1.5x1.5ft photo of the nobel laureate with biography and research topics. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
240		<p>Tomas Lindahl NOB-EX-171</p>			
		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Clarification of cellular resistance to carcinogens Clarification of cellular resistance to carcinogens contributed to many papers on DNA repair and the genetics of cancer . Environment: 2x2ft photo of the nobel laureate with biography below it, Dummy models of his books, research paper, instruments or any other object discovered/invented. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus VENDORS FOR MODELS -Asian GRC,Dream Design Display,GRC india.</p>			
241		<p>Paul Modrich NOB-EX-172</p>			
		<p>Description: Achievement, contribution and work of the nobel laureate. Achievement: Known for Clarification of cellular resistance to carcinogens Clarification of cellular resistance to carcinogens strand-directed mismatch repair. Environment: 2x2ft photo of the nobel laureate with biography below it, Dummy models of his books, research paper, instruments or any other object discovered/invented. SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus VENDORS FOR MODELS -Asian GRC,Dream Design Display,GRC india.</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT

242	Aziz Sancar NOB-EX-173	<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: He discovered that two genes, Period and Cryptochrome Sancar's research has provided a complete understanding of the workings of Circadian clocks in humans, which may be used to treat a wide range of different illnesses and disorders such as jet-lag and seasonal affective disorder, and may be useful in controlling and optimizing various cancer treatments.</p> <p>Environment: 1.5x1.5ft photo of the nobel laureate with biography and research topics.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p>			
243	Bernard L. Feringa NOB-EX-174	<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for- Molecular switches/motors, Homogeneous catalysis, stereochemistry, photochemistry Notable awards Nobel Prize in Chemistry (2016) He specialized in molecular nanotechnology and homogenous catalysis.</p> <p>Environment: 2x2ft photo of the nobel laureate with biography below it, Dummy models of his books, research paper, instruments or any other object discovered/invented.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus VENDORS FOR MODELS -Asian GRC,Dream Design Display,GRC india.</p>			
244	James Fraser Stoddart NOB-EX-175	<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Known for Mechanically interlocked molecular architectures (MIMAs)</p> <p>Environment: 2x2ft photo of the nobel laureate with biography below it, Dummy models of his books, research paper, instruments or any other object discovered/invented.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus VENDORS FOR MODELS -Asian GRC,Dream Design Display,GRC india.</p>			
245	Jean-Pierre Sauvage				


SCHEDULE-10

EXHIBIT DETAILED REPORT

		NOB-EX-176			
		<p>Description: Achievement, contribution and work of the nobel laureate.</p> <p>Achievement: Synthesize a catenane electrochemical reduction of CO2 and models of the photosynthetic reaction center.</p> <p>Environment: 2x2ft photo of the nobel laureate with biography below it, Dummy models of his books, research paper, instruments or any other object discovered/invented.</p> <p>SUGGESTED VENDORS - Pavilion and Interiors, Indiglow Signage, Signagegroup, Creative Signplus</p> <p>VENDORS FOR MODELS -Asian GRC,Dream Design Display,GRC india.</p>			
246		4k Projection system with Screen	1		
		<p>Description: 4K Projector system with Surround Sound to display the feature short movies about the life of Alfred Nobel, history behind formation of Noble prize and the selection criteria for awarding it</p> <p>Exhibit Size with Environment: 8m, 3.6m Screen where the 5 Min feature Nobel prize history</p> <p>Movie 1: Entrance to the Gallery, The Movie about how the Nobel prize came into existence, and how it is awarded.</p> <p>Movie Duration: 3-5 Min</p> <p>Language: Hindi, Gujarati and English</p> <p>Suggested Vendor or Equivalent: Epson, Sony</p> <p>Display type: LED</p> <p>Speakers: 5.1 Multi-media Sound bar Speakers – 4 Nos</p> <p>Soundbar has a 2.0 channel output which offers you one of the best sound qualities in its range. With 3W output power.</p> <p>Suggested Vendor: JBL, Creative or F & D</p>			
246	.1	LED SCREENS	12		
		<p>Description: 5 32inch LED screen in wave particle duality section of the gallery showcasing 3-4 minutes loop video on the respective exhibit near which they are placed.</p> <p>1 32 inch LED showcasing a 3-4 min loop video on Nobel laureates and their feats.</p> <p>No Audio involved</p> <p>Suggested Vendor or Equivalent: LG, Sony, Samsung</p> <p>Display type: LED</p>			
246	.2	CENTRAL EXHIBIT GALLERY			

SCHEDULE-10

EXHIBIT DETAILED REPORT

	<p>Alfred Nobel Bust: Alfred Nobel bust mounted on 1200 mm High on 500 mm X 500 mm base. Material: POP Stone Finish Alfred Nobel Medal: Fibre Glass detailed Alfred Nobel Medal Coin (Gold in colour) in a rotating base with rotating mechanism underneath. 2.2 m Diameter of Coin Infographics Vinyl: Infographics vinyl of Alfred Nobel and His Will Printed on Vinyl (Enlarged to be mounted on wall. Vinyl with adhesive. 36 Sq M area of Vinyl.</p>	1 Set		
HYDROPONICS GALLERY				
247	<p>Deep Water Culture (DWC) HPO-EX-1</p> <p>Description: method of plant production by means of suspending the plant roots in a solution of nutrient-rich, oxygenated water. Bubbleponics is a related method of plant production that involves a top-fed deep water culture system. Environment: Deep water Culture Hydroponics Lab Setup Includes Following Things (1500mm X 1200mm) water reservoir Tank (50-100Lt set up) along with Bio Filter and Ph regulator, A miniature Pump and Sump for the Flow of water and nutrient. Exhibit Size: 2000mm X1200mm Suggested Vendor or Equivalent: Aquaponics in india, Radon Grow Hydroponics, Green Ecosystem</p> 	1		
248	<p>Nutrient Film Technique (NFT) HPO-EX-2</p> <p>Description: technique wherein a very shallow stream of water containing all the dissolved nutrients required for plant growth is re-circulated past the bare roots of plants in a watertight gully, also known as channels. NFT was developed in the mid-1960s in England by Dr. Alen Cooper. In an ideal system, the depth of the</p>	1		

SCHEDULE-10

EXHIBIT DETAILED REPORT

recirculating stream should be very shallow, little more than a film of water, hence the name 'nutrient film'. This ensures that the thick root mat, which develops in the bottom of the channel, has an upper surface, which, although moist, is in the air. Subsequent to this, an abundant supply of oxygen is provided to the roots of the plants. A properly designed NFT system is based on using the right channel slope, the right flow rate, and the right channel length.

Environment: Nutrient Hydroponics Lab Setup Includes Following Things (1500mm X 1200mm) water reservoir Tank (50-100Lt set up) along with Bio Filter and Ph regulator, A miniature Pump and Sump and regulated Nutrient Channel at the top for the Flow of water and nutrient.

Exhibit Size: 2000mm X1200mm

Suggested Vendor or Equivalent: Aquaponics in india, Radon Grow Hydroponics, Green Ecosystem



249	<p>Ebb and Flow (Flood and Drain) HPO-EX-3</p>	1		
	<p>Description: known for its simplicity, reliability of operation and low initial investment cost. Pots are filled with an inert medium which does not function like soil or contribute nutrition to the plants but which anchors the roots and functions as a temporary reserve of water and solvent mineral nutrients. The hydroponic solution alternately floods the system and is allowed to ebb away. Under this system a water-tight growing bed, containing either clean gravel or coarse sand as the rooting medium, is periodically flooded for a short period (5 to 10 minutes) with a nutrient solution pumped from a supply tank. By placing the nutrient solution supply tank below the growing bed, the nutrient solution can drain back by gravity. This hydroponic growing system is little used today other than for hobby-type systems.</p> <p>Environment: Flow and Drain Lab Setup Includes Following Things (1500mm X 1200mm) water reservoir Tank (50-100Lt set up) along with Bio Filter and Ph</p>			

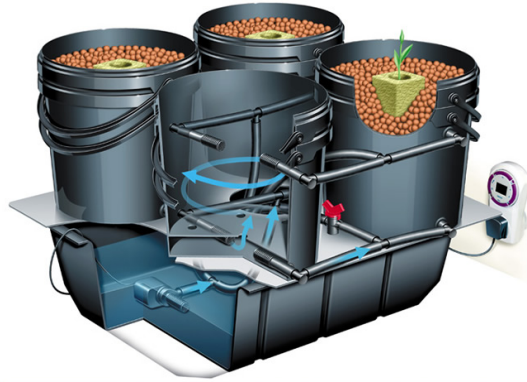
SCHEDULE-10

EXHIBIT DETAILED REPORT

regulator, A miniature Pump and Sump and regulated Nutrient Channel at the top along with base starta for the Flow of water and nutrient.

Exhibit Size: 2000mm X1200mm

Suggested Vendor or Equivalent: Aquaponics in india, Radon Grow Hydroponics, Green Ecosystem



250

Drip Systems
HPO-EX-4

1

Description: Water (nutrient solution) is pumped up from the reservoir through tubing to the top of the growing media (where the plants roots are), from there it drips out of the tubing onto the growing media. The nutrient solution drains down soaking both the roots and growing media all the way to the bottom of the container. From there the nutrient solution flows through an opening/s, and gravity allows the nutrient solution to flow downhill through tubing all the way back to the reservoir. It's important to remember that the plants growing container needs to be at least 6-8 inches or so above the top of the reservoir, so that gravity can drain the excess water back do them to it (water wont flow uphill without a pump).

Environment: Environment: Drip System Hydroponics Lab Setup Includes Following Things (1500mm X 1200mm) water reservoir Tank (50-100Lt set up) along with Bio Filter and Ph regulator, A miniature Pump and Sump and regulated drip channel for regulated flow of nutrient water.

Exhibit Size: 2000mm X1200mm

Suggested Vendor or Equivalent: Aquaponics in india, Radon Grow Hydroponics, Green Ecosystem

SCHEDULE-10

EXHIBIT DETAILED REPORT



251	HPO-EX-5-6	2		
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Description: Hydroponic Vertical farm. With hydroponics the plants are grown in an inert growing medium of Tubes in a vertical manner and a perfectly balanced, pH adjusted nutrient solution is delivered to the roots in a highly soluble form. This allows the plant to uptake its food with very little effort as opposed to soil where the roots must search out the nutrients and extract them. This is true even when using rich, organic soil and top of the line nutrients.

Environment: Environment: Flow and Drain Lab Setup Includes Following Things. (1500mm X 9000mm) water reservoir Tank (5000 -10000 Lt set up) along with Bio Filter and Ph regulator, 6000 mm long Hydroponic Tubes with Flowing Nutrient Water medium in a series of 6 Tubes simultaneously placed one above the other in a slanted manner to allow growth of Plants. A Pump and Sump and regulated Nutrient Channel at the top along the nutrient.

Exhibit Size: 9000mm X1500mm

Suggested Vendor or Equivalent: Aquaponics in india, Radon Grow Hydroponics, Green Ecosystem



252	HPO-EX-7	1		
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Description: Hydroponic Horizontal farm Based on Raft System With hydroponics the plants are grown in an inert growing medium of rafts above the water nutrient medium, where the roots of the plant can feed on the nutrient rich water medium directly. Further pH adjusted nutrient solution is delivered to the roots in a highly soluble form. This allows the plant to uptake its food with very little effort as opposed to soil where the roots must search out the nutrients and

SCHEDULE-10

EXHIBIT DETAILED REPORT

extract them. This is true even when using rich, organic soil and top of the line nutrients.
Environment: Environment: Deep Water Nutrient Setup Includes Following Things. (1500mm X 9000mm) water reservoir Tank and Raft above them with pegs made for plant growth 5000 -10000 Lt set up) along with Bio Filter and Ph regulator. A Pump and Sump and regulated Nutrient Channel at the top along the nutrient.
Exhibit Size: 9000mm X1500mm
Suggested Vendor or Equivalent: Aquaponics in india, Radon Grow Hydroponics, Green Ecosystem



253		4k Projection system with Screen	1		
		<p>Description: 4K Projector system with Surround Sound to display the feature short movies about the processes of hydroponics, their application in agriculture</p> <p>Exhibit Size with Environment: 8m, 3.6m Screen where the 5 Min feature hydroponic systems</p> <p>Movie 1: Entrance to the Gallery, The Movie about how the hydroponic systems can help in agriculture to increase yield and minimize effort.</p> <p>Movie Duration: 3-5 Min</p> <p>Language: Hindi, Gujarati and English</p> <p>Suggested Vendor or Equivalent: Epson, Sony</p> <p>Display type: LED</p>			
	OPTICS GALLERY				
254	Projection Screen	4k Projection system with Screen			
		<p>Description: 4K Projector system with Surround Sound to display the feature short movie about light when the visitors enter the gallery.</p> <p>Exhibit Size with Environment: 10m, 3.6m Screen where the 10 Min short film on light would be showcased.</p> <p>Movie : Entrance to the Gallery, The Movie about History of Light and how the people’s perception</p>	1		

SCHEDULE-10

EXHIBIT DETAILED REPORT

		<p>towards light changed. Movie Duration: 3-6 Min Language: Hindi, Gujarati and English Suggested Vendor or Equivalent: Epson, Sony Display type: LED</p>			
255		<p>Lens Island OPT-EX-1</p>			
		<p>Description: MIRRORS 3 Types of mirrors i.e. plain mirror, concave mirror, convex mirror placed on a display station with a laser pointer in front them (laser pointer's position and direction is adjustable and operates on push button mechanism)</p> <p>MIRROR SPECIFICATION PLAIN MIRROR- Diameter 150mm CONCAVE MIRROR- Diameter 150mm CONVEX MIRROR- Diameter 150mm</p> <p>LENSES Six types of lenses i.e. biconvex ,Plano convex, biconcave ,Plano concave, positive meniscus, negative meniscus ,fixed on rotating stainless steel solid wheel mounted on a rotating mechanism in such a way that the stainless steel rotating wheel can be easily rotated by the visitor, with a laser pointer being positioned behind the rotating wheel at an appropriate height such that the laser pointer passes through one lens at a time and after passing through the lens the beam is projected on a projection screen which is placed in front of the rotating wheel. NOTE THE LASER POINTER AND THE PROJECTION SCREEN ARE PLACED ON TWO OPPOSITE SIDES OF THE ROTATING WHEEL.</p> <p>ITEM SPECIFICATION ROTATING WHEEL DIAMETER OF WHEEL IS 750MM WITH 7 CIRCULAR CUTOUPS OF DIA 80 MM INWHICH THE LENSES WOULD BE FIXED</p> <p>PROJECTION SCREEN PROJECTION SCREEN CONSISTS OF A GLASS CASE OF DIMENSIONS 1000X300X1200MM WHICH HAS SMOKE IN IT SO THAT THE PATH OF THE LASER CAN BE EASILY SEEN IN TH CASE</p> <p>LENSES SPECIFICATION BICONVEX LENS DIA 80MM PLANO CONVEX LENS DIA 80MM POSITIVE MENISCUS LENS DIA 80MM NEGATIVE MENISCUS LENS DIA 80MM</p>	1 Set		

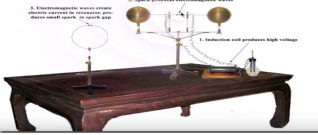
SCHEDULE-10

EXHIBIT DETAILED REPORT

		<p>BICONCAVE DIA 80 MM1 PLANO CONCAVE DIA 80MM</p> <p>SIZE OF DISPLAY STATION</p> <p>1000x4000x1000mm,with projection screen mounted on shorter side of the display station</p> <p>SUGGESTED VENDORS Lab fabricators and suppliers, Ambala scientific instruments(Sadar Bazar Ambala), Optochem international (New Multan,New Delhi),Accent Lab (Ambala Cantt)</p>			
256		<p>Light in Darkness OPT-EX-2</p>			
		<p>This exhibit shall demonstrate that light travels in a straight line and how we see an object . A jet black coloured (both inside and outside) box elevated at 900mm and wall mounted will have 250mm diameter - 3 number holes – with provision of light beam inside. The box looks completely dark unless a person inserts his hand into the holes. Beam of light falls on the hand to lit that up.</p> <p>SIZE OF DISPLAY STATION This exhibit is wall mounted at a height of 1200mm.</p> <p>SUGGESTED VENDORS Lab fabricators and suppliers, Ambala scientific instruments(Sadar Bazar Ambala), Optochem international (New Multan,New Delhi),Accent Lab (Ambala Cantt)</p>	1		
257		<p>Newton’s Prism Experiment OPT-EX-3</p>			
		<p>Description: This experiment depicts dispersion of light through a prism. In this experiment a prism, an artificial white light emitting source, white light source to be enclosed in an opaque box with a slit on one side in such a way that it emits light in a straight line onto the prism and the light is refracted and dispersed when passed through a prism and projected on screen mounted on the display station. The position of the prism, white light source, projection screen, opaque box with a slit in which the white light source will be placed has to be fixed on the display station and proper angular readings has to be marked on the display station to show the angle by which the light has bent after being passed through the prism. NOTE THIS WHOLE APPRATUS WILL BE ENCLOSED WITH IN A GLASS CASE.</p>	1		

SCHEDULE-10

EXHIBIT DETAILED REPORT

		<p>ITEMS REQUIRED PRISM –LENGTH NOT LESS THAN 200 MM,HEIGHT NOT LESS THAN 80 MM ARTIFICIAL WHITE LIGHT SOURCE-WHICHEVER IS FOUND SUITABLE EXCEPT HALOGEN LIGHT PROJECTION SCREEN- 1000MM WIDE AND 450MM HIGH OPAQUE BOX FOR COVERING WHITE LIGHT SOURCE-MADE OF WOOD WITH WOODEN TEXTURE ON IT AND VERTICAL SLIT ON ONE SIDE. SIZE OF DISPLAY STATION 1200x2000mm with 450mm high projection screen mounted on the shorter side SUGGESTED VENDORS Lab fabricators and suppliers, Ambala scientific instruments(Sadar Bazar Ambala), Optochem international (New Multan,New Delhi),Accent Lab (Ambala Cantt)</p>			
258		<p>Hertz Electromagnetic wave Experiment OPT-EX-4</p>			
		<p>Description: A dummy working model of Hertz electromagnetic wave experiment to be made with appropriate desired material such that it resembles the real experiment model. For more information kindly refer the links given below</p>  <p>TENTATIVE IMAGE OF MODEL http://people.seas.harvard.edu/~jones/cscie129/lectures/lecture6/hertz/Hertz_exp.html https://www.youtube.com/watch?v=UN37QEmW_ns</p> <p>The dummy model would be placed on a wooden display station and the whole apparatus would be enclosed in the glass case. SIZE OF DISPLAY STATION- 1000x1500x1000mm SUGGESTED VENDORS Lab fabricators and suppliers, Ambala scientific instruments(Sadar Bazar Ambala), Optochem international (New Multan,New Delhi),Accent Lab (Ambala Cantt)</p>	1		
259		<p>Young’s double slit experiment with water model OPT-EX-5</p>			
		<p>Description: In this exhibit Young’s double slit experiment would be showcased using water model of it. The water shall be contained in glass container of dimensions 600x600x600mm, and a glass screen of dimensions 600x600mm with 2 vertical slits would be placed vertically in centre in the container containing</p>	1		

SCHEDULE-10

EXHIBIT DETAILED REPORT

		<p>water. The waves shall be generated with wooden bob dropping mechanism in water. NOTE THIS WHOLE EXPERIMENT SHALL BE ENCLOSED IN A GLASS CASE For understanding on the experiment kindly refer the link https://www.youtube.com/watch?v=Jgm4f55soJQ https://www.youtube.com/watch?v=dNx70orCPnA</p> <p>SIZE OF THE DISPLAY STATION 1200X1200x1000mm</p> <p>SUGGESTED VENDORS Lab fabricators and suppliers, Ambala scientific instruments(Sadar Bazar Ambala), Optochem international (New Multan,New Delhi),Accent Lab (Ambala Cantt)</p>			
260		<p>Young's double slit experiment with light OPT-EX-6</p>			
		<p>Description: In this exhibit Young's Double slit experiment (with light) will be demonstrated. Laser light would be used in this experiment. This experiment would be conducted in a closed wooden box which would be open able whenever desired. The wooden box shall have wooden texture on it with an eye piece with proper padding at appropriate location to peep into the box and witness the experiment. The dimensions of the wooden box shall be 1000x1000mm.Kindly refer the links for better understanding of the experiment. One of the links showcases the experiment being conducted in the cardboard box similar model with wood has to be created. https://www.youtube.com/watch?v=nuaHY5lj2AA https://www.youtube.com/watch?v=9D8cPrEAGyc https://www.youtube.com/watch?v=luv6hY6zsd0</p> <p>SIZE OF THE DISPLAY STATION 1200X1200x1000mm</p> <p>SUGGESTED VENDORS Lab fabricators and suppliers, Ambala scientific instruments(Sadar Bazar Ambala), Optochem international (New Multan,New Delhi),Accent Lab (Ambala Cantt)</p>	1		
261		<p>Newton's And Galileo's Telescope OPT-EX-7</p>			
		<p>Description: This exhibit shall demonstrate Newton's and Galileo's telescope model with their working principle explained on infographics.</p> <p>Size of display Station 1000x2000x1000mm SUGGESTED VENDORS Lab fabricators and suppliers, Ambala scientific instruments(Sadar Bazar Ambala), Optochem international (New Multan,New</p>	1		

SCHEDULE-10

EXHIBIT DETAILED REPORT

		Delhi),Accent Lab (Ambala Cantt)			
262		Photoelectric Effect OPT-EX-8			
		<p>Description: In this exhibit Photoelectric effect would be demonstrated .Artificial light source would be used. Solar cells would be used to detect electricity as they would be connected to a bulb of appropriate specifications which glows even in the least electric current , magnifying glass can be used to see the bulb if the illuminance from bulb or size of the bulb is small to observe the glow. Different colour slides shall be fixed on a standee stainless steel solid rotating wheel mounted at the display station at an appropriate height. Colour slides that will be used are violet slide, indigo slide ,blue slide, green slide, yellow slide ,orange slide, red slide. The diameter of each slide shall be 50 mm. The standee stainless steel rotating wheel shall have cut outs of 50 mm diameter for fixing of slides into it.</p> <p>For more information on the experiment kindly click on the links. Kindly refer the first video to create exhibit the second video explains the basic working principle.</p> <p>https://www.youtube.com/watch?v=kcSYV8bJox8 https://www.youtube.com/watch?v=0b0axfyJ4oo</p> <p>Material: Appropriate materials shall be used. Size of display station 1200x2000x1000mm</p> <p>SUGGESTED VENDORS Lab fabricators and suppliers, Ambala scientific instruments(Sadar Bazar Ambala), Optochem international (New Multan,New Delhi),Accent Lab (Ambala Cantt)</p>	1		
263		Invisible me OPT-EX-9			
		<p>Description: In this exhibit materials with same refractive index shall be displayed. In this 3 glass beakers of different sizes would be used which shall be placed one inside the other. The beakers that shall be used are beaker 1 (size, diameter-600mm, height - 600mm), beaker 2(size, diameter-400mm, height 500mm),beaker 3(size, diameter-200mm, height400mm).Beaker 3 would be placed in beaker 2 and beaker 2 would be placed in beaker 1. This assembly shall be filled with sunflower oil (beaker 2 and beaker 3 would become invisible when all 3 of the beakers are filled to brim with sunflower oil) with a mechanism that refills it and then empties it and then</p>	1		

SCHEDULE-10

EXHIBIT DETAILED REPORT

		<p>again refills it with sun flower oil. The mechanism of filling and emptying the beakers shall be enclosed in black smooth finished box with only pipes coming out of the box. NOTE THIS APPRATUS ALONG WITH MECHANISM FOR FILLING AND EMPTYING THE BEAKER SHALL BE ENCLOSED IN GLASS CASE. Size of display station 800x1500x1000mm</p> <p>SUGGESTED VENDORS Lab fabricators and suppliers, Ambala scientific instruments(Sadar Bazar Ambala), Optochem international (New Multan,New Delhi),Accent Lab (Ambala Cantt)</p>			
264		<p>MATERIAL WITH DIFFERENT RTEFRACTIVE INDEX OPT-EX-10</p> <p>Description: In this, materials with different refractive index with a glass rod in them contained in beaker would be placed. The different materials that shall be used are alcohol, oil cedar, olive oil, glycerine, vegetable oil, water, sunflower oil, Apple juice, Vinegar. The diameter and height of beakers shall be 150mm and 200mm respectively with an appropriately long glass rod inserted in them such that at least one third of the glass rod is not submerged in the liquid. NOTE THIS WHOLE APPRATUS SHALL BE ENCLOSED IN A GLASS CABIN. Size of display station 500x1000x1000mm</p> <p>SUGGESTED VENDORS Lab fabricators and suppliers, Ambala scientific instruments(Sadar Bazar Ambala), Optochem international (New Multan,New Delhi),Accent Lab (Ambala Cantt)</p>	1		
265		<p>BEHAVIOUR OF LASER IN WATER OPT-EX-11</p> <p>Description: This exhibit will demonstrate the behaviour of laser in water. This exhibit shall have glass container (laser viewing tank) of dimensions 600x1200x600mm and laser light that would be attached to the display station in such way that it only points toward the tank from one of the shorter sides and its location and angle against the tank can be adjusted. The tank shall be filled water mixed with a scattering agent so that the laser beam is visible in water. Size of display station 1000x1600x1000mm</p>	1		

SCHEDULE-10

EXHIBIT DETAILED REPORT

		SUGGESTED VENDORS Lab fabricators and suppliers, Ambala scientific instruments(Sadar Bazar Ambala), Optochem international (New Multan,New Delhi),Accent Lab (Ambala Cantt)			
266		OPTICAL FIBER WORKING OPT-EX-12			
		<p>Description: This exhibit shall demonstrate the bending of light .This exhibit comprises of laser , 2 beakers of diameter 150 mm and height 200mm placed at a height difference of 250mm. The beaker placed at the higher level shall have a hole on the lower side of the beaker wall from which the water will drain into the beaker placed at the lower level. In the beaker placed at the higher level, just opposite to the hole a laser pointer shall be attached in such a way that the laser beam just passes through the hole created. Also a mechanism shall be developed such that the water from lower beaker is pumped to the beaker at higher level. The mechanism for pumping water shall be enclosed in black smooth finished box made of wood or metal or plastic, no hanging wires shall be seen, glass pipes and spouts of appropriate dimensions shall be used in this exhibit.</p> <p>Size of display station 700x700x1000mm</p> <p>SUGGESTED VENDORS Lab fabricators and suppliers, Ambala scientific instruments(Sadar Bazar Ambala), Optochem international (New Multan,New Delhi),Accent Lab (Ambala Cantt)</p>	1		
267		PERISCOPE OPT-EX-13			
		<p>Description: This exhibit shall demonstrate a working periscope mounted on a partition wall through which the visitors shall see across the wall. The periscope shall be cylindrical, made of metal, shall have lens on both the ends.</p> <p>The length of the periscope shall be 2500mm ,mounted on the wall such that it is easy to rotate, the periscope holding assembly shall have proper ball bearings so that there is no problem in rotating the periscope.</p> <p>Size of display station - wall mounted exhibit.</p> <p>SUGGESTED VENDORS Lab fabricators and suppliers, Ambala scientific instruments(Sadar Bazar Ambala), Optochem international (New Multan,New Delhi),Accent Lab (Ambala Cantt)</p>	1		
268		APPRATUS FOR ASSEMBLING TELESCOPE OPT-EX-14			

SCHEDULE-10

EXHIBIT DETAILED REPORT

		<p>Description: This exhibit shall demonstrate modular pieces of telescope, which shall be used by the visitor for assembling the telescope, this exhibit shall have 6 different types of lenses that will be used in combination along with the viewing tubes. Readymade stands shall be placed on which the visitor can mount the telescope and see outside the window. Readymade stands viewing tubes shall be made of metal and the viewing tubes shall have proper threads for adjusting focus. The types of lens that shall be used shall be specified by the vendor. The telescopes shall function perfectly fine.</p> <p>Size of display station 1000x6000x900mm</p> <p>SUGGESTED VENDORS Lab fabricators and suppliers, Ambala scientific instruments(Sadar Bazar Ambala), Optochem international (New Multan,New Delhi),Accent Lab (Ambala Cantt)</p>	10		
269		<p>APPRATUS FOR PERISCOPE,KALIEDOSCOPE,MICROSCOPE OPT-EX-15</p>			
		<p>Description: PERISCOPE This exhibit shall demonstrate the modular pieces of periscope that would be used by the visitors to assemble the periscope. The modular pieces shall be made of wood or metal. The mirrors that would be used shall not have pointed edges and shall have proper protection to prevent cuts due to pointed edges. KALIEDOSCOPE This exhibit shall demonstrate the modular pieces of kaleidoscope that would be used by the visitors to assemble the kaleidoscope. The modular pieces shall be made of wood or metal. The mirrors that would be used shall not have pointed edges and shall have proper protection to prevent cuts due to pointed edges. MICROSCOPE This exhibit shall demonstrate the modular pieces of microscope that would be used by the visitors to assemble the microscope, the modular pieces shall be made of wood or metal the lenses used shall not have pointed edges, the viewing tubes shall have proper threads to adjust the focus.</p> <p>Size of display station - 8000x700x900mm</p>	2		


SCHEDULE-10

EXHIBIT DETAILED REPORT

		SUGGESTED VENDORS Lab fabricators and suppliers, Ambala scientific instruments(Sadar Bazar Ambala), Optochem international (New Multan,New Delhi),Accent Lab (Ambala Cantt)			
270		HOLOGRAM OPT-EX-16	1		
		This exhibit shall demonstrate a working hologram. The size and the space requirements shall be specified by the vendor. SUGGESTED VENDOR - Alibaba.com, Aliexpress.com, Glimm screens international.			
271		SPECTROMETER & ELECTRON(digital) MICROSCOPE OPT-EX-17	1 set		
		Description: This exhibit shall demonstrate a real spectrometer an electron microscope. Size of display station 1000x2000x1000mm SUGGESTED VENDORS Lab fabricators and suppliers, Ambala scientific instruments(Sadar Bazar Ambala), Optochem international (New Multan,New Delhi),Accent Lab (Ambala Cantt)			
272		CAMERA WORKING OPT-EX-18			
		Description: This exhibit shall demonstrate the working of a camera .This exhibit shall comprise of a 35 mm film camera with all its parts displayed in front of the camera with its working described on infographics showing the working of camera Size of display station 700x2000x1000mm SUGGESTED VENDORS Lab fabricators and suppliers, Ambala scientific instruments(Sadar Bazar Ambala), Optochem international (New Multan,New Delhi),Accent Lab (Ambala Cantt)	1		
273		FOLLOWING EYES OPT-EX-19			
		Description: This model shall demonstrate model of gir lion following eyes with base dimensions to be 750x750mm and height to be 1200mm.Refer the video link (https://www.youtube.com/watch?v=A4QcyW-qTUg) to make the model of Gir lion following eyes. The model shall be made of cardboard or MDF and shall be enclosed on all 4 sides with glass such that no visitor can touch the exhibit.			

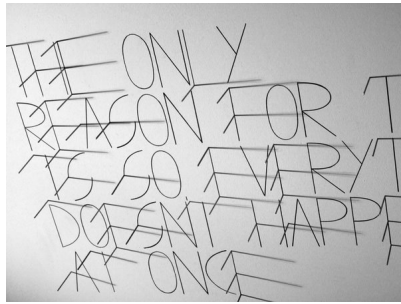
SCHEDULE-10

EXHIBIT DETAILED REPORT

		<p>Refer the following link for making the exhibit http://followingillusions.weebly.com/yoda-illusion.html .</p> <p>The exhibit shall be placed on ground.</p>			
274		<p>PRISM HOLOGRAM OPT-EX-20</p>			
		<p>Description: This model shall demonstrate a prism experiment the height of the exhibit shall be 900-1000mm. The exhibit shall be mounted on a display station</p> <p>Size of display station 1200x1200x1000mm</p> <p>SUGGESTED VENDOR - Alibaba.com, Aliexpress.com, Glimm screens international.</p>	1		
275		<p>MAHATMA GANDHI'S FACE ILLUSION OPT-EX-21</p>			
		<p>Description: This exhibit shall demonstrate illusion of Gandhi face when viewed from a certain angle. Refer the image to make the model.</p>  <p>This model shall be placed on the floor. SUGGESTED VENDORS - Scarlet Entertainment, Rajveer artistic installation, Street Artist(DAKU)</p>	1		
276		<p>ILLUSION WITH SHADOWS OPT-EX-22</p>			
		<p>Description: This exhibit shall demonstrate illusion with shadows showcasing a text that appear on wall made of shadows when light falls on the exhibit at a certain angle. The text that appears on the wall made of shadows shall be "Happiness is when what you think, what you say and what you do are in harmony". Refer the image for better understanding.</p>	1		

SCHEDULE-10

EXHIBIT DETAILED REPORT



SIZE OF DISPLAY STATION Wall mounted exhibit

SUGGESTED VENDORS - Scarlet Entertainment, Rajveer artistic installation, Street Artist(DAKU)

277		<p>INFINITY PIT OPT-EX-23</p>			
		<p>Description: This exhibit shall demonstrate an infinity mirror which is 1000x1000mm in dimensions and place on the floor on which the visitors can step therefore it has to be strong enough to take the load of at least 8 adult men standing on it at a time the frame of the infinity pit shall be made of stainless steel with proper grooving to hold the mirror and the tinted glass. Refer link for better understanding.</p> <p>https://www.youtube.com/watch?v=b2bvWArORSc</p> <p>This exhibit shall be placed on the floor</p> <p>SUGGESTED VENDORS Lab fabricators and suppliers, Ambala scientific instruments(Sadar Bazar Ambala), Optochem international (New Multan,New Delhi),Accent Lab (Ambala Cantt)</p>	1		
277		<p>ILLUSION TUNNEL OPT-EX-24</p>			
		<p>Description: This exhibit shall demonstrate an illusion tunnel as seen in the video link the diameter of the revolving tunnel is 3200mm,the bridge in the tunnel on which the visitor shall walk must be 1200mm wide, the side rails of the bridge shall be 900mm high, the length of the tunnel shall be5400mm. Refer video for better understanding.</p> <p>https://www.youtube.com/watch?v=pjdVLRyTrZw</p> <p>SUGGESTED VENDORS - Dreams Design Display, Asian replicas, Blue chip amusements.</p>	1		

SCHEDULE-10

EXHIBIT DETAILED REPORT

279

**PRESCRIBE A LENS
OPT-EX-25**

Description: This exhibit demonstrates the working of a human eye and its disorders(Far sightedness and short sightedness), it constitutes of sectional 3d model of human eye not more than 300x300x300mm in dimensions with all its parts visible as seen in the

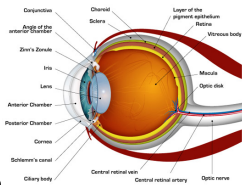


image ,4 laser pointers grouped into 2 pairs and placed on one another held into appropriate position with proper mechanism to hold them in place and a biconcave lens and a biconvex lens ,and a white screen(Dimensions of screen 600mm wide and 450 mm high) fixed on one end of the display station the biconvex and the bi concave lens should be movable backward and forward and left and right. The laser shall point on the lens and the then it shall fall on the screen. The laser pointer, lenses & the screen shall fall in a straight line and position of the lenses is adjustable. The position of the lenses shall be such that the four laser pointers can be converge to a single point on the screen

Size of display station 600x2500x1000mm

SUGGESTED VENDORS Lab fabricators and suppliers, Ambala scientific instruments(Sadar Bazar Ambala), Optochem international (New Multan,New Delhi),Accent Lab (Ambala Cantt)

1

280

**PEPPER GHOST
OPT-EX-26**

Description: This exhibit shall demonstrate a working model of pepper ghost. This exhibit shall be of dimensions 2000x2000x2200mm.The walls of the exhibit shall be made of pre laminated particle board with rockwool fill. The human models used in the exhibit shall be of actual human size. The back ground of models shall look like a bedroom. Refer the video link for better understanding.

<https://www.youtube.com/watch?v=0EN4t1GUECA>

SUGGESTED VENDORS - Glimm Screens international, Dreams Design Display, Asian replicas.

1



SCHEDULE-10

EXHIBIT DETAILED REPORT

281		<p>3D WORLD OPT-EX-27</p>			
		<p>Description: This exhibit shall demonstrate 3d images mounted on the wall in infographics, Which shall appear 3d only when being seen through 3d polariser screens mounted on viewing station which are connected by stainless steel railing, the height of the screen shall be appropriate enough to view the 3d image in infographics.</p> <p>SUGGESTED VENDORS Lab fabricators and suppliers, Ambala scientific instruments(Sadar Bazar Ambala), Optochem international (New Multan, New Delhi),Accent Lab (Ambala Cantt).</p>	1		
282		<p>ROPE MODEL FOR POLARISATION OPT-EX-28</p>			
		<p>Description: This exhibit shall demonstrate polarisation principle with rope, one end of the rope shall be attached to the wall and the other end passes through a screen with vertical slit. Dimensions of the screen shall be 650x650mm placed vertically on the display station, the screen shall be placed in the centre on the display station perpendicular to the longer edge of the display station ,screen shall be made of acrylic sheet with a 75mm wide and 300mm long vertical slit in the centre , screen shall be held firmly in place with a metal frame around it and fixed into the display station.</p> <p>Size of display station 650x2000x1000mm</p> <p>SUGGESTED VENDORS Lab fabricators and suppliers, Ambala scientific instruments(Sadar Bazar Ambala), Optochem international (New Multan, New Delhi),Accent Lab (Ambala Cantt).</p>	1		
283		<p>INVISIBLE CLOAK OPT-EX-30</p>			
		<p>Description: This exhibit shall demonstrate a dummy model of invisibility cloak. This model shall be comprised of a camera (could be dummy or real camera) a black coloured fabric(dimensions of the fabric 600x900mm) stretched and held vertically onto a stainless steel stand fixed on the floor, the fabric shall be placed in front of the wall at a distance of 900 mm from the wall , the camera shall be placed at</p>	1		

SCHEDULE-10

EXHIBIT DETAILED REPORT

	<p>900mm from the fabric on the opposite side. This activity shall be done with 2 individuals , one individual stands between the fabric and the wall and the other individual see the first individual through the camera when this is done the observer shall see part of the person invisible which is behind the fabric</p> <p>SUGGESTED VENDORS Lab fabricators and suppliers, Ambala scientific instruments(Sadar Bazar Ambala), Optochem international (New Multan,New Delhi),Accent Lab (Ambala Cantt)</p>			
284	<p>AMES ILLUSION, TILTED ROOM ILLUSION OPT-EX-31</p>	1		
	<p>This exhibit shall demonstrate Ames illusion, Tilted room illusion. Refer the following photos for better understanding .</p>  <p align="center">AMES ILLUSION</p>  <p align="center">TILTED ROOM ILLUSION</p> <p>SUGGESTED VENDORS - Big Brother Western outfit, Shree Bhairavnath Fabrication, Ashashree Enterprise.</p>			
285	<p>LED SCREENS</p>	6		
	<p>Description: 5 32inch LED screen in wave particle duality section of the gallery showcasing 3-4 minutes loop video on the respective exhibit near which they are placed. 1 32 inch LED showcasing a 3-4 min loop video on</p>			

SCHEDULE-10

EXHIBIT DETAILED REPORT

		working of laser light. No Audio involved Suggested Vendor or Equivalent: LG, Sony, Samsung Display type: LED			
286		Vinyl Pasted Infographics in Optics Total area covered by infographics 117sqm Size of one infographics is 1.5x2m	117-120 Sqm		
287		Exhibit Signage and Miscellaenous: Signage and Write Markups, exhibit Signage , 1.5 inch Letter size for Exhibit name 0.5 Inch per letter for Exhibit Information and citation for Each gallery, sub gallery or exhibit information.			
288		High Quality Adhesive Wall Pasted High Definition Printed Vinyl. Dinosaur Gallery: Vinyl wall covering in Dinosaur Gallery Total area of vinyl covering 75-90 Sqm. The Vinyl in the dinosaur gallery would be covering various scenes of Dinosaur Era, the Landscape and scenery in high resolution Manner and pasted on the wall behind the exhibit. Dinosaur Gallery: Vinyl wall covering in Human Sciences Gallery: Total area of vinyl covering 75-90 Sqm. The Vinyl in the Human Sciences gallery would be depicting the primordial soup scenery of earth before the formation of life, and then different systems of human body, cell, cell division, genetics etc. At the wall behind the exhibit.	350-400 Sqm		
289				10,00,000.00	
		Total Cost			

Total Exhibit Cost

Capital Cost: Total Exhibit cost of all galleries is 10,00,00,000 (Ten Cr)

Operation Cost: Operation and Maintenance for 5 yrs is 5,00,00,000 (5 Cr)

CLIENT: GUJARAT COUNCIL ON SCIENCE AND TECHNOLOGY DEPARTMENT OF SCIENCE & TECHNOLOGY, GOVT. OF GUJARAT SCIENCE CITY ROAD , AHMEDABAD

PROJECT: DESIGN & TECHNICAL AGENCY (DTA) FOR PREPARATION OF DETAILED DESIGN, TECHNICAL INPUTS AND CONSTRUCTION SUPERVISION OF REGIONAL SCIENCE MUSEUM AT PATAN

COST ESTIMATES

Sl. No.	Description	COST ESTIMATE (Excluding Taxes) (INR)	REMARKS
1	ARCHITECTURE, INTERIORS & LANDSCAPE	ARCH (MAIN BUILDING)	8,13,81,797.00
2		ARCH (UTILITY BUILDING)	26,87,999.00
3		BOUNDARY WALL	49,40,591.00
4		INTERIOR	2,28,91,254.00
5		LANDSCAPING	1,86,57,906.00
		SUBTOTAL	13,05,59,547.00
6	CIVIL	CIVIL	23,01,81,177.00
		SUBTOTAL	23,01,81,177.00
7	HVAC	HVAC	3,99,40,239.00
		SUBTOTAL	3,99,40,239.00
8	SITE DEVELOPMENT	PH-WTP	29,76,140.00
9		STP	50,48,951.00
10		EXTERNAL PLUMBING	68,43,137.00
		SUBTOTAL	1,48,68,228.00
11	PLUMBING & FIRE FIGHTING	PLUMBING	59,08,603.00
12		FIRE FIGHTING	83,09,200.00
		SUBTOTAL	1,42,17,803.00
13	ELECTRICAL	ELECTRICAL	5,13,77,281.00
		SUBTOTAL	5,13,77,281.00
14	EXTRA LOW VOLTAGE (ELV)	ACS	37,15,448.00
15		CCTV	37,98,873.00
16		FAPA	57,73,851.00
		SUBTOTAL	1,32,88,172.00
TOTAL COST EXCLUDING EXHIBITS			49,44,32,447.00
17	EXHIBIT COST	EXHIBITS	10,00,00,000.00
18	O&M for 5 years (Excluding Exhibits)		5,00,00,000.00
19	O&M for 5 years for Exhibits		5,00,00,000.00
TOTAL ESTIMATED COST			69,44,32,447.00