

GENERAL ABSTRACT

NAME OF WORK :-Proposed Estimate For Centralized Medical Gas Pipe lines at District Hospital.

S.No		NAME OF SUB HEAD	Amount
1	I)	Internal Electrification Work	13435344.00
		Add GST Charges @ 12%	1612241.28
		Total	15047585.28
		Say Amount	150.00 Lacs

S.No.		Description Of Item	Unit	Quantit y	Rate	Amount
1	2	3	4	5	6	7
	SOR No.	SOR ITEM (INTERNAL)				
1	4	Point wiring (excluding metallic switch box & sheet but including switches, sockets, lamp, holders, ceiling roses etc) with 1.5 Sq. mm. PVC insulated cable FR with copper multi strand conductor ISI marked in concealed rigid P.V.C. conduit (HMS) ISI Marked of suitable size and 1.5 Sq. mm. PVC insulated copper earth continuity conductor of green colour inside conduit etc. as required as per specification for :-				
	4.1	Light Point/Fan Points.	Each	2	354.6	709.2
		a) Short point	Each	2	603.9	1207.8
		b) Medium point	Each	6	974.7	5848.2
		c) Long point				
2	4.2	3 Pin 6 Amp socket outlet on Separate Board	Each	1	452.7	452.7
		a) Short point	Each	1	702	702
		b) Medium point	Each	2	1073	2145.6
		c) Long point				
3	4.5	Point wiring (excluding metallic switch box & sheet but including switches, sockets) for 3 pin 6 Amp. Socket outlet point with 1.5 Sq. mm. PVC insulated cable FR with copper multi strand conductor ISI marked in concealed rigid P.V.C. conduit (HMS) ISI marked of suitable size and 1.5 Sq. mm. PVC insulated copper earth continuity conductor of green colour inside conduit with required materials as per specification on same board .	Each	4	256.5	1026

S.No.		Description Of Item	Unit	Quantity	Rate	Amount
4	4.6	Wiring for circuit wiring with PVC insulated cable FR with copper multi strand conductor ISI marked in concealed rigid P.V.C. conduit (HMS) of ISI marked suitable size etc. as required as per specification				
		a) 2x2.5 Sq.mm.	Metre	30	105.3	3159
		b) 4x2.5 Sq.mm.	Metre	20	158.4	3168
		c) 6x2.5 Sq.mm.	Metre	10	202.5	2025
5	9.1	Point wiring (excluding metallic switch box & sheet) for 3 Pin 16 Amp. Socket Outlet Point With 4 Sq. mm. PVC insulated cable FR with copper multi strand conductor ISI marked in Concealed rigid P.V.C Conduit (HMS) ISI Marked of suitable size etc. with 16 Amp. F.T. Switch & Socket / S.S.Combined 6/16 Amp. of ISI Marked and 4 Sq. mm. PVC insulated copper earth continuity conductor of green colour inside conduit as per specification for				
		On Separate Board	Each	2	1202	2403
		B. Medium Point	Each	1	1366	1366.2
		C. Long Point	Each	2	3075	6150.6
		E. Extra Long -I	Each	2	421.2	842.4
6	9.2	Same board switch socket 6/16 Amp				
7	16	Supplying and fixing PVC conduit ISI marked along with the accessories in concealed system etc. as required				
	16.1	PVC . Conduit 20 mm (HMS)	Metre	20	54.9	1098
	16.2	PVC . Conduit 25 mm	Metre	20	64.8	1296

S.No.		Description Of Item	Unit	Quantity	Rate	Amount
8	18.2	Supplying and fixing of approved make modular type metal box with modular frame/ base plate and cover plate including fixing in concealed / surface excluding switch,socket etc. as required for:-	Each	2	140.4	280.8
	18.2.1	1 Or 2 Module	Each	4	187.2	748.8
	18.2.2	3 Module	Each	4	293.4	1173.6
	18.2.4	6 Module	Each	2	560	1120
	18.2.8	18 Module				
9	19	Supplying and drawing single core PVC insulated cable FR with copper multi strand conductor ISI marked in existing rigid PVC Casing-N-Capping / conduit in surface or concealed as per specification.				
10	19.1	1 X 1.5 sq mm	Per Mtr	60	18.9	1134
	19.1.1	(a) 1 X 1.5 sq mm	Per Mtr	30	45.9	1377
	19.1.3	(c) 3 X 1.5 sq mm				
11	19.2	1 X 2.5 sq mm	Per Mtr	60	27	1620
	19.1.1	(a) 1 X 2.5 sq mm (for earthing)				
12	27.1	Supplying of ISI Marked and approved make of Moulded Case Circuit Breaker (MCCB) suitable for 3 phase,3 pole, 50 Hz, 415 Volts, AC supply with respective interrupting capacity (KA) at 415 Volts cited against their range standard conforming to IS - 8828				
	27.1.2	MCCB with Breaking Capacity 25 KA at 415 V	Each	1	5041	5040.9
	27.1.2.1	Current Rating -25 to100 Amps & 80% -100% adjustable				

S.No.		Description Of Item	Unit	Quantity	Rate	Amount
13	27.5	Supplying of ISI Marked and accepted standard of Miniature Circuit Breaker (MCB) of 'C' series suitable for 240/415 Volts, 50 Cycle, 10 kA Value AC supply confirming to IS : 8828 : 1996, IEC : 60898 :2002 but without enclosures :-				
14	27.5.1	SINGLE POLE (SP)				
	27.5.1.2	6 Amp to 32 Amp Rating	Each	12	184.5	2214
15	27.5.4	FOR TRIPLE POLE (TP)				
	27.5.4.4	50 Amp to 63 Amp Rating	Each	1	1374	1374.3
16	27.5.6	FOUR POLE (FP)				
	27.5.6.3	For 40 Amps. Rating only.	Each	1	1731	1730.7
	27.5.6.4	50 Amp to 63 Amp Rating	Each	1	1778	1777.5
17	27.8	Supplying of approved make TPN MCB DB Metal Double Door IP 43 protection with provision for FP MCB/Isolator/RCCB/RCBO as incomer and SP MCBs as outgoing inclusive of Bus bar, Neutral bar, Earth bar & two earth terminals etc. complete as per IS:13032(exclusive of MCB & Isolator);				
	27.8.2	4 way (8+12)	Each	1	2375	2375.1
18	28.4	Fixing of MCB /MCCB/ Isolator in sheet steel enclosure as required as per accepted practice, including mounting on busbar and cable connection etc. complete (Labour only)				
	28.4.1	MCB / Isolator SP/DP	Each	12	9.9	118.8
	28.4.2	MCB /MCCB Isolator TP /TPN/FP	Each	4	19.8	79.2
19	28.7	Labour charges for fixing sheet steel enclosures, MCB DB flush mounting type, as per accepted practice, duly embedded and end plate completely flushed in wall, cable connection etc.complete :-				
		FOR S.No :-				
	28.7.1	27.7.1 to 27.7.7 ; 27.8.1 to 27.8.3 & 27.9.1,	Each	1	208.8	208.8

S.No.		Description Of Item	Unit	Quantity	Rate	Amount
20	30.6	Supplying, erecting and testing of approved make Exhaust Fan heavy duty with mounting frame, blades AC 230-250 complete connection and including, frame bolt/ Anchor hole fastners etc. complete finished of approved as required.				
	30.6.1	300mm sweep 900 RPM	Each	2	2626	5252.4
21	31.22	Supply and fixing Led tube rod comprising of LED tube with non integral / integral driver, 6500K color temp having 40000 burning hrs life with minimum @ L 70, system lumen output should be minimum with efficacy > 80 lm/W. LED driver PF 0.95 & THD < 20%. The colour rendering index of LED light should be more than 70. Submission LM 80-08 Form LED Source Manufacturer & LM79-08 / IS16106 from NABL approved lab. Manufacturer mandatory i/c connection wire, testing etc. to complete the job. 2 Yrs Guarantee certificate from manufacturer.				
	31.22.2	1 X 18/20/22W, Integral	Each	8	1421	11368.8
22	37.3	Earthing with G.I. Earth plate 600mm X 600mm X 6mm thick including accessories and providing masonry encloser in cement mortor, cover plate having locking arrangement on the top and G.I. watering pipe 20mm dia 2.7 Metre long etc. (but	Each	1	2656	2655.9
23	37.5.1	Add Extra for using salt and charcoal / coke for G.I. Plate or Copper plate earth electrode as required including excavation & refilling.	Each	1	1657	1656.9
24	37.11	Providing & fixing 25mm X 5mm G.I.strip in 40mm dia G.I. Pipe (B class) from earth electrode as required.	Metre	5	380.7	1903.5

S.No.		Description Of Item	Unit	Quantity	Rate	Amount
25	37.15	Providing and fixing 25mm X 4mm G.I. strip on surface or in recessed/concealed for connection etc. as required.	Metre	10	110.7	1107
26	37.16	Providing and fixing 6 SWG (5.6mm) G.I. wire on surface or in recessed/concealed for loop earthing as required.	Metre	10	17.1	171
27	41.1	Supply of XLPE Insulated power cable (confirming IS-7098 Part-I) 1100 Volt grade, 1 core /2 core /3½ core/4 core ISI MARKED with Alu. Stranded /solid conductor				
	41.1.10	4 CORE ARMOURED				
	41.1.10.2	10 Sq.mm.	Each	60	162.9	9774
28	41.5	Supplying and fixing heavy duty cable gland for P.V.C. insulated armoured cable with brass washer, Rubber ring complete erected with cable and lead connection etc. as per specification complete.				
	41.5.2	Gland Size 22mm suitable for cable 2/3, 3½, 2/4 x 10 Sq.mm or 2x 16 Sq.mm	Each	2	41.4	82.8
29	41.7	Supplying and fixing cramping type Alum. lugs as per I.S.S. Specification suitable for following size of cable with Alu. /Copper solid/stranded conductor evenly cramped with high/pressure tool and connected to switch gear/Bus/M.C.C.B./ M.C.B. etc. as required complete.				
	41.7.1	6mm to 16 Sq.mm	Each	8	1.8	14.4
30	41.8	Supplying & fixing pin terminal lugs as per ISS specification suitable for cable evenly cramped with high pressure tool & connection to switch gear terminal.				
	41.8.2	Copper Lugs Pin Type				

S.No.		Description Of Item	Unit	Quantity	Rate	Amount
	41.8.2.1	Up to 16 Sq.mm2 Conductor Size	Each	12	15.3	183.6
31	41.47	Laying of one number armoured / unarmoured cable 1.1kV grade of size not exceeding 25 Sq.mm on wall/truss with approved type of iron clamps etc. as required.	Metre	60	36	2160
32	45.16	Medical Gas Pipe Line - Manifold Items Note: Performance guarantee of these items of medical gas pipe line shall be administered by hospital incharge.				
33	45.16.1	(i) Oxygen Manifold: (2+ 2 size of oxygen manifold complete with 04 nos. pig tail pipes CE marked with 4 digit notified no./ UL listed .) Supply Installaton Testing and Commissioning of Oxygen Manifold system shall comprise of extendable bank's of 2+2 cylinders. High pressure copper pipes of size 1/2" ID x 15 swg& High pressure brass fitting made of high tensile brass shall be used. Flexible copper tail pipes withbul nose RH threads shall be used to connect the gas cylinders to the header assemblies with non return valves. high pressure flexible tail pipes shall be made of copper pipe of ID 1/4 " x 15 swg the manifold shall be tested hydraulically at 225 Kg/ cm2 pressure. it shall be degreased for oxygen service and shall be supplied duly wrapped in a polythene bag.	Set	24	11250	270000
34	45.16.2	(ii) Emergency Oxygen Manifold : (1 cylinder emergency manifold CE Marked with 4 digit notified body no. /UL listed) Supply Installaton Testing and Commissioning of Emergency Oxygen which shall comprise of 1 cylinder & Manual regulator. it shall be degreased for oxygen service and shall be supplied duly wrapped in a polythene bag.	Set	24	4950	118800

S.No.		Description Of Item	Unit	Quantity	Rate	Amount
35	45.16.3	<p>(iii) Fully Automatic Oxygen Control System :- Supply Installaton Testing and Commissioning of Oxygen automatic control panel with cover made of M.S. duly powder coated. Compact and fully automatic manifold control system for Oxygen services. Easy to maintain and use. Designed with both safety and continuity of flow supply at a constant pressure via two banks of bottled gas cylinders with following status monitoring. A-Bank in use (Green Indication). B-Bank ready for use (Yellow Indication).C-Empty Bank (Red Indication).Control Panel has build in LED display to indicate Normal, High & Low line pressure. It has facility to test all above indicators working perfectly. The control Panel includes pressure gauge (63 mm) to indicate the gas pressure of each header and pipe line distribution pressure. Capable to provide a distribution flow rate in excess of 1500 LPM. The control panel incorporate safety puncture in case pressure exceeds 100 Psi. In case of failure of electronic as well pneumatic system, control can be used manually through by pass system.</p>	Set	4 2	67500	270000
36	45.16.4	<p>(iv) Nitrous Oxide of size 1+1 manifold system: (1+1 size of Nitrous Oxide manifold complete with 4 nos. pig tail pipes CE Marked with 4 digit notified body no. / UL listed) Supply Installaton Testing and Commissioning of Nitrous Oxide of size 1+1 manifold system which shall comprise of extendable bank's of 1+1 cylinders with high pressure copper pipes of size 1/2" ID x 15 swg & high pressure brass fitting made of high tensile brass shall be used. Flexible copper tail pipes withbul nose RH threads shall be used to connect the gas cylinders to the header assemblies with non return valves. high pressure flexible tail pipes shall be made of copper pipe of ID 1/4 " x 15 swg the manifold shall be tested hydraulically at 225 Kg/ cm2 pressure. it shall be degreased for Nitrous service and shall be supplied duly wrapped in a polythene bag.</p>	Set	16	7650	122400

S.No.		Description Of Item	Unit	Quantity	Rate	Amount
37	45.16.5	(v) Automatic N2O Gas Control System : Supply Installaton Testing and Commissioning of Automatic N2O Gas Control System with cover made of M.S. duly powder coated. Compact and fully automatic manifold control system for N2O services. Easy to maintain and use. Designed with both safety and continuity of flow supply at a constant pressure via two banks of bottled gas cylinders with following status monitoring. A-Bank in use (Green Indication). B-Bank ready for use (Yellow Indication). C-Empty Bank (Red Indication). Control Panel has build in LED display to indicate Normal, High & Low line pressure. It has facility to test all above indicators working perfectly. The control Panel includes pressure gauge (63 mm) to indicate the gas pressure of each header and pipe line distribution pressure. Capable to provide a distribution flow rate in excess of 1500 LPM. The control panel incorporate safety puncture in case pressure exceeds 100 Psi. In case of failure of electronic as well pneumatic system, control can be used manually through by pass system. CE Marked with 4 digit notified body no. /UL	Set	4	67500	270000
38	45.16.6	(vii) Terminal Gas Outlets: Supply Installaton Testing and Commissioning of Terminal/Gas outlets with following specification (CE marked with 4 digit notified no./ UL listed):- •Oxygen • Vacuum • N2O •Air-4 bar • DISS air 7 Bar				
	45.16.6.1	oxygen	nos	300	1215	364500
	45.16.6.2	Vacuum	nos	300	1215	364500
	45.16.6.3	N2O	nos	24	1215	29160
	45.16.6.4	Air-4 bar	nos	120	1215	145800
	45.16.6.5	Air-7bar	nos	120	1215	145800
39	45.16.7	(vii) VACUUM CENTRAL SYSTEM :				

S.No.		Description Of Item	Unit	Quantity	Rate	Amount
		Providing,laying and commissioning of Vacuum system Consisting of three parts . The 2 vacuume pumps be of air cooled type, model V 244 x 2 HP each having Piston displacement – 34.5 cfm. Free air delivery o suction – 70 % of P.D. approximately, max working pressure – 29" of Hg or 730 mm of Hg. Single stage three cylinder, 976 Lpm fitted with MS channel frame compete with V-belt drive, belt guard etc. along with 2 HP, 440 volts, 3 ph, 50 Hz, with TEFC electric motor of Siemens / Crompton , 2" BSP stainless steel ball valve with PTFE seat with suitable brass adapters and non return valve with non ferrous filter element in housing (size 8.6" x 12" long) and shall have Silencer on discharge end projection (open to atmosphere) outside the plant room. Copper pipe interconnection up to receivers and Vacuum Tank of water capacity 500 ltr	Set	10	2E+05	2385000
	45.16.8	(viii) Bacterial Filter station and secretion traps	Set	10	67500	675000
40	45.16.9	(ix) COMPRESSED AIR :	Set	6	2E+05	1458000
		Supply Installaton Testing and Commissioning of COMPRESSED AIR SYSTEM with Air Compressor tank mounted - Two stage reciprocating ,of Capacity -408 Lt/Min,Pump RPM cfm -14.41, Electric motor -3 HP,Make CG/siemen/NGEF/Kirloskar or equivalent,Type of model - Sq. Induction TEFC,Size of reserver-180 Ltr, HEATLESS AIR DRYER- FLUID HANDLED - AIR,and having INLET CONDITION - a) Flow-20 CFM, b) Pressure -7 kg/cm2, c) Temperature - 45 Deg.c.d) Moisture Contents-100%RH and OUTLET CONDITION - a) Flow- 20 CFM, b) Pressure - 6.8 kg/cm2, c) Temperature- Ambient d) Drew Point - (-)40 Deg.C. temp. at atm. Pr. Desiccant - Activated Alumina,Line Size -15 MM, Pre Filter-Baffle type with drain Value, After Filter-Polyester Cloth type , Design Pressure-10 Kg/cm2,Material of Construction-IS: 2062/IS:1239,Code of Construction - IS 2825 , Approx space requirment in mm - 600 x 600 x 1600				

S.No.		Description Of Item	Unit	Quantit y	Rate	Amount
41	45.16.10	<p>(x) Zonal valve box : (CE marked with 4 digit notified no./UL listed) Supply Installaton Testing and Commissioning of Zone Valve Box with following specification:- 1/2"x1/2"x1/2"x1/2" X 3/4" (5 Gas) Zone valve boxes should be constructed of 18 gague sheet steel with air dried lacquer finish. The cover frame should be made of anodized aluminum and attched to the box by concealed 1-1/2" (38 mm) screws. The finished assembly should be substantially dust-tight. The frame assembly should be capable of adjusting for variances in wall thickness up to 1". The front assembly should contain an easily removable cover window with pull ring. The window should conceal exposed piping and valves inside the box and should be l;abled " Caution- Medical Gs Shut -OFF Valves- Close Only in Emergency". Clear viewing space should be provided in the window to display the gas service, the area controlled by the valve, and pressure gauges on units so equipped. Single - valve boxes shall accept valve sizes thro' 3"</p>	set	10 ✓	17100	171000
		<p>. Two & Three valve Boxes shall accept valves sizes throu 2" four, Five & size valve boxes shall accept valve sizes thro 1 1/4" valves should be factory installed with the smallest valve top leongest at the bottom we should apply labels to each valve within the assembly for proper gas service identification according to the manufacturer's instructions. placement of the valve within the zone valve box should be such that the removable window cannot be placed when any valve is closed. Factory installed type K copper pipe extensions should extend three inches outside the valve box.</p>				

S.No.		Description Of Item	Unit	Quantity	Rate	Amount
42		Design of the valve box should be such that valves may be removed prior to brazing, without disassembly of the box, to permit rearrangement of valves if necessary. valves should be ball type, cleaned for oxygen service, supplied with capped ends, and should operate full openable to closed position with 90 degree handle rotation (refer to Medical gas Valve specification) Gauge model zone valve assemblies shall include 1- 1/2" pressure gauges reading 0100 psi for oxygen, nitrous oxide, air and other 50 psi working pressure gases 0-300 psi for nitrogen and 0-30" HG for vacuum or evacuation vacuum. The gauge port should be equipped with removable plug for pressure testing prior to final assembly of gauge & all gauge model zone valve box assemblies.				
43	45.16.11	(xi) MEDICAL GAS AREA ALARM PANEL :	set	20 ✓	13500	1458000
		CE Marked with 4 digit notified body No.				
		The area alarm panels (AAP) will be located for monitoring				
		(a) Each O.T. and path lab				
		Display Box				
		Box 18 gauge powder coated.				
		Box size:- LxHxD 12"x8"x2 1/2"				
		Test function is provided in the Line Pressure Alarm system to the test the audio-visual indicators. On pressing the Test Button, all the emergency indicators i.e. the High and the Low indicators start glowing along with a beep alarm. This test is performed for 5 seconds and after that it comes back to its previous position.				
		Mute Function is provided for switching off the beep alarm whenever it blows. The system is provided with a timer, which allows the beep alarm to restart after 10 minutes of pressing the mute button.				
		All AAP's will be self-contained low voltage (Less than 24 V) with its own transformer mounted in a recessed box painted in distinct colours for various gases. 220 V, 50 Hz A.C supply will be made available at each AAP.				
44	45.16.12	Cu Pipe & Fittings :				

S.No.		Description of Item	Unit	Quantity	Rate	Amount
		Copper Pipe Solid drawn, Seamless, deoxidised nonarsenic, half hard, tempered and degressed material conforming to new european standard EN 13348:2008. Fitting are made of CU suitable for steam of working pressure 17 Bar.				
	45.16.12.1	(a) 12 mm (Thickness 0.7 mm)	Rmtr	6500	225	1462500
	45.16.12.2	(b) 15 mm (Thickness 0.9 mm)	Rmtr	4200	342	1436400
	45.16.12.3	(c) 22 mm (Thickness 0.9 mm)	Rmtr	3156	405	1278180
	45.16.12.4	(d) 28 mm (Thickness 0.9 mm)	Rmtr	1200	765	918000
					Sub Total	13435344
		Note:-This Estimate are Tantative Bases				