

SETTING UP OF EMERGENCY AND CRITICAL CARE DEPARTMENT IN THRISSUR MEDICAL COLLEGE - CONSTRUCTION OF TRIAGE BUILDING.

PART IV- FIRE PROTECTION SYSTEM

Sl. No.	Description of item	Unit	Qty	Rate in figures & words	Amount
1.0	FIRE ALARM SYSTEM				
1.1	Supply, installation, testing and commissioning of Addressable type Manual Call Point (break glass type) complete with push button, enclosed in box with provision for cable or conduit coupling. The unit to be painted fire red outside, white inside and written 'In case of fire break glass'.	Each	3		
1.2	Supply, installation, testing and commissioning of Hooter cum Speaker at different locations complete with all fixing accessories, etc. under false ceiling, roof, wall, etc. with a time delay of max 30sec, interconnecting lo loop cable complete as required.	Each	3		
1.3	Supply, Installation, Testing & Commissioning of 16 bit intelligent Addressable Fire Alarm Panel with 2 loops (each loop accessing at least 120 detectors) including battery backup. The panel shall be microprocessor based with its own micro controller, memory, communication module and fire device loop				
	interface cards for intelligent initiating and indicating devices and should also be networkable in peer-to-peer basis with other Addressable Fire Alarm Panels. The Panel shall be able to give pin point location of all Fire/Fault conditions of addressable units via the address codes for each unit. The Panel shall also be able to automatically switch off all Control Switches when ever any Alarm is triggered.				
	The panel shall have 54 Ah SMF Battery, Keypad operation, L C D unit to indicate Fire / Fault Signal of individual unit, in built printer to log all incoming data etc complete in all respects. operation of speakers. Panel shall have :				

PART IV- FIRE PROTECTION SYSTEM					
Sl. No.	Description of item	Unit	Qty	Rate in figures & words	Amount
	The Panel shall also have Logic hardware and software built into it for initiating specific AHU tripping, time delay operation of hooter and others as follows :				
	(a) programming software for the system				
	(b) automatic system test activates				
	(c) detector sensitivity adjustments				
	(d) alarm verification				
	(e) Alpha/numerical display				
	(f) provision to connect to PCs and external printers				
	(g) Support modbus and bacnet protocol.	Each	1		
1.4	Supply, installation, testing and commissioning of Analogue Addressable type Optical Smoke Detector (photoelectric type) complete with all accessories like base, base box, etc. to be installed under/above false ceiling, roof and concealed space, etc. interconnecting to loop cable complete as required.	Each	34		
1.5	Supply, installation, testing and commissioning of Analogue Addressable type Heat Detector (photoelectric type, Fixed cum-rate of rise type) with range upto 60 deg C complete with all fixing accessories like base, base box, etc. to be installed under/above false ceiling, roof and concealed space, etc. interconnecting to loop cable complete as required.	Each	16		
1.6	Supply, installation, testing and commissioning of addressable Loop Isolators to protect one area or a number of devices with complete set to be installed under/above false ceiling, roof, concealed space, wall, etc. interconnecting to loop cable complete as required.	Each	3		

PART IV- FIRE PROTECTION SYSTEM					
Sl. No.	Description of item	Unit	Qty	Rate in figures & words	Amount
1.7	Supply, installation, testing, and commissioning of Response Indicators	Each	10		
1.8	Supply and laying of 2x 1.5sq.mm copper armoured FRLS cable ISI marked with proper clamping, supports and terminations.	Each	975		
2.1	HYDRANT/SPRINKLER SYSTEM				
	Supplying, Installation, Testing and Commissioning of Electric driven main fire pump suitable for automatic operation and consisting of following : complete in all respect as required.(a)Horizontal type, single istage, centrifugal, end suction pump of cast iron body & bronze impeller with stainless steel shaft, mechanical seal having 1620 lpm at 56m head coupled to 40 HP SPDP, synchronous speed 2900 RPM, suitable for operation on 415 volts, 3 phase 50 Hz. AC with IP 55 protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS-325.(c)M.S. fabricated Common base plate, coupling guard, foundation bolts etc. as required. (d)Inter connection with suitable size PVC insulated PVC sheathed armoured copper conductor cable etc as required. (e)Suitable cement concrete foundation dulyplastered with antivibration pads.	Each	1		
2.2	DIESEL ENGINE DRIVEN PUMP				

PART IV- FIRE PROTECTION SYSTEM					
Sl. No.	Description of item	Unit	Qty	Rate in figures & words	Amount
	Supplying, Installation, Testing and Commissioning of Diesel Engine driven main fire pump suitable for automatic operation and consisting of following : complete in all respect as required.(a)Horizontal type, single stage, centrifugal pump of cast iron body & bronze impeller with stainless steel shaft, mechanical seal of 1620 lpm at 56m head coupled to Diesel Engine driven suitable for automatic operation and consisting of following : complete in all respect as required.				
	(b)Suitable, 1500 RPM water cooled with radiator, diesel engine conforming to relevant BS & IS standard complete with auto starting mechanism, 12 Volts/24 Volts electric starting equipment , Diesel tank, exhaust pipe extended up to 1.0 m.out side pump house duly insulated with 50 mm. thick glass wool with 1.0 mm. thick aluminium sheet cladding, residential silencer, instruments and protection as per specification, stop solenoid for auto stop in the event of fault with audio indications, painted with post office red colour etc. as required.(c)M.S. fabricated Common base plate, coupling,coupling guard, foundation bolts etc. as required.(d)Providing and fixing 15 mm dia GI pipe C class for fuel line as required. (e)Suitable cement concrete foundation duly plastered with antivibration pads.	Each	1		
2.3	JOCKEY PUMP				

PART IV- FIRE PROTECTION SYSTEM					
Sl. No.	Description of item	Unit	Qty	Rate in figures & words	Amount
	Supplying, Installation, Testing and Commissioning of Electric driven pressurisation pump suitable for automatic operation and consisting of following : complete in all respect as required. a)End suction, back pull out, centrifugal, centrifugal pump of cast iron body & bronze impeller with stainless steel shaft, mechanical seal and flow of 180 lpm at 56 m head conforming to IS :5120. (b)Suitable SQ cage induction motor, TEFC class 8 type suitable for operation on 415 volts, 3 phase 50 Hz. AC with IP 55 protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS-325.(c)M.S. fabricated Common base plate, coupling,coupling guard, foundation bolts etc. as required. (d)Suitable cement concrete foundation duly plastered with antivibration pads.	Each	1		
2.4	CONTROL PANEL & WIRING				
	Fabrication, Supplying, Installation, Testing and Commissioning of Electrical control panel of cubical construction, floor mounted type, fabricated out of 2mm. thick CRCA sheet, compartmentalised with hinged lockable doors, dust and vermin proof, powder coated of approved shade after 7 tank treatment process, cable alley, inter connection, having switchgears and accessories mounting and internal wiring, earth terminals, numbering etc. complete in all respect, suitable for operation on 415 V, 3 phase, 50 Hz. AC supply with enclosure protection class IP 42 required.				
	(A) COMMON PANEL IN FIRE PUMP HOUSE				
	INCOMER (a) 125 Amps. TPN Switch disconnecter (Isolator)				
	(b) Voltmeter (0-500 Volts) with selector switch.				
	(c) Ameter (0-125 Amps) with selector switch & CT's etc.				
	(d)Set of 3 Phase indicating lamp.				
	(e)Set of Al. bus bar 150Amps.				

PART IV- FIRE PROTECTION SYSTEM					
Sl. No.	Description of item	Unit	Qty	Rate in figures & words	Amount
	OUT GOING				
	(a) Main Fire pump 100 Amps. Switch disconnecter fuse unit with suitable rated Din type HRC fuse, fully automatic star/delta starter with over load protection for suitable rated motor of main fire pump, current sensing type single phase preventor complete with all accessories and internal wiring required for automatic operation, selector switch for local/remote, auto/manual/ OFF operation.				
	(b) Jockey pump				
	32 Amps. Switch disconnecter fuse unit with suitable rated Din type HRC fuse, fully automatic star/delta starter with over load protection for suitable rated motor of jockey pump, current sensing type single phase preventor complete with all accessories and internal wiring required for automatic operation, selector switch for local/remote, auto/manual/ OFF operation.				
	(c) Diesel Engine Control.				
	(a) 32 Amps. Switch Disconnecter fuse unit with suitable rated Din type HRC fuse.				
	Control for Diesel Engine comprising:-				
	(i) Auto/Manual selector switch & 3 attempt starting device, timers and relays as required, push buttons,				
	(ii) Indication lamp for High/Low Lub. Oil pressure, High Water Temp. and Engine ON indication.				
	(iii) Battery charger suitable for 12 V/ 24 V DC with boost and tickle selector switch, 0-30 V DC volt				
	(iv) All standard relays and accessories for automatic operation of diesel engine.				
	(C) SYSTEM CONTROLLER				
	Designing, Supply, Installation, Testing and commissioning of System controller to control operation of Main Electric Fire Pump, Diesel Pump, Pressurisation Pump, Terrace Pump in sequence as per specification consisting of relays, timers, sensors, annunciation window for fault indication, complete as per specification.	Each	1		

PART IV- FIRE PROTECTION SYSTEM					
Sl. No.	Description of item	Unit	Qty	Rate in figures & words	Amount
2.5	Supply and Laying of following size XLPE insulated PVC sheathed Aluminium / copper conductor armoured cable direct in masonry open duct, wall surface, cable tray etc to the incoming and outgoing of fire pump panel to pumps including necessary termination using glands & lugs, necessary connections etc as required.				
2.5.1	3.5 x 70 sqmm routed in soil	Mtr	30		
2.5.2	3.5 x 50 sqmm routed in soil	Mtr	20		
2.5.3	4 x16 sqmm on wall, floor	Mtr	15		
2.5.4	4 x10 sqmm on wall, floor	Mtr	15		
2.6	Providing, laying, testing and commissioning of 'C' class heavy duty MS pipe conforming to IS:1239 I/c fittings like elbows, tees, flanges, tapers, nuts, bolts, gaskets etc fixing the pipe on the wall/ ceiling with suitable clamps and painting with two or more coats of synthetic enamel paint of required shade complete as required.				

PART IV- FIRE PROTECTION SYSTEM					
Sl. No.	Description of item	Unit	Qty	Rate in figures & words	Amount
2.6.1	150 mm dia	Mtr	11		
2.6.2	100 mm dia	Mtr	42		
2.6.3	80 mm dia	Mtr	16		
2.6.4	25 mm dia	Mtr	6		
2.7	Providing, laying, testing & commissioning of 'C' class heavy duty MS pipe conforming to IS 3589 / 1239 including drop forged fittings like elbows, tees flanges, tapers, nuts bolts, gaskets etc. in ground including excavation & providing cement concrete blocks as supports, anticorrosive wrapping coating min 2mm thick as per IS10221, refilling the trench with compaction etc. of following sizes complete as required.				

PART IV- FIRE PROTECTION SYSTEM					
Sl. No.	Description of item	Unit	Qty	Rate in figures & words	Amount
2.7.1	100 mm dia	Mtr	161		
2.7.2	80 mm dia	Mtr	14		
2.8	Supplying , fixing, testing and commissioning of butterfly valve PN 1.6, bronze/ Gun metal seat duly ISI marked complete with Nuts, Bolts, washers, gaskets, conforming to IS 13095 of following sizes as required.				
2.8.1	150 mm dia	Each	5		
2.8.2	100 mm dia	Each	1		
2.8.3	80 mm dia	Each	2		

PART IV- FIRE PROTECTION SYSTEM					
Sl. No.	Description of item	Unit	Qty	Rate in figures & words	Amount
2.8.4	25 mm dia (Ball Valve)	Each	4		
2.9	Providing and fixing horizontal type cast iron double flanged Non -return valve of approved quality conforming to IS:5312 with bolts, nuts, washers, 3mm thick insertion rubber gaskets complete. as reqd.				
2.9.1	150 mm dia	Each	2		
2.9.2	100 mm dia	Each	1		
2.9.3	80 mm dia	Each	1		
2.10	Supplying, fixing, testing & commissioning of foot valve complete with bolts, nuts, washers and rubber gaskets etc. conforming to IS:4038 (ISI marked) of sizes:				
2.10.1	150 mm dia	Each	2		

PART IV- FIRE PROTECTION SYSTEM					
Sl. No.	Description of item	Unit	Qty	Rate in figures & words	Amount
2.10.2	80 mm dia	Each	1		
2.11	Supplying, fixing of priming tank syntex, of 500liters capacity with all pipe connections, valves	Each	1		
2.12	Supply, installation, testing and commissioning of pressure gauge 0-200 PSI (0 - 14 Kg) range, 3/8" BSP bottom entry, 4" dial weather proof with stainless steel internals, siphon tube amd ball valve including fittings, etc. complete as required	Each	4		
2.13	Supply, installation, testing and commissioning of industrial type pressure switch having 1/4" BSP(F) connection IP:32 enclosure protection, phosphor bronze bellows as sensing element, SDPT contact system, switch rating 6A Inductive/IOA resistive 380 V AC, 0.2A Inductive/10A resistive 250V DC suit with ball valve etc. complete as required.	Each	4		
2.14	Supplying and fixing air vessel ade of 250 mm dia 8 mm thick MS sheet, 1200 mm. In height with air release valve on top and flanged connection to riser, drain arrangement with 25 mm dia Gun metal wheel valve, with required accessories, pressure gauge and painting with synthetic enamel paint of approved shade as required.	set	1		

PART IV- FIRE PROTECTION SYSTEM					
Sl. No.	Description of item	Unit	Qty	Rate in figures & words	Amount
2.15	Supply, installation, testing and commissioning of gun metal fire hydrant valve, single headed oblique type 63 mm instantaneous outlets with female socket for hose connection and inlet side with flange suitable for 100 mm pipe flange, valve conforming to IS:5290 complete with blank cap chain, etc	Each	6		
2.16	Supplying and fixing First-aid Hose Reel with MS construction spray painted in Post office Red, conforming to IS 884 with up to date amendments, complete with the following as required. (a) 30 m. long 20 mm (nominal internal dia water hose Thermoplastic (Textile reinforced) Type-2 as per IS: 12585 (b) 20 mm (nominal internal) dia gun metal globe valve & nozzle. (c) Drum and brackets for fixing the equipments on wall. (d) Connections from riser with 40 mm dia stop valve (gun metal) & M.S. Pipe	set	3		
2.17	Providing and installation of 63 mm dia, 15 Mtr long rubber lined woven jacketed hose pipe, type- A (Reinforced rubber lined) of IS-636-1988 complete with necessary instantaneous spring lock type coupling at the ends to match with landing valve / hose pipe / branch pipe with gunmetal & female couplings (IS:903:1993)	Each	12		
2.18	Supplying & fixing 63 mm dia Gun metal branch pipe with 20 mm (nominal internal diameter) size Gun Metal nozzle conforming to IS 903, suitable for instantaneous connection to inter-connect hose pipe coupling as required.	Each	6		

PART IV- FIRE PROTECTION SYSTEM					
Sl. No.	Description of item	Unit	Qty	Rate in figures & words	Amount
2.19	Supply, installation, testing and commissioning of hose boxes wall/pedestal type of size 750 x 250 x 600 mm made out of 16 SWG MS sheet steel with front side glass, locking arrangement and painted with approved colour completed as required and as per specifications.	Each	6		
2.20	Supply, installation, testing and commissioning of Fire brigade collective breaching with 4 nos. of (twin Siamese) 150 mm flanged out let connection and built in check valves complete as required.	set	1		
2.21	Supply, and fixing of Air release valve all riser pipes as per specification	set	1		
3.0	PORTABLE FIRE EXTINGUISHERS				
3.1	Supply and installation of DCP type fire extinguisher of 5 kg. Capacity complete with initial charges and installation brackets. Supply and installation, testing and commissioning of DCP type fire extinguisher with 5 kg. Capacity complete with installation brackets with ISI mark IS:2171/13849	Each	9		
3.2	Supply and installation, testing and commissioning of CO2 type fire extinguisher with 4.5 kg. Capacity complete with installation brackets conforming to IS2878 with ISI mark	Each	3		
	TOTAL FOR FIRE DETECTION & FIGHTING SYSTEM				