Name of work: **Providing HT supply arrangements, Internal, external electrification, power mains and PA system arrangement for existing various building in Government Polytechnic College, Palacode in Dharmapuri District.**

EMD: Rs. 38500/-				***Date of Tender 20.04.22***	
Sl. No.	Approximate Quantity	Description of Work	Rate in Figure & in Words	Per	Amount
1	1 No. (One number)	Supply and erection of **Double pole 11 KV H.T Structure** of 33 feet 200 x 100x5.7mm R.S Joist with 10 feet centre to centre on either side with necessary MS angles ,cross branching and mass concreting of poles to received the 11 KV supply with following HT accessories complete as per Central Electricity Authority (measures relating to safty and electric supply) regulation. a) 2Nos, 33 feet length, 200x100x5.7mm R.S Joist poles and base plate of 300x300x6mm with concreting and coping. b) One set of 3Nos 11KV lighting arrester mounted on suitable channel iron size 4"x2"x1/2" complete. c) Three sets of 3 Nos. 11 KV pin insulator fixed on suitable channel iron from work complete for supporting copper jumper. d) One set of 3 Nos. 11 KV DO fuses complete with insulator on channel iron support. e) Two nos. of stay arrangements with guyshakle insulators with necessary masonry work . f) Supply and fixing of required cross bracing made of size 2 ½ x 2 ½ x ¼ " MS angle to keep the structure balance. g) Supply and fixing of required cross bracing made of size 2 ½ x 2 ½ x ¼ " MS angle to keep the structure balance. h) Providing H.T connections and jumper connections from supply point to the 2 pole structure with ACSR conductor / Aero HDBC conductor for giving necessary connections and jumpering from 11 KV strain Disc insulators to AB switch, AB switch to lighting arrestor, and DO fuse through insulators, and G Fuse to post top insulators and pin insulators complete with colour coding. i) Supply and fixing of 2 Nos. 11 KV metal danger boards. j) Painting the structure complete with primary coat of red oxide and two coats of alu. paints		1 No (Each)	

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Contractor

Chief Engineer

2	1 No. (One number)	Supply, erection, testing and commissioning of **250 KVA, 11KV, 433V, HV - Delta, LV Star off load tap changing, copper wound, outdoor type, distribution transformer** ON AN cooled, confirming to relevant IS 1180 / level-2, Class A Insulation and mounted on 300 x 90 x 6mm base channel bolted to a suitable RCC plinth of height 5' and RCC foundation to a depth of 2' with reinforcement by suitable MS rods 150Kg / m3 capable of bearing 2 ton weight and connected works fitted with the following: 1) LT Cable end box suitable for connection of 2 run of 3 1/2 x 240 sq.mm LTUG cables. 2) Bucholt relay with shut off valve, alarm and trip contacts. 3) Dehydrating silicagel breather. 4) Conservator with oil filling pipe, cap and drain plug valve. 5) Tank drain cum bottom filter valve with plug. 6) 4 Nos. plain rollers uni and bi-directional under base channels with skid. 7) Dial type thermometer with pocket to measure oil tempterature stem type. 8) Tank top filter valve with plug. 9) Explosion vent with diaphragm. 10) Oil level gauge with marking. 11) Two body earthing terminal and additional neutral bushings for solid earthing. 12 Rating and terminal marking diagram plate. 13) Lifting hooks/ Lifting eyes/ Jacking pad to facilitate easy movement of Transformer to ground level, cover lifting lugs.		1 No (Each)	

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Contractor

Chief Engineer

		14) Off load hand operated tap changing switch at standby height from ground level. 15) Tapping on primary winding for voltage variation +5% to -5% in steps of 2.5%. 16) Welded and detachable radiators. 17) Air release device. 18) The transformer should be supplied with first filling of oil as per IS 335 with high dielectric strength, BDV and flash point. 19) Monogram plate. 20) Shut off valve for surge relay 21) Oil surge relay 22) All removable covers shall be provided with weather proof hot oil resistant, resistance gaskets to prevent leakage of water into core, and oil from the tank with low no load loss 1100W and full load loss 6400W, impendence 5% with temperature rise oil / winding 50° - 55°C (Make: Kirloskar electric company / Indotech or equivalent). The tempereture rise mesure in the oil by thermometer shall not exceed 50 deg . Cel . Max . and winding by measurement of resistance shall be 55 deg . Cel . Max . over an ambient of 50 deg . Cel . Max . Tapping will be on HV winding to obtain HV variation to maintain constant LV voltage as mentioned below . The tapping will be controlled by ENAMEL PAINT of a shade corresponding to NO . 632 of IS : 5/ 1978 , transformer will be supplied with the first fill of transformer oil as per IS : 335 / 1983 with following accessories and contruction of suitable plinth of the transformer with suitable spacing arrangement with ncessary base concreting , fixing the transformer on the plinth including transporting and loading , unloading and erection charges etc. 1.2 Lifting Lugs 1.3 Thermometer Pocket 1.4 Air release hole with plug 1.5 Oil filling hole with plug on conservator			

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Contractor

Chief Engineer

		1.6 Plain oil level indicator on one side of the conservator with minimum oil level making 1.7 Dehydrating Silica gel breather 1.8 Drain cum bottom filter valve with plug 1.9 Top filter valve with plug 1.10 Base Chennels with rollers 1.11 Explosion vent with diaphragm 1.12 Detachable Radiators with cut off values. 1.13 OFF CIRCUIT TAP SWITCH 1.14 TERMINAL ARRANGEMENT 1 .14.1 H.V. TERMINALS :a) HV end termination insulator with brass terminals suitable for connecting H.T.solid jumpers Suitable for Outdoor Bushing/ Cable Box 1.14.2 L.V. TERMINALS : LT cable end box suitable for connection 2run of 3½ x 240sqmm LTUG cable Suitable Cable Box 1.15 Oil Temperature Indicator.			

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Contractor

Chief Engineer

3	1 No. (One number)	**800 Amps MV PANEL** : Supply and fixing of 1 Nos. 630A basic rating 4 pole 433V LT ACB (De rated to 400A) confirming to IS 13947 - 2 IEC 60947 2 with making. capacity of 50 KA accessories for standard horiAontal manual draw out type ACB equipped with auxiliary contacts and all accessories for closing and opening operation with micro processor SR 18 G relay over current trip device adjustable to LTD, STD and release for over current protection UV release with time delay, EF release short circuit protection, Mains CTs for 3 phases lockout, features,separate mould base for each pole for easy maintenance all relevant protection safety ,earth faut relay & over current relay and breaking capacity of 50 KA at 600V AC with all as per Central electricity authority (Measures relating to safety and electric supply)Regulation inforce with inter connection and terminations as required in specification TNEB SUPPLY INCOMING: 1 NOS,Generator INCOMING:1 Nos Supply and fixing of 400A FP double break front operated switch disconnector fuse interior only with HRC fuse -2 Nos (for generator). Outgoing 1. Supply and fixing of 400A TPN double break front operated switch disconnector fuse interior only with HRC fuse - 2 Nos. 2. Supply and fixing of 250A TPN double break front operated switch disconnector fuse interior only with HRC fuses - 5No's. 3.Supply and fixing of 315 A TPN switch -3 Nos.		1 No (Each)	

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Contractor

Chief Engineer

		4.Mech. Interlocking between 1No ACB & 1 No. Generator with 2 lock and one key The bus bar chamber will consist of 4 Nos. 50"x6"/eqivalent tinned copper flat for phase and neutral buses on epoxy moulded bus insulated at proper and sufficient spacing between the buses as per IE Rules. This bus bar chamber should be segregated from the adjacent chamber by providing hylem sheet the buses as per IE Rules. This bus bar chamber should be segregated from the adjacent chamber by providing hylem sheet of suitable thickness as partisans. 2 Nos 25x3mm tinned copper flats should be provided all round the panel for earth bus. The fuse Switches should be connected with the phase andnatural buses with suitable size of rigid copper flat/rod and each switch should be connected with the 2 Nos earth bus with suitable lugs. Phase and neutralbuses should be tinned properly.The panel should have a separate metering chamber with suitable multifunction meter, and LEDindicator lamp arrangements CT coils with necessary wire connection arrangements with indication lamps and Earth fault realy. The panel should be Powder Coat paint of approved colourapproved by the site officer and also the danger board . The capacity of the switches size of incoming and out going cable the place to which the supply is feed shall be marked on switchchamber The pannel board should be mounted on 100mm x50mm MS channel provided all round at bottom of the panel. The whole arrangement should be erected on a masonry pedestal to be constructed with suitable foundation bolts and nuts such that tha lowest switch handle is at aheight of 0.5 mtr from the ground level with necessary earth connecttion		

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Contractor

Chief Engineer

4	1 No. (One number)	**Existing panel room** Supply and Errection of 400A capacity dust and vermin proof cubical panel board made up of 16 SWG CRCA sheet steel with supply and fixing of the following interior mounting fuse switch with HRC fuses arrangement in two horiAontal rows top and bottom of horiAontal bus bar chamber and two ends one on each side next to the fuse switch chamber and cable alloy conforming to IE rules **INCOMING:** 400A TPN switch disconnector fuse units interior only with HRC fuse Double Break Switch - 1 No **OUTGOING:** 250A TPN switch disconnector fuse units interior only with HRC fuse Double Break Switch - 4 Nos 125A TPN switch disconnector fuse units interior only with HRC fuse Double Break Switch - 4 Nos (All the TPN Switch should be Siemens / L&T with Front Handle Make) The bus bar chamber will consist of 4 Nos. 50x6mm tinned copper flat for phase and neutral buses on epoxy moulded bus insulated at proper and sufficient spacing between the buses as per IE Rules. This bus bar chamber should be segregated from the adjacent chamber by providing hylem sheet of suitable thickness as partisans. 2 Nos 25x3mm tinned copper flats should be provided all round the panel for earth bus. The fuse Switches should be connected with the phase and natural buses with suitable size of rigid copper flat/rod and each switch should be connected with the 2 Nos earth bus with 2 runs of No.8 SWG rigid Tinned copper rod with suitable lugs. Phase and neutral tinned buses should be tinned properly.		1 No (Each)	

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Contractor

Chief Engineer

		The panel should have a separate metering chamber at the top side consisting of 0-600V Digital Voltmeter with Selector Switch, 0-400A Digital Ammeter with Selector Switch and C.T arrangement Pilot lamps, toggle switches, fuse unit(Siemens) indicator lamps should be provided with MCB. The panel should be Powder Coat paint of approved colour, approved by the site officer and also the danger board . The capacity of the switches siAe of incoming and out going cable the place to which the supply is feed shall be mounted on switch chamber. The pannel board should be mounted on 75mm x37mm MS channel provided all round at bottom of the panel. The whole arrangement should be erected on a masonry pedestal to be constructed with suitable foundation bolts and nuts such that the lowest switch handle is at a height of 0.45 m from the ground level with necessary earth connection. (Existing panel room)			
5	1 No. (One number)	Supply and Errection of 315A capacity dust and vermin proof cubical panel board made up of 16 SWG CRCA sheet steel with supply and fixing of the following interior mounting fuse switch with HRC fuses arrangement in two horiAontal rows top and bottom of horiAontal bus bar chamber and two ends one on each side next to the fuse switch chamber and cable alloy conforming to IE rules **INCOMER:** 315A FP switch disconnector fuse units interior only with HRC fuse Double Break Switch -1No. **OUTGOING:** 250A TPN switch disconnector fuse units interior only with HRC fuse Double Break Switch - 2 Nos 125A TPN switch disconnector fuse units interior only with HRC fuse Double Break Switch - 8 Nos (All the TPN Switch should be Siemens / L&T with Front Handle Make)		1 No (Each)	

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Contractor

Chief Engineer

		The bus bar chamber will consist of 4 Nos. 40x6mm tinned copper flat for phase and neutral buses on epoxy moulded bus insulated at proper and sufficient spacing between the buses as per IE Rules. This bus bar chamber should be segregated from the adjacent chamber by providing hylem sheet of suitable thickness as partisans. 2 Nos 25x3mm tinned copper flats should be provided all round the panel for earth bus. The fuse Switches should be connected with the phase and natural buses with suitable siAe of rigid copper flat/rod and each switch should be connected with the 2 Nos earth bus with 2 runs of No.8 SWG rigid Tinned copper rod with suitable lugs. Phase and neutral tinned buses should be tinned properly. The panel should have a separate metering chamber at the top side consisting of 0-600V Digital Voltmeter with Selector Switch, 0-400A Digital Ammeter with Selector Switch and C.T arrangement Pilot lamps, toggle switches, fuse unit(Siemens) indicator lamps should be provided with MCB. The panel should be Powder Coat paint of approved colour, approved by the site officer and also the danger board . The capacity of the switches siAe of incoming and out going cable the place to which the supply is feed shall be mounted on switch chamber. The pannel board should be mounted on 75mm x37mm MS channel provided all round at bottom of the panel. The whole arrangement should be erected on a masonry pedestal to be constructed with suitable foundation bolts and nuts such that the lowest switch handle is at a height of 0.45 m from the ground level with necessary earth connection. (Main lighting panel & Existing Adm. block main)			

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Contractor

Chief Engineer

6	1 set (One set)	Supply and erection of 75 KVA R Phase 415/440V, 50 HZ 8 Stage switching sequnce Automatic power factor controal panel maintenance the power factor above 0.95 lag, made up wall mounting stand vermin proof cubical panel board make upto 16SWG CRCA Sheet steel with supply and fixing of the following interior mounting capacitor chamber, relay with metering chamber and compartmentalized outgoing feeders with suitable capacity / MCCB with thought fully designed panel with provision for louvers & Cooling fan for properventilation to manage heat load **Incomer : 250**A TP MCCB with Rotary Handle **Outgoing :**-8 Stage Capacitor Bank with VAR serising capacities Contactors : Bharatia Cuttler Hammer Duty Contactors for reliabled trouble free operation **Relays :** World class solid state relays with TM2 technology as an option **Capacitor :** MPP Capacitor of 8 Stage from 1 KVAr to 15 KVAr capacitor with VAR serising capacities **Busbar:**50x6mm Tinned Copper Busbar Measurement of lead , lag, amps, fault, timer PF High, PF low, up down auto manual test ,run. Auto/Manual, mode selection with indicator light. Automatic calculation of C/K value. Program entry for targeted Cos Q value. Number of capacitors steps are user definable. The consequent switching time between capacitor steps is adjustable from 5 to 60 secs. Adjustable programmable over voltage protection for capacitor banks. Micro controller based digital design complying with international standards.		1 set (One set)	

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Contractor

Chief Engineer

		The APFC panel connections complate and as per relevant IE rules 8 stage of Automatic power factor control panel furnished below. I stage-1.0 KVAR. II stage- 2 KVAR. III stage-4 KVAR. IV stage- 8 KVAR. V stage- 10.0 KVAR. VI stage- 15.0 KVAR. VII stage- 15.0 KVAR. VIII stage-20.0 KVAR. The panel should be Epoxy based paint shade RAL 7032 and mounting plate with Foarm gas cutting for surtained ingress protection of the panel. the whole arrangement should be erection on the wall with suitable angle iron support with necessary earth connection for each and every capacitor with copper earth leds of suitable size asper IER/CEIG secfication. with signal cable from Main MV Panel to Capacitor complete with End termination. **(75 KVAR Capacitor Panel)**			
7	20 mts (Twenty metres)	Supply and laying of 2 runs of 3 ½ x 185 sq.mm PVC insulated armoured LTUG cable in a trench		1 Mt (One Metre)	

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Contractor

Chief Engineer

8	10 mts (Ten metres)	Supply and clamping of 2 runs of 3 ½ x 185sq.mm PVC insulated armoured LTUG cable on wall with MS clamps		1 Mt (One Metre)	
9	8 Nos (Eight numbers)	Supply and fixing of brass cable gland for 3½ x 185 sqmm PVC armoured LTUG cable with earth connection		1 No (Each)	
10	8 Nos (Eight numbers)	Supply and providing cable end termination of 3 1/2 x 185 sqmm PVC LTUG Aluminium armoured cable with necessary aluminium cable sockets by crimping etc. with electrical connection complete.		1 No (Each)	
11	23 mts (Twenty three metres)	Supply and clamping of 31/2 x185sq.mm PVC LTUG armoured LTUG cable on post or on wall with MS Clamps.		1 Mt (One Metre)	

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Contractor

Chief Engineer

12	1 Job (One job)	Supply and erection of following safety items; 1. 2mx1mx20mm thick 11 KV grade rubber mat - 8 Nos. 2. 9 litre fire bucket 4 Nos. with stand - 1 set 3.5 Kg capacity dry powder type fire extinguisher - 2 Nos. 4. Rubber hand glove 11 KV - 2 set 5. First aid box with medicine - 1 set 6. Earth discharge rod with 20 mt. long 7/20 sheathed cu wire - 1 No. 7.Dropout fuse operating rod - 1 No. 8. Megger 1000V - 1 No. 9. Clamp meter 0-1000A - 1 No. 10.First Aid chat in Tamil and English-1No. 11. Danger board as requird by the electrical authorites.		1 Job (One job)	
13	1 No. (One number)	Preparation of Electrical drawings new all building and existing all buildings for physical and schematic layout for HT and MV installations preparation submission of completion report to CEIG , paying all the fees to CEIG arranginging inspection and availing safety certificate from CEIG for the new HTMV installation.		1 No (Each)	
		Lightning Conductor			
14	400 mts (Four hundred metres)	Supply and run of 25mm x 6mm Alu flat with necessary FRB Bus insulators at each 0.5metre internal and with suitable MS clamp grouted on wall /Terrace with necessary Bolts and nuts ensuring complete electrical continuty.		1 Mt (One Metre)	
15	153 mts (One hundred and fifty three metres)	Supply and run of 25mm x6mm Alu. Flat for vertical drop from terrace to ground level with suitable BM10 insulator and alkathene hose on suitable MS clamp including scaffolding.		1 Mt (One Metre)	

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Contractor

Chief Engineer

16	24 mts (Twenty four metres)	Supply and run of 25mm x6mm Alu. Flat with suitable (2" dia) GI PIPE and alkathene hose pipe on wall with suitable MS clamp set.		1 Mt (One Metre)	
17	12 Nos (Twelve numbers)	Supply and errection of lightning arrestor / conductor made up of 2.5" dia Electrolitic copper ball with 5 Nos spikes each 5 long 1" dia copper pipe of 4' long (2mm thick) with suitable base to be fixed on suitable supporting structure and supply and fixinf of 5 metere of 2" dia GI pipes (B Class) for the lightening conductor with necessary heavy duty clamping arrangements on top wall supporter with stay set arrangements with masonry pedestal to with stand wind pressure.		1 No (Each)	
		PA System			
18	16 Nos (Sixteen numbers)	Supplying and fixing of AHUJA made radio make SMX 602T) high fidelity 2-Way PA wall mounting speaker system in compact & elegant black plastic housing comprising of a Polypropylene Woofer, a Titanium Dome Tweeter and 'U' type bracket for convenient wall mounting of the speaker with the following specification : Input Power - 60W RMS Power Taps - 60W, 60/30/15W Impedance/Voltage - 8Ω, 100V Frequency Response - 55-20,000Hz SPL at 1kHz (1W/1m) - 88dB Speakers - Woofer 163mm (6 ½"), Tweeter 25mm (1") Dimensions - W230 × H300 × D200 mm Weight - 3.10kg/3.65kg		1 No (Each)	

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Contractor

Chief Engineer

19	8 Nos (Eight numbers)	Supply and fixing of Ahuja SRX - 250 DX **PA Speaker System** two 12” Full Range Dual Cone speakers and a Piezo Horn Tweeter with Rugged Bass Reflex Enclosure made of 18mm board, and Carpet covered with stand mount adaptor with following specification Input Power - 200W RMS Frequency Response - 55-20, 000Hz Low Frequency Speaker - 2 × 12”, Ø1.5” Voice Coil High Frequency Unit - 1 × Piezo Horn Tweeter 3” × 6” PL at (1W/1m) - 100dB Max. Rated SPL - 123dB Nominal Impedance - 8Ω Port - Free Flow Flared Input Connectors - 1/4” Phone Jack + Terminal Strip Dimensions - W405 × H845 × D330 mm Weight - 26.0kg		1 No (Each)	
20	4 Nos (Four numbers)	Supplying and fixing of high quality compact **200w speaker** system housed in a sleek bass reflex injection moulded Polystrene plastic combined with a Top Handle making it an ultra light produc that in extremely with 2way configuration with following specification Input Power - 200W RMS Configuration - 2way Frequency Response - 65-18,000H2 Low Frequency Speaker - 1× 10”, 2" edge would voice coil High Frequency Unit - Dynamic Horn 1" voice coil Spl at (1W/1m) - 94dB Max. Rated SPL - 117dB Cross one Frequency - 5K H2 Nominal Impedance - 8Ω Input Connectors - Speak on push terminals (AHVJA Radio VS 200/)		1 No (Each)	

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Contractor

Chief Engineer

21	4 Nos (Four numbers)	Supply and fixing of compact and 480w power amplifier with operation of AC and 240V DC compricing the following : 1 6Mic, 2 auxillaary input and CD stereo input (L + R) 2.Built in MP3 player with remote controll and LCD display for USB, SD/ MMC card reader 3.Stereo /Mono switch to change ambience of MP3 Music player and CD / stereo music for DJ progrom 4.Seprate USB level controll provided 5.Line out put and out put on each zone for connecting to a mixer and booster amplifier respectively pre amplifier out put for recording 6.Box specker / driver unit select or switch for each zone , boss boost defeted at driven unit position for safer operation of driven unit zone ON/ OFF facility 7. resittable circuite breaker for protection againts over load and short circuit 8. Instant transfer to DC power (car battory) if AC power fails (AHUJA TZA -4000 DPN)		1 No (Each)	
22	2 Nos (Two numbers)	Supply and fixing studio master Professional BR -28 Wireless Microphone system with 8 selectable UHF channels and UHF frequency by PLL synthesis Technology with Antenna Diversity Receiver and double noise squelching circuit LED for channels information display highly efficient & Low Energy consumption design audio frequency response:50Hz-15KHz Model available :BR 28/BM-28 (Handheld) OR BR -28 / BL -28 (lapel) 1. Carrier Frequency Range - 460-970Mhz, UHF band 2. Modulation mode - FM 3. Maximum Diviation range - 70KHz 4. S/N Ratio - 85dB 5. Audio Dynamic range - 100dB 5. T.H.D (Total Harmonic Distortion) - 1%		1 No (Each)	

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Contractor

Chief Engineer

23	2 Nos (Two numbers)	Supply and fixing of AHUJA microphone stand (resistant to rust) with a 920 -1500m height with base dia 230mm light AHUJA DGN		1 No (Each)	
24	2 Nos (Two numbers)	Supplying and fixing Ahuja AXM -3500U professional unidirectional dynamic microphones with 3 bin XLR output , as well as a mini USB connector which allows this microphone to be connected directly to a computer and built -in analog to digital connector which draws 5V supply from the computer with the following specification : 1.Microphone Element - Unidirectional dynamic 2. Frequency response 50-16.00Hz 3. Sensitivity (for XLR output 2.5mV/pa 4.Impedance (for XLR output) - 600 ohm 5.ON/OFF Switch - 6. Output socket - 3Pin XLR & Mini USB 7.Power requirement - USB 5A ,30m 8. cables supplied 10m XLR to 6.3mm phone plug + 1m mini USB to USB		1 No (Each)	

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Contractor

Chief Engineer

25	3 Nos (Three numbers)	Supply and fixing of mixer preamplifier 240W with digital effects, 48V phanton supply on 4 channels with the following : 1. 4 mic inputs are avilable with 48V phantom supply which can be swiched ON/OFF through a common switch. 2.Stero balanced input in two selectable sensitivities of - 10 dBV snd + 4 dBU 3. Seprate EFFECT channel is provided for operating the built in digital effect processor through a digital selector processor and delay repeat and level control 4. Each Mic / Line channel has a gain control , 3 band active equivalizer control , a pre fader AUX 1 control a post feeder AUX 2/ EPX Control as and pan control 5.Channel ON/OFF Switch provided each indivitual channel . peak LED for signal chipping indication. 6. 8 Mic / line balanced Mono inout channel and one stereo balanced input channel 7. All Mic inputs through 3 pin F/ XLR connector and all line and stereo inputs are through 6.3mm stereo phone jack sockets 8. Head phone output with level control for out put manitaring 9. Stereo RCA IN /OUT for record and play back 10. Oprater on 240 V 50HZ AC supply AHUJA mixer 1032FX Pre amplifier)		1 No (Each)	
26	3 Nos (Three numbers)	Supply and Fixing Three Tier Steal rack with power management.		1 No (Each)	

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Contractor

Chief Engineer

27	690 mts (Six hundred and ninety metres)	Supply and run of 2 core of 1.5 sq.mm. Shielded Copper speaker wire of 1100V Grade in suitable PVC rigid pipe concealed in wall and ceiling with painting of suitable colour (new building)		1 Mt (One Metre)	
28	170 mts (One hundred and seventy metres)	Supply and run of 2 core of 1.5 sq.mm. Shielded Copper speaker wire of 1100V Grade in suitable PVC rigid pipe on wall and ceiling with painting of suitable colour (Existing building)		1 Mt (One Metre)	
29	210 mts (Two hundred and ten metres)	Supply and run of 8 core of 1.5 sq.mm. PVC Copper Conference Cable of 1100V Grade ON 7/20 GI bearer wire for Oper area in campus		1 Mt (One Metre)	
30	16 Nos (Sixteen numbers)	Supply and fixing of 5Amps (3 Pin and 2 Pin) combined flush type wall socket with control switches in suitable TW Box covered with 3 mm thick hylum sheet inflush with wall with earth connection		1 No (Each)	
31	4 Nos (Four numbers)	Supply and fixing of 8 Nos 5Amps (3 Pin and 2 Pin) combined flush type wall socket with control switches in suitable TW Box covered with 3 mm thick hylum sheet inflush with wall with earth connection		1 No (Each)	

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Contractor

Chief Engineer

32	3 Nos (Three numbers)	Supply and Fixing of 1 KVA double booster Stablizer for operation on 230V 50HZ, single phase Ac supply capable for for PA System .with necessary inter connection and earth connection. as directed by site officer. (V Guard / Studio master / Equivalent)		1 No (Each)	
33	2 Nos (Two numbers)	Supply and Fixing of 2 KVA double booster Stablizer for operation on 230V 50HZ, single phase Ac supply capable for for PA System .with necessary inter connection and earth connection. as directed by site officer. (V Guard / Studio master / Equivalent)		1 No (Each)	
34	310 mts (Three hundred and ten metres)	supply and run of 1 of No.8 copper conductor in PVC pipe on wall with earth connection		1 Mt (One Metre)	
35	2 Nos (Two numbers)	Earthing as per PWD standard with an earth electrode of 2mtr class 'B' GI pipe of dia not less than 32mm complete with necessary work.		1 No (Each)	
36	24 Pts (Twenty four points)	Wiring with 2x1.5 sqmm (22/0.3) PVC insulated SC unsheathed Cu.Conductor of 1100V grade in suitable PVC rigid pipe concealed in wall and ceiling with PVC accessories in flush with wall with 3mm thick hylum sheet cover with TW switch box and 5A F.T. switch and making good of the concealed portion with suitable colour for PVC concealed light / Fan Point (For electronic regulator) (5 Points Per Coil)		1 Pt (One point)	

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Contractor

Chief Engineer

37	14 Pts (Fourteen points)	Wiring with 2x1.5sqmm(22/0.3) PVC insulated unsheathed SC. Cu.Conductor of 1100V grade in suitable PVC rigid pipe on wall and ceiling with PVC accessories with TW switch box with 5A F.T. switch inflush with wall, covered with hylum sheet of 3mm thick with painting of suitable colour for open PVC light / fan point (For electronic regulator) (5 Points Per Coil)		1 Pt (One point)	
38	14 Nos (Fourteen numbers)	Supply and fixing of single box type 4'18 W LED fitting complete (higher end)with TW round blocks on wall or ceiling with flu tube with PVC unsheathed Copper leads from terminals to the fitting.		1 No (Each)	
39	9 Nos (Nine numbers)	Supply and fixing of single box type 4'18 W LED fitting complete ((higher end) with conduit pipe suspension from the ceiling with PVC unsheathed Copper leads from terminals to the fitting with LED tube.		1 No (Each)	
40	20 Nos (Twenty numbers)	Supply and fixing of 30W LED street light fitting with heat resistant toughened glass with IP 65 Prtection in suitable dia GI pipe (Class 'B') complete on the existing post or wall with PVC unsheathed Copper leads MS clarnps and aluminium painting (higher end)		1 No (Each)	
41	26 Nos (Twenty six numbers)	Supply and fixing of 1200 mm (48") AC ceiling fan complete with stepped electronic 300W regulator with 500mm down rod on the existing clamp.(higher end)		1 No (Each)	

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Contractor

Chief Engineer

42	3 Nos (Three numbers)	Supply and fixing of 375 mm (15") sweep (light duty) AC exhaust fan complete with necessary wall opening and making good of the wall.		1 No (Each)	
43	3 Nos (Three numbers)	Supply and fixing of louvers shutters arrangements for 375 mm (15") sweep light duty AC Exhaust fan.		1 No (Each)	
44	30 Nos (Thirty numbers)	Supply and fixing of 3 Nos. 5Amps (3 Pin and 2 Pin) combined flush type wall socket with control switches concealed in suitable TW Box covered with Hylem sheet in flush with wall with earth connection (For Computer Plug Socket)		1 No (Each)	
45	15 Nos (Fifteen numbers)	Supply and fixing of 5A/15 A 3 Pin combined flush type wall socket with 15A flush type switch concealed in suitable MS Box flush with wall with covered with Hylem sheet with painting		1 No (Each)	
46	18 Nos (Eighteen numbers)	Supply and fixing of 32Amps FP sheet enclosure with 32A FP MCB in flush with wall with earth connection [higher end) make]		1 No (Each)	

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Contractor

Chief Engineer

47	6 Nos (Six numbers)	Supply and fixing of 63Amps FP sheet enclosure with 63A FP MCB in flush with wall with earth connection[higher end) make]		1 No (Each)	
48	4 Nos (Four numbers)	Supply and fixing of 8 way single pole and neutral MCB sheet steel enclosure Distribution board with IP 42 protection metal Double door type with 1No 32 Amps DP MCB as incoming and 6 Nos 6 Amps to 32 Amps SPMCB outgoing in flush with wall and making good of the concealed portion with earth connection only. The MCB DB and MCB's should be with ISI mark [higher end)make (for Power)		1 No (Each)	
49	5 Nos (Five numbers)	Supply and fixing of 12 way single pole and neutral MCB sheet steel enclosure Distribution board with IP 42 protection metal Double door type with 1No 32 Amps DP MCB as incoming and 10 Nos 6 Amps to 32 Amps SPMCB outgoing in flush with wall and making good of the concealed portion with earth connection only. The MCB DB and MCB's should be with ISI mark [higher end) make		1 No (Each)	
50	1 No. (One number)	Supply and fixing of MCB subswitch board made up of 16 swg MS steel with FP MCB incomeing and 3 nos DP outgoing arrangement with 1 No 63A 4P MCB as incoming and 3 Nos 40A DP MCB as outgoing with interconnection of FP MCB and DP MCB with 6.0 Sq.mm PVC copper cable with suitable powder coat paint with flush with wall with earth connection (3ph to 1 ph)		1 No (Each)	
51	1 No. (One number)	Supply and fixing of type 4way 7 segment MCB distribution board in sheet steel enclosure with IP 42 protection metal Double door type with 63A 4 pole MCB 10Ka and 63 A FP ELCB(30 MA)as incoming and 63A MCB Isolator as sub incomer 32A 1ph MCB 12 No.10Kaas outgoing in flush with wall and making good of the concealed portion with earth connection. The MCBDB and MCB's should be with the ISI mark[higher end)		1 No (Each)	

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Contractor

Chief Engineer

52	1 No. (One number)	Supply and fixing of vertical type 4 way triple pole neutral MCCB distribution board in sheet steel enclosure with IP 42 protection metal Double door type with 125A 4 pole MCCB 25ka as incoming 4 nos.63A TP MCB10Ka as outgoing on suitable angle Iron frame work on wall with 2 Nos cable entry box with earth connection. The MCBDB and MCB's should be with the ISI mark[higher end) make)		1 No (Each)	
53	12 mts (Twelve metres)	Supply and run of 2 of 1.5 sqmm (36/0.3) PVC insulated SC unsheathed Cu.Conductor of 1100V Grade in suitable PVC rigid pipe concealed in wall and ceiling with continuous earth wire connection of 14 SWG TC wire and making good of the concealed portion with suitable colour.		1 Mt (One Metre)	
54	40 mts (Forty metres)	Supply and run of 2 of 4 sqmm (56/0.3) PVC insulated SC unsheathed Cu.Conductor of 1100V Grade in suitable PVC rigid pipe concealed in wall and ceiling with continuous earth wire connection of 14 SWG TC wire and making good of the concealed portion with suitable colour.		1 Mt (One Metre)	
55	160 mts (One hundred and sixty metres)	Supply and run of 2 of 1.5 sqmm (22/0.3) PVC insulated SC unsheathed Cu.Conductor of 1100V Grade in suitable PVC rigid pipe on wall and ceiling with continuous earth wire connection 14 SWG TC wire with painting of suitable colour.		1 Mt (One Metre)	
56	344 mts (Three hundred and forty four metres)	Supply and run of 2 of 2.5 sqmm (22/0.3) PVC insulated SC unsheathed Cu.Conductor of 1100V Grade in suitable PVC rigid pipe on wall and ceiling with continuous earth wire connection 14 SWG TC wire with painting of suitable colour.		1 Mt (One Metre)	

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Contractor

Chief Engineer

57	280 mts (Two hundred and eighty metres)	Supply and run of 2 of 4sqmm (56/0.3) PVC insulated SC unsheathed Cu.Conductor of 1100V Grade in suitable PVC rigid pipe on wall and ceiling with continuous earth wire connection of 14 SWG TC wire with painting of suitable colour		1 Mt (One Metre)	
58	128 mts (One hundred and twenty eight metres)	Supply and run of 2 of 6sqmm (84/0.3) PVC insulated SC unsheathed Cu.Conductor of 1100V Grade in suitable PVC rigid pipe on wall and ceiling with continuous earth wire connection of 14 SWG TC wire with painting of suitable colour.		1 Mt (One Metre)	
59	260 mts (Two hundred and sixty metres)	Supply and run of 4 of 4sqmm (56/0.3) PVC insulated SC unsheathed Cu.Conductor of 1100V Grade in suitable PVC rigid pipe on wall and ceiling with continuous earth wire connection of 14 SWG TC wire with painting of suitable colour (32 A FP MCB)		1 Mt (One Metre)	
60	120 mts (One hundred and twenty metres)	Supply and run of 3 of 4 sqmm (56/0.3)PVC insulated SC unsheathed Cu.Conductor of 1100V grade in suitable flexible conduit pipe on wall and ceiling with continuous earth wire connection of 14 SWG TC wire with painting painting of suitable colour(for three phase M/C)		1 Mt (One Metre)	
61	260 mts (Two hundred and sixty metres)	Supply and laying of 3 1/2 X 120 sq.mm PVC armoured LTUG cable in a trench to be excavated at a depth of 0.75 metre putting 0.15 mt. Layer of sand and covering the cable completely with the brickks and sand refilling the earth to make good.		1 Mt (One Metre)	

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Contractor

Chief Engineer

62	12 mts (Twelve metres)	Supply and clamping of 31/2 x 120 sq.mm PVC LTUG armoured LTUG cable on post or on wall with MS Clamps.		1 Mt (One Metre)	
63	2 Nos (Two numbers)	Supply and fixing of brass cable gland for 31/2 x 120 sq.mm PVC armoured LTUG cable with earth connection.		1 No (Each)	
64	2 Nos (Two numbers)	Supply and providing cable end termination of 3 1/2 x 120 sq.mm PVC LTUG Aluminum armoured cable with necessary aluminium cable sockets by crimping etc. with electrical connection complete.		1 No (Each)	
65	30 Nos (Thirty numbers)	Earthing as per the ISI specification with an earth electrode of 2.1mt class 'B' GI pipe of dia not less than 40mm, with copper earth plate of size 125mm x 50mm x 6mm, with necessary funneling arrangements with necessary masonry work and with 38mm RCC cover slab for the brick masonry.		1 No (Each)	
66	42 mts (Forty two metres)	Supply and run of 25mm x 3mm tinned copper flat with necessary clamps / supports on wall / floor / ground for earth connection.		1 Mt (One Metre)	

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Contractor

Chief Engineer

67	75 mts (Seventy five metres)	Supply and laying of 3 1/2 X 25 sq.mm PVC armoured LTUG cable in a trench to be excavated at a depth of 0.75 metre putting 0.15 mt. Layer of sand and covering the cable completely with the brickks bricks and sand refilling the earth to make good.		1 Mt (One Metre)	
68	24 mts (Twenty four metres)	Supply and clamping of 31/2 x 25 sq.mm PVC LTUG armoured LTUG cable on post or on wall with MS Clamps.		1 Mt (One Metre)	
69	2 Nos (Two numbers)	Supply and fixing of brass cable gland for 31/2 x 25 sq.mm PVC armoured LTUG cable with earth connection.		1 No (Each)	
70	2 Nos (Two numbers)	Supply and providing cable end termination of 3 1/2 x 25 sq.mm PVC LTUG Aluminum armoured cable with necessary aluminium cable sockets by crimping etc. with electrical connection complete.		1 No (Each)	
71	50 Nos (Fifty numbers)	Supply and fixing of LT cable route indicator with suitable angle not less than 38mm x 38mm 6mm and 0.6mtr long excavation of earth to a depth of 0.6mtr and concreting the ground level and making good of the ground as directed by the departmental officers.		1 No (Each)	

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Contractor

Chief Engineer

72	2 Nos (Two numbers)	Supply and erection, testing and commissioning of 2.0TR (5 star moudle (6500 K.cal/hr) ABS split type Air conditioner confirming to IS: 1391 (part 2) 1992 with Admt No.1 fitted with hermetically sealed air compressor operating on referigerent R.22 suitable for wall mounting for operation on 230V 50 HZ, single phase AC supply capable of performing. a) Cooling b) Dehumidifying c) Air circulating d) Filtering e) Refrigent pipe lines - 6 mtr length The Installation works for the above split type AC units includes the following; 1. Mounting/fitting indoor and outdoor units at their respective locations. 2) Laying refrigerant pipe line of required length not exceeding 6 metres distance & connecting both units after drilling hole/holes in the wall is required, thickness of the copper tubing shall not be less than 0.7mm 3) Installing the section pipe with expanded polythene form tubing. condensate water being formed within indoor unit 5) Leak testing the entire system unit 6) Charging refrigerant gas in the unit. 7) Suitable electrical wiring is to be provided with 2.5 sq.mm PVC insulated copper wire between indoor and outdoor unit upto 6 meter length and upto switch within 3 metres of location of indoor unit for 2.0 TR split type aid conditioner unit (Like Blue star/ Carrier/Voltsas/equivalent make) and as directed the departemntal officers.		1 No (Each)	
73	2 Nos (Two numbers)	Supply and installations of 5 KVA capacity Automatic voltage stabiliser with time delay relay (V.guard/equivalent) for 2.0 TR Split AC.		1 No (Each)	

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Contractor

Chief Engineer

74	1 No. (One number)	AMF CONTROL PANEL: Supply and errection of the AMF control panel (cubical) should be fabricated with vermin proof and dust proof best quality sheet steel and floor mounted with removable rear panels and hinged front doors with enamel painted and incorporating the following with suitable provision for connection incoming and outgoing leads having been made on the control panel for 160KVA gen set. 1. AC Ammeter and selector switch 2 . Volmeter and selector switch 3. 3Nos current transformer with suitable ratio 4. Frequency meter 5. KWH meter 6. 1 No power factor meter 7. Battery charging set comprising of the following for charging the battery from mains a. Transformer / Rectifer b. DC Ammeter c. DC Volt meter d. ON / OFF switch e. Charging rate selector switch f. push button start g. push button stop h. push button reset 8. 1 set Air break contactor with auxiliary netural contactor for main supply 9. 1 set Low volage HRC fuse for the short circuit protection of the main supply 10. 1 set Alternator contactor with auxiliary netural contactor		1 No (Each)	

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Contractor

Chief Engineer

		11. 1 set Three pole bimetal release for over load protection of alternator 12. 1 set low voltage HRC fuse for the short circuit protection of the alternator 13.1 set DC control relays incorporating engine start/ stop and failure to start / lockout 14. 1 set selecor switch auto/ manual 15. 1 no Push button "Start" 16. 1 no Push button "Stop" 17. 1 no Push button "Reset" 18.1 No signal lamp for indicating load on mains 19. 1 no signal lamp for indicating load on set 20.1no signal lamp for indicating set fails to start 21.1no signal lamp for indicating set running 22.1No signal lamp for indicating battery 23. 1set Pilot lamps of 3 nos 24. MCCB of 315A capacity with magnetic thermal overload release, instant start circuit trip and under voltage release switch 25.Rectangular copper bus bars (1No for each phase, neutral and earthing terminals) of adequate capacity duly colour coded with head shrinkable PVC sleeves. 26.1No mains voltage monitor 27.Hooter/Audio alarm for indicating set fails to start and for DG O/L. 28.1set Timers 29.Audio and Visual indicator arrangements for: a) Low lubricating oil pressure b) High water temperature c) Over speed		

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Contractor

Chief Engineer

		30.1No Earth fault relay 31.Isolator to isolate the neutral Note:- 1. The control panel should be complete with necessary fuses, cables, label, other accessories with neutral isolation arrangements. 2. The engine should trip for the following: a) Low lubricating oil pressure b) High water temperature c) Over speed 3.Supply and fitment of Auto Mains Failure Panel, 1 EB Service wih 315 Amps switch and contactors SUF Control relays, timers etc suitable for auto change over of DG & EB Service.			
75	20 mts (Twenty metres)	Supply and laying of 3 1/2 X 240 sq.mm PVC armoured LTUG cable in a trench to be excavated at a depth of 0.75 metre putting 0.15 mt. Layer of sand and covering the cable completely with the brickks bricks and sand refilling the earth to make good.(for gen set)		1 Mt (One Metre)	
76	12 mts (Twelve metres)	Supply and clamping of 31/2 x 240 sq.mm PVC LTUG armoured LTUG cable on post or on wall with MS Clamps.(for gen set)		1 Mt (One Metre)	
77	4 Nos (Four numbers)	Supply and fixing of brass cable gland for 31/2 x 240 sq.mm PVC armoured LTUG cable with earth connection.		1 No (Each)	

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Contractor

Chief Engineer

78	4 Nos (Four numbers)	Supply and providing cable end termination of 3 1/2 x 240 sq.mm PVC LTUG Aluminum armoured cable with necessary aluminium cable sockets by crimping etc. with electrical connection complete.		1 No (Each)	
79	40 mts (Forty metres)	Supply and laying of 3 1/2 X 50 sq.mm PVC armoured LTUG cable in a trench to be excavated at a depth of 0.75 metre putting 0.15 mt. Layer of sand and covering the cable completely with the brickks bricks and sand refilling the earth to make good.(for gen set)		1 Mt (One Metre)	
80	24 mts (Twenty four metres)	Supply and clamping of 31/2 x 50 sq.mm PVC LTUG armoured LTUG cable on post or on wall with MS Clamps.(for gen set)		1 Mt (One Metre)	
81	2 Nos (Two numbers)	Supply and fixing of brass cable gland for 31/2 x 50 sq.mm PVC armoured LTUG cable with earth connection.		1 No (Each)	
82	2 Nos (Two numbers)	Supply and providing cable end termination of 3 1/2 x 50 sq.mm PVC LTUG Aluminum armoured cable with necessary aluminium cable sockets by crimping etc. with electrical connection complete.		1 No (Each)	
			TOTAL		
		12%	**GST**		
			GRAND TOTAL		
		82 Items (Eighty two items)			

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Contractor

Chief Engineer