

Schedule of work.

Name of Work:- RMO of Electrical installation , fans Electric sub station , water supply pump, street light, Split Hot & Cold inverter based AC, CCTV , lift at R &T Wing, Production Wing & RMO of 2x 750 KVA , Sub station at DPT for year 2026-27. (S.H:- AMC of CCTV installed at CRI Kasauli & allied works.)

S.No	Description	Qty		Rate	Unit	Amount
1	Providing services for attending complaints of CCTV Camaras installed at various locations in CRI Campus Kasauli with 1 No. Electro/mechanical visit per month and attending SOS/Breakdown call basis as and when required as per term and condition enclosed etc as required.	12	Visit	1870.00	Per Month	22440.00
2	Supplying, installation, testing & commissioning of 5mtr. long HDMI Patch chord with Flexible high-speed HDMI cable with Ethernet and molded HDMI connector sat both ends capable to support signals upto 4K@60Hz and HDMI Ethernet Channel, 12-bit Deep Color etc. complete as required.	2	Nos	2298.00	Each	4596.00
4	Supplying, Installation, Testing and commissioning of following CAT6A Patch Cord should have ETL/UL verification program certificate for compliance with ANSI/TIA-568.2-D etc. complete as required.					
(a)	Copper Patch Cords of length 1m (3ft)	5	Nos	173.00	Each	865.00
(b)	Copper Patch Cords of length 3m (10ft)	2	Nos	405.00	Each	810.00
5	Supplying, Installation, Testing and commissioning of RJ45 Connector for CAT 6/6A Cables. RJ45 modular plug supports 4 twisted pairs, 8 positions, 8 connectors. Housing: PC, UL94V-2, transparent color, Use for 24- 26 AWG stranded wires etc. complete	20	Nos	9.00	Each	180.00
6	Supplying, installation, Testing and commissioning of following capacity 8 port Layer 2 indoor Network Switch having features and specifications etc. as mentioned here under: Minimum 8 X RJ-45 Gigabit Ethernet Ports and additional 2 X 1G SFP Ports with non-blocking architecture by having Switching capacity of minimum 20Gbps and packet forwarding rate of 14Mpps or higher, 8K MAC table. Internal dual AC Power supply with operating temperature of - 5 0C to +50 0C. Jumbo frame: 10KB or higher, IGMP Snooping, IGMP snooping querier and support for IGMP Snooping Fast Leave, Should create 250 or more MLD groups, MLD Snooping, Per VLAN MLD Snooping C MLD Snooping Fast Leave, STP, RSTP,MSTP, Loopback detection, Multicast filtering, VLAN Tagging, QOS: 8 Que per port, WRR, IPv4/IPv6 Interface : minimum 100 IPv4 static route entries and minimum 50 IPv6 static route entries, 700 Access Control entries, SSH CSSL for IPv4 and IPv6, 802.1x, ARP Spoofing, DHCP Snooping and server screening, IP+MAC+Port Binding, Per Port Bandwidth Control, 802.1X Authentication (Supports local/RADIUS database, Port-based Access Control and EAP, OTP, TLS, TTLS, PEAP Support) Cable Diagnostic feature, LLDP, LLDP-MED, SNTN/NTP, RMON, SNMP v1,v2c, v3 and SNMP Traps. Certifications: UL, CE, FCC, RoHS, MTCTE, OEM/Product must be on Trusted Telecom Portal of Department of Telecommunication, Government of India etc. complete as required.					
a	8 port PoE Layer 2 Network Switch with PoE Support of 130W or higher with each copper port supporting 802.3at PoE+.	2	Nos	35091.00	Each	70182.00

S.No	Description	Qty		Rate	Unit	Amount
7	Supplying, installation, Testing and commissioning of following capacity 8 port PoE Layer 2 Industrial Grade outdoor Network Switch having features and specifications etc. as mentioned here under: At least 8 X RJ-45 PoE/PoE+ Gigabit Ethernet Ports and additional 4 X 1G SFP Ports with non-blocking architecture by having Switching capacity of min. 24Gbps and packet forwarding rate of 17Mpps or higher, console port, 16K MAC table, IPv4 and IPv6 ready, IGMP snooping v1, v2, v3, DHCP,DHCP Relay, NTP/SNTP, SNMPv1, v2 C v3, TELNET/ SSH, LACP, STP, RSTP, MSTP, ERPS. VLAN: Port based, Mac based, IP subnet based, tag based, protocol based. Qin Q, L2/L3 ACL, 1588v2 Precision Time Protocol HWBased E2E Transparent clock, SNTP, TFTP, SNMP, Radius, Syslog. Dual DC Power input, IP30 rated, DIN Rail, -5° to 70° C operating temperature. Certificate: UL, CE, FCC, NEMA-TS2, IEC/MIL-STD for Shock ,					
	Vibration & Drop Certificate. OEM Should have Certificate for Industrial Cyber Security Capability IEC 62443-4-1:2018, ISO 45001, ISO 27001 and ISO 14001 Certified or Equivalent Indian Certificate. OEM/Product must be on Trusted Telecom Portal of Department of Telecommunication, Government of India etc. complete as required.	1	Nos	106678.00	Each	106678.00
8	Supplying, Installation, Testing and commissioning of small form-Pluggable (SFP) for Network Switches. Must be hot Pluggable, RoHS Complaint, etc. complete as required.					
(a)	1G SFP Single Mode/Multi Mode	4	Nos	4211.00	Each	16844.00
9	Supplying and drawing following core Multi mode Fiber Optic Cable having corrugated steel armoring, lesser optimize 50/125 µm with HDPE jacket, LSZH (Low smoke Zero Halogen), Tight-buffered or loose tube, maximum attenuation: < 3.5 dB/km at 850 nm, < 1.5 dB/km at 1300 nm, bandwidth > 2000 MHz-km at 850 nm, > 500 MHz-km at 1300 nm compliance and certifications: ISO/IEC 11801 Ed. 2.2, ANSI/TIA-568 C.3, ITU-T G.651.1 RoHS compliant. Multi Mode Fiber shall be Central-loose tube filled with Thixotropic jelly,duly following Standards: ISO 11801, IEC 607931/60794-1-2, ITU-T-REC G.652D and Telecordia GR 20-core, High quality Electro Chromium Coated Corrugated Steel tape (ECCS) and HDPE-Sheath,Operating ambient Temperature should be – 5 0C to+50 0C and Storage Temperature should be – 5 0C to+50 0C, Maximum Attenuation ± 3.5 dB/km at Operational Wavelength 850 nm and ± 1.5 dB / km at Operational Wavelength 1300 nm . type of fiber should be 50/125 / G.652D & Refractive Index should be 1.483/1.478, The value for Mode-field,Cladding Diameter 50 ± 2.5 µm and 125 ± 1µm correspondingly i/c splicing & marking etc complete as required					
(a)	6 Core Multi Mode Optical Fiber Cable	200	Mtr.	87.00	P.Mtr.	17400.00
10	Supplying, installation, testing and commissioning of fibre optical cable joint including providing joint enclosure and termination box, suitable for outdoor/indoor application, complete with necessary accessories, splicing, alignment, sealing and protection of fibres, ensuring mechanical strength and environmental sealing, complete as	6	Nos	1439.00	Each	8634.00

S.No	Description	Qty		Rate	Unit	Amount
11	Supplying and fixing Patch Cord of Optical Fiber Multi Mode or Single Mode LC to LC Fiber Duplex having high precision ceramic ferrule with good concentricity, Fiber coming single mode G652D, Cable Type 2mm with Mechanical specification Apex Offset < 50 µm, Fiber Height + 100 nm, End-face radius of Curvature 7mm < R < 0.2 db, Working ambient Temperature – 5 0C to +50 0C, Storage Temperature – 10 0C to +50 0C, Length -- 2meter, Type -- LC-LC Duplex etc complete as required.	4	Nos	705.00	Each	2820.00
12	Supplying, drawing, Testing and commissioning of Cat6A UTP 4 pair, 23 AWG solid copper cable in existing conduit/ on surface, U/FTP, LSZH, Non Plenum, Horizontal (solid) Cable suitable for high speed data networking application supporting upto 10Gbps over a 100 meter channel. The 4 Unshielded Twisted Pairs (UTP) cable with color coded insulation for easy identification should have FLAME PROPERTIES i.e. Flammability Test - IEC 60332-1, Smoke Density - IEC 61034, LSZH standards compliance: ANSI/TIA-568 C.2, ISO/IEC 11801, IEEE 802.3an, RoHS. Delay Skew should be < 45NS. The outer Cable Diameter should be 7.5 + 2 mm. Cable should have been tested and verified by UL/ ETL etc. <u>complete as required</u>					
(a)	1 Run of cable	150	Mtr.	74.00	P.Mtr.	11100.00
13	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.					
(a)	63 mm dia (OD-63 mm & ID-51 mm nominal)	90	Mtr.	289.00	P.Mtr.	26010.00
14	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					
(a)	25 mm	60	Mtr.	168.00	P.Mtr.	10080.00

S.No	Description	Qty		Rate	Unit	Amount
15	Supplying Installation Testing and Commissioning of 8 MP IP IR Outdoor Bullet Camera having following specifications and features etc :- 1) Type of Camera: Outdoor Bullet Camera 2) Image Sensor: 1/2.8" or better progressive Scan CMOS get color image even at night condition 3) Signal System: PAL/NTSC 4) Minimum Illumination: 0.006 Lux@ F1.4, AGC ON,0 lux with IR or better5) Imaging: 1/3s to 1/30000s, Auto Gain Control ,White Balance- Auto, Back Light Compensation, Multizone Privacy Masking, HLC, Digital Watermarking.6) On Screen Display: Camera should displayCamera title, Date & Time in live & recorded video both.7) Signal to Noise Ratio: > 50 dB 8) Day & Night: True Day & Night High Performance Mechanical IR cut filter with auto switch, IR Source Inbuilt Smart IR LED's with effective distance upto 50Mtrs integrated IR and 30 meter for colour view in night 9) Video Compression (Minimum): H.265 or better,G.723 10) Wide Dynamic Range: WDR (120dB or more) 11) Digital Noise Reduction: DNR (2D/3D) On/Off 12) Streaming: Triple streaming, configurable 13) Video Streaming & Frame Rates: Triple streaming , configurable Main stream: 8MP (3840 × 2160)@20 fps, Sub streams: 4MP @25/30 fps & D1@25/30 fps; 14) Image Setting: Rotate Mode, saturation, brightness, contrast, sharpness adjustable through client software or web browser 15) Profile Management: User configuration import,export 16)Security: User Authentication, Digital Water Marking 17) Onboard Storage; Camera should support built-in Micro SD/SDHC/SDXC Card slot upto 512 GB. It should be					
	18)Recording Management: Format SD, overwrite, storage management, video to NAS device, 19) Edge Analytics: Tripwire, Intrusion, Motion Detection 20) Alarm Trigger: Motion/tampering detection; memory card state detection; memory space detection 21) Alarm Support: It should have 1/1 Alarm In/ Out Port					
	22) Audio Support: It should have 1x Built-In Mic and 1/1 Audio In/ Out Port for external Mic. and Speaker (As per site requirement) with G.711U/A/ G.711Mu/ 23) Network Protocol: SFTP, IPv6, IPv4, DNS,RTCP, NTP, RTP, HTTP, HTTPS, SNMP TCP/IP, PPPoE, NFS, UDP, ICMP, SSL, DHCP, SMTP, RTSPS, unicast, 24) User Access: Minimum 08 Users 25) System Capability: ONVIF Profile S, G & T. CCTV Camera OEM should be fulltime member of ONVIF and quoted models should be listed on ONVIF official website (All the certifications & Credentials should be valid on the date of technical evaluation).26) VMS: Camera shall support open source VMS 27) Cyber Security: trusted boot, AES 256-bit Encryption, Configuration encryption, trusted execution, Digest, security logs, account lockout, video encryption, IP/MAC filtering, HTTPS, trusted upgrade. 28) Ethernet: 1 RJ 45 10/100 Ethernet port 29)Power Input: The camera should support simultaneous dual power input—12 VDC (via power adapter) and PoE—to ensure continuous operation in 30) Power Requirement: 12VDC/24VDC/PoE(802.3af)/ePoE 31) Enclosure: IP67 weather proof, IK10 40.9 32) Operating Condition: Ambient Temperature:- (0)5°C to 50°C, humidity 95% (max) (non-condensing) 33) IR life: 40000 hours or higher 34) Video Bit rate: 32 KBPS - 8 MBPS or better 35) Standards: BIS with ER, STOC Certified, CE, FCC and					
(a)	8 MP (3840 × 2160) or better IP IR 2.7 to 4 mm ~12 to 13.5mm or better Varifocal Motorized lens outdoor Bullet Camera.	1	Nos	28073.00	Each	28073.00

S.No	Description	Qty		Rate	Unit	Amount
16	SITC of single piece HT steel confirming to grade S355J0 continuously tapered having octagonal (8 sides) Pole made of 3mm thickness, 5 Metre Height having cross section and a single longitudinal welding. The structure shall be single hot dip galvanized as per BS 729/IS 2629. A suitably designed door 500mmX65mm shall be provided at approximate 500mm height from the pole base. The door opening will be suitably reinforced for structural strength. The door shall be flushed with pole external surface and shall provide easy access for electrical connections at a maintainable height. A suitable base flange 12 mm thickness will be welded with suitable reinforcements alongwith template. The size of base plate 200X200X12 mm and top dia of the pole 70 mm and bottom dia shall be 130mm (minimum) or as per OEM.	1	Nos.	10349.00	Each	10349.00
17	Providing and laying in position 1:3:6 reinforced cement concrete foundation of size 500mm(L) X 500mm(W) X 1000mm deep (200mm above the ground level and 800 mm below the ground level) i/c excavation of earth, as required with fixing and positioning of foundation bolts (20 mm dia 600 mm long hot dip galvanised type anchor bolts) and providing & fixing 63mm (OD) DWC, HDPE pipe for cable entry and exit i/c 4 Nos. GI foundation bolts having 2 Nos. anchor plates of suitable size of minimum 5mm thickness to match the PCD of foundation bolts complete as required.	1	Nos.	7651.00	Each	7651.00
18	SITC of SMF battery suitable for minimum 650VA UPS of Capacity for computer System with suitable for working on 140 volt to 300 volt AC Range & Power Output of 230 volt with at least 2 years Warranty on Battery complete etc. as reqd.	3	Nos.	1013.00	Each	3039.00
19	S.I.T.C of Laser Printer Cartridge as per Detail Given Below-					
a)	Brother DCP L2541DW	4	Nos.	1085.00	Each	4340.00
b)	HP laserjet Pro M126NW	6	Nos.	651.00	Each	3906.00
c)	Canon LBP6230/6240	6	Nos.	1085.00	Each	6510.00
d)	HP laserjet Tank MFP 2606sdw	4	Nos.	678.00	Each	2712.00
e)	HP laserjet MFP M-232-M237	6	Nos.	1352.00	Each	8112.00
20	Supplying, Installation, Testing and Commissioning of Desktop Computer system having processor of Intel Core I5 Processor, 9 MB Cache, 20 cores , upto 5.4 GHz , window -11 Home operating system , Intel UHD Graphics 128 graphics,memory- 64GB DDR5, 1x8GB at 16 GB Ram, 4400 MT/s, 512 GB SSD storage, Microsoft office Home edition , complete with Multimedia keyboard, optical Mouse, Monitor having Resolution/Refresh Rate -1920mm x 1080 mm, diagonal size 21 - 24", 1VGA connector, one display port 1.2 (HDCP1.4) with inbuilt speaker complete etc as required	1	Set	70098.00	P/set	70098.00
		Total Rs.				443429.00
		Say Rs.				443429.00