

Item Description	Specification
Supply of SFP Small form-factor pluggable transceiver Module FOR SWITCH OF CENTRAL DATA COMMUNICATION HUB	SFP-BaseT 1.25 G Small form-factor SFP Mode-Single IEEE 802.3z standard Compatability with OEMs Products-ALL OEM Wavelength(nm)- 1310, Fibre Cable Type Single mode, Interface - LC , upto 10 km or higher, 1.25 Gbps speed.  Make- Should be compatible with switch supplied
Supply of 1KVA Online UPS with half an hour backup	1KVA Online UPS with 30 mins backup (minimum) General Features: - Single Phase In & Out, with LCD Display, Microprocessor based, Soft Start Online UPS. The UPS should be provide 30 mins Backup Power Factor : > 0.95 ; Efficiency > 92 % Technical Specification: - Input Voltage : 175V AC – 275V AC Single Phase Input Frequency : 50 Hz + 5% Can also work on Generators Output Voltage : 230V AC + 2% Single Phase Output Frequency : 50 Hz + 0.05 Hz ( Crystal Controlled ). Linear distortion : < 3% Make: APC/AVO/NUMERIC/VERTIV ( including SMF VRLA Batteries. of Make-Exide, Amararaja or Superior )
Supply, Installation and commissining of 230V AC/3 KVA UPS (hot stand by) system isolation transformer at input, SMF battery, battery rack	Capacity: 3 KVA with minimum 2 hours backup IGBT Based PWM Rectifier Input : Voltage range : 140V to 300V Frequency range :50 Hz +-10% Input Power Factor: ≥ 0.95 Total harmonic distortion : Not more than 5% Output : Voltage : 230 V (+/- 0.1%);  Efficiency:≥ 90% Overload : 150% For one minute, 120% For 10 minutes or better THD : ≤2% On - Linear load & ≤5% on non - Linear load Protection : Battery Undervoltage , UPS Over Voltage/Overload & Short Circuit. Ingress Protection: IP 21 or better Including SMF battery of suitable capacity for desirable battery back-up  Make: AVO/VERTIV or better
Supply and installation of lightning and surge protection device both Class 'B' & Class 'C'	Lightning and surge protection device both Class 'B' & Class 'C' between line and neutral and neutral & earth. Nominal Voltage : 230V, Max Operating Voltage : >260V AC; lightning impulse current : >35 kA,10/350µs (L-N) & >50 kA,10/350µs (N-E); Response time : ≤100µs (L-N & N-E); Voltage protection level : ≤2kV(L-N & N-PE); Short circuit withstand and follow up current extinguishing capacity without back-up fuse :25kA/3kA; Nominal discharge current : ≥20kA ,8/20µs; Max discharge current :40kA,8/20µs; Operating Temp : -40°C to +80 °C: Make : Phoenix Contact or superior
Supply and Installation of Media converter	Media Conversion: 1000 BASE - X (SC Interface on Single Mode Fiber). 1000 BASE - T (Shielded RJ-45 Connector on UTP Cable) Standard Compliance: IEEE802.3a, 1000BASE-T, 1000BASE-X. Port : AUTO MDI-I/MDI-X Copper Ethernet port. Indication :Link & Activity LED Indications. Power: 100 to 250V AC, 10W. Make : ALLIED TELESYN / MRO / D-Link or Superior
Supply & installation of E1 to Ethernet converter	E1 to Ethernet converter E1 Interface : Data Rates : 2.048 Mbps; Line Code : HDB3, AMI Support G.703/ G.704 Framing:Unframed/FramedPCM31/FramedPCM30 CRC-CRC4:Enable/Disable Line Impedance : 120Ω, balancedSystemClock:Internalorloopbacktiming Diagnostics : Remote and local loopback Connector : RJ-45 Ethernet Interface : Type : 10/100 Base-TX and 100 Base-FX Mbps auto negotiation, Full/Half duplex, flow control. Conform to IEEE 802.3 and 802.3u; Connector : RJ-45 and LC type for Fibre connection. WAN : HDLC framing; CRC 16/32 bit POWER : AC : 100 t 240 VAC (+/- 10%), 50/60Hz; DC : -48 VDC (+/- 10%) Make: TEAM Engineer or better

Supply of 12 Fiber core armoured single mode Optic Fiber Cable	12 Core , Single mode, armoured optical fibre cable; Number of Loose Tube : 01 Number of Fiber per Tube : 12; Loose Tube Internal Diameter : 1.7 ± 0.1 mm (PBT); Loose Tube Outer Diameter : 2.5 ± 0.1 mm (PBT); Armour : ≥ 0.150 mm (ECCS Tape); Outer Sheath thickness : 1.5 mm (Nominal) (HDPE/LSZH Black); Cable Diameter : 7.5 ± 0.5 mm; IEC 60793-1 & 60794-1 ; ISO/IEC 11801 ITU-T REC G.652D Wavelength :1310/1550nm; Make: Digisol or Superior
Supply and Installation of 19" rack mouted 24 port Fiber management Distribution system	19" rack mouted 24 port Fiber management Distribution system and termination of OFC and Splicing of all the Fibers inside the Terminal Box with provision of taking out OFC as required. This includes supply of all Installation accessories including the pigtails with connector as per order of practice for installation and commissioning of Optical Fiber
Supply of Armoured SC-PC/ SC-LC/ FC-LC ( or as per requirement) Fibre Patch Cord	Connector type: SC-PC/ SC-LC/ FC-LC ( or as per requirement) Protective layer of Metal braiding (which should have excellent side pressure resistance, flexibility and bending performance) Single mode (OS2, 9/125 µm) Patch cord with LSZH jacket, Test Wavelength 1310/1550nm, Standards-Compliant ROHS Steel tube protection aramid yarn and rainforcing steel spiral
Supply of STP CAT-6 Cable (305 meter Box)	STP CAT 6 Cable :Conductor : 23 AWG copper,Insulation: Polyethylene , Conductor :23 AWG, Solid bare copper Pairs :4 Pair twisted wires; Conductor Diameter : 0.55 ± 0.02 mm Insulation Material :High density polyethylene (HDPE)  Seperator Material : Polyolefin / Polyethylene Central Member : PE cross seperator; Wrapping : Overall Polyester tape; HF-Screening : Overall AL-PET (Mylar) tape Braiding : Tinned copper conductor; Jacket Sheath : FRPVC; Jacket Type : LSZH Sheath Current Rating : 1.5 A Make: DLink/DIGISOL/Molex or superior
Supply of RJ45 Connector (1 box of 100 nos)	Plug Housing: Polycarbonate, Contacts: Copper, Rear Shield: Copper, Inner Ferrule: Polycarbonate.
Supply of 25 mm PVC conduit pipe as per ISI grade.	ISI Grade , Dia: 25mm, Material : PVC; Medium Grade Pipe with ISI Mark
Supply of 30 watts Horn speaker	30 watts Horn speaker with 30 watt tapping, matching transformer and driver unit (i) Frequency range: 210 – 20000Hz. (ii) Input Voltage : 70V; 100V (iii) Transformer taps : 70 V line (W) : 3.75 W; 7.5 W; 15 W; 30 W Transformer taps 100 V line (W) : 3.75 W; 7.5 W; 15 W; 30 W (v) Protection: weather protected Make : Bosch , Bose or superior
Supply and Installation of column Speaker 15 W with LMT	Column Speaker 15 W with LMT all metal weather resistant including fixtures and other material required. 15W RMS (23W Max) ; Power Taps: 15/10/5W/2.5W; FREQUENC Y RESPONSE 150-15,000Hz; Make : Ahuja , Bosch , Bose or superior
Supply of Microphone with stand, Specification	Microphone with stand Unidirectional Ⓢ Frequency Response : 80-12,000Hz Ⓢ Sensitivity : 1.7 mV/Pa ±3 dB Ⓢ Output Impedance : 600Ω Should conforming to IEC 60268-4. Connector : 3-pin XLR Supplied with quick detachable holder with 3-pin professional XLR connector & 10m twin core shielded low noise cable. Make : Bosch , Bose or superior
Supply, Installation Commissioning of 350 Watt Amplifier	7 Mic & 2 Aux Inputs Type Analog Power Supply : AC : 220-240V 50/60Hz DC: 36V (3 ×12V C ar Battery) Freq. Response : 50-15,000Hz ±3dB; 450W Max., 350W RMS at 10% THD ,320W RMS at 5% THD, 300W RMS at 2% THD Speaker output : 4Ω, 8Ω, 70V & 100V; SNR : 60dB; Tone Controls Bass: ±10dB at 100Hz, Treble: ±10dB at 10kHz Make : Boss/Bosch or superior

Supply, Installation Commissioning of 500 Watt Amplifier	<p>7 Mic &amp; 2 Aux Inputs  Type Analog  Power Supply : AC : 220-240V 50/60Hz DC: 36V (3 ×12V C ar Battery)  Freq. Response : 50-15,000Hz ±3dB;  750W Max., 500W RMS at 10% THD,450W RMS at 5% THD, 415W RMS at 2% THD;  Speaker output : 4Ω, 8Ω, 70V &amp; 100V;  SNR : 60dB;  Tone Controls Bass: ±10dB at 100Hz, Treble: ±10dB at 10kHz  Make : Boss/Bosch or superior</p>
Supply of LS cable.	<p>Material : screened copper cable,  Strands/Dia : 48 X 0.2 mm  Core : 2 core, Red / Black PVC insulated, twisted &amp; diameter 1.5 sq mm Steel Wire Armoured, , Jacket : PVC insulated ; Speaker External Cable  ISO Standard</p>
Supply and installation of independent Iron Structure post including water proof protection arrangement with canopy for Horn unit at platform are including painting and erection.	<p>Overall Height : 4.5 Mtrs; Dia : 3"; With MS Flat for fixing horns; Necessary approved drawing to be collected from Railway before supplying the item.  including water proof protection arrangement with knopy for Horn unit at platform are including painting and erection.</p>
Supply and installation of Wall mounted 19",6U <u>closed</u> Steel Rack	<p>Wall mount Closed/covered rack 6U 600mm width 500mm depth 19" Robust Frame Structure, full vented top cover &amp; bottom cover with the cable entry provision, Front tinted glass door, AC main distribution box with 6nos.5 amp socket , 19" cable manager 1U , Front panel mounting hardware , 230V AC 90 CFM fans mounted on top  Make:HCL, VALRACK &amp; APW or Superior</p>
Supply of Power Extension box	<p>No. of Sockets : 6 Amp. (In Numbers) 4  No. of cores in the cable (Nos) 3  Length of cable with Extension Box (In Mtrs) 5.0 Metre  Nos of pin in the Input plug (Nos) 3 Pin  As per IS 1293 ( or Latest)  Should be provided with controller switch.</p>
Supply and installation of Wall mounted 19",9U <u>closed</u> Steel Rack	<p>Wall mount Closed/covered rack 9U 600mm width 500mm depth 19" Robust Frame Structure, full vented top cover &amp; bottom cover with the cable entry provision, Front tinted glass door, AC main distribution box with 6nos.5 amp socket , 19" cable manager 1U , Front panel mounting hardware , 230V AC 90 CFM fans mounted on top  Make:HCL, VALRACK &amp; APW or Superior</p>
Supply, installation and complete indoor wiring of 19 inch (42U) covered Rack of size 2035 mm x 600 mm x 600 mm (Approx.)	<p>(1) : It should be a standard 19" closed floor mounted rack of 42U height. (2) : The depth of the rack shall around 2035 mm +/- 10mm and the width shall be around 600 mm +/- 10mm (3) : The rack should be provided with three horizontal cable managers and at two vertical cable managers installed on both the front sides of the rack. (4) : The rack and its accessories shall be made of CRCA steel sheet with minimum gauge of 1.5mm. (5) : It shall have glass door in the front as well as in the rear. (6) : Suitable dust filter should be provided at the air inlet in the rack to reduce the dust inside the rack. (7) : One copper Earthing Bar/strip with Tin plating of cross section 1"x/" to be provided horizontally on rear side of the rack full length of 19" width with suitable tapping to be supplied with each rack. (8) : The rack should be nano-ceramic coated and powder coated with textured polyester light grey colour to 80-120 microns. (9) : The rack should be equipped with two horizontal shelves to house data communication equipment. The height where the shelves shall be installed in the rack shall be adjustable. (10): A sliding keyboard tray shall be fitted at a suitable height inside the rack so that the keyboard can be easily taken out of the rack. (11): Provision on the top and bottom of the rack shall be available for proper cable entry. (12): The rack should be equipped with two vertical power distribution unit (PDU) having 12 sockets of 5A along. (13): One packet of mounting hardware shall also be supplied with the rack. (14): The rack shall have swivel handles on the front as well as the rear door with a key lock. (15): The rack must be IP54 certified in conjunction with solid gland plate. (16): The rack shall be equipped with a 03 cooling Fan for keeping the temperature of the installed equipment within limits for proper working. (17): OEM should be ISO certified. (18): It shall conform to UL2416 Standard.</p> <p>Make Valrack or superior</p>
Supply and Installation of Wi-Fi Router, WAN Non PoE Ethernet LAN PORT Router (For NTES Connection of IPIS)	<p>Wi-Fi Router, WAN , Ethernet LAN PORT Router  Dual-band ; Wi-Fi 6; Up to 1201Mbps (5GHz) and 300Mbps (2.4GHz) speeds  1 x 10/100/1000 Gigabit Ethernet WAN port or more  3 x 10/100/1000 Gigabit Ethernet LAN ports or more  Supports WPA, WPA2, and the latest WPA3 Wi-Fi Security</p>

4 port Lan extender (For NTES Connection of IPIS)	<p>4 port Lan extender as per Tech Spec. IP configured Make DAX/ NOMUS or Similar. Support speed up to 2MBPS FOR DISTANCE UP TO 5 KM OF 0.50 mm Dia Single pair cable, should operate in Half/Full duplex Mode with min 4 Nos of 10/100 Base T, ethernet (IEEE PO 2.3 COMPLIANCE), Support RJ -11 for connecting copper cable, support RJ 45 for connecting ethernet port, protection against lightning &amp; accidental power cable pair, configured through console, Telenet of HTTP (WAVE BROUSER), visual indication to know LINK, ETHERNET &amp; POWER;</p> <p>POWER : Dual Mode AC/DC, 230VAC +/- 10% &amp; -48VDC +/-10%;</p> <ul style="list-style-type: none"> <li>• Line type : 2 wire</li> <li>• Line Impedance : 120/135 Ohms</li> <li>• Connector :RJ45 and 3 pin terminal block;</li> <li>• Distance: Supports upto 3 km</li> <li>• Operating range : 64Kbps to 15 Mbps on 0.50 mm Dia copper cable in 2 wire operation;</li> <li>• Ethernet Ports : 4 port</li> <li>• IEEE802.3 Interface Compliant</li> <li>• Support 10-Base T and 100 Base Tx</li> <li>• Temp.: upto 60 deg C</li> </ul> <p>Make : TEAM Engineer/ Atrie, Wirespan or Superior</p>
Supply of 24 Ports Un Managed Non PoE Layer 2 Access Switch	<p>24 x 10/100/1000Mbps RJ-45 N way ports</p> <p>Supports Auto-Negotiation &amp; Non-Blocking Wire Speed</p> <p>Supports High-Speed Networking and Jumbo Frames</p> <p>Supports Store and Forward Architecture</p> <p>Supports Auto MDI/MDI-X Crossover</p> <p>Internal Universal Power Supply</p> <p>19" rack-mount size</p> <p>Energy Efficient</p> <p>Fan-less Design</p> <p>IEEE802.3x Full-duplex flow control</p> <p>IEEE/ANSI 802.3 Nway auto-negotiation</p> <p>Plug and Play installation</p> <p>Switching Capacity: 48Gbps Backplane</p> <p>Make :HP, Cisco or Superior</p>
Supply and Installation of of single pole MCB 6A	<p>Single Pole MCB ;Current Rating: 6 Amp ;</p> <p>Operating Temperature: -40 to 70 °C ; Instantaneous tripping characteristics according to IEC/EN 60947-2</p> <p>Make : ABB , L&amp;T or similar</p>
Supply and Installation of of Double pole MCB 10A	<p>Double Pole MCB ;Current Rating: 10 Amp ;</p> <p>Operating Temperature: -40 to 70 °C ; Instantaneous tripping characteristics according to IEC/EN 60947-2</p> <p>Make : ABB , L&amp;T or similar</p>
Supply and Installation of of single pole MCB 16A	<p>Single Pole MCB ;Current Rating: 16 Amp ;</p> <p>Operating Temperature: -40 to 70 °C ; Instantaneous tripping characteristics according to IEC/EN 60947-2</p> <p>Make : ABB , L&amp;T or similar</p>
Supply of CLI ABS push button Telephone instrument	<p>16 digit backlit LCD display; 10 one touch memory, 2 way speaker phone, 35 incoming and 15 outgoing call memory ; music on hold feature; Colour : Black;</p> <p>Make : Beetel or superior;</p>
Supply and Installation of SingleFace RJ45 Input/Output Box	<p>Dual Face RJ-45 Input/Output Box. With Keystone Jack , Gang Box , Dual Socket Face Plate</p> <p>Make-MOLEX/DAX/D-LINK or Superior</p>
HANDHELD WIRELESS MICROPHONE	<p>DUAL HANDHELD WIRELESS MICROPHONE</p> <p>Pick-up pattern:-Cardiod,Sensitivity:- 1.8 mV/Pa (free field, no load at 1kHz),Modulation :- Wideband FM,Frequency response :- 55-16 kHzFrequency:- 80 factory presets (8 banks of 10 channels each),Synchronization:- Transmitter: 2.4 GHz, low power OQPSK (only active during synchronization)</p> <p>Signal-to-noise ratio:- 103 DbA,THD,total harmonic distortion :- 0.9%</p> <p>Make : SENNHEISER or superior</p>
Supply and Installation of Portable 2 way PA system Speaker with Two Wireless Microphones System	<p>Portable 2 way PA system Speaker with Two Wireless Microphones System, Portable Party Speakers with Mic Bass/Treble, Sound Box with Remote Control,</p> <p>Make : Ahuja or superior</p>
Supply and installation of customised amplifier rack for holding 500 watt amplifier	<p>Customised covered amplifier rack (with 2 shelf )for holding 500 watt amplifier as per site requirement</p> <p>Materials should be weather resistant and durable. Design of rack should be approved from concerned Railway authority before supplying of the items.</p>
Supply of Network Lan Tester	<p>Network LAN tester LCD with backlight</p> <p>connector : Shielded 8-pin modular jack accepts 8-pin modular (RJ45) and 4-pin modular (RJ11) plugs.</p> <p>Measures length, detects Ethernet ports.</p>
Supply and installation of 12 V 80 AH Battery	<p>12V 80AH SMF batteries performance characteristic confirming to conforms - IS 14257-1995, JIS-D5301-1999 &amp; IS7372- 1995 standard</p> <p>with interconnectors and fasteners complete set</p> <p>Make : Exide or Amaron or Luminous</p>

supply of SMPS Based Charger for 12 Volt Battery	SMPS based Charger for 12V battery with LED Indication for Charging Status, Charged condition status and reverse polarity, output voltage and current display. Compatible with :Lead acid Tubular ,VRLA-SMF.Input voltage range : 160 volt - 270 volt (ISI MARKED POWER CORD TOBE PROVIDED), capacity of battery to be charged : 7AH-120AH, Max current output : 12 Amps with AC surge protection at Input side with MOV(Metal Oxide Varistor), charging cutoff :14.5V, with efficiency greater than 75%, and reverse polarity, short circuit ,over current and over voltage protection at 280 volt at input with auto recovery.Charging cable : minimum 1.5mtrs (minimum 6 sq.mm ) as per IS:694 ISI MARKED FLEXIBLE Cu cable per station.
Supply & Installation of Automatic change over device	Automatic change over device for DAC / UFSBI V.21 / V.23 to Optical fibre , STM(E1) , standard 19" rack mountable device consisting of two E1 port supporting 120 Ohms interface; dual optical ports with (1+1) hot stand by (dual core path and single core path) 20 Kms driving distance and four V.21 /V.23 (E&M) 2W/4W interfaces with auto change over mechanism to Quad ports 2W/4W ; each port configurable as 2W or 4W no restriction in configuration ; unit to support Potential free contacts four numbers can be linked with data logger / RTU for E1 Status , Quad Status & Power Supply status ; Unit support front panel resettable audiblebuzzer in case of main link fails (optical or E1) ; Unit to support power OFF fail safe mechanism when the unit is switched OFF the inputs is bypassed to the Quad cable automatically unit supports ; Unit supports front panel LED indicators for Quad health NS 14 Pair 164247.03 At Par 2299458.42 status ; E1 dual ; Optical dual path ; Dual DC power supply 18VDC to 72 VDC range ; Make : Team Engg /Cygnus/FABIO1CX - 4P or better
Supply of Failure Analysis System (FAS) with Fault Analysis Software	13th Generation Intel® Core™ i7 processor, Intel® Core™ i7 (up to 5.0 GHz with Intel® Turbo Boost Technology, 12 MB L3 cache or better) , 16 GB DDR4-3200 MHz RAM or better ; 512 GB PCIe® NVMe™ M.2 SSD or better, Display : 60.5 cm (23.8) diagonal, FHD (1920 x 1080), IPS, anti-glare, 250 nits or better Wireless Keyboard and mouse combo, integrated 10/100/1000 GbE LAN, Wi-Fi 6 and Bluetooth 5.3 wireless, 1080p IR camera , 1 USB Type-C 5Gbps signaling rate; 2 USB Type-A 5Gbps signaling rate; 2 USB 2.0 Type-A; 1 headphone/microphone combo; 1 RJ-45, Windows 11 or latest, OS with Licensed (Antivirus, MS Office etc.);  Make: HP/DELL or Superior
Supply of hand held service terminal	Processor: 13th Generation Intel® Core™ i7-13620H OS : Windows 11 or latest Graphics : Intel® Iris® Xe Graphics Memory: 16 GB Storage: 512GB M.2 PCIe NVMe Solid State Drive, Display:15.6" display Full HD , Micro-edge; Port : 2 USB Type-A or more ; 1 AC smart pin; 1 HDMI ; 1 headphone/microphone combo; 1 USB Type-C; Power : 90 W Smart AC power adapter; 3-cell, 41 Wh Li-ion polymer Make: HP/DELL or Superior
Supply of Report Generating Terminal	Multi function laser mono composite cartige printer ( with A4 Paper, RAM 128 MB, minimum speed 20 pages per minute or more, with scanning and Faxing features. Should be available with Ethernet 10/100 and Wifi 802.11b/g/n connectivity or higher. ADF feeder type with capacity 40 or more, paper tray capacity 140 or more, yield of cartige1500 or more  Make : Canon/HP or superior
Supply and installation of 2 Mbps SHDSL Modem	Line type : 2Wire (single pair operation). Line Code : TCPAM as per the ITU-T G991.2 . Connector : RJ 45; Operating Range : 6Km on 0.5mm dia copper cable @ 2.048Mbps in 2 wire operation, Line protection : As per ITU-T K20 and K21;Line Code transmission.;Transmit Level : Upto 14dBm Connector : RJ 45 and 3 Pin terminal Block.  G703 E1 Interface Specifications: Line Rate : 2048 Kbps;Line Code : HDB3;Interface : E1 Interface as per ITU-T G.703, G.704 Impedance : 120 Ohms (Balanced), Optional : 75 Ohms (Unbalanced);Connector : RJ45 for Balanced and BNC for Unbalanced;Clock Mode : Internal clock or G.703 Recovered clock;Framed and Unframed Operation User selectable CRC-4 Generation and Detection  V35 INTERFACE SPECIFICATIONS : Interface : V35.;Connector : V34pin Pin Female Connector;Data Rates : 2.304 Mbps (n*64 Kbps, n=1 to 36) . Clock Modes : Internal clock, Line Recovered clock or External clock;Connector : RJ45 for Balanced and BNC for Unbalanced;Clock Mode : Internal clock or G.703 Recovered clock;Framed and Unframed Operation User selectable CRC-4 Generation and Detection Supports 230V AC and 48V DC with the Same Socket
Supply of VHF Power meter	Analog VHF RF Power/SWR Meter Frequency range: 1.8~520 MHz Measurable power range: 0-200 w Power range: 4W/20 W/200 W Power measurement accuracy 4W range ±10% (on full scale) 20W range ±5% (on full scale) 200W range ±5% (on full scale) Minimum power for SWR measurement: 4 W SWR measurement: 10~∞ Insertion loss: Less than 0.3 dB
Supply of Cable Fault Locator	Specification As per Annexue -C

Supply of Digital Cable Insulation Tester	Digital Cable Insulation Tester for measurement of cable insulation resistance with auto range 0-500 V DC. Motwani or from any reputed make. Item to be supplied after successful demonstration and Approval of Railway.
Supply of Digital Multimeter	Digital Multimeter of Fluke 287 Industrial or Similar/ superior True RMS with temperature, Analog bar graph, Digital display, Backlight, 1000V AC/DC, measure up to 10A, 20A for up to 30 second. Item to be supplied after successful demonstration and Approval of Railway.
Supply of Handheld Digital Earth Clamp Tester	Handheld Digital Earth Clamp Tester for clamp on earth/ground resistance measurement up to 1000 ohms. Accuracy 0.1 - 0.99 $\Omega$ : 1%, 1 - 49 $\Omega$ : 1.5% Also measure current leakage up to 20A. Item to be supplied after successful demonstration and Approval of Railway. Stanlay/Fluke/Megger or better
Supply of Automatic Fusion Splicer	Automatic Fusion Splicer for single mode Optical fibre cable, along with accessories as per TEC spec. TEC/GR/TX/OSM - 001/04/SEP-12 or latest, Make : Superior/Fujikura or similar. Principle of operation : Direct core monitoring using Profile Alignment Type of fibres : Conforming to Section - I of TEC GR No. TEC/GR/TX/ORM-01/04/SEP-09 Nominal Cladding diameter : $125 \pm 1 \mu\text{m}$ Fibre coating diameter : a) Primary coated : $245 \pm 10 \mu\text{m}$ b) Secondary coated : $900 \pm 50 \mu\text{m}$ (Tight jacket) Fibre strip length : 16 mm maximum Operating mode : Auto and Manual Mode Fibre Alignment : 3 Axis alignment capability Splice Loss for splicing following types of Single Mode fibres at 1310 nm and 1550 nm a) Homogeneous : $\leq 0.03 \text{ dB}$ b) Heterogeneous : $\leq 0.05 \text{ dB}$
Supply of Optical Time Domain Reflectometer (OTDR)	Supply of Optical Time Domain Reflectometer (OTDR), operating wavelength at 1550 nm and 1310 nm on single mode optical fibre, 32 GB memory or higher, Display Touch Screen, User Data Interface: USB & RJ-45 as per TEC spec. TEC/GR/TX/OTD - 001/05/SEP-19 or latest, of reputed make like Yokogawa/JDSU/Viavi or similar. Consignee shall approve the supply only after successful demonstration at site.
Supply of Optical Power Meter	Optical Power Meter Wavelength Range : 1100 nm to 1650 nm Measurement Range i) Max. measurable power : $> +28 \text{ dBm}$ ii) Min. measurable power : $< -50 \text{ dBm}$ Resolution : 0.01 dB ; Display : 4½ digits excluding "±" sign or more digit wide angle LCD Optical Connector : Universal connector adapter suitable for FC-PC, SC-PC & LC Power Source: DC batteries Working Temp: $-10^\circ\text{C} \sim +50^\circ\text{C}$ ; Storage Temp: $-20^\circ\text{C} \sim +70^\circ\text{C}$ ; Make : Aplan or Superior