

## Tender Details

**Tender No:** SCL/PS5/2017E0075601

**Tender Date:** 07/09/2017

**Purchase Entity:** Pur\_Entity5

## Tender Notice

SEMI-CONDUCTOR LABORATORYE-procurement Tender no. SCL/PS5/2017E0075601, SEMI CONDUCTOR LABORATORY (SCL) invites ONLINE offers in TWO part system through e-tender portal <https://eprocure.isro.gov.in> for Supply Installation, Testing and Commissioning of PCC, illumination, Cabling, fire detection and associated work for Electrical works in Auditorium Building at Semi-Conductor Laboratory (SCL S.A.S Nagar Mohali (Punjab) as per detailed specification and BOQ attached in tender document.

Tender Documents can be downloaded from 08.09.2017 1701 hrs. to 06.10.2017 upto 10.30 hrs. The vendors need to get enrolled in the e-tender portal to access tender and submit their offer online. Vendors need to have Digital Signature Certificate as detailed on our e-portal and corporate e-mail ID to register on the above portal. Only online tenders will be accepted. No Manual/Postal/courier/ e-mail/fax tender will be entertained. Please note Tender fee shall not be applicable for tenders submitted on-line through this portal.

Vendors interested to participate in this e-Tender are required to register themselves as vendors, if not already registered, in our e-procurement portal <https://eprocure.isro.gov.in> by downloading plugins and help demos listed on the home page of the e procurement link mentioned above to complete the vendor registration process. They can seek help from help desk 0091-20-25315555/9167969601 (Email:support.isro@nextenders.com) also the home page of e procurement portal may be accessed for

any technical help for registration and subsequent process. Vendors may please note that without registering in our E-procurement portal they will not be able to quote for this tender.

Pre Bid Conference shall be held at SCLS A S Nagar (Mohali) with the prospective bidders on 22.09.2017 at 14.00 hours

## **Tender Attachments**

### **Technical Write-up/Drawings**

#### **Attachment - I:**

IDT0013560000000000isro05401.pdf

#### **Attachment - II:**

IDT0013560000000000isro05402.pdf

#### **Attachment - III:**

IDT0013560000000000isro05403.pdf

#### **Attachment - IV:**

#### **Attachment - V:**

### **Instructions to Tenderers (PT)**

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Instructions to Tenders (PT)1. Interested tenderers may, at their option, login to <http://eprocure.isro.gov.in> and submit offers as per details of notification

2. This being a two part tender Technical and Commercial part separate, the Technical part should not contain Pricing information. The tenders containing Price details in Technical part will be treated as unsolicited offers and rejected.

3. A Pre-bid conference shall be held with the prospective bidders as per schedule given in the Tender Notification at Semi Conductor Laboratory, S A S Nagar (Mohali) Punjab India to clarify issues regarding the specifications and other associated technical details of the subject procurement. The prospective bidders must therefore ensure that they or their authorized representatives attend the said pre-bid meeting at SCL as per the given schedule.

In order to enable meaningful discussions in the Pre - bid conference, the prospective Bidders are requested to list the queries/clarifications planned to be sought by them on this Tender in the Pre bid conference in a Query Sheet and send us the said Query Sheet over email address hps@scl.gov.in / nks@scl.gov.in in advance to reach us at least two days before the Pre -bid Conference.

Foreign bidders (in case visit of foreign national is for more than one day) to intimate their willingness to attend the Pre-bid conference at least 10 days in advance in the prescribed standard format at the email ids given above.

In the event the Foreign bidder unable to attend the Pre bid conference physically and do not have establishments/representative in india . SCL may arrange Pre-bid conference through Video conference/Skype. The vendor shall inform 10 days in advance to SCL, the points to be discussed in pre - bid conference.

Please note that Tender of a firm who has not attended the Pre bid conference shall be disqualified.

4. Request for the extension of the due date will not be considered.
5. SCL reserves the right to accept or reject any / or all the tenders in part or full without assigning any reasons thereof. The bidder is at liberty to seek information related to bidding conditions, bidding process and/or rejection of its bid.
6. In this tender either the Indian Agent on behalf of the Principal/OEM or the Principal/OEM itself can bid, but both cannot bid simultaneously for the same item. Indian agents while quoting on behalf of their principals shall provide necessary latest authorization letter obtained from their Principals/Manufacturers in their bid.
7. If an agent submits bid on behalf of the Principal/OEM, the same agent shall not submit a bid on behalf of another Principal/OEM in the tender for the same item. If submitted, all offers submitted by the said agent shall be excluded from the procurement process.
8. The tenders of vendors who have not agreed to furnish Security Deposit or Performance Bank Guarantee as sought vide this tender shall be excluded from the procurement process.
9. The tenders of bidders where the validity of the tender is shorter than the period specified in the tender enquiry shall be excluded from the procurement process.
10. Late tenders, delayed tenders, fax quotations and e-mail quotations are not considered.  
Bids submitted other than EGPS mode shall not be considered.
11. SCL reserves the right to verify all claims made by the bidder.
12. SCL reserves the right to change any milestone date of the tendering activity / tender schedule.
13. Tender which is not submitted in terms of instructions mentioned herein is liable to be rejected.

14. If tender opening date happens to be a public holiday, tender will be opened on the next working day and interested bidders may depute their representatives to attend the Tender Opening, with proper authorization.
15. The purchaser shall be under no obligation to accept the lowest or any tender and reserves the right of acceptance of the whole or any part of the tender or portions of the quantity offered and the tenderers shall supply the same at the rates quoted.
16. It is expressly agreed that the acceptance of the Stores Contracted for is subject to final approval in writing by the Purchaser.
17. It is to be noted that the drawings, specifications, end-use, etc., given by the purchaser, are confidential and shall not be disclosed to any third party.
18. Prices are required to be quoted according to the units indicated in the tender. When quotations are given in terms of units other than those specified in the tender form, relationship between the two sets of units must be furnished.
19. The quote should indicate quantity wise unit rate separately which have to be filled online. The Prices are to be mentioned both in figures as well as in words. The taxes duties etc. are to be calculated and indicated in the column provided in online forms explicitly.
20. Bidders are expected to comply with commercial and other terms and conditions given in vendor specified terms of this tender. In case of any deviation, the reasons thereof should be clearly specified in the vendor specified terms column.
21. All available technical literature, catalogues and other data in support of the specifications and details of the items should be furnished along with the un priced technical offer. Bidders are advised not to quote any rate in the BOQ provided in technical specification document.
22. Specifications: Stores offered should strictly confirm to our specifications. Deviations, if any, should be clearly indicated by the tenderer in his bid. The tenderer should also indicate the Make/Type number of the stores offered and provide catalogues, technical literature along with the quotations. Test Certificates, wherever necessary, should be forwarded along with supplies.
23. The tenderer should provide, the name of his bankers as well as the latest Income Tax clearance certificate duly countersigned by the Income Tax Officer of the Circle concerned under the seal of his office, if required by the Purchaser during evaluation of tender.
24. Subletting and Assignment: The contractor/supplier cannot sublet, transfer or assign the order/Contract or any part thereof or interests therein or benefit or advantage thereof in any manner whatsoever, to any other party save with the previous written consent of the purchaser. Such consent by the purchaser, however, shall not relieve or discharge the contractor/supplier from any obligation, duty or responsibility under the Purchase Order/ Contract.
25. The contractor/supplier shall indemnify the purchaser against Workmen Compensation Act.
26. The authority of the person submitting the tender, if called for, should be produced.

27. The bids shall be opened as per schedule indicated in the Tender in the presence of the bidders/their authorized representatives who may like to attend the tender opening against presentation of Authorization letter. Due to any breakdown in server/link, bid opening will be continued on the following dates.

The schedule of opening of Price bids shall be intimated separately to the technically qualified bidders only.

#### 28. PROCEDURE FOR EVALUATION OF TENDERS:

##### Technical Evaluation Criteria:

Vendor meeting the eligibility criteria and basic technical specifications mentioned in SCL Tender shall be considered to be technically qualified.

##### Evaluation of Price Bids

The following elements shall be considered for evaluation of Priced Commercial offer:

- a. Price quoted by the bidder in the price bid template for meeting the functionalities given in the Tender and Technical Specifications sheet. Bid shall be evaluated on overall cost basis. b. Charges for installation testing and commissioning if any in case quoted separately.
- c. Compliance with the Payment Terms prescribed in this tender document. In the event, the bidder offers Payment Terms stringent than SCL prescribed Payment Terms, the bid of the bidder shall be loaded based on Base Rate of SBI prevailing on the date of opening of price bids.
- d. In the event of the bidder seeking a Confirmed Letter of Credit the bidders bid shall be loaded at the rate 0.5 percent of the LC value towards confirmation charges.
- e. In the event of the bidder requiring SCL to bear bank charges outside India (foreign bank charges) the bidders bid shall be loaded at the rate 0.5percent of the LC value towards bank charges outside India.

#### 29. The bid should contain the following information:-

- a. Agency Commission: Bidders are required to provide the following information in respect of their authorised Indian Agent, if any, alongwith technical bid as the same is mandatory as is required for consideration of the bid. Name, Address, Telephone no. , fax no., email of the Indian Agent including the contact person. A letter from the Manufacturer/supplier in the current date certifying that the said Indian Agent is their authorised Indian Agent and also indicating the responsibilities/role of the Indian Agent under the proposed purchase. Remuneration /service charges payable to the Indian Agent under the proposed purchase. The amount of agency commission included in the price and payable to Indian Agent of the contractor shall be paid directly to the Indian Agents by the Purchasers in equivalent in Indian rupees on the basis of an invoice from him applying TT buying rate of exchange ruling on the date

of placement of the Purchase Order and which shall not be subject to any further exchange variations. The payment will be released to the Indian Agents within 30 days from the date of acceptance of the goods.

b. Details of any technical service, if required for erection, assembly, commissioning and demonstration.

30. The FOB/FCA prices quoted should be inclusive of all taxes, levies, duties arising in the tenderer country.

31. The details of Import License will be furnished in the Purchase Order.

32. Instruction/operation manual containing all assembly details including wiring diagrams should be sent wherever necessary in duplicate. All documents/correspondence should be in English Language only.

33. Part shipment is not allowed unless specifically agreed to by us.

34. As far as possible, stores should be dispatched by Indian Flagged Vessels/ Air India or through any Agency nominated by us.

35. Eligibility Criteria:

Bidder shall meet the following criteria to qualify for submitting the bid: <br>1. Contractors should have satisfactorily executed at least one (1) work of value not less than Rs. 93.20 lakh or two (2) works of value not less than Rs. 69.90 lakh or three (3) works of value not less than Rs. 46.60 lakhs during the last seven (7) years. Similar Work shall mean electrical works inter alia involving illumination, power distribution etc. To ascertain eligibility for the work the participating bidder shall enclose copy(ies) of the detailed purchase orders and their completion certificates, evidencing satisfactory completion of similar works issued by the respective client/organisations. Completion certificate for works issued by private parties shall be supported by TDS.

2. Average Annual financial turnover during the last three (3) years ending 31.03.2016 should not be less than Rs. 34.95 Lakh.

3. The contractor should not have incurred any loss in more than two years during the last five (5) years ending 31.03.2016.

4. A solvency certificate of minimum solvency of Rs. 46.60 lakh from a scheduled commercial bank issued not earlier than 6 months from the last date of submission of tender.

5. The Contractor should possess valid license of class "A", "B", "C" Category Electrical Contractor issued by the State Licensing Authority.

6. Bidder to provide certified copy from chartered accountant for the Annual Financial turnover and balance sheet showing profit and loss.

7.Rates quoted by the bidders for various items of the works shall include all Taxes including GST/ Service Tax etc. as applicable.

8.The contractor shall carry out the work in co-ordination with the civil work executed by other contractor engaged by SCL.



## Bid Templates

### PART I: General Specification

#### Item Specifications

Sl. No	Specifications	Compliance (Yes/No)	Offered Specifications	Remarks
1	Intent of Specification:a)The technical scope of the project includes supply, installation, testing and commissioning of all material as per Bill of Quantities for electrical, Fire detection, LAN etc. works envisaged to be carried out in the ongoing project of construction of Auditorium Building at Semi-Conductor Laboratory (SCL), S.A.S. Nagar, Mohali (Punjab). b)Specification includes receiving, unloading, storage, insurance, in-			

	<p>plant transportation of all equipment &amp; accessories covered under this specification.c)The work shall be carried out by the selected vendor (contractor) as per the specifications spelled out in Part-B of the tender specifications, CPWD specifications and relevant IS codes.d)The work shall be executed the contractor as per the Approved for Construction (AFC) Drawings. The contractor shall prepare working drawings complying with the technical specifications, the tender drawings as well as the Bill of quantities, and integrate wiring/cabling system for optimal space utilization/ management as part of the detailed engineering, and submit the drawings to SCL for its approval. SCL shall review the drawings</p>			
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	<p>and comments, if any, shall be incorporated in the same by the Contractor. The approved drawings (to be called as the Approved for construction or AFC drawings) shall be the drawings for on-site implementation by the Contractor.e)Payment for the work shall be made on the basis of actual work done and the accepted rates for various items in the Bill of Quantities.f)The Auditorium Building is under construction and it is expected that the building work will be completed by July 2018. Acoustic work (walls and false ceiling etc.) in the auditorium hall and conference room on the ground floor will be taken up thereafter, and these areas are envisaged to be ready for electrical etc. installations by November</p>			
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	<p>2018. While the works under the scope of this tender shall be undertaken by the contractor concurrent and in close co-ordination with the progress of civil works (including interiors and Acoustic works), in the event of delay in the said civil works due to any unforeseen reason(s), the vendor may de-mobilize the site, and re-mobilize the site again within 7 (seven) days upon instructions from SCL to take up the remaining work in a reasonable time as decided by the SCL engineer-in-charge. There shall be no compensation payable to the contractor on account of de-mobilization and re-mobilization, if any.</p>			
2	<p>General Information:The Contractor may conduct site visit to SCL to have a</p>			

	fair assessment/ acquaint themselves with the site conditions, work involved etc.			
3	<p>General Design Consideration:</p> <p>a) System configuration:</p> <p>i. Voltage Supply: 400V± 10%</p> <p>ii. Frequency : 50Hz± 5%</p> <p>iii. Fault level : As specified in the SLD</p> <p>iv. No of Phase and grounding: 3 Phase &amp; Solidly ground earth</p> <p>v. Power Distribution: A.C., 3 Phase 4 wire for 3 Phase system, 1 Phase 3 wire system for 1 Phase system.</p> <p>b) Code &amp; Standards: All electrical equipment and accessories to be furnished, installed and commissioned under scope of these specifications shall be designed, manufactured, tested and installed in accordance with relevant Indian Standard</p>			

	Specifications (ISS), Indian electricity rules and any other applicable regulations.			
4	Period of Completion:The time allowed for supply installation, testing and commissioning of the entire work shall be 12 (Twelve) months to be reckoned from the 7th day of issue of purchase order by SCL.			
5	Drawing, Data and Manuals:Following drawing /documents shall be submitted at the time of acceptance of the system.a)Electrical single line diagrams and as built diagram for completes electrical system.b)Foundation drawing of all floor mounted equipment Electrical panels.c)Layout drawing with dimension of all electrical equipments			

	<p>under the bidder's scope.d)Make, type and catalogue of Switchgears of Electrical MCC Panels, PCCs, Power DBs, Power Cables and related accessories along with technical leaflets, data sheets, etc to be provided by the contractor. The contractor shall offer recommended makes mentioned in this document. e)Equipment data sheets furnishing guaranteed performance figure for each type of equipments.f)Test certificates, test results for each type of equipment.g)Checks list and test to be conduct during erection, testing &amp; commissioning of the individual equipments.h. On successful completion of the entire work, the Contractor shall provide 'As Built' drawings for all the Systems executed</p>			
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	<p>under the Contract. Three (03) sets of hard copies and one (01) set in soft copy (CD/DVD) in Auto-CAD format shall be provided to SCL for its record and reference. Contractor shall also provide instruction / Operation manual(s) and maintenance manuals for the all equipment.</p>			
6	<p>Deviation:a)Contractor to clearly mention the deviation in the specification, if bidder wishes to deviate from the specification.b)All such deviation shall be clearly mentioned on the deviation sheets and submitted with the offer.c)Unless such deviations are recorded in the deviation sheets and submitted with the offer, it will be assumed that the offer is made in conformity with this</p>			



	<p>specification in all respects.d)The deviations shall be evaluated by SCL and acceptance of the same shall be the sole discretion of SCL.</p>			
7	<p>Quantity variation:The quantities indicated against each item in the Bill of Quantities (BOQ) are indicative and are for the purpose of bidding only. Variation in quantities upto +25% shall be carried out by the contractor on the agreed/Purchase Order (PO) rates and terms &amp; conditions as in the Purchase Order (PO). In case of contract items which exceed the said limit of +25%, the contractor may claim revision of rates supported by proof analysis and if the rate claimed in excess of the rate specified in the bill of quantities, SCL's</p>			

	<p>engineer-in-charge of the work shall after giving consideration to the analysis of rates submitted by the contractor determine the rates on the basis of market rates and the contractor shall be paid in accordance with the rates so determined. The Contractor's profit &amp; OH shall be factored in the rate analysis@15%</p>			
8	<p>Extra Items:In case of extra items (that are completely new and are in addition to the items contained in the contract), the contractor may claim rates supported by proper analysis and SCL's engineer-in-charge of the work shall after giving consideration to the analysis of the rates submitted by the contractor, determine the rates on the basis of market rates and the</p>			

	contractor shall be paid in accordance with the rates so determined. The Contractor's profit & OH shall be factored in the rate analysis@15%.			
9	<p>Power supply for installation on metered basis:Electricity, if available in the premises and sparable, may be provided to the contractor by Department only at the single point subject to the following conditionsa)The Contractor has to make his own arrangement to tap Electricity from a 3 phase/single phase supply from location decided by Engineer-in-charge. Electricity supply will be made available only on metered basis. Electric charges will be recovered at actuals.b)In all cases where/when the energy meter is not installed, defective energy meter is</p>			

	<p>not replaced or not rectified immediately, the consumption charges towards electricity will be recovered on the basis of the total wattage of the load multiplied by the number of hours utilized. In all such cases the Contractor shall maintain a log book indicating wattage of the load and hours of consumption and get the same attested by Engineer-in-charge at appropriate time without fail. The decision of Engineer-in-charge in the matter shall be final.</p>			
10	<p>Storage/ site office space: Contractor shall be provided a lockable room within SCL premises for storage space and site office.</p>			
11	<p>Eligibility Criteria: Only those contractors meeting the below mentioned</p>			

	<p>eligibility criteria are eligible to participate in the tender.1.Contractors should have satisfactorily executed at-least one (1) work of value not less than Rs. 93.20 lakh or two (2) works of value not less than Rs. 69.90 lakh or three (3) works of value not less than Rs. 46.60 lakh during the last 7 (seven) years. 'Similar Work' shall mean electrical works inter-alia involving illumination, power distribution etc. To ascertain eligibility for the work, the participating bidder shall enclose copy (ies) of the detailed purchase Order(s) / work orders and their completion certificate(s), evidencing satisfactory completion of similar works issued by the respective clients/organisations. Completion certificate for</p>			
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	<p>works issued by private parties shall be supported by TDS.2.Average Annual financial turnover during the last three (3) years ending 31st March 2016 should not be less than Rs.34.95 Lakh. 3.The contractor should not have incurred any loss in more than two years during the last five (5) financial years ending 31st March 2016.4.A solvency certificate of minimum solvency of Rs. 46.60 Lakh from a Scheduled Commercial bank issued not earlier than 6 months from the last date of submission of tender. 5.The Contractor should possess valid license of Class 'A' Category Electrical Contractor issued by the State Licensing Authority.6.Bidder to provide certified copy from chartered accountant</p>			
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	<p>for the Annual Financial turnover and balance sheet showing profit and loss. 7.The contractor shall carry out the work in co-ordination with the civil work executed by other contractor engaged by SCL.</p>			
12	<p>Note:1. Vendors shall quote rates against each item in the Itemized Bill of Quantities (BOQ) in the quote format of the priced bid. Bidders are advised not to quote any rate in the BOQ provided in the Technical specification document.2. Vendor to download the "Itemised Quote Format", take print of the complete document, fill all the rates, sign all the pages, scan and upload the same in Documents Solicited from Vendor(Commercial).3. Various materials/systems etc. procured by the</p>			

	<p>selected Contractor for incorporation in the work shall be only of RFP specified Makes/Manufacturers of various materials / systems. Submittals of the same shall be submitted by the contractor for SCL review and approval.</p>			
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**PART II:Technical Specifications:-1 Internal Wiring**

**Item Specifications -I**

Sl. No	Specifications	Compliance (Yes /No)	Offered Specifications	Remarks
1	The electrical wiring installations and other accessories shall comply latest IS: 732 (part-II) 1983 and National Electric Code-1985.			
2	The wiring includes primary points, secondary points, points directly connected through			



	<p>contactors, stair area light points, power point wiring fan/ exhaust point wiring etc. Primary point wiring shall include all works necessary to complete wiring of a switch circuit of any length from the tapping point in the distribution circuit via the switch. Secondary light points are not having control switches and are looped from the primary light points or from the nearest secondary point in the same lighting circuit. The points have been depicted in the Electrical scheme. Tenderer(s) to take note of the following for better comprehension of the tenderer following may be noted.a.In the electrical SLDs, every light point has been assigned a number. The number represents primary point (excluding for those controlled directly from</p>			
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	<p>DBs). If two or more light fittings bear the same number, then it shall be interpreted as one fitting is under primary point and the rest of the fittings are to be considered as secondary points.</p> <p>b. Control switch with indicator is a primary point only but the load connected is not light fitting and it is used only to by-pass the timer control in DBs (one switch per channel). It shall be connected to the nearest Lighting DB. The connection details are enclosed in drawings. The location of these points is indicated as MO in the lighting scheme. The timer is astronomical timer and fully automatic and the manual over ride is the manual mode. c. Some points are connected directly through contactors. e.g.: L1 to L17,</p>			
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	L13-14, L18-L21, etc.d.Staircase area lighting points are indicated as L20 (U), L21, L54 (U), L55, L92 (U), L93, L112 (U), and L113.			
3	Rates for all the point wiring items (Primary points) shall be inclusive of necessary circuit mains from the distribution board to the first switch board and also sub circuits from one switch board to the subsequent switch boards in the same circuit.			
4	The secondary point in case of point wiring shall include necessary wiring looped from the primary light point as indicated in the electrical layout drawings.			
5	Rates for the power point wiring items shall be inclusive of necessary power circuit from the DB			

	to the power socket.			
6	The word concealed means it involves cutting of floor /wall and making good after laying the conduit/Metal raceway as per the enclosed drawings by the contractor as required.			
7	The contractor shall provide all necessary components, fixing materials, accessories and interconnections as per standard practice. It is to be noted that ceiling rose forms a part of the specifications, hence not indicated separately and shall be provided by the contractor, as required.			
8	The contractor shall co-ordinate exact location of power point in lift well with the lift supplier. Generally, these points are located at 1.2 m above			

	each landing level.			
9	Track lighting (in exhibition hall) will be generally located on the ceiling. Locations of the tracks are indicated as TR-1 to TR-6 in the lighting scheme. Controls for these will be located at a convenient location (3 nos. on each side) on the nearest wall as per site condition.			
10	Scope includes termination of wire, ferruling, dressing, cable tie etc. as required			

**PART II:Technical Specifications:- 2 Luminaries**

**Item Specifications -II**

Sl. No	Specifications	Compliance (Yes /No)	Offered Specifications	Remarks
1	The scope comprises of supply and installation of			

	<p>LED light fittings suitable for operation on 230V, single phase, AC supply. The fitting shall be supplied with all fixing material such as brackets, nuts, bolts, suspension wire/chain etc. as required for installation in false ceiling etc. of fittings with the following specifications:1.Voltage range shall be: 110V to 270V.2.LED shall be of high power, white LED with suitable optics/lenses (for increase in area of illumination).3.Lumen output is not less than 100 lumens per watt.4.Power factor shall be more than 0.90.5.Driver efficiency shall be more than 90%.6.Fitting shall be efficient heat dissipative designed for heat sink.7.Housing shall be high grade aluminium die cast.8.Cover for the luminaire - toughened</p>			
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	<p>glass.9.Beam angle- beam pattern with high spreads using quality lenses and reflectors, beam angle is more than 120°.10.Heat sink temperature raise above ambient is less than 15 °C.</p>			
2	<p>Special Conditions:  a)Luminaire makes (Brand) shall be mentioned in Technical Bid along with complete technical details.b)The LED light fitting and its driver unit etc. shall have warranty for a period of 5 years from the date of installation and commissioning.c)LED MAKE: NICHIA / CREE / PHILIPS LUMILED / OSRAM.</p>			

**PART II:Technical Specifications:- 3 Ceiling and Exhaust Fans**

**Item Specifications -III**

Sl. No	Specifications	Compliance (Yes /No)	Offered Specifications	Remarks
1	<p>BEE 5 Star Rated, 1200 mm sweep ceiling fans, Air delivery capacity of not less than 12,900 Cum per Hr., capacitor type complete with 300mm down rod, canopies, shackle, rubber bush, blades and step type electronic type speed regulator suitable for operation on 230V, 50 Hz, single phase, AC supply, confirming to IS:374 completely prewired up to terminal block, having standard down rod with all materials required for installation complete with necessary interconnections, earthing.(similar to Crompton Greaves HB plus or equivalent)</p>			
2	<p>300 mm sweep, heavy duty, totally enclosed motor type exhaust fans</p>			



	<p>suitable for operation on 230 Volts, 50 Hz, single phase, AC supply complete with 3 core flexible copper conductor cable, gravity louver shutters, rigid frame with rubber mountings and of following sizes confirming to IS:2312 (with latest amendments) and installation on wall including grouting of bolts for installation, supply of all materials, interconnections complete as required</p>			
3	<p>225 mm sweep, light duty, totally enclosed motor type exhaust fans suitable for operation on 230 Volts, 50 Hz, single phase, AC supply complete with 3 core flexible copper conductor cable, gravity louver shutters, rigid frame with rubber mountings and of following sizes confirming</p>			

	to IS:2312 (with latest amendments) and installation on wall including grouting of bolts for installation, supply of all materials, interconnections complete as required			
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**PART II:Technical Specifications:- 4 MCB Distribution Board (MCBDB)**

**Item Specifications -IV**

Sl. No	Specifications	Compliance (Yes /No)	Offered Specifications	Remarks
1	SPN/TPNMCB/MCCB DB, Double Door and customisable type (similar to legrand flexy) in 16 SWG CRCA sheet steel enclosure, dust and vermin protected, rated for 440V, 3 phase, 50 Hz, AC supply operation, inclusive of busbar of suitable capacity, neutral link with required outgoing, DIN bar, fully			

	<p>factory fabricated and powder coated suitable for incorporating SP/DP/TP/FP MCB/RCBO/MCCB including necessary adaptor boxes for incoming and outgoing cables/wires including associated civil works, earthing etc. as per BOQ and as directed by EIC.</p>			
2	<p>SPN/TPN MCB/MCCB DB Double Door vertical type in 16 SWG CRCA sheet steel enclosure, dust and vermin protected, rated for 440V, 3 phase, 50 Hz, AC supply operation, inclusive of busbar of suitable capacity, neutral link with required outgoing, DIN bar, fully factory fabricated and powder coated suitable for incorporating SP/DP/TP/FP MCB/RCBO/MCCB including necessary</p>			

	adaptor boxes for incoming and outgoing cables/wires including associated civil works, earthing etc. as per BOQ and as directed by EIC. (for power and AC)			
3	Tenderer (s) to note that some lighting DB's shall also have digital 2 channel astronomical timer suitable for DIN bar mounting (similar to LEGRAND ALPHAREX D22 ASTRO 4126 57 or equivalent with Data key & PC adapter for USB port). along with MCBs. The two channels of the timer shall control a set of DB mountable DP contactors as depicted in the SLD.			
4	The MCB's shall be populated and tagged as per the details given in SLD in the tender drawings.			

**PART II:Technical Specifications:- 5 Electrical panel**

**Item Specifications -V**

Sl. No	Specifications	Compliance (Yes /No)	Offered Specifications	Remarks
1	Scope includes supply, installation, testing and commissioning of PCCs/MCC front operated cubicle type free standing, MV panel suitable for operation on 415V, 3 phase, 4 wire, 50 Hz, AC supply system as per SLD and Panel details as per the attached Annexure 1. The panel shall be fabricated out of 14 SWG CRCA sheet steel with necessary anti-corrosive treatment and shall be dust and vermin proof construction suitable for installation on pedestal with the following facilities 1. Fire and corrosion resistant coating similar to VIPER			

	<p>FR-1101 applied in two coats with necessary primer. 2.Panel shall be indoor, metal clad, air insulated floor mounted extendable to side, single front construction, front wired, front connected. 3.The design should be fully compartmentalized with metal partitions between compartments. All doors shall be gasketed. Each vertical section shall have removable back cover.4.The working height of the Panel shall be limited as per standard engineering practices.5.Fire retardant DMC/SMC fillings for opening around busbar near the sectional barriers.6.Facilities in the terminals to have direct termination with aluminium cables.7.Shall have high mechanical dielectric strength.8.Door</p>			
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	<p>interlocking facility and shall have fire barriers.9.Switch body shall be made of the fire retardant materials.10.Shall be mountable in any position in vertical plane for operation.11.Shall be suitable for horizontal expansion in future.12.Surface treatment to panel, frame and all steel parts of the panel shall be carried out through seven tank process.13.After surface treatment, panel shall be painted through powder coating process with two coats of zinc chromate primer and two coats of powder painting.14.Panel fabrication shall be as per relevant IS.15.Neutral link of full rating shall be provided for all TP incoming/outgoing feeders. 16.Ingress protection level for the</p>			
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	<p>panel shall be IP</p> <p>54.17. Panel shall be with minimum 75mm high base MS channel frame.18. Lifting hook shall be provided at each section for easy transportation.19. Different compartment of the panel shall be provided with dust proof type air filter louvers /explosion vents or similar safety arrangements in the panels to let out gases under pressure generated during event of any fault inside the panel</p>			
2	<p>ACB:FP, EDO, microprocessor based communicable ACB (50kA) with numerical releases for O/L, S/C &amp; EFR. (With mechanical and Electrical interlocking for operation of only one ACB at any point of time.)</p>			
3	<p>Busbar:1. The Bus bar</p>			



	<p>rating shall be as per the SLD.2.The main bus and connections shall be of high connectivity aluminum/aluminum alloy, sized for specified current ratings with maximum temperature limited to 85°C; C. i.e. 35°C; C rise and ambient 50°C;. 3.Separate vertical bus bars shall be provided for each vertical panel. 4.Bus bar shall be color coded for easy identification.5.Bus Bar should be connected in such a way that it can be dismantle/assemble while separating different section of the panel.6.Shrouds of transparent sheet on the exposed bus in cable alleys, for adequate safety measure.</p>			
4	Control Module:1.Fixed type control module shall			

	<p>house the control components for a circuit.2.The equipment layout shall provide sufficient working space in between the components and subject to SCL approval.</p>			
5	<p>MCCB:1.MCCBs for Incomer/outgoing shall be TP/FP, as per SLD in the tender drawings. 2.The MCCBs should have a Service short circuit breaking capacity (Ics) of not less than 35 kA rms at 415 Volts 50Hz AC. The service breaking capacity should be equal to ultimate breaking capacities (Icu) (i.e. Ics= Icu=100%). 3.The thermal magnetic release shall have adjustable overload and short circuit and numerical releases shall have O/L, S/C &amp; E/F, as indicated in the SLD in the tender</p>			

	<p>drawings.4.Microprocessor based incomer MCCBs shall be of SCADA compatible type.5.The MCCBs should be extra current limiting type with trip time of less than 10 m sec under short circuit conditions.</p>			
6	<p>Motor Protection Relay:1.Microprocessor based Motor protection relay suitable for current setting of 7.5HP.2.Relay should have inbuilt CTs and has provision for accepting external CT inputs.3.Relay should provide protection to Motor against Overload, Single phasing (Unbalancing), Earth fault and Blocked rotor.4.Relay should have adjustable trip time characteristics.5.Relay shall provide Trip indication for corresponding fault and</p>			

	Test push button for testing the relay operation.6.Relay shall be suitable for single phase 230V AC auxiliary supply.7.Relay shall be suitable for mounting directly on Din rail.			
7	Surge Protection:100kA, Type - 1, 3P+1 Surge Protector for Main Incomer			
8	Fuses:1.Fuses shall be HRC, preferably link type.2.Fuses shall be complete with fuse bases and fittings of such design so as to permit easy and safe replacement of fuse element.			
9	Contactors:1.The contactor shall be 3 pole, air break type with non-bouncing silver/ silver alloy contacts.2.Contactors shall be provided with adequate auxiliary contacts rated for 10Amps			

	@ 240VAC for interfacing with control scheme.			
10	Control and Indications:1.Push buttons will be heavy duty, oil tight, and push to actuate type with integral plate marked with its function.2.Each push button shall be provided with 2NO+2NC contacts rated for 10Amps @ 240VAC.3.Lamps shall be LED type rated for 240V AC. Lens and lamps shall be replaceable from the front. 4.The control supply shall be through a 415V/230V transformer and the vendor shall provide 1 no. 415V/230V transformer for the same.			
11	Meters:1.All indicating instruments shall be digital, Switchboard type with accuracy class +/- 2% full scale.2.Voltmeter 0-500V AC shall be provided			

	<p>before the incomer switch and shall be protected through control fuses.3.Ammeter of suitable range shall be provided at incomer.4.Selector switches shall be furnished at incomer for ammeter and voltmeter5.Multi-function meter shall possess the following features:a)Shall be of size 96 x 96mm.b)Shall be SCADA compatible.c)Display shall be LCD.d)Record and read voltage, current, frequency, power factor active power (P), reactive power (Q), apparent power (S) &amp; THD.e)AC/DC auxiliary supply.f)Real-time clock (RTC).g)Facility to read individual harmonic up to 21st order.h)Shall have four outputs/ports: RS 485, analog, digital and pulse.i)Protection class of</p>			
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	meter shall be IP 65.			
12	CT (Current transformer)CT will be cast resin type: rated 5VA accuracy class 1.			
13	Secondary wiring:1.Panel shall be fully wired at the factory to ensure proper functioning of control and protection.2.Fuse and links shall be provided to permit individual circuit protection from bus wires without disturbing other circuits. All spare contacts of relays, push buttons and other devices shall be wired up to terminal blocks.3.Wiring shall be done with flexible 2.5sqmm copper 650V grade, PVC insulated switchboard wires. Each wire shall be identified at both ends with permanent markers bearing wire numbers as per wiring diagram.4.Wire			

	<p>termination shall be done with crimping type connector with insulating sleeve.</p>			
14	<p>Terminal Blocks:1.Terminal block shall be 660V grade box clamp type with marking strips similar to ELMEX 10 mm<sup>2</sup> or equal.2.Terminal for CT secondary leads shall have provision for shorting.3.Not more than two wires shall be connected to any terminal.4.Spare terminals equal in number to 20% active terminals shall be provided.5.Terminal blocks shall be suitably located in cable alleys.6.For Power cable, Bus Bar type cable connector (Melamine material) shall be provided.7.For Control cable, heavy duty screw type cable connector (Melamine material) shall</p>			



	be provided			
15	Cable termination:1.Panel shall be designed for cable entry from top/bottom, as required.2.All provisions and accessories shall be furnished for termination of cables including removable gland plates, cable supports and terminal blocks.3.Gland plate shall be minimum 3 mm thick.			
16	Ground Bus:A GI ground bus rated to carry the maximum fault current shall extend full length of Panel. The ground bus shall be provided with 2 bolts with GI bolt and nuts at each end to receive 50x6mm GI flat.			
17	Nameplate:The nameplate of approved design shall be provided for each compartment and also at the top of each panel. Nameplate shall be			

	minimum 20x70mm and 3mm thick.			
18	Painting:Panel shall be painted with light grey epoxy painted (Siemens Gray RAL 7032) and caution notice plate shall be fixed at the back of each vertical panel.			
19	<p>Make of Switchgears:</p> <p>1.ACB: Siemens/Schneider/L&amp;T2.</p> <p>MCCB: Siemens/Schneider/L&amp;T3.</p> <p>Push button: Siemens/Schneider/ Teknic4.Selector Switch: Siemens/Schneider/ Teknic5.Fuse: Schneider/Siemens/L&amp;T6.</p> <p>Timer: Siemens/Schneider/L&amp;T7.</p> <p>Control Transformer: AE/IMP/Indcoil8.Terminal Block:Elmex/Connectwell/ FTC9.Meters: Conzerv/ L&amp;T/ AE10.CTs &amp; PTs: Kappa/Automatic</p>			

	<p>Electric(AE)/Nippen11. Contactors: Schneider/Siemens12. Indications:Siemens/Schneider / Teknic13. Relays:Schneider /Siemens/PLA14. MCB: Schneider/Siemens15. Cooling Fan: Rexnord/Sunon16. RCBO :Siemens/Schneider17. MCB DB: Siemens/ABB/Legrand</p>			
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**PART II:Technical Specifications:- 7 Miscellaneous Electrical items**

**Item Specifications -VII**

Sl. No	Specifications	Compliance (Yes /No)	Offered Specifications	Remarks
1	<p>Cables:1. Cables shall be copper/ Aluminum conductor, XLPE insulated, extruded PVC inner sheath, strip/wire armored and overall PVC outer sheathed 1.1 KV grade, as per IS 7098 (Part I)2. The</p>			

	<p>cables shall be laid in ground and in trays/clamped to wall depending on actual site conditions.3.Two (2) runs of 25mm x 3 mm GI strip shall be run along the cable trays. 4.GI wire shall be run from cable tray to DBs &amp; along with cable when laid in ground.5.Requirement of cable trays depends on site conditions and will be decided by EIC during execution.6.Laying of 1.1 KV grade, XLPE insulated, and overall sheathed, stranded aluminium conductor, flat strip/wire armoured cables in ground/hard soil/soft soil shall be carried out 750 mm below ground level. Scope shall include transportation of cable to site, excavation of earth, laying the cable and covering with sand and placing the bricks on sides</p>			
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	<p>and top, refilling the earth and providing cable router/joint markers complete as per government specifications.</p> <p>7. Horizontally and vertically laid cables on wall or on cable trays shall be coated with Fire Resistant Compound of water based thermoplastic resin, Flame Retardant chemicals and inorganic incombustible fibers for coating on the cables to withstand severe Fires and to prevent propagation under high temperature conditions complete as required and as directed by Engineer-in-charge. (to be coated on the cables for 1.5 mtr length from end terminations and 1 mtr length for every 10 mtr interval of exposed cable)</p> <p>8. End terminations for 1.1KV grade, PVC/XLPE insulated armoured/unarmoured,</p>			
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	<p>copper/aluminium conductor cable shall include supply of cable gland, lugs, neoprene bushes and other materials and tools required complete with terminal connections, earthing of glands and as required and as directed by EIC.</p>			
2	<p>Wire: The scope includes the Supply and installation of FRLS, 1.1 kV grade, ISI marked, PVC insulated, single core, stranded Copper conductor cable confirming to IS: 694 (with latest amendments) of different size quantity &amp; Specification as per the BOQ for power distribution and lighting etc. as per the requirement.</p>			
3	<p>Conduit: The scope includes the Supply and installation of 20/25 mm</p>			

	<p>dia, 2mm thick, Electrical grade PVC Conduit of different size quantity &amp; Specification as per the BOQ for power distribution, lighting modification, heaters and lighting etc. as per the requirement. Flexible conduit shall be GI.</p>			
4	<p>Earthing: The scope includes the Supply and providing earthing for Panels, DBs as per the requirement, Specification and quantities as per the BOQ.</p>			
5	<p>Switchboards and Switch/Sockets: The scope includes the Supply and installation of Different size of modular switchboards and switch/socket for Lighting, Power Distribution and Trunking specification and quantities as per the BOQ.</p>			

**PART II:Technical Specifications:- 8 Fire Detection System**

**Item Specifications -VIII**

Sl. No	Specifications	Compliance (Yes /No)	Offered Specifications	Remarks
1	<p>Smoke Detectors: The smoke detectors shall be Photo electric Analog addressable optical (multi sensor) type, suitable for detecting a wide range of smoke from slow smoldering and fast flaming fire. The detector shall have following features a)Solid state addressing arrangement in combination with a hand held programmer to configure the sensor address.b)Electronics free mounting base.c)Twin alarm LEDs for 360 Degree viewing and shall have blinking LED facility.d)Photo electric sensor shall have removable chamber for</p>			



	<p>ease of cleaning or replacement.e)Automatic compensation for smoke sensor contamination.f)Shall have a built in test facility which allows the fire alarm control panel to adjust the alarm threshold levels to compensate for contamination and shall have a maintenance alarm display when threshold can no longer be adjusted.g)Operating temperature - 10 Deg.C to 50 Deg.C and operating RH at 40 Deg.C-95% RH.</p>			
2	<p>Analog addressable heat detector: The detector shall have the following features: -a)Solid state addressing arrangement in combination with a hand held programmer to configure the sensor addressb)Electronics free mounting basec)Twin alarm LEDs for 360 Degree</p>			

	<p>viewing and shall have blinking LED facility.d)Simple anti-tamper locking mechanismThe scope shall also include supply of all fixing materials complete as required.</p>			
3	<p>Response indicator:Response indicator shall be connected (in parallel) to each smoke detector installed above false ceiling, and housed in suitable MS enclosure with acrylic cover fixed flush with wall to operate in conjunction with Smoke/Heat detectors operating on 24 V DC, complete with all accessories and fixing materials as required. Its address should be the same as that of the detector to which it is connected.</p>			

4	<p>Manual call stations Manual Call Stations should have in built monitor module and press/break and resettable capability constructed of high impact LEXAN sheet with clearly visible operating instructions on the cover and the word 'FIRE' shall appear on front and suitable for surface mounting/flush mounting complete as required.</p>			
5	<p>Short circuit isolator Short circuit isolator shall be analog addressable type for isolating analog devices from short circuit. Fault isolating module shall have LED that latches to indicate a short on the loop. This device shall automatically determine and return to normal condition once fault is cleared from the loop and restore the isolated</p>			

	segments.			
6	SoundersAddressable Sounders shall be loop powered with all fixing materials complete as required. The sound level shall be 100dB (A)			
7	Fire alarm control panel(FACP):1.FACP shall be suitable for 230V, 50 Hz, AC supply and detectors shall be powered using FACP based detection circuits. Devices shall receive power and communication from the same pair of conductors.2.FACP shall provide for resetting detectors, fault isolation and sensor loop operation.3.FACP shall be suitable for mixing different fire devices and beam smoke detectors within the same loop to optimize field wiring.4.FACP shall have			

	<p>alarm indication of individual sensors, detector trouble alarm indication for dust accumulation. The panel shall check detector once in every 24 hours for contamination for this purpose.5.The FACP shall regularly supervise all the sensors and devices on the loop and initiate fire or trouble alarm whenever required.6.FACP shall have 2 wire circuit to connect minimum of 126 addressable devices per loop.7.FACP shall be with repeater interface and suitable 24V battery with built in software and 2 x 40-character alphanumeric LCD display and necessary front panel control keys, FACP shall display the date, time and description for Analog sensors to indicate alarms and trouble situations.8.FACP switches shall allow</p>			
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	<p>authorised personnel to accomplish the following:-</p> <p>9.Initiate a general alarm condition.10.Silence the local audible.11.Silence the alarm signals.12.Reset all zones/points.13.FACP shall have walk test facility.14.Shall have facility for programming from the key board or utilising PC set up software via laptop/desk top computer.15.Shall have memory data for panel configuration and operation reside in non-volatile memory (EPROM).16.FACP shall have facility for speech processor (to record pre-recorded message of 20 S) and also have Auto Dialler facility (can dial up to 8 different lines)17.All addressable units shall be connected to the FACP through the loop cards and shall be addressed though individualized</p>			
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	<p>numbers. The FACP shall be able to obtain analog value for all detectors in the circuit through a pulsed digitized current data. The FACP shall be able to analyze all analog inputs from all addressable units, and though its own software and ambient level screening the FACP shall be able to identify fire, possible fire or fault conditions. The unit supervision shall be dynamic and continuous.18.The FACP shall itself have all loop cards in it. No isolated mother board or transponder shall be considered.19.Short/open circuit units shall also be reported at the FACP in such cases, the system through the use of fault isolators shall be able to isolate that segment between the two fault</p>			
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	<p>isolators. The missing Detectors/Devices shall also be reported to the FACP with identification of the location.20.The FACP shall have the facility to set smoke sensor sensitivity remotely to either high sensitivity manually or on a pre-programmed sequence (I.e. Day/Night) period. When an alarm condition is sensed at the FACP from a smoke or heat detector, a delay time/alarm verification period shall be started. If the sensor is still in alarm after the delay time expired, an alarm condition is reported. The delay time shall be adjustable from 0 to 990 seconds.21.The FACP shall have either an in-built or external printer coupled to the FACP, which shall log all events with time. The printout shall clearly indicate the</p>			
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	<p>Event-Fire/Pre-Alarm/Fault etc. with the unit address and time.22.The FACP shall also be able to discriminate between false alarms and fire conditions, as well as priority selection of alarm in case alarm activities in two or more remotely located units simultaneously. In such cases, the Manual Call stations shall have the highest priority.23.The FACP shall also be able to actuate switches automatically in case of Fire condition that of AHUs and power supply or other system such as piped pressurised gas supply.24.The system shall be fail safe and adequate safe guards should be under taken that in the event of a failure of a part of the system it shall not handicap the complete system. The loop cards</p>			
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	<p>shall be of Modular construction.25.The FACP shall have its own battery backup of a minimum of 48 hours in normal run and then half an hour in alarm condition. The backup time calculation shall be done as per TAC standards. The Battery shall be 2 x 12V (24V) DC and of sealed maintenance free type, housed inside the FACP.26.It shall be able to withstand temperature variations from '0' Degree Centigrade to 55 Degree Centigrade. Further Relative Humidity (non condensing type) up to 93% shall not hamper its performance. The voltage rating shall be from 17V DC to 31V DC, though the voltage may be change depending upon the working voltages of a proprietary FACP.27.The FACP shall be totally enclosed dust and vermin</p>			
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	<p>proof type made of minimum 16-gauge dust inhibited sheet with even baked finish. The FACP shall be of completely solid state design.28.The logic circuitry shall be based on high noise immunity solid-state hardware employing modular construction. Logic cards shall be of epoxy fiber glass construction.29.The FACP shall have EN 54/UL/FM approval.30.The panel shall have an extra loop card to serve as standby in case of burnout or malfunctioning of any operating loop cards.31.The FACP shall be capable of being networked (future expansion) with other similar FACPs located at different part of the premises through a single RS 485 bus.32.The FACP shall have provision for</p>			
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	interfacing with the Public Address System.			
8	<p>Repeater panel Scope comprises of supply and installation of Repeater Panel which display fire / fault message simultaneously with the FACP. a)It shall be capable of interfacing with the FACP on a single RS 485 Bus. b)The panel shall be capable of operating on 24V DC supply.c)The panel shall have 2 x 40-character backlit display which shall display date, time and description of alarm / trouble events are that displayed in the panel shall be powered from the FACPd)It shall have control keys for sound, silence, mute and to reset the FACP from the repeater stations.e)The repeater panel shall have the following LEDs indications:i.Supply</p>			

	ii.Fault iii.Mute iv.Silent v.Disabled vi.Fire			
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**PART II:Technical Specifications:- 9 Lightning Protection**

**Item Specifications -IX**

Sl. No	Specifications	Compliance (Yes /No)	Offered Specifications	Remarks
1	Lightning protection of the building shall be carried out as per the provisions laid down under IEC 62305 and IS 2309 and NEC 2011, SP: 30. The scope of the work shall include Supply and fixing of lightning protection horizontal air termination and down conductors with fixing accessories as stipulated in the BOQ.			
2	The scheme shall consist of the following:a)8mm Round Aluminium Round Conductor as Horizontal Air Terminal and down			

	<p>conductor (similar to OBO-RD 8- ALU-5021 286 or equivalent)b)Cross connector at every crossing point (similar to OBO-251 8-10-5312 035 or equivalent)c)Roof cable holder for concrete roof (similar to OBO-165 MBG - 8-5218 691 or equivalent)d)Roof cable holder for metal roof (similar to OBO-159 VA-V-5217 075 or equivalent)e)Roof cable holder for parapet wall and down conductor (similar to OBO-177 55 M8-5207 487 or equivalent)f)Ground conductors with fixing accessories as per IEC 62305 and IS 2309 and NEC 2011, SP:30 and shall consist of the following components:1.GI Strip (30X3) (similar to OBO-5052 DIN 30X3-5019 344 or equivalent)2.Cross connector for round and</p>			
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	<p>flat (Saddle Clamp) (similar to OBO-252 8-10XFL 30 FT-5312 655 or equivalent)g)The Earth stations for lightning protection shall be in accordance with IEC 62305 and IS 2309 and NEC 2011, SP:30 and shall consist of the following components:h)Copper coated earth rod 20 mm dia- 3 mtr (1X3 No's) (similar to OBO-219 20 CU or equivalent)i)Impact point of earth rod (similar to OBO-219 20 IP or equivalent)j)Universal clamp (connect rod to tape) (similar to OBO-2730 20VA or equivalent)k)Earth conductivity enhancing mineral compound (25 Kg) (similar to OBO-ESC GB 25 or equivalent)l)Under floor earth inspection pit- FRP (similar to OBO-UFE FRP or equivalent)</p>			
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**PART II:Technical Specifications:- 10 Networking System**

**Item Specifications -X**

Sl. No	Specifications	Compliance (Yes /No)	Offered Specifications	Remarks
1	32U Network Rack:Supply installation testing and commissioning of UL listed, modular type 32U network rack with front glass door and rear perforated door, floor mounted, Size 800x800 or bigger, with 2 No's of 5 port or more Octagonal PDU 5/15Amp with MCB and Fan Tray with minimum 4 Fans. The rack should have provision of 4 nos of cable manager duct type 1U and 2 vertical manager-concealed type. Rack should be three sides openable with front glass door and rear perforated door and provision of			



	<p>cable entry from top and bottom both with proper earthing kit as required.          Make: Rittal, Netrack, Schneider, Valrack</p>			
2	<p>15U Network Rack:Supply installation testing and commissioning of UL listed, modular type 15U network rack with front glass door and rear perforated door, floor mounted, Size 600X450 or bigger, with 1 No's of 5 port or more Octagonal PDU 5/15Amp with MCB and Fan Tray with minimum 1 Fans. The rack should have provision of 4 nos of cable manager duct type 1U and 2 vertical manager-concealed type. Rack should be three sides openable with front glass door and rear perforated door and provision of cable entry from top and bottom both with proper earthing kit as</p>			

	required. Make : Rittal, Netrack, Schneider, Valrack			
3	<p>Network Switch: a) 24 Port b) Port Density: Switch shall have minimum 24 10/100/1000 Base T Ports and 4 - 1G SFP Ports ready for use with SFP module. Ports shall support PoE on all ports with PoE budget of 180W c) Architecture: The switch shall be standalone rack mountable d) Bandwidth: Switch shall have minimum 56 Gbps of switching bandwidth to support above listed ports in non-blocking configuration e) Stackable/Scalable: Switch shall have support for stacking multiple switches. f) Stacking backplane bandwidth: Access switch shall have additional port(s) for providing minimum 40</p>			

	<p>Gbps stacking bandwidth.g)L2 Features: 802.1x authentication, panning tree etc.h)Netflow/jflow/sFlow or equivalent: Switch shall have provision for netflow/jflow/sFlow or equivalent supporti)Network Management: Switch shall support network management through Command Line Interface (CLI), SNMP v1, v2c, v3, HTTPSj)IPv6 Readiness: IPv6 Readiness from day 1k)REGULATORY/SAFETY: switch shall be conforming to UL 60950 and EN60950l)EAL/NIAP certified: Switch model number shall be EAL or NIAP/NDPP certified.Make: isco, Juniper, HP, Brocade, dell</p>			
4	<p>Cable:Supply and installation/laying of category 6A or better, 4</p>			

	<p>pair shielded cable U/FTP or F/UTP in MS Conduit/Aluminium trunking, sheath type: low smoke zero halogen (LSZH) with transmission properties &amp; electrical properties tested minimum up to 500MHz &amp; verified by ETL &amp; comply with ANSI/TIA/EIA-568-C.2 &amp; ISO/IEC 11801 Make: Commscope, Schneider, Molex, Siemon</p>			
5	<p>Face Plate (Quad): Face plate with the following specification a) Single Gang square plate b) Should be able to support variety of jacks – UTP, STP etc. Make: Commscope, Schneider, Molex, Siemon</p>			
6	<p>Port Shielded CAT6A Jack Panel loaded with CAT 6A shielded I/O : a) Have port identification numbers on the front of the panel. b) Have self-</p>			

	<p>adhesive, clear label holders c)Have provision for each port / jack on the panel to be individually removable on field from the panel.d)Have integrated rear cable management metallic shelf.e)Have separate provision of groundingMake :Commscope, Schneider, Molex, Siemon</p>			
7	<p>Patch Cords (1 meter): Supply installation testing and commissioning of Patch Cords Cat 6A shielded 1 meter in Network rack with 4 pair shielded copper wire, factory pre terminated with shielded RJ45 plugs, Aluminum/polyester shield screen material, with low smoke Zero halogen sheath, comply to TIA-568-C.2 Cat 6A in I/Os of Network Rack.</p>			

8	<p>Patch Cords (2 meter):  Supply installation testing and commissioning of Patch Cords Cat 6A shielded 2 meter in Network rack with 4 pair shielded copper wire, factory pre terminated with shielded RJ45 plugs, Aluminum/polyester shield screen material, with low smoke Zero halogen sheath, comply to TIA-568-C.2 Cat 6A in Aluminium Bus trunking/raceway at field side.</p>			
9	<p>Information outlet: Supply and installation of Shielded Cat 6A information outlet U/FTP or F/UTP, compliance to category 6A or better, TIA568C.2-500MHz in Aluminium Bus trunking/Raceway at field side. Make Commscope, Schneider, Molex, Siemon</p>			

10	Face Plate: Supply and installation of single gang square face plate (Quad) and SMB Box with a provision to support variety of jacks- UTP, STP etc. in Aluminium Bus trunking system/Raceway on the field side			
11	Raceway Supply & Installation of Metal/GI Raceways for LV and ELV cabling in screed floors, can be combine with junction box, floor box, for wiring devices along with raceway accessories such as fixing brackets, coupler for joining raceways etc. and shall have separate compartment for Power supply distribution, Network and communication cables and including supply and installation of finishing accessories. The system shall consist of separation partition for Power			

	<p>Distribution and LAN/Telephone. It shall have provision to accept mounting boxes that snap fit into the profile complete as required including cutting of the floor matching with the size of raceway and making good the floor as per instruction of SCL engineer in charge as required.</p>			
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**Vendor Specified Terms**

Description	Vendor Terms
<p>1. Definitions:</p> <p>a) The term Purchaser shall mean the Director, Semi Conductor Laboratory or his successors or assignees.</p> <p>b)The term Contractor shall mean the person, firm or company with whom or with which the order for the supply of stores is placed and shall be deemed to include the Contractors Successors, representatives heirs executors and administrators unless excluded by the Contract.</p> <p>c) The term Purchase Order/Contract shall mean the communication signed on behalf of the Purchaser by an officer duly authorised</p>	



<p>intimating the acceptance on behalf of the Purchaser on the terms and conditions mentioned or referred to in the said communication accepting the Tender or offer of the Contractor for supply of stores of plant machinery Software or equipment or part thereof.</p> <p>d) The term Stores shall mean all that the Contractor agrees to supply under the Contract as specified in the Purchase Order including its installation, testing and commissioning as per the specifications.</p>	
<p>2. Delivery Terms:</p> <p>i. For imported stores prices shall be quoted on FOB/FCA nearest International/Gateway airport basis.</p> <p>ii. For indigenous stores prices shall be quoted on F O R destination basis i.e SCL S A S Nagar (Mohali) Punjab exclusive of GST as may be applicable.</p> <p>iii. The rates at which GST is applicable, shall be indicated separately.</p> <p>The prices of the indigenous items shall also be exclusive of transit insurance which shall be arranged by the Purchaser and shall be to Purchaser account.</p>	
<p>3. PRICES:</p>	

<p>Tender offering firm prices will be preferred. Where a price variation clause is insisted upon by a tenderer quotation with a reasonable ceiling should be submitted. Such offers should invariably be supported by the base price taken into account at the time of tendering and also the formula for any such variations.</p>	
<p>4. DELIVERY SCHEDULE/PERIOD OF COMPLETION:</p> <p>The time allowed for supply installation testing and commissioning of the entire works shall be 12 (Twelve) months to be reckoned from the 7th day of issue of purchase order by SCL.</p>	
<p>5. SECURITY DEPOSIT:</p> <p>a) On acceptance of the tender, the Contractor shall submit security deposit for ten percent (10 percent) of the value of the Contract within 15 days from the date of purchase order. If the Contractor fails to provide the security within the period specified, such failure shall constitute a breach of the Contract, and the Purchaser shall be entitled to make other arrangements for the re-purchase of the stores contracted at the cost and risk of the Contractor.</p> <p>b) Security Deposit shall be submitted through Demand Draft /Bankers Cheque/ fixed deposit receipt or Bank Guarantee from any of the Scheduled Banks executed on non-judicial stamp paper of appropriate value, and shall be valid for a period of sixty (60) days beyond the date</p>	

<p>for completion of the Purchase Order/Contract.</p> <p>c) In case the contractor fails to furnish the security deposit within the specified date or extended due date, the Purchase Order/Contract shall be cancelled, and the EMD, if any, made earlier shall be forfeited, and, in addition appropriate penal action may also be considered.</p> <p>d) After the Purchase Order/Contract is successfully executed in all respects, the Bank Guarantee towards Security Deposit may be discharged and retained amount and / or EMD refunded to vendors.</p> <p>e) In the event of non-execution of the Purchase order/Contract or breach of any terms and conditions of the Purchase Order, the Security Deposit shall be forfeited.</p>	
<p>6. Warranty :</p> <p>The Contractor shall provide for the tendered equipment comprehensive warranty for parts as well as labour for a period of 12 months from the date of successful installation, commissioning and testing of the equipment at Purchasers site at no extra charges against any manufacturing defect/faulty workmanship. In case any defect arises during warranty period, the Contractor should replace/rectify the same at its own cost at site/works. However, the LED light fitting and its driver unit etc. shall have warranty for a period of 5 years from the date of installation and commissioning.</p>	

<p>7. Warranty Replacements:</p> <p>a) If in the opinion of the purchaser it becomes necessary to replace or repair any defective equipment during the warranty period, such replacement or repair shall be made by the Contractor free of all costs to the Purchaser provided the notice informing the Contractor of the defect is given by the Purchaser within a period of 14 months from the date of acceptance thereof.</p> <p>b) All replacement parts during the warranty period shall be supplied by the Contractor, free of cost on DDP (Delivery Duty paid) basis with freight and insurance upto Purchaser site at S A S Nagar Punjab and customs duty applicable in India to the Contractor account including compliance with the customs procedure in India. The indigenous replacement parts, if any, shall be supplied by the Contractor free of cost on F O R Purchaser site at S A S Nagar Punjab basis.</p> <p>All defective parts including the imported parts shall be returned by Purchaser to the Contractor, if requested, on Freight to pay basis.</p>	
<p>8. GUARANTEE &amp; REPLACEMENT :</p> <p>a) The Contractor shall guarantee that the stores supplied shall comply fully with the specifications laid down, for material workmanship and performance.</p> <p>b) For a period of 12 months after the acceptance of the stores if any defects are discovered therein or any defects therein found to have developed under proper use arising from faulty stores design or workmanship the Contractor shall remedy such defects at his own</p>	

cost provided he is called upon to do so within a period of 14 months from the date of acceptance thereof by the purchaser who shall state in writing in what respect the stores or any part thereof are faulty.

c) If, in the opinion of the purchaser, it becomes necessary to replace or renew any defective stores such replacement or renewal shall be made by the Contractor free of all costs to the purchaser, provided the notice informing the Contractor of the defect is given by the purchaser in this regard within the said period of 14 months from the date of acceptance thereof.

d) Should the Contractor fail to rectify the defects the purchaser shall have the right to reject or repair or replace at the cost of the Contractor the whole or any portion of the defective stores.

e) The decision of the purchaser notwithstanding any prior approval or acceptance or inspection thereof on behalf of the purchaser as to whether or not the stores supplied by the Contractor are defective or any defect has developed within the said period of 12 months or as to whether the nature of the defects requires renewal or replacement shall be final conclusive and binding on the Contractor.

f) PERFORMANCE BANK GUARANTEE:

To fulfil guarantee conditions outlined in clause 8(a) to (e) above the Contractor shall furnish a Bank Guarantee (as per format given by purchaser) from any scheduled bank/ bank approved by the Purchaser for an amount equivalent to 10 percent of the value of the Contract and shall be valid for a period of 60 days beyond the expiry date of warranty period. On the performance and completion of the Contract in all respects the Bank Guarantee will be returned to the Contractor

<p>without any interest.</p> <p>g) All the replacement stores shall also be guaranteed for a period of 12months from the date of arrival of the stores at purchasers site.</p> <p>h) Even while the 12 months guarantee applies to all stores in case where a greater period is called for by our specifications then such a specification shall apply in such cases the period of 14months referred to in clause 8 (b) and (c) shall be the asked for guarantee period plus two months.</p>	
<p><b>9. TERMS OF PAYMENT IN CASE OF OVERSEAS SUPPLIERS:</b></p> <p>Being a Department of the Government of India the normal terms of payment are by Sight Draft. However other terms of payment like establishment of Letter of Credit may be considered by the Purchaser on such terms and conditions as may be agreed upon. The payment shall be remitted as under:</p> <p>90 percent of the value shall be paid within 30days of the receipt of the materials at purchaser site and the balance 10 percent amount shall be payable on successful installation, commissioning and acceptance of the entire project at Purchasers site against a Performance Bank Guarantee (refer clause no. 8(f)).</p> <p>All bank charges outside India related to the payment shall be borne by the Contractor and all bank charges in India shall be borne by the purchaser.</p> <p>All LC extension charges in the LC referred to above beyond the agreed</p>	

upon delivery period or the amendments to be made in the LC for reasons attributable to the Contractor shall be to the Contractor account.

In the event of the Contractor not being able to provide the Performance Bank Guarantee the payment of balance 10 percent amount shall be made after the expiry of the warranty period.

Indian agent remuneration/service charge shall be payable by the Purchaser directly to the Indian agent in Indian Rupees based on T T buying rate of exchange prevailing on the date of placement of purchase order within 30 days of acceptance of equipment at purchaser site.

The Sight Draft/Letter of Credit will be operative on presentation of the under mentioned documents :

- a) Original Bill of Lading / Airway Bill
- b) Commercially certified invoices describing the stores delivered, quantity, unit rate and their total value, in triplicate. The invoice should indicate the discounts if any and Agency Commission separately.
- c) Packing List showing individual dimensions and weight of packages.
- d) Country of Origin Certificate in duplicate wherever applicable.
- e) Test Certificate.
- f) Declaration by the Seller that the contents in each case are not less than those entered in the invoices and the quality of the Stores are

<p>guaranteed as per the specifications asked for by the Purchaser.</p> <p>g) Warrantee and guarantee Certificate/s as applicable.</p>	
<p>10. TERMS OF PAYMENT IN CASE OF INDIGENOUS SUPPLIER[S]:</p> <p>The payment shall be remitted as under:</p> <p>90 percent of the value shall be paid within 30 days of the receipt of the materials at purchaser site and the balance 10 percent amount shall be payable on successful installation, commissioning and acceptance of the entire project at Purchasers site against a Performance Bank Guarantee (refer clause no. 8(f)).</p> <p>In the event of the Contractor not being able to provide the Performance Bank Guarantee the payment of balance 10 percent amount shall be made after the expiry of the warranty period.</p> <p>While the purchaser bank charges shall be borne by the purchaser the contractor shall bear the bank charges payable to his banker including the charges towards advising/amendments/commissions etc.</p>	
<p>11. VALIDITY:</p> <p>The tender must be valid for a minimum period of 120 days from the date of opening of Technical bid and 90 days after opening of Price bid.</p> <p>The tender where the validity period is shorter than the period specified in the tender enquiry shall be excluded from the</p>	



<p>procurement process.</p> <p>12. Quantity Variation:</p> <p>The quantities indicated against each items in the Bill of Quantities (BOQ) are indicative and are for the purpose of bidding only. Variation in quantities up to +25 percent shall be carried out by the contractor on the agreed/Purchase order (PO) rates and terms &amp; conditions as in the purchase order (PO).</p>	
<p>13. GUARANTEED TIME DELIVERY :</p> <p>The time for and the date of delivery stipulated in the Purchase Order shall be deemed to be the essence of the Contract. Delivery must be completed within the date specified therein.</p> <p>14. MODE OF DESPATCH:</p> <p>Stores should be despatched through Indian Flagged Vessel / Air India or through any other Agency nominated by the purchaser whose contact details shall be indicated in the purchase order.</p>	

<p>15. PORT OF ENTRY: IGI Airport New Delhi.</p> <p>16. CONSIGNEE: Sr. Purchase and Stores Officer (Stores), Semi Conductor Laboratory Sector 72 S.A.S. Nagar (Mohali) Punjab India 160 071.</p> <p>17. SHIPPING MARKS: The mark on the shipping documents such as invoice bill of lading and on the packages should be as follow: &lt;brPURCHASE ORDER NO.</p> <p>DATED</p> <p>GOVERNMENT OF INDIA</p> <p>DEPARTMENT OF SPACE</p> <p>SEMI-CONDUCTOR LABORATORY</p> <p>DESTINATION: SECTOR 72 S A S NAGAR (MOHALI) PUNJAB INDIA.</p>	

<p><b>18. INSTALLATION AND COMMISSIONING :</b></p> <p>Installation commissioning and demonstration of performance of the tendered stores as per Purchaser tendered specifications shall be carried out by the Contractor at Purchaser site at S A S Nagar Punjab India.</p> <p>The Contractor shall provide in advance guidelines for preparation of the installation site and list of items to be supplied by Purchaser during installation.</p> <p>On receipt of intimation from the Purchaser the Contractor shall depute its engineer(s) to Purchaser site within two weeks to carry out installation and commissioning and will demonstrate the functionality of the tendered equipment to Purchaser specifications as per mutually agreed acceptance procedure. The Contractor shall be responsible for any loss/damages sustained due to delay on the part of the Contractor to send its engineer for installation and commissioning.</p> <p>Failure to commission the tendered equipment successfully shall entitle Purchaser to full refund of the payment made and the interest thereon. Decision regarding successful installation and commissioning shall rest solely with the Purchaser.</p>	
<p><b>19. REPLACEMENT :</b></p> <p>If the stores or any portion thereof is damaged or lost during transit, the Purchaser shall give notice to the Contractor setting forth particulars of such stores damaged or lost during transit. The replacement of such stores shall be effected by the Contractor within a</p>	

<p>reasonable time to avoid unnecessary delay in the intended usage of the Stores. In case the purchaser agrees the price towards replacement items shall be paid by the purchaser on the basis of original price quoted in the tender or as reasonably worked out from the tender.</p>	
<p>20. REJECTION:</p> <p>In the event that any of the stores supplied by the Contractor is found defective in material or workmanship or otherwise not in conformity with the requirements of the Contract specifications the purchaser shall either reject the stores or request the Contractor in writing to rectify the same. The Contractor, on receipt of such notification shall either rectify or replace the defective stores free of cost to the purchaser. If the Contractor fails to do so the purchaser may at his option either :</p> <ul style="list-style-type: none"> <li>a) replace or rectify such defective stores and recover the extra cost so involved from the Contractor or</li> <li>b) terminate the Contract for default as provided under clause 31 or</li> <li>c) acquire the defective stores at a reduced price considered equitable under the circumstances. The provision of this article shall not prejudice the Purchasers rights under clause 26.</li> </ul> <p>&lt;br.21. EXTENSION OF TIME :</p> <p>If the completion of supply of stores is delayed due to reason of force majeure such as acts of god, acts of public enemy, acts of Government</p>	

<p>fires floods epidemics quarantine restriction strikes freight embargoes etc., the Contractor shall give notice within 15 days to the purchaser in writing of his claim for an extension of time. The purchaser on receipt of such notice after verification, if necessary may agree to extend the Contract delivery date as may be reasonable but without prejudice to other terms and conditions of the Contract.</p>	
<p><b>22. DELAY IN COMPLETION/LIQUIDATED DAMAGES:</b></p> <p>If the Contractor fails to deliver the stores within the time specified in the Contract or any extension thereof the purchaser shall recover from the Contractor as liquidated damages a sum of one half of one percent (0.5 percent) of the Contract price of the undelivered stores for each calendar week of delay. The total liquidated damages shall not exceed ten percent (10 percent) of the Contract price of the unit or units so delayed. Stores will be deemed to have been delivered only when all their component parts are also delivered. If certain components are not delivered in time the stores will be considered as delayed until such time as the missing parts are delivered. Delivery of stores shall be complete on Installation commissioning Testing and Acceptance.</p>	
<p><b>23. INSPECTION AND ACCEPTANCE TEST:</b></p> <p>The Purchasers representatives shall also be entitled at all reasonable times during manufacture to inspect, examine and test on the Contractors premises the material and workmanship of all stores to be supplied under this Contract and if part of the said stores is being</p>	

<p>manufactured on other premises, the Contractor shall obtain for the purchasers representative permission to inspect, examine and test as if the equipment were being manufactured on the Contractors premises.</p> <p>Such inspection examination and testing shall not release the Contractor from the obligations under this Contract.</p> <p>For tests on the premises of the Contractor or of any of his sub-Contractors, the Contractor shall provide free of cost assistance labour material, electricity fuel and instruments as may be required or as may be reasonably needed by the purchasers representative to carry out the tests efficiently.</p> <p>When the stores have passed the specified test the purchaser representative shall furnish a certificate to the effect in writing to the Contractor. The Contractor shall provide copies of the test/s certificates to the purchaser as may be required.</p> <p>24. ADDRESS OF INDIAN AGENT: if any:</p>	
<p>25. RECOVERY OF SUM DUE:</p> <p>Whenever any claim for the payment of whether liquidated or not, money arising out of or under this Contract against the Contractor the purchaser shall be entitled to recover such sum by appropriating in</p>	

<p>part or whole the security deposited by the Contractor if a security is taken against the Contract. In the event of the security being insufficient or if no security has been taken from the Contractor then the balance or the total sum recoverable as the case may be shall be deducted from any sum then due or which at any time thereafter may become due to the Contractor under this or any other Contract with the purchaser. Should this sum be not sufficient to cover the full amount recoverable the Contractor shall pay to the purchaser on demand the remaining balance due. Similarly if the purchaser has or makes any claim whether liquidated or not against the Contractor under any other Contract with the purchaser the payment of all moneys payable under the Contract to the Contractor including the security deposit shall be withheld till such claims of the purchaser are finally adjudicated upon and paid by the Contractor.</p> <p>26. REQUIREMENT OF ADDITIONAL NUMBERS OF THE STORES/SPARE PARTS ORDERED:</p> <p>The Contractor shall also undertake the supply of additional number of items covered by the order as considered necessary by the purchaser at a later date the actual price to be paid shall be mutually agreed to after negotiations.</p>	
<p>27. PACKING:</p> <p>a) The Contractor wherever applicable shall pack and crate all stores</p>	

for sea /air/road shipment as applicable in a manner suitable for export to a tropical humid climate, in accordance with internationally accepted export practices and in such a manner so as to protect it from damage and deterioration in transit by road rail air or sea. The Contractor shall be held responsible for all damages due to improper packing.

b) The Contractor shall ensure that each box / unit of shipment is legible and properly marked for correct identification. The failure to comply with this requirement shall make the Contractor liable for additional expenses involved.

c) The Contractor shall notify the purchaser of the date of shipment from the port of embarkation as well as the expected date of arrival of such shipment at the designated port of arrival.

d) The Contractor shall give complete shipment information concerning the weight size content of each packages etc.

e) Trans shipment of equipment shall not be permitted except with the written permission of the purchaser.

f) Apart from the despatch documents negotiated through Bank the following documents shall also be airmailed to the purchaser within 7 days from the date of shipment by sea and within 3 days in case of air consignments:

i) Commercial Bill of Lading / Air Way Bill / Post parcel Receipt. (Two non negotiable copies)

ii) Invoice (3 copies)



<p>iii) Packing List (3 copies)</p> <p>iv) Test Certificate (3 copies)</p> <p>v) Certificate of Origin wherever applicable.</p> <p>The Contractor shall also ensure that one copy of the packing list is enclosed in each case.</p>	
<p>28. ARBITRATION:</p> <p>If at any time any question, dispute or difference whatsoever shall arise between the purchaser and the Contractor upon or in connection with this Contract, either party may forthwith give to the other notice in writing of the existence of such question dispute or difference and the same shall be referred to the adjudication of two arbitrators one to be nominated by purchaser other by a Contractor and in the event of any difference of opinion the arbitrators will refer the matter to the umpire. The arbitration shall be conducted in accordance with the rules and procedure for arbitration of the International Chamber of Commerce at Paris. The expenses of the arbitrators and umpire shall be paid as may be determined by them. However the venue of such arbitration should be in India.</p> <p>In case of dispute arises with domestic/Indian suppliers the applicable Arbitration procedure shall be as per Indian Arbitration &amp; Conciliation Act, 1996.</p>	

<p><b>29. LANGUAGE AND MEASURES:</b></p> <p>All documents pertaining to the Contract including specification schedule notice correspondence operating and maintenance instructions drawings or any other writings shall be written in English language. The metric system of measurement shall be used exclusively in the Contract.</p> <p><b>30. TECHNICAL DOCUMENTATION:</b></p> <p>The Contractor shall provide installation, operation maintenance and programming manual. All documentation shall be in English language.</p>	
<p><b>31. CONTRACTORS DEFAULT LIABILITY:</b></p> <p>The purchaser may upon written notice of default to the Contractor terminate the Contract in whole or in part in circumstances detailed hereunder:</p> <p>a) If in the judgement of the Purchaser the Contractor fails to make delivery of Stores within the time specified in the Contract/agreement or within the period for which extension has been granted by the Purchaser to the Contractor.</p> <p>b) If in the judgment of the Purchaser the Contractor fails to comply</p>	

<p>with any of the other provisions of this Contract.</p>	
<p>32. In the event the Purchaser terminates the Contract in whole or in part as provided in Clause 31 the Purchaser reserves the right to Purchase, upon such terms and in such a manner as he may deem appropriate stores similar to that terminated and the Contractor shall be liable to the Purchaser for any additional costs for such similar stores and/or for liquidated damages for delay as defined in Clause 22 until such reasonable time as may be required for the final supply of stores.</p> <p>A) If this Contract is terminated as provided in Clause 31 the Purchaser in addition to any other rights provided in this Article may require the Contractor to transfer title and deliver to the Purchaser under any of the following clauses in the manner and as directed by the Purchaser:</p> <p>a) Any completed stores.</p> <p>b) Such partially completed stores</p> <p>drawing, information and Contract rights (hereinafter called manufacturing material) as the Contractor has specifically produced or acquired for the performance of the Contract as terminated. The Purchaser shall pay to the Contractor the Contract price for completed stores delivered to and accepted, by the purchaser and for manufacturing material delivered and accepted.</p> <p>B) In the event the Purchaser does not terminate the Contract as provided in Clause 31, the Contractor shall continue the performance</p>	

of the Contract in which case he shall be liable to the purchaser for liquidated damages for delay as set out in Clause 22 until the stores are accepted.	
33. Any Other Term:	

**Supporting Documents from Vendor**

**Attachment - I:**

**Attachment - II:**

**PART II:Technical Specifications:- 6 Power Earthing system**

**Item Specifications -VI**

Sl. No	Specifications	Compliance (Yes /No)	Offered Specifications	Remarks
1	Supply and installation of standard plate earth for earth station with 600 x 600 x 3.15 mm electrolytic			

	<p>copper plate at 2.5 mtrs. Depth connected with 50 x 6 mm electrolytic copper strip upto the earthing chamber conforming to IS: 3043 with latest amendments and including supply of all materials and providing chamber complete as required. Note: - Copper plate shall be tinned &amp; the rate of earth station includes the cost of suitable medium class GI pipe for watering. (for UPS Neutral earthing)</p>			
2	<p>Providing standard pipe earth stations with 2.5m long, 40 mm dia GI pipe, conforming to IS: 3043 with latest amendments and including supply of all materials and providing chamber complete as required. Note: Pipe earth used for earthing shall be 'Medium' class with ISI</p>			

	marking			
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**Price Bid Form**

Item Description	Slab Range	Qty	UOM	Currency	Unit Price	Total Price
Supply of Electrical items for Internal electrification such as conduits, wires, Switch/Sockets, LED fixtures, Fans, cables, termination, DBs etc., Total Supply value (Item No 1 to 42 of BOQ of Package I Titled :Internal Electrification)	-	1	Lot	-	-	-
Supply of Electrical items for UPS Power Distribution such as DBs, cable, earthing etc.Total	-	1	Lot	-	-	-

Supply Value ( Item No 1 to 9 of Package II Titled: UPS Power Distribution)						
Supply of Electrical items for ACs and Mechanical works power supply such as DBs, Cable, earthing, cable tray etc.Total Supply Value ( Item No 1 to 10 of Package III Titled: Power Supply to AC and Mechanical works)	-	1	Lot	-	-	-
Supply of Electrical items for External Electrification such as cables, terminations, fire proof compounds etc.	-	1	Lot	-	-	-

Total Supply Value (Item No. 1 to 4 of Package IV Titled:- External Electrification)						
Supply of items for Networking system such as Network Racks, Cables, information outlets etc. Total Supply Value (Item No. 1 to 14 of Package V Titled:- Networking)	-	1	Lot	-	-	-
Supply of items for Smoke detection system such as Smoke Detectors, Heat Detectors, Alarm Panel, cables etc. Total Supply Value (Item No. 1 to 14 of Package VI Titled:- Smoke	-	1	Lot	-	-	-



Detection)						
Supply of items for Lightning protection system such as horizontal air terminations aluminium conductors, earthing etc. Total Supply Value (Item No. 1 to 3 of Package VII Titled:- Lightning Protection)	-	1	Lot	-	-	-
Installation, Testing and Commissioning electrical items for Internal Electricification such as conduits, wires, Switch/Sockets, LED fixtures, Fans, cables, termination, DBs etc., Total installation/	-	1	Lot	-	-	-

testing/ commissioning /certification value (Item No 1 to 42 of BOQ of Package I Titled: Internal Electrification)						
Installation,Testing g and Comissioning of Electrical items for UPS power Distribution such as DBs, cable, earthing etc.Total installation/ testing/ commissioning /certification value ( Item No 1 to 9 of Package II Titled: UPS Power Distribution)	-	1	Lot	-	-	-
Installation,Testing g and Comissioning of Electrical items for	-	1	Lot	-	-	-

<p>ACs and Mechanical work power supply such as DBs, Cable, earthing, cable tray etc.Total installation/ testing/ commissioning /certification value ( Item No 1 to 10 of Package III Titled: Power Supply to AC and Mechanical works)</p>						
<p>Installation,Testing and Comissioning of Electrical items for External Electrification such as cables, terminations, fire proof compounds etc. Total installation/ testing/</p>	-	1	Lot	-	-	-

commissioning /certification value (Item No. 1 to 4 of Package IV Titled:- External Electrification)						
Installation,Testing and Comissioning of items for Networking system such as Network Racks, Cables, information outlets etc. Total installation/ testing/ commissioning /certification value (Item No. 1 to 14 of Package V Titled:- Networking)	-	1	Lot	-	-	-
Installation,Testing and Comissioning of items for Smoke detection system	-	1	Lot	-	-	-

<p>such as Smoke Detectors, Heat Detectors, Alarm Panel, cables etc. Total installation/ testing/ commissioning /certification value (Item No. 1 to 14 of Package VI Titled:- Smoke Detection)</p>						
<p>Installation, Testing and Commissioning of items for Lightning protection system such as horizontal air terminations aluminium conductors, earthing etc. Total installation/ testing/ commissioning /certification value (Item No. 1 to 3 of Package VII</p>	-	1	Lot	-	-	-

Titled:- Lightning Protection)						
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Break-up of other taxes and other costs should be specified in respective narration columns.

Sum of these Break-up values should be specified in respective value columns.