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IIT Hyderabad

भारतीय प्रौद्योगिकी संस्थान हैदराबाद
कंडी - ५०२ २८ ४, सांगारेड्डी , तेलंगाना, भारत
Indian Institute of Technology Hyderabad
Kandi – 502 284, Sangareddy, Telangana, INDIA
Construction and Maintenance Division

F. No: IITH/CMD/F.35/2026-27/807 Date: 25.08.2026

Corrigendum/Addendum-03

NIT No.: IITH/CMD/ELE/NIT/2026-27/12 dated 28.07.2026.

Name of work: Construction/Establishment of New Institute Data Center (IDC) at Computer Science Engineer (CSE) Department in AD2 Building at IIT Hyderabad Campus, Kandi, Sangareddy (Sub Head: Electro-Mechanical works).

The IITH responses to the Pre-Bid queries raised by the Intending Bidders is provided and enclosed herewith as Annexure I and II respectively for the ready reference of bidders.

All other terms and conditions of aforesaid Notice Inviting Tender (NIT) shall remain the same.

25.08.2026
Executive Engineer - Electrical

Reference No.: IITH/CMD/F.35/2026-27/807 Date: 25.08.2026

Corrigendum/Addendum-03
Annexure-I

INTENDING BIDDER'S QUERIES AND IIT HYDERABAD RESPONSES

Name of Project: Construction/Establishment of New Institute Data Center (IDC) at Computer Science Engineer (CSE) Department in AD2 Building at IIT Hyderabad Campus, Kandi, Sangareddy
(Sub Head:- Electro-Mechanical works)

Tender No.: IITH/CMD/ELE/NIT/2026-27/12

Sr.No.	Page no. /Reference Document/ Clause ref.		As per tender document	Intending Bidder's query	IIT Hyderabad Response
1			Point-2	Kindly clarify power ratings of each PDU i.e. they come with following power ratings – 3.7kw 7.3kw and 14.6 kw – Single Phase 16A, 32A and 63A respectively, so also 11kw, 22kw and 43kw in Three Phase 16A, 32A and 63A, on confirmation we can arrive at the exact PDU model.	**Minimum Required Specifications and Quantities:** **Type**: Intelligent Power Distribution Units (iPDUs) with individualsocket-level monitoring and switching. **Form Factor:** Vertical installation with min 24 hybrid outlets per unit,supporting atleast C13 and C19 compatibility. **Configuration A:** 10 Racks requiring 2 iPDUs per rack (63A, 3-Phase, 230VL-N) with a minimum usable continuous capacity (at 80%) of min 30 kW per rack and should have 12 numbers 16A magnetic circuit breakers for overcurrent protection **Configuration B:** 10 Racks requiring 2 iPDUs per rack (32A, 3-Phase, 230VL-N) with a minimum usable continuous capacity (at 80%) of min 15 kW per rack and should have 6 numbers 16A magnetic circuit breakers for overcurrent protection
2			Point-3	On both 1Phase PDU and 3Phase PDU – same 24 Nos. of Hybrid Outlets are required, kindly clarify. As Single Phase PDU draws less power compared to 3 phase PDUs and adding more number of Hybrid Outlets may lead to unintentional / accidental Power Tripping in single phase PDUs.	Please refer to the IITH response given in Query no. 1 above.
3			Point-6	Colour coded Outlets are mandatory or PDU block wise identification of Phases is acceptable?	All the three phase PDU should have colour coded alternate phase outlets / PDU block wise identification of Phases is acceptable.
4			Point-9	We offer PDU with hot swappable controller, so that in case any of the port failure i.e. sensor port, usb port, serial port or network port , the issue can be addressed by swapping the controller rather than changing the entire PDU	Any Higher specifications are acceptable.
5			Point-17	This is Vendor specific feature and other OEMs cannot offer the same, and other good PDUs with better features shall be barred from participating in the Bid.	It is supported by major enterprise data center iPDU manufacturers. Tender Conditions prevail.
6	Page No. 50		UPS Specification: SMF-VRLA Battery : 3.2 V/Cell to 3.8 V/ Cell	The mentioned battery voltage is incorrect as the SMF VRLA Batteries have 1.75V DC Nominal Cell Voltage & 12V DC Nominal Battery Voltage. Kindly change the same accordingly.	The revised SMF VRLA Battery Specifications shall be read as 2V/Cell
7	Page No. 60		UPS Specification: 2.25 VPC Boost Voltage:/132 VPC	132V PC is wrongly mentioned. Kindly remove it.	Tender Conditions prevail. Any higher specifications are also acceptable.
8	Page No. 62		UPS Specification: NCM-LMO Battery Specification given for Batteries which is Lithium-ion battery.	NCM-LMO Battery Specification given for Batteries which is Lithium-ion battery but mentioned battery type is SMF-VRLA which is contradictory.	The battery type shall be SMF-VRLA only.
9	Page No. 67		UPS Specification: Installation Mode - Tower/Rack	Kindly Confirm if we can consider to offer Tower Type UPS.	Both types are acceptable.

10	Page No. 67		UPS Specification: Battery Type SMF VRLA Without Back-up time	Kindly Confirm the back-up time required for 30kVA UPS Rating	The UPS battery backup shall be minimum 30 mins on Full load at Unity Power factor.
11	Page No. 68		UPS Specification: Energy Star as per UL Standard	UL standard is a north American standard which is not internationally recognise. Against the same, kindly accept IEC, CE & RoHS Certificate.	Acceptable.
12	28/169 Page No.		Make List UPS: SCHNEIDER ELECTRIC (APC)/ VERTIV/SOCOMEC/DELTA/RIELLO/EATON	The approved make list includes only foreign OEMs, whereas the tender explicitly states that the Make in India Policy is applicable. Restricting the make list to only foreign brands is inconsistent with the spirit of the Public Procurement (Preference to Make in India) Order, 2017 (as amended) and unnecessarily limits participation by qualified Indian manufacturers. It is requested to include **Best Power Equipments India Pvt. Ltd. (BPE)** or amend the clause to read **"BPE or Equivalent Indian Make complying with the tender specifications"**, so that eligible Class-I Local Suppliers are allowed to participate in line with the Government of India's Make in India policy.	Tender Conditions prevail.
13	General		UPS OEM Financial Capability	UPS systems are critical infrastructure equipment deployed for ensuring uninterrupted power to mission-critical applications. A higher turnover criterion of **INR 300 Crore** will ensure participation of financially strong and well-established OEMs with proven manufacturing capabilities, robust service infrastructure, long-term sustainability, and the capacity to support large-scale government projects throughout the contract period and warranty lifecycle. **Suggested Amended Clause:** The OEM of UPS systems proposed by the bidder should have an average annual turnover of at least **INR 300 Crore** during the last three consecutive audited financial years out of FY 2022–23, 2023–24, 2024–25 and 2025–26.	Tender Conditions prevail.
14	General		Cyber Security Certification for Offered SNMP Card	**Cyber Security Test Certificate for SNMP Card:** The OEM has to install SNMP card with software for monitoring for all the UPS proposed to be commissioned as specified in Bid. Offered SNMP card to be cybersecurity tested and certified in accordance by ISA/IEC 62443-1,VAPT, certificate from Govt recognized CERT IN empanel vendor for SNMP card its software and CMS software. **(Valid Certificate to be submitted)**	Tender Conditions prevail.
15	General		UPS OEM presence in India	**Requested addition:-** It is requested that the UPS OEM should have a minimum of **25 or more years of presence in India** as on the bid submission date. **Justification:-** A minimum 25 or more years of presence in India demonstrates the OEM's proven track record, long-term commitment to the Indian market, established service infrastructure, and capability to provide reliable product support throughout the project lifecycle.	Tender Conditions prevail.

16	General		UPS OEM presence in India (Representation against exclusion of Indian UPS OEMs from the approved make list despite applicability of the Make in India Policy Clause)	We wish to draw your kind attention to the UPS approved make list specified in the above tender, wherein only foreign OEMs, namely Schneider Electric (APC), Vertiv, Socomec, Delta, Riello and Eaton, have been included. At the same time, Section 15 – Special Conditions of Contract, Clause 9.47 (Page 233) clearly states that: "The Make in India Policy of Govt. of India is invariably applicable to this NIT." The exclusion of qualified Indian UPS manufacturers from the approved make list appears inconsistent with the objectives of the Public Procurement (Preference to Make in India) Order, 2017 (as amended), which promotes participation of eligible domestic manufacturers and encourages indigenous manufacturing. Best Power Equipments India Pvt. Ltd. (BPE) is a leading Indian OEM engaged in the design, development and manufacturing of UPS systems in India since past 26 years, with a comprehensive product portfolio, nationwide service infrastructure, and the capability to meet the technical requirements of this tender. Excluding BPE while restricting the approved make list to foreign OEMs results in unnecessary limitation of competition and deprives eligible Indian manufacturers of an equal opportunity to participate. In the interest of transparency, fair competition and the Government of India's Make in India initiative, we respectfully request you to amend the approved make list by including: Best Power Equipments India Pvt. Ltd. (BPE) or alternatively revise the clause to read: "BPE or Equivalent Indian OEM complying with the tender specifications and qualifying as a Class-I Local Supplier under the Public Procurement (Preference to Make in India) Order, 2017 (as amended)." We trust that the Institute will uphold the principles of fair competition and provide equal opportunity to qualified Indian manufacturers by suitably amending the approved make list. We shall be grateful for your favourable consideration.	Tender Conditions prevail.
17	15	Electrical works Indicative Scheme:	For IT Load a minimum of 300kVA UPS (with initial load of 100kVA) is proposed. However, for other specific Non IT loads a minimum of 30KVA UPS is proposed to be installed by the contractor. The contractor may provide the UPS of higher ratings as well as per its design and Engineering calculations.	Request you to pls share the rack level load details summary which includes the current & expected IT load in future . Considering 100 kVA initial load on UPS , there seems to be over sizing on the rack PDUs & other accessories in teder specification. Pls share or clarify .	Please refer to the IITH response given in Query no. 1 above.
18	49	6.6 TECHNICAL SPECIFICATIONS – UPS	6.7.0 Scope of Work 6.The scope covers supply, installation, testing and commissioning of 01 nos. of 300 kVA/300 kW modular, Hot Swappable UPS systems connected in Stand Alone Configuration. Each power module shall be of minimum 50kW capacity.	We understand that only 1 UPS asked for powering IT Racks. Pls confirm whether IIT Provide second UPS power source fir IT Racks or bidder needs to split the UPS power in two to power 2 PDUs . PLs confirm as We suggest N+N redundancy configuration for IT Load UPS.	The Power supply shall be provided through Single UPS only for both the iPDU in the rack splitting.
19	71	6.7 TECHNICAL SPECIFICATIONS FOR HVAC WORKS	THE AIR-COOLED PRECISION UNIT SHALL BE DESIGNED AS PER FOLLOWING CONDITIONS 6.8.3.2 Unit return air temperature : As per Boq 6.8.3.3 Ambient air design temperature : 48.3 Deg C (bidder/contractor shall verify this data) 6.8.3.4 Cooling Capacity : 20°C ± 1°C 6.8.3.5 Air Flow Direction : Bottom discharge-top return for Server room & Staging Room/ Front discharge – top return for UPS Rooms. 6.8.3.6 Air inlet Temp & RH : Set point ± 1°C (DB) & Set point ± 5% (Return Air) 6.8.3.7 Air Quantity : Modulating as per server (160 cfm/kW (min)	Request you to kindly cross check the design conditions .Kindly cross check the cooling capacity Ambient air design tempersture mentioned. ASHRAE N=20 is 46.4C (for Begumpet , Hyderabad)	Agreed

20	71	6.8.4.5 Fan section	Between the fans shall be installed an “S” shape separator design to eliminate turbulence effects of one fan to the others; it shall be also designed to increase efficiency compared to simple plate separator. Fan(s) removal(s) shall be made faster thanks to the use of buttonhole specifically designed and tested to allow 10 cm increasing height during the operation.	These specifications are OEM specific. Fan section design are specific to OEM. Fans with efficiency and ease of replacement shall be mentioned.	Tender Conditions prevail. Any higher specifications are also acceptable.
21	151	13.2 In Rack centralized monitoring and management of Power and Environment	2. All the iPDU should have vertical form factor having input rating of 15 Racks with minimum 30kW and 15 Racks with 15kW PDU Capacity 230V for single phase & 400V for three phase. Input cable of the PDU’s must be minimum 3-meter-long, and the input industrial plug should be IEC60309, Splash proof IP44.	We understand that all rack Pdus will be of 3 phase as the IT Load capacity mentioned is 30 & 15 kW . Single Phase PDU not required which supports upto 7 kW Only . Pls confirm.	Please refer to the IITH response given in Query no. 1 above.
22	151	13.2 In Rack centralized monitoring and management of Power and Environment	6. IPDU should have 2 numbers 16A magnetic circuit breakers for overcurrent protection in single phase PDU and 6 numbers 16A magnetic circuit breakers for overcurrent protection in three phase PDU.	Considering 15 kW & 30 kW Load per rack as clause 2 , the mentioned clause should be revised as below : 6. IPDU supporting 15 kW load should have 6 numbers 16A magnetic circuit breakers for overcurrent protection and 12 numbers 16A magnetic circuit breakers for overcurrent protection for PDU supporting 30 kW IT loads .	Please refer to the IITH response given in Query no. 1 above.
23	152	13.2 In Rack centralized monitoring and management of Power and Environment	15. The IPDU should support an android or iOS app to read power data securely. Some mode of communication should be provided using which IPDU data can be accessed while user is inside the datacenter and IOS/Android app should not use Bluetooth or Wi-Fi connectivity to prevent breach.	Request you to kinldy remove to prevent security breach .Monitoring should be available exclusively on DCIM or dedicated monitoring software.	Tender Conditions prevail. However, communication shall be fully protected and secured as per applicable norms and guidelines.
24	154	14.0 Cold Aisle Containment	Note: Racks & cold aisle containment shall be from Single OEM.	Kindly remove the clause as the Ailse Containment solution is customised as per site requirement .	Tender Conditions prevail
25	163	SERVER BUSWAY SYSTEM	SERVER BUSWAY SYSTEM	Kindly remove the specification as the requirement is already specified in clause "6.5 Technical Specifications of Bus ducts"	Tender Conditions prevail
26	166	PAC Specifications	Technical Specification INROW COOLING DX Unit	The Floor mounted downflow PAC units has already been mentioned in 6.7 TECHNICAL SPECIFICATIONS FOR HVAC WORKS for Server Room cooling . Pls clarify which type of PAC units to be considered for Server Room IT heat load.	Inrow cooling system.
27	166	Technical Specification INROW COOLING DX Unit	Inside design conditions : Temperature: 20 Deg C +/- 1 Deg C Relative humidity: 50+/-5% RH Noise level 60+/-5 dB A Outside conditions : Summer –35.6°C DBT 25.6°C WBT	Kindly Revise the clause as : Inside design conditions : Temperature: 22 Deg C +/- 1 Deg C Relative humidity: 50+/-5% RH Noise level 70+/-5 dB A Return Air Temp. : 35C Outside conditions : As per ASHRAE N=20	Tender Conditions prevail. Outside conditions as per ASHRAE
28	166	EQUIPMENT SELECTION	Cooling version The unit will feature a cooling circuit with one compressor. The compressor will be a high efficiency scroll unit installed on the outdoor condensing unit so as to limit maintenance requirements inside the data center	The Mentioned Clause is highly restrictive in nature . Pls amend the clause as below for higher participation : Cooling version The unit will feature a cooling circuit with one compressor. The compressor will be a high efficiency scroll unit installed on the Indoor or outdoor condensing unit as per OEM Design standard.	Agreed
29	166	EQUIPMENT SELECTION	Control of the condensation stage The condensation stage must be controlled by modulating the power supply voltage to the fans on the outside condenser.	Pls amend as : The condensation stage must be controlled by modulating the power supply voltage or with fan speed controlled to the fans on the outside condenser.	Agreed

30	170	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS	19) BUS BAR TRUNKING : LEGRAND/C&S ELECTRIC/LAURITZ KNUDSEN (L&T)/SIEMENS/SCHNEIDER ELECTRIC	Pls add VERTIV as a part of approved make for Bus bar trunking	The Revised Busbar Trunking approved makes are LEGRAND/C&S ELECTRIC/LAURITZ KNUDSEN (L&T)/SIEMENS/SCHNEIDER ELECTRIC/VERTIV
31	172	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS	4) COLD AISLE CONTAINEMENT APC/VERTIV/NETRACK	Pls add AET Flexispace or equivalent as a part of approved make for Cold Aisle Containment.	The Revised COLD AISLE CONTAINEMENT approved makes APC/VERTIV/NETRACK/AET Flexispace/Rittal
32	136	Section 11.7 WATER LEAK DETECTION SYSTEM	This section of the specification covers the design, supply, installation, testing, commissioning and thereafter maintaining water leak Detection System (WLD) during the 5 years period	As per RFP Warranty clause, Need to maintain warranty only 03 years. Please clarify reg. WLD system warranty for 05 years.	The DLP/Warranty period shall be 36 (Thirty six) months from the date of Handing over of the works after successful commissioning (including WLD System).
33	134	Section 04, 4.1 General	SITC of Inrow Cooling System PAC for IT Servers Ambient area	Please clarify whether both the points are the same.	Both points are not the same.
34	15	Section 04, Clause 4.1 - General	An indicative and Schematic SLD of the power scheme of the Data Centre is provided along with this NIT Document for better understanding of Intending bidders.	Please share the indicative SLD.	Indicative SLD is enclosed herewith as Annexure-II
35	15	Section 04, Clause 4.1 - General	The power supply to the Proposed Data Center is to be tapped at 11kV voltage level by augmentation of the Existing 11kV HT Panel board installed at IITH downstream 11kV substation. Further, this 11kV HT Power supply will be feed to the Compact Secondary Substation (CSS) of voltage level 11/0.433kV and minimum rating of 630kVA (to be supplied by the contractor) and to be installed at nearby location of proposed Data center. Finally, the 3Phase LT power supply at 433V will be feed from the Secondary side of CSS to the main Incomer LT Panel of Data Center.	Please clarify. Need to maintain for compact Secondary Substation for N+1 or single source only available.	Only single 11kV source is currently under the scope of bidder.
36	16	Section 04, Clause 4.1 - General	For IT server racks, an Inrow cooling system as specified in the detailed technical specifications shall be provided by the contractor	Please mention the number of server racks & network racks. Please mention the IT Loads for each server rack & Network rack and also Total IT Load of server room.	Please refer to the IITH response given in Query no. 1 above.
37		Exemptions for registered MSMEs	EMD Exemptions for registered MSMEs	Request to exempt the EMD for the msme category	Tender Conditions prevail.
38	233	Page 233 – Defect Liability Period (DLP) / Warranty	The DLP/Warranty period shall be 36 (Thirty-Six) months.	We request the Purchaser to reduce the Defect Liability Period (DLP)/Warranty from **36 months to 12 months**, in line with prevailing industry practice for EPC electro-mechanical works. Extended AMC/support, if required, may be procured separately after the warranty period.	Tender Conditions prevail.
39	3	Page 3 – EMD	Earnest Money Deposit (EMD): ₹12,84,000/-	We request the Purchaser to allow the benefit of **Earnest Money Deposit (EMD) exemption** to eligible **Micro and Small Enterprises (MSEs)** registered under Udyam Registration, in accordance with the prevailing Government of India procurement policies and guidelines issued by the Ministry of MSME, subject to submission of valid documentary evidence. This relaxation will encourage wider participation of eligible MSE bidders while remaining compliant with Government procurement policy.	Tender Conditions prevail.
40	174	Page 174 – Schedule of Payments (Stage 1)	Stage 1: Planning & Designing – Payment up to 5% of Part-A contract value.	We request the Purchaser to revise the payment milestone for **Stage 1** from **5% to 10%** of the Part-A contract value. Significant engineering, design, surveys, shop drawings, approvals, and project planning activities are completed during this stage, requiring substantial deployment of engineering resources.	Tender Conditions prevail.
41	174	Page 174 – Schedule of Payments (Stage 2)	Stage 2: Delivery of Electro-Mechanical Equipment & Systems – Payment up to 60% of Part-A contract value.	We request the Purchaser to revise the payment milestone for **Stage 2** from **60% to 70%** of the Part-A contract value. Since the majority of the project cost is incurred during procurement and delivery of major equipment, increasing this milestone will improve project cash flow without affecting the Employer's interests.	Tender Conditions prevail.
42	174	Page 174 – Schedule of Payments (Stage 3)	Stage 3: Installation of Electro-Mechanical Equipment & Systems – Payment up to 15% of Part-A contract value.	Consequent to the revision requested in Stage 2, we request the Purchaser to revise the payment milestone for **Stage 3** from **15% to 10%** of the Part-A contract value.	Tender Conditions prevail.

43	174	Page 174 – Schedule of Payments (Stage 4)	Stage 4: Testing & Commissioning – Payment up to 10% of Part-A contract value.	We request the Purchaser to revise the payment milestone for **Stage 4** from **10% to 5%** of the Part-A contract value, considering that the majority of the project value would already have been realized through supply and installation.	Tender Conditions prevail.
44	174	Page 174 – Schedule of Payments (Stage 5)	Stage 5: Final Trial Run – Payment up to 10% of Part-A contract value.	We request the Purchaser to revise the payment milestone for **Stage 5: Final Trial Run** from **10% to 5%** of the Part-A contract value. Since the Final Trial Run is primarily intended for acceptance verification after successful testing and commissioning, retaining 5% at this stage provides adequate assurance while ensuring a balanced payment structure. Additionally, we request the Purchaser to clearly define the acceptance criteria, trial duration, minimum load conditions, and sign-off procedure for the Final Trial Run to avoid ambiguity during project execution.	Tender Conditions prevail.
45	189	Page 189 – Section-12, Annexure 1	Form of Bank Guarantee for Earnest Money Deposit (EMD) / Performance Guarantee / Security Deposit / Mobilization Advance / Refund of Milestone Withheld Amount.	We request the Purchaser to kindly confirm whether the **Earnest Money Deposit (EMD) may be submitted in the form of a Bank Guarantee (BG)** as per the format provided under Annexure-I of the tender document. Further, kindly clarify the required **validity period of the EMD Bank Guarantee**, including any claim period, if applicable.	Yes, EMD may be Submitted in the form of BG by the bidder. The validity of EMD BG shall be minimum Bid validity days (i.e., 90days) from the opening of Financial bid plus (+) 60days.
46	171	Page 171- Section 7,	1 PRECISION AIR CONDITIONING UNITS VERTIV /SCHNIEDER ELECTRIC/SWEGON BLUE BOX/STULZ	We request for the consideration of Climaveneta make Precision Air conditioning units for this project. ClimaVeneta is known for its innovative design and energy-efficient solutions. Making it an ideal option to meet your specific air conditioning needs.	The Revised Precision Airconditioning Units Approved makes shall be read as ; VERTIV /SCHNIEDER ELECTRIC/SWEGON BLUE BOX/STULZ/CLIMAVENETA/RITTAL
47	172 & 15	List of Approved Makes (Sec.7, pg.172) vs Scope of Work (Sec.4, pg.15)	1 SCREEN DELTA/BARCO/CHRISTIE 2 VIDEO WALL CONTROLLER DELTA/BARCO/CHRISTIE 3 50" DISPLAY UNIT BARCO/ PANASONIC/ LG SAMSUNG/SONY, 171	Please confirm whether a Video Wall is included in scope, if yes, specify its size/quantity/location and the BOQ item under which it is to be quoted, if not, Request to please remove it from the Approved Makes list .	Tender Conditions prevail.
48	17 & 18	Special Conditions for SITC Works — Factory Inspection (Sec.5, pg.17-18)	Factory Acceptance Test (FAT)/inspection is listed for CSS, PAC, UPS, DG Set, Electrical Panels, Bus Trunking, Inrow Cooling, VRV, LT/HT Cables — but is stated to be "at the discretion of Engineer-in-Charge" and may be "waived off" in "extraordinary circumstances."	Please clarify the specific circumstances under which FAT will be mandatorily conducted versus waived, and confirm the number of FAT visits/locations to be priced by the bidder.	Tender Conditions prevail.
49		Time Schedule / Milestones (Schedule-F, Table of Milestones)	Overall completion period is 07 months. Milestone-2 ("Delivery of Electro-Mechanical equipment" including CSS, DG Set, UPS, PAC, VRV etc.) is due within 4 months from start — i.e., within only ~3 months after the 1-month design/approval stage (Milestone-1).	Request review of the 07-month completion period / milestone durations, or confirmation that liquidated-damages/penalty provisions (Sec.15, Cl.19 series) will factor in genuine OEM manufacturing lead times as "hindrances" under Cl.5.7.	Tender Conditions prevail.
50	43 & 161	Page-43, Page-161 , The outddor /Server busway degree of IP Protection		Clarification regarding the Ingress Protection (IP) ratings assigned to your server busway and outdoor applications. server busway is listed with an IP rating of IP 54, while the outdoor application is specified as IP 2X. seems to be a potential discrepancy.	The Ingress Protection (IP) rating shall be IP54 only.
51		**General terms and conditions**		Kindly clarify whether the subject tender is to be treated as a Works Contract or as a Supply, Installation, Testing & Commissioning (SITC) contract.	The subject Tender is a Works Contract only.
52	168	Section 7 page 168	Networks Racks	we request to add nVent/eaton for network racks	The revised Approved makes shall be read as ; APC/VERTIV/NETRACK/EATON/RITTAL/nVENT
53	168	Section 7 page 168	iPDUS	we request to add nVent/eaton for iPDUS	The revised Approved makes shall be read as; SCHNIEDER(APC)/VERTIV/RARITAN/ EATON/RITTAL/nVENT
54	168	Section 7 page 168	Cold aisle containments	we request to add nVent/eaton for iPDUS	The revised Approved makes shall be read as ; APC/VERTIV/NETRACK/EATON/RITTAL/nVENT
55	168	Section 7 page 168	Passive Cabling (CAT 6A)	we request to add UNICELL/3C3	The revised Approved makes shall be read as ; SCHNEIDER/AMP TYCO/BELDON/LEVITON/COMMSCOPE/PANDUIT
56	168	Section 7 page 168	Video wall screen	LG and Samsung	The Revised Approved makes shall be read as; DELTA/BARCO/CHRISTIE /SAMSUNG/LG/SONY

57	168	Section 7 page 168	DCIM Software	T-Cube, Eaton	The Revised DCIM Software makes shall be SCHNIEDER/VERTIV/NLYTE/ SIEMENS/ SUNBIRD/JOHNSON CONTROLS/ HONEYWELL/ EATON/IBM
58	168	Section 7 page 168	Isolation Transformers	Magnetic Control	Tender conditions prevail.
59		Site Conditions		Whether a pre-bid site visit will be arranged before the bid submission deadline of 18/08/2026? If yes, kindly share the schedule.	The Intending bidder may visit the site any working day before the due date of submission of bids.
60		Existing Infrastructure		The tender mentions 11kV supply to be tapped from the existing IITH downstream 11kV HT Panel board located ~650m away. Please confirm whether the existing HT cable route from existing substation to AD-02 building is already laid, or is it part of the contractor's scope?	It is under the scope of work of successful bidder/contractor only.
61		Existing Infrastructure		Please provide the exact available power capacity (in kVA) at the existing 11kV HT Panel from where the new CSS will be fed.	Sufficient Power capacity is available.
62		Site Conditions		Please clarify if there is an existing cable trench/duct route available from the existing substation to the AD-02 building, or if the contractor needs to excavate a fresh trench for the entire 650m HT cable run.	The Successful bidder/contractor shall provide the separate trench/humepipe line for the HT cable proposed 11kV Substion to proposed location of CSS at AD-02 building
63		AD-02 Building		Please share the architectural/structural layout drawings of the ground floor of AD-02 building where the Data Center is proposed, including floor loading capacity (kg/sqm), floor-to-ceiling height, and existing services routing.	Please refer to the Indicative Data Centre Plan is shared with the NIT document. However any further detailed plans will be shared with the successful bidder/contractor only.
64		Site Conditions		What is the total usable area (in sqm) allocated for the Data Center on the ground floor of AD-02 building?	Please refer to the Indicative Data Centre Plan is shared with the NIT document.
65		Site Conditions		Is there a designated area/space available for installation of outdoor equipment such as CSS, DG Set, PAC outdoor units, and VRV outdoor units? Please share the proposed outdoor equipment yard layout.	Please refer to the Indicative cable routing layout enclosed in NIT document
66		CSS Specs		Please confirm whether the CSS (630kVA, 11kV/0.433kV) should be indoor type or outdoor type. If outdoor, please share the proposed location.	Please refer to the IITH response to the the query no.65 above.
67		CSS Specs		Please specify the type of transformer required within the CSS - Cast Resin (Dry Type) or Oil-filled?	The proposed CSS is Dry Type only.
68		CSS Specs		Please confirm the number of incoming and outgoing feeders required in the 11kV RMU within the CSS.	The Compact Sectonday Substaion (CSS) shall have 2 Incomers.. 1 No. for EB Supply & 1 No. for DG and 2 Nos Outputs
69		CSS Specs		Whether the modification/augmentation of the existing 11kV HT Panel board is part of the contractor's scope? If yes, please share the GA drawings of the existing panel.	YES it is in the scope of work of Contractor only. The detailed GA drawings will be shared with the succesful bidder only.
70		UPS Specs		For the 300kVA UPS (IT loads), please confirm: (a) Battery backup time required in minutes at full load (b) Battery type - VRLA/Li-ion (c) Whether modular/scalable UPS is acceptable or only monolithic?	**(a) minimum 30min Battery backup (b) Battery Type; VRLA-SMF (c) Modular scalable UPS is acceptable with minimum 500kVA UPS Frame size, 200kW rating UPS Modules (each minimum 50kW Hot Swappable Modules), 150kW Battery Bank designed for Unity PF**
71		UPS Specs		For the 30kVA UPS (Non-IT loads), please confirm the battery backup time required at full load.	Please refer to the IITH response query no.70 above.
72		UPS Specs		Whether N+1 redundancy is required for UPS systems, or is single unit acceptable?	Single Hot Swappable Modular Unit is Acceptable at present.
73		UPS Specs		Please confirm the input/output voltage configuration for the 300kVA UPS - 3-phase input/3-phase output or 3-phase input/single-phase output?	Please consider 3 Phase Input and 3 phase output.
74		DG Set Specs		For the 500kVA DG Set, please confirm: (a) Fuel tank capacity required (b) Whether an external bulk fuel storage tank is within scope (c) Acoustic enclosure rating (dB at 1m) required.	Please refere the CPWD General Specifications for Electrical Works- Part VII DG Sets 2013 (with upto date amendments)

75		DG Set Specs		Please specify whether a single DG set of 500kVA is required or N+1 configuration (2 x 500kVA).	Please consider one Single DG set of 500kVA at present.
76		DG Set Specs		Please confirm if exhaust piping from DG to atmosphere and associated civil works (exhaust duct, louvers, etc.) are within the contractor's scope.	Yes, it is under the contractor's scope of work only.
77		DG Set Specs		Is CPCB-IV+ emission norms compliance mandatory for the DG Set?	The supplied DG set shall comply to latest CPCB norms.
78		PAC Specs		Please specify the number of PAC units required and the cooling capacity (in kW/TR) per unit.	Being an EPC Mode I Contract, the Detail Design is in the scope of the bidder/contractor only.
79		PAC Specs		Please confirm PAC type - Downflow or Upflow? Is raised floor being provided under a separate contract?	It shall be Downflow only. The false flooring will be provided by the IITH through a separate contractor.
80		Inrow Cooling		Please specify the number of Inrow Cooling units required and their individual cooling capacity (kW).	Please refer to the IITH response given for query no. 78 above.
81		Inrow Cooling		Whether Inrow Cooling units should be chilled water-based or DX (Direct Expansion) type?	The Inrow cooling units shall be Direct Expansion (DX) type only.
82		VRV System		Please specify total cooling capacity required for VRV system and the areas/rooms to be covered under VRV (NOC room, electrical room, UPS room, etc.).	Being an EPC Mode I Contract, the Detail Design is in the scope of the bidder/contractor only. Please consider VRV AC sytem for the UPS & Electrical room, Battery room , N/W Room.
83		PAC / Inrow		Whether N+1 redundancy is required for PAC and/or Inrow cooling units?	Tender conditions prevail.
84		Fire Suppression		For NOVEC 1230 gas suppression system, please confirm: (a) Total number of zones (b) Volume of each zone (c) Whether under-floor suppression is required.	Being an EPC Mode I Contract, the Detail Design is in the scope of the bidder/contractor only.
85		VESDA		Please specify the number of VESDA zones and coverage area per zone.	Being an EPC Mode I Contract, the Detail Design is in the scope of the bidder/contractor only.
86		Fire Alarm		Please confirm the total number of smoke detectors, heat detectors, MCP, and hooters required.	Being an EPC Mode I Contract, the Detail Design is in the scope of the bidder/contractor only.
87		Fire Suppression		Whether integration with building's existing fire alarm system (if any) is required?	Yes, it is needed.
88		IT Racks		Please confirm the total number of 42U IT racks required and their power density (kW per rack).	Please refer to the IITH response provided in query no. 1 above
89		Busbar		Please specify the busbar rating required (in Amperes) and the total length/route of busbar from LT panel to rack PDUs.	Being an EPC Mode I Contract, the Detail Design is in the scope of the bidder/contractor only.
90		IT Racks		Whether hot aisle/cold aisle containment is required? If yes, please specify the configuration.	Tender conditions prevail.
90		BMS/DCIM		Please specify the BMS/DCIM software platform preferred (proprietary or open protocol). What protocols should be supported - BACnet/Modbus/SNMP?	The preferred BMS/DCIM software platform must be based on an open architecture framework (non-proprietary) to ensure seamless third-party integration and future scalability. However the List of Approved makes shall be followed. Bidders must natively support all standard data center communication protocols, including: BACnet (BACnet IP / BACnet MS/TP) Modbus (Modbus TCP / Modbus RTU)
91		CCTV		Please confirm the total number of IP cameras required and whether video analytics/AI-based features are required.	The requirement is for a complete CCTV coverage solution across the entire Data Center facility—including Cold aisel containment, Non IT rooms, and outdoor installations like DG sets and condenser units—with zero blind spots. Bidders shall propose a minimum of IP cameras to achieve complete sightline coverage.

92		Access Control		Please confirm the number of access-controlled doors and type of authentication required (biometric/card/PIN or multi-factor).	This is a turnkey requirement. The vendor shall propose and supply the total quantity of access-controlled doors needed to ensure comprehensive security across all critical indoor zones and perimeter entry points of the Data Center. Authentication Requirement: The solution must support [Multi-Factor Authentication (e.g., Biometric + Smart Card + PIN) / Biometric / Smart Card / PIN] for primary data center zones
93		BMS/DCIM		Whether integration with IITH's existing campus BMS (if any) is required?	Integration with the campus BMS is not required. Bidders shall supply a dedicated, standalone BMS tailored specifically for the scope of this Data Center project.
94		Eligibility		The tender requires data center to be "fully functional for minimum 1 year" prior to bid submission. If a project was commissioned in September 2025 (i.e., ~11 months), will it be considered? Please clarify if this is counted from provisional completion or final completion certificate date.	Tender conditions prevail.
95		Eligibility		For the "similar work" definition, whether supply-only contracts for data center equipment (UPS, PAC, etc.) will be considered, or only turnkey EPC contracts qualify?	Tender conditions prevail.
96		Eligibility		The tender requires Electrical Contractor License of 11kV or above. Whether a license from any State Electricity Board is acceptable, or must it be from Telangana State specifically?	The valid Electrical Contractor License of 11kV or above of any of the State Electricity board is acceptable to bid in this tender document.
97		Eligibility		Whether Manufacturer Authorization Certificates (MACs) from OEMs can be submitted at the time of technical evaluation/presentation rather than at bid submission?	The bidder shall submit Manufacturer Authorization Certificates (MACs) from Approved OEMs alongwith the online technical bid submission only.
98		Eligibility		The tender states JV/Consortium is not permitted. Whether a sub-contracting arrangement (with primary bidder holding full responsibility) is permitted for specialized works like fire suppression or BMS?	Tender conditions prevail.
99		Technical Evaluation		For the Technical Presentation (10 marks), please clarify the expected duration, format, and evaluation criteria for the presentation.	Tender conditions prevail.
100		Payment Terms		Stage 2 payment (60%) is for delivery of equipment. Please confirm if payment will be released on pro-rata basis upon delivery of individual systems, or only after ALL equipment is delivered.	Tender conditions prevail.
101		Payment Terms		Whether advance payment or mobilization advance is available for procurement of long-lead equipment (CSS, DG Set, UPS)?	Tender conditions prevail.
102		Completion Period		The total completion period is 7 months. Given that OEM manufacturing lead time for CSS (10-12 weeks) and DG Set (8-10 weeks), please consider extending the timeline to at least 9 months.	Tender conditions prevail.
103		Milestone Penalties		Milestone 2 (delivery of all equipment) is at 4 months from start. Considering global supply chain constraints and OEM lead times, is there any flexibility in this milestone?	Tender conditions prevail.
104		Price Variation		Whether any price variation/escalation clause is applicable for this contract considering the 7-month execution + 3-year O&M period?	Tender conditions prevail.
105		O&M (Part-B)		Please clarify the scope of O&M for 3 years - whether it includes only preventive maintenance, or also includes consumables, spares, and corrective maintenance (comprehensive AMC).	The Defect Liability Period/Warranty Period shall be minimum 36months only. However any additional warrante if offered by any OEM is also applicable without any additional cost to IITH. Day to Day Operations are excluded.
106		O&M (Part-B)		Please provide the expected manpower deployment requirements during the 3-year O&M period.	The Defect Liability Period/Warranty Period shall be minimum 36months only. However any additional warrante if offered by any OEM is also applicable without any additional cost to IITH. Day to Day Operations are excluded.

107		Security Deposit		The tender mentions security deposit of 2.5% retained for 3 years (36 months after completion). Please confirm if this is in addition to the 5% Performance Guarantee, making total retention 7.5%.	Please refer to the Tender Section-14, Schedule E, Page-204 and 205 regarding Security Deposit and Performance Guarantee retention. Tender conditions prevail.
108		Variation Clause		If actual HT cable length exceeds the estimated 650m route due to site constraints, how will the additional quantity be compensated?	Being and EPC Mode I contract, No additional amount will be paid. The bidders are advised to visit the site before submission of bids.
109		DLP		Clause mentions both 36 months DLP and 5 years after completion certificate. Please clarify the actual defect liability/warranty period applicable.	The Defect Liability Period/Warranty Period shall be minimum 36months only. However any additional warrante if offered by any OEM is also applicable without any additional cost to IITH.
110		Tier Classification		The tender mentions "Tier-1 scalable to Tier-3." Please clarify whether the current scope (equipment sizing, redundancy, and space provision) should be designed for Tier-1 or Tier-3 compliance.	The current scope shall be Tier-1 compliance only. However Master Planning for Tier III only.
111		Tier Classification		If the design is for Tier-1, please confirm which future provisions (space, power, cooling infrastructure) should be kept for future Tier-3 upgrade.	Please refer to the IITH response to query S.No.110 above.
112		Design		Whether the contractor is required to obtain any Tier certification (e.g., Uptime Institute) as part of this project?	Not Mandatory.
113		Design		Please share the indicative IT load (in kW) planned for Day-1 commissioning and the ultimate design load capacity.	**Please considere minimum 500 kVA Modular UPS frame with 200 kW UPS modules(each with rating 50kW Hot swappable module) installed on Day Zero to ensure adequate load sharing and redundancy Battery Bank: Sized to support 150 kW IT load on Day Zero with 30min backup at Unity Power Factor.**
114		ISAT		For the 48-hour full load test using rack-mountable server simulator load banks, please confirm: (a) Who provides the load banks - contractor or IITH? (b) Required load level (50%/75%/100% of design capacity).	(a)The Load banks shall be arranged by the contractor himself without any additonal cost to IITH (b) Required load levels shall be as per OEM recommendations.
115		FAT		For Factory Acceptance Tests, please confirm whether IITH representatives' travel and stay expenses will be borne by the contractor or by IITH.	All expenses related to FAT Inspections shall be borne by the contractor only.
116		Training		Whether the 5-day training can be conducted in phases (system-wise) during commissioning, or must be completed in a single stretch?	Tender conditions prevail.
117		Trial Run		During the 15-day trial run, will IITH provide actual IT load or should the contractor arrange dummy loads for the entire trial period?	The contractor shall arrange everything for successful demonstration of Trial Run.
118		General		**UPS Frame Scalability:** The tender specifications mention a UPS rating of **300kVA/kW** with scalability, but the required maximum frame capacity for expansion is not specified. In a **300kVA** frame using five **60 kVA** modules, **300kVA** is the maximum capacity. The next available standard frame capacity is **600kVA** . Could you kindly clarify which frame size should be considered to accommodate your future scalability needs -Kindly clarify.	Please refer to the IITH response to query S.No.113 above.
119		General		**Battery Voltage Specifications:** The tender references a battery rating of **3.2/3.8V**. Since standard SMF-VRLA batteries typically carry a nominal rating **12V**, could you please clarify the battery chemistry and specification required-Kindly clarify.	The Voltage rating of the SMF-VRLA battery shall be 12V only. Other Tender condiions prevail.
120		General		**Controller Redundancy:** The specification calls for a "Hot Swappable" modular design with independent controllers to avoid a single point of failure. Could you please confirm if the requirement is for a dual-layer redundant architecture—specifically, a centralized controller at the frame level combined with independent decentralized controllers at each power module level-Kindly clarify.	Tender conditions prevail.
121		General		**Module Hot-Swappability Scope:** To ensure complete high availability and eliminate single points of failure, could you kindly confirm if hot-swappable features are required across all key functional components (Power Modules, Control Modules, Static Bypass Switches, and HMI Displays)-Kindly clarify.	Tender conditions prevail.

122		General		**30 KVA UPS Configuration:** For the UPS specified with modules, could you please clarify the target frame capacity? Additionally, given design limitations in lower kVA ranges, please confirm if standard modularity without hot-swappability is acceptable for this particular rating-Kindly clarify.	Tender conditions prevail.
123		General		**InRow Cooling Unit Capacity:** Standard InRow cooling units typically peak around to per unit. Based on the overall Data Center load profile, may we optimize the cooling design using our standard CRV InRow capacities-Kindly clarify.	Tender conditions prevail.
124		General		**CAD Drawings:** To help us prepare an accurate architectural and layout design for the Data Center infrastructure, we request you to kindly share the original CAD files/drawings corresponding to the tender layout	The Original CAD drawings shall be provided to the technically qualified bidders only. However, the indicative Data centre layout already been enclosed with NIT document.
125		General		**Sub-Station HT Breaker Availability:** During the site visit, we observed that a spare HT breaker is not currently available at the substation. Could you please provide guidance on this and confirm the available spatial clearance for extending or integrating the HT panel-Kindly clarify.	The additional 11kV VCB Panel in the substation need to be provided by the bidder/contractor under his scope of work only.
126	166	Technical Specification INROW COOLING DX Unit - Cooling Version - Page nos 166	The unit will feature a cooling circuit with one compressor. **The compressor will be a high efficiency scroll unit installed on the outdoor condensing unit so as to limit maintenance requirements inside the data center**	The unit will feature a cooling circuit with one compressor. The compressor will be a high efficiency Inverter Scroll unit installed on the indoor Evoprating unit, Placing it close to the evaporator coil minimizes pressure drops across extremely long line sets, though modern electronic expansion valves and variable-speed inverter compressors easily compensate for outdoor placement	Tender conditions prevail.
127	235	Data Centre Indicative Layout Plan - Page nos 235	Asper Tender Layouts 5nos 55Kw Dx Based Cooling units was asked on the tender	Request you to consider 35Kw dx Based Cooling units also for Better Cooling efficiency for your High density racks and best cooling distribution	The bidder shall design and propose an optimized turnkey layout within the designated Data Center footprint to accommodate a total capacity of 40 server racks. **Phase 1 (Current Project Scope):** Supply, installation, and commissioning for 20 server racks. **Phase 2 (Future Scalability):** Space allocation, containment planning, and power/piping provision for an additional 20 server racks. **Cooling Architecture:** In-Row precision cooling units must be designed with N+1 redundancy to support the initial 20-rack deployment with the required load.
			Make & Models		
129	170	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS- Page nos 170	As per tender Rilltal Brand is not available on the Tendel list (Racks with iPDU and Cold aisle Conatiments and In-row cooling units)	Kindly request you to add Rittal brand in to below Eqipment make & model list - Racks with iPDU and Cold aisle Conatiments and In-row cooling units)	Please refer to the IITH response as below
130		IT 42 RU RACKS 600 X 1200 MM	APC/VERTIV/NETRACK	request to add our Make : RITTAL	Please refer to the IITH response given in query S.No.(52) above.
131		IT 42 RU RACKS 800 X 1200 MM	APC/VERTIV/NETRACK	request to add our Make : RITTAL	Please refer to the IITH response given in query S.No.(52) above.
132		IP PDU'S	SCHNIEDER(APC)/VERTIV/(RARITAN)/	request to add our Make : RITTAL	Please refer to the IITH response given in query S.No.(53) above.
133		COLD AISLE CONTAINEMENT	APC/VERTIV/NETRACK	request to add our Make : RITTAL	Please refer to the IITH response given in query S.No.(31) above.
134		PRECISION AIR CONDITIONING UNITS	VERTIV /SCHNIEDER ELECTRIC/SWEGON BLUE BOX/STULZ	request to add our Make : RITTAL	Please refer to the IITH response given in query S.No.(46) above.

135				**Eligibility Criteria – Electrical Contractor License '**We request the Tendering Authority to kindly relax this clause and permit the bidder to submit the valid Electrical Contractor License of its authorized electrical execution partner/sub-contractor, who will execute the HT/LT electrical works under this project. Alternatively, the bidder may be allowed to furnish the license prior to commencement of electrical works.	Tender conditions prevail.
136				Clarify the exact scope and shutdown windows for the augmentation/tie-in work on the existing live 11kV HT panel bus-duct at the main substation.	Shutdown will be facilitated by IITH as per the requirements of work.
137				Will IITH depute personnel/permits for any planned shutdowns on the existing 11kV network during tie-in work, and what is the maximum permissible shutdown duration?	Shutdown will be facilitated by IITH as per the requirements of work.
138				What is the required fuel storage/runtime autonomy for the DG Set, and who provides the DG yard civil foundation vs. structural analysis submission?	Please refer to IITH response to the Query no.(74) above
139				Clarify acoustic enclosure/noise norms applicable, given the DG's proximity to an academic building.	Please refer to IITH response to the Query no.(74) above
140				Confirm the acceptable bus bar material (Aluminium vs Copper) — the spec allows either "as specified in SLD"; please confirm which is finalized for this project and also share Main SLD as it is not avaibale in tender document.	LT panel Busbar shall be Aluminium conductor and UPS Panel busbar shall be Copper busbar only. Please refer to the IITH response to query S.No.110 above.
141				Confirm minimum short-time current (STC) rating required at the main LT incomer panel, since the base spec states "minimum 16KA for 1 Sec unless otherwise specified in SLD and also share Main SLD as it is not avaibale in tender document.	Please refer to the IITH response to query S.No.110 above.
142				Confirm required Form of internal separation beyond the stated "Form-4" — is Form 4b required for the main LT panel given DC criticality?	Detail Engineering under contractor scope as EPC Mode I contract.
143				For the IT Racks Busbar Trunking system, confirm required current rating, tap-off unit spacing, and whether it must support hot-swappable tap-offs under load.	Tender conditions prevail. Any higher specifications are acceptable.
144				Confirm cable route/tray segregation requirements (power vs data, redundant source A/B trays) and specify minimum spacing between them.	Tender conditions prevail. Any higher specifications are acceptable.
145				Confirm earthing pit specifications (chemical/maintenance-free vs conventional GI pipe earthing) and the target earth resistance value.	Tender conditions prevail.
146				Confirm FRLS cable specification standard (fire retardant low smoke) applicable for all DC-area cables, and whether LSZH (zero halogen) is also required given the gas suppression system.	Tender conditions prevail. Any higher specifications are acceptable.
147				Confirm the required lux levels for server room, UPS room, and electrical room per the DIALUX report, since no target lux table is specified in the tender.	As per National Lighting Code of India
148				Clarify LED fixture emergency backup requirement (self-contained battery vs. central inverter-backed emergency lighting).	As per National Lighting Code of India
149				Clarify the electrical shutdown/trip interlock logic required between the Fire Suppression (FK-5-1-12) system and the LT panel/UPS on gas discharge.	Detail Engineering under contractor scope as EPC Mode I contract.
150				Clarify the process and turnaround time for approval of alternate/equivalent makes not listed in Section 07 (List of Approved Makes).	Tender conditions prevail.
151				Confirm the ISAT load bank capacity basis (matching final IT rack load, UPS-rated load, or CSS-rated load) for cost estimation.	Detail Engineering under contractor scope as EPC Mode I contract.
152				Confirm who bears cost/logistics for factory witness inspections (CSS, DG, UPS, Panels, Busbar) — travel & stay for IITH representatives.	The expenses shall be borne by the contractor only.
153				In the BOQ, the quantity of horn/strobe units is mentioned as 2. However, as per the layout, the quantity should be 5.	The quantities mentioned in the BoQ are indicative only. The successful bidder has to provide actual site conditions
154				The quantity of response indicators is mentioned as 40, whereas the required quantity should be 84.	The quantities mentioned in the BoQ are indicative only. The successful bidder has to provide actual site conditions

155				The proposed makes (Vertiv, Schneider, Swegon & Stulz) are unable to meet the specified cooling capacity of 55Kw under the given operating conditions. Please find attached the Climaveneta selection sheet (Attached), which demonstrates a maximum cooling capacity of 50 kW at an ambient temperature of 46°C , RH 27% & R.A 32 Deg.C . Furthermore, the unit is capable of operating at ambient temperatures of up to 50°C without tripping.	Please refer to IITH response to the query no.(46) above
156				A discrepancy has been identified in the provided documentation. Kindly refer to the attached Pages 69 and 164 for your review and clarification.(Provide concrete operating condition).	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
157				Kindly assist us in identifying the location of the 2 Nos. of 7 TR In-Row cooling units in the proposed layout.	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
158				22 HP Outdoor Unit (ODU) shall comprise two modules of 10 HP and 12 HP, thereby achieving the total capacity of 22 HP with a dual-compressor configuration.	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
159				The total connected Indoor Unit (IDU) capacity is 57 TR, which is equivalent to approximately 71.25 HP, whereas the total Outdoor Unit (ODU) capacity is 66 HP. Based on the proposed configuration, the diversity ratio exceeds 100% i.e. 107%. Since all the units are designated as working and standby units, the ODU selection should be configured such that the diversity ratio remains 100% or less, ensuring adequate capacity is available under all operating conditions. Accordingly, the detailed selection and capacity configuration are requested for verification.	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
160				Kindly confirm the required quantity of the iTouch Manager. Based on our understanding, a single iTouch Manager should be capable of accommodating 20 Nos. of Indoor Units (IDUs).	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
161				PAC & VRV ODU Location and Identification of the Shaft for the routing of the Copper pipe .	The bidder may visit the site for any survey.
162				proposed SLD of DC , DC Layout (in Autocad), exisiting SLD is required	Indicative SLD as per Annexure enclosed
163				Kindly confirm per rack load (kW)	Please refer to the query no. 1
164				Please provide structural and architectural drawings (AutoCAD/PDF) of the existing building.	The required drawings will be shared with successful bidder only
165				Kindly confirm the floor load capacity of the proposed Data Center area.	These details will be shared with technically qualified bidders only
166				Please provide the soil investigation report for the DG and CSS foundation locations.	These details will be shared with technically qualified bidders only
167				Confirm whether DG, CSS, PAC, and VRV equipment foundations are included in the contractor's scope.	Yes. Its contractor scope only
168				Please provide approved underground utility and cable routing drawings.	Indicative cable routing plan provided with the Tender document.
169				Clarify whether road cutting and reinstatement are included in the contractor's scope.	Yes. Its contractor scope only
170				Confirm the scope of raised flooring, anti-static flooring, and epoxy flooring.	Excluded from this tender scope of work.
171				Confirm equipment access routes and any lifting or crane access restrictions.	The successful bidder shall take prior approval from EiC to execute these works
172				Confirm availability of temporary power, water, and material storage during construction.	The contractor shall arrange his own Power and Water for any construction purposes.
173	Page no. 3	NOTICE INVITING TENDER/ 1.8	Last Date & Time for receiving of Pre-Bid Queries	The last date of pre-bid queries should be after 2 days of Pre-bid meeting. So if bidder can notice certain points after visit the site during the pre-bid meeting can raise. **Changes requested**- The last date of submission of pre-bid should be 2 working days after pre-bid meeting.	Tender Conditions shall prevails

174	General	LT SWITCHBOARDS (PANELS)	General queries	The tender has requested BBT system which IIT Hyderbad has requested IEC 61439 certified, the same way The LT panel should be design as per continous IEC 61439-1 & 2. It should tested preventative accidental arcing protection as per IEC 61641. The bidder should submit certificate of Panel OEM along with technical bid. This will help customer to get standard panel and its components which is installed as per standard guideline. Should we consider this? **Changes requested**- The LT panel should be design as per continous IEC 61439-1 & 2. It should tested preventative accidental arcing protection as per IEC 61641. The bidder should submit certificate of Panel OEM along with technical bid.	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
175	Page. 26	LT SWITCHBOARDS (PANELS)	The bus bars shall be made of high conductivity, Electrical grade Aluminium or copper (As specified in SLD), suitable for 415 volts, 3phase 4 wires 50 Hz, with minim um STC of 16KA for 1 Sec. unless otherwise specified or as specified in SLD for 1 Sec,	The copper busbar will give highest output compare to Aluminium bas bar. Both options having large cost variation. IIT should go with copper busbar to looking at operational and long term benefit. **Changes requested**- Kindly revised the clause as per below: The bus bars shall be made of high conductivity, Electrical grade copper, suitable for 415 volts, 3phase 4 wires 50 Hz, with minim um STC of 16KA for 1 Sec.	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
176	Page.149	RACK/ 13.1/2	RAL7021 Black powder coat on all sheet metal components of the rack.	RAL 7021 is indicating single OEM Vertiv. **Changes requested**- Kindly revised the clause to have broader participation of multiple OEMs with below: RAL7021/ RAL 9005/ RAL 7035 powder coat on all sheet metal components of the rack.	Accepted. Offering racks with RAL 9005 (Jet Black) high-quality textured powder coating is acceptable as an alternative to RAL 7021 (Black Grey).
177	Page.149	RACK/ 13.1/8	Rack frame shall support 1500kg static weight load, 1000kg dynamic (non- transit) weight load.	This features limited to one OEM. To looking at cooling density of 20 racks, the average heat load of rack is 11-12 kW, means average 1000 Kg is per rack will be sufficient to cater this. **Changes requested**- Kindly revised the clause to have broader participation of multiple OEMs with below: Rack frame shall support 1400kg static weight load, 1000kg dynamic (non- transit) weight load.	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
178	Page.149	RACK/ 13.1/10	The roof of the racks should be removable from the interior of the enclosure with/without tools and should have cable entry holes to allow up to 1800 cables or 60A PDU plug.	This features is mentioning by one OEM in their rack specification. Routing 1,800 copper cables (e.g., CAT6/CAT6A) into a single standard rack enclosure requires a roof cutout exceeding 150,000 mm^2 (maintaining a standard 50% fill ratio). Cutouts of this magnitude severely compromise the structural integrity of the rack roof and are not standard factory configurations. Furthermore, dressing 1,800 copper cables exceeds the physical capacity of standard vertical cable managers also. **Changes requested-** The roof and bottom plate of the racks should be removable and OEM should provide rack top cover with standard cable entry plate/ hole with brush insert to protect IP rating of the rack to have maximum cooling efficiency.	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
179	Page. 151	13.2 In Rack centralized monitoring and management of Power and Environment/ IPDU/3	iPDU should have min. 24 numbers of hybrid outlets should be of hybrid nature which can be utilized as either C13 or C19 outlet. All outlets should provide high retention to avoid accidental dislodging of power cords. The IPDU hybrid outlets should meet electrical compliance and should be UL certified.	The iPDU has requested hybrid type which can allow C13 or C19 outlets. Below are the socket details which are utilising for multiple equipments. C13: IT Network equipment C15: Heavy Power-over-Ethernet (PoE) switches C19: Chassis, Blades, Core Networks, AI servers. C15A / C21: Fanless & ruggedized Server & Switches. If the iPDU is hybrid then it should allow all above IEC C13, C15, C15A, C19, and C21 plug types sockets in the iPDU. **Changes requested** - Kindly revised the clause to have broader participation of multiple OEMs with below: iPDU should have min. 24 numbers of hybrid outlets should be of hybrid nature which can be utilized as IEC C13, C15, C15A, C19, and C21 plug types. All outlets should provide high retention to avoid accidental dislodging of power cords. The IPDU hybrid outlets should meet electrical compliance and should be IEC/ UL certified.	The iPDU must feature a minimum of 24 hybrid outlets capable of accommodating at least C13 and C19 connections in a single output socket. Good to have flexibility IEC C13, C15, C15A, C19, and C21 plug types in each individual socket. All outlets must offer high-retention mechanisms to prevent accidental power cord dislodgement and must be IEC/UL certified for electrical compliance.

180	Page. 151	13.2 In Rack centralized monitoring and management of Power and Environment/ IPDU/6	IPDU should have 2 numbers 16A magnetic circuit breakers for overcurrent protection in single phase PDU and 6 numbers 16A magnetic circuit breakers for overcurrent protection in three phase PDU.	32A single phase iPDU will be not sufficient in current scenario, it will not allow to populate equipment more than 7kVA power. You have cosnidered 11-12 kW cooling load. It is advisable to authority to considered 32A 3-phase iPDU and electrical schematic need to be revised accordingly. This change will allow customer to increase load in future till 11-12 KVA per rack which will justify the investment and achieve highest PUE (Power utilisation effectiveness) level in the data center. **Changes requested**- Kindly revised the clause to looking at future scalability and utilisation: iPDU should have 6X16A Hymag magnetic circuit breakers for overcurrent protection in 32A three phase iPDU	Please refer to IITH response given to the query no. 1 above and IPDU supporting min 15 kW load should have 6 numbers 16A magnetic circuit breakers for overcurrent protection and 12 numbers 16A magnetic circuit breakers for overcurrent protection for PDU supporting min 30 kW IT loads
181	Page. 151	13.2 In Rack centralized monitoring and management of Power and Environment/ IPDU/23	The IPDU should have approvals form RoHS, CE/UL, EN, IEC	This is specific to single OEM. EN is going to use for Europeon countries not for India. For India CE is more than sufficient. **Changes requested**- Kindly revised the clause to have broader participation of multiple OEMs with below: The IPDU should have approvals form RoHS, CE/UL/EN,IEC.	The Revised iPDU should have valid approvals/certifications from RoHS , CE / UL / EN / IEC
182	Page. 166	INROW COOLING DX Unit	DX type In-row cooling units with inverter compressor, front discharge type incorporating R410A refrigerant.	The 55kW Dx based cooling unit size is only available with Vertiv. It is OEM specific. The scroll compressor is old technology. The all OEMs comme up with inverter based technology in Dx cooling. The In-row cooling system should be chilled water based. Dx system will not give good energy efficiencies. If data center is having up to 10 racks then Dx will be ok. But for 20 racks it should be chilled water based. **Changes requested -** Kindly revised the specifications based on Chilled water type In-row cooling units with EC Fan, front discharge type. If user only wants Dx based only then the cooling unit capacity should be 35kW which will allow maximum redundancy and multiple OEM participation.	Please refer to IITH response to the query no. (127) above
183	Page. 168	INROW COOLING DX Unit	Controller with microprocessor The control system will include a microprocessor that will be programmed to manage all the functions of the air-conditioner. The system will include • An electronic board housing the microprocessor, fitted inside the electrical panel. • A user terminal as the interface. The electronic board complies with EEC directive 89/336. The user terminal is a backlit LCD with 132x64 pixel resolution and 6 buttons. All the messages will be displayed using icons; no specific language needs to be known. The main functions of the control system are to: • control room temperature • manage the compressor inverter; • manage fan speed; • monitor supply air temperature; • manage alarms and warnings for correct maintenance; • log up to 100 events; • manage the unit in standby; • control room humidity (if a humidity probe is connected) • manage the humidifier (if featured) • manage from 1 to 3 electric heater stages for reheating (if featured); • automatically manage the free cooling system (if featured); • allow remote monitoring and control of the unit via LAN, network or BMS (Lon Works, BACnet, Modbus…..). The controller requires 3 password levels and can manage the following parameters: • readings of sensors and probes and corresponding settings; • activation of alarms, event log, digital output settings; • LAN management; • BM communication parameter settings; When connected via LAN to other units - up to 10 - the controller can: • manage, based on set times or events, automatic rotation of the unit/units in standby (1 or 2) ; • manage the average temperature and humidity between the units; • access all the control boards from just one remote user terminal, In order to protect the software against incorrect settings, some parameters are protected by 2 password levels: User lever and Authorised service level.	This is OEM specific description. Kindly revised it and make it generic **Changes requested -** Kindly revised with below: The controller should be as per OEM technology & design.	Agreed. Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.

184	Page No. 97	TECHNICAL SPECIFICATIONS ELV SYSTEM/ 11.4.6.1 - B	The system shall provide a Noves 1230 minimum design concentration of 4.2% by volume for Class A hazards and a minimum of 5.85% by volume for Class B hazards in all areas and/or protected spaces, at the minimum anticipated temperature within the protected area. System design shall not exceed 10% for normally occupied spaces, adjusted for maximum space temperature anticipated, with provisions for room evacuation before agent release.	Novec is EOL gas suppression agent, the specifications should be on FK 5-1-12 gas. As per Tender it is requried "The system shall provide a Noves 1230 minimum design concentration of 4.2% by volume for Class A hazards and a minimum of 5.85% by volume for Class B hazards in all areas:, however as per Latest NFPA 2001 Standard Design Concentration shall be 4.5% for Class A & C Hazards. **Changes requested -** Kindly revised the specifications as per FK 5-1-12.	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
185	11.4.6.2 A Sr. no. 14	TECHNICAL SPECIFICATIONS ELV SYSTEM	The Fluro ketone fire suppression system shall be supplied with Cylinders, Discharge valves, Discharge hose, check valves, Nozzles, Orifices etc. from the same manufacturer and approved by Department of Transportation (DOT, USA) The certificate of origin for the entire system must be from a single source.	As Per Tender "The Fluro ketone fire suppression system shall be supplied with Cylinders, Discharge valves, Discharge hose, check valves, Nozzles, Orifices etc. from the same manufacturer and approved by Department of Transportation (DOT, USA) The certificate of origin for the entire system must be from a single source." however as per Local norms it will be CCOE Approved which is also mentioned in tender and hence manufactures in india. DOT USA not applicable for Products Manufactures in India, **Changes request**ed - Kindly revised clause as per below: The Fluro ketone fire suppression system shall be supplied with Cylinders, Discharge valves, Discharge hose, check valves, Nozzles, Orifices etc. from the same manufacturer and approved by CCOE. The certificate of origin for the entire system must be from a single source.	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
186	11.4.6.3	TECHNICAL SPECIFICATIONS ELV SYSTEM	The fire suppression agent shall be 3M™ Noves™ 1230 Fire Protection Fluid manufactured by 3M Company, St. Paul, MN or their approved supplier.	Agent : It has been Mentioned as Agent NOVEC1230 and as per BOM it is mentioned FK 5-1-12. Please note NOVEC 1230 Manufactured by 3M is Phased out, hence Except to Consider FK5-1-12 Manufactured by other OEM's Globally. **Changes requested -** Kindly revised the specifications as per FK 5-1-12.	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
187	11.4.7 E	TECHNICAL SPECIFICATIONS ELV SYSTEM	A room pressurization test shall be conducted in each protected space to determine the presence of openings, which would affect the agent concentration levels. The test(s) shall be conducted using the Retro-Tec Corp. Door Fan system, or equivalent, with integrated computer program. All testing shall be in accordance with NFPA 2001.	Kindly Provide No. of Rooms to be considered for Gas Suppression system as Qty. of Equipment is provided in tender BOM. **Changes requested -** The Site visit should be allowed to bidder after pre-bid queries. It is requested to provide autocad drawing file with Height, width and length of the room.	Detail Engineering under contractor scope as EPC Mode I contract.
188	BOQ Sr. No. 13	Fire and ELV BOQ	General queries	Addressable Agent Release module mentioned as 02 Nos. however It seems Different No.of areas to be protected with Gas Suppression system FK5112 is 4/5. **Changes requested -** The Site visit should be allowed to bidder after pre-bid queries. Kindly clarify	Detail Engineering under contractor scope as EPC Mode I contract.
189	BOQ Sr. No. 23 and 24	Fire and ELV BOQ	General queries	Please confirm Fire cable to be considered Fire Survival type or Fire Armoured Cable. **Changes requested -** The Site visit should be allowed to bidder after pre-bid queries. Kindly clarify	Detail Engineering under contractor scope as EPC Mode I contract.
190	BOQ Sr. No. 28	Fire and ELV BOQ	General queries	As per BOM it is mentioned 60 Kg GAS Cylinder, however standard Cylinder size is 80 KG. Please Clarify. **Changes requested -** The Site visit should be allowed to bidder after pre-bid queries. Kindly clarify	Detail Engineering under contractor scope as EPC Mode I contract. The bidder may visit the site for site survey.
191	BOQ Sr. No. 37	Fire and ELV BOQ	General queries	It is mentioned to consider Gas Release Panel, however Gas Release module is already considered in Fire Alarm System. Qty. of Gas release module shall be Considered as per OEM Compatibility. Kindly Confirm. **Changes requested -** The Site visit should be allowed to bidder after pre-bid queries. Kindly clarify	Detail Engineering under contractor scope as EPC Mode I contract. The bidder may visit the site for site survey.
192	BOQ Sr. No. 67	Fire and ELV BOQ	General queries	It is mentioned to consider 16 Ch. NVR, however qty. of camera is 24 Nos. **Changes requested -** The Site visit should be allowed to bidder after pre-bid queries. Kindly clarify	Detail Engineering under contractor scope as EPC Mode I contract. The bidder may visit the site for site survey.

193	BOQ Sr. No. 76	Fire and ELV BOQ	General queries	It is mentioned to Consider DDC as per IOS summary. Soft integration Poins mentioned in BOM. Please Provide IO Summary if any for Hard Integration Points **Changes requested -** The Site visit should be allowed to bidder after pre-bid queries. Kindly clarify	Detail Engineering under contractor scope as EPC Mode I contract. The bidder may visit the site for site survey.
194	Page No. 169 Sr. No. 8	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ **LOW VOLTAGE SYSTEM/ GAS SUPRESSION SYSTEM**	NOVEC 1230 /SIEMENS/ HONEYWELL/UTC KIDDE	Tender Make List is Given as NOVEC 1230 /SIEMENS/ HONEYWELL/ UTCKIDDE. NOVEC 1230 is phased out and SIEMENS has also phased our FK5112 Solutions offering. Kindly revised the clause and add some more brands who are having successful installations. Kindly revised the technical specifications and add other standard OEMs" **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: FK 5-1-12 /SIEMENS/ HONEYWELL/UTC KIDDE/ CRYPTZO/ TYCO	The Revised Approved makes of LOW VOLTAGE SYSTEM/ GAS SUPRESSION SYSTEM shall be FK 5-1-12 /SIEMENS/ HONEYWELL/UTC KIDDE/ CRYPTZO/ TYCO
195	Page No. 169 Sr. No. 17,18,19,20	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ **CCTV Camera - NVR-VMS- Joystick**	PELCO/AXIS/HONEYWELL/SONY/ SIEMENS	Tender Make List is given as AXIS/HONEYWELL/PELCO/SONY/ SIEMENS. Please note that SONY and SIEMENS is not offering CCTV Solutions and Products. Axis/ PELCO/ SIEMENS/ SONY doesnt have STQC as per Indian govt. Norms. So only Honeywell is qualified for this tender. Kindly revised the technical specifications and add other standard OEMs" **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: HONEYWELL/TYCO/ MATRIX/VIVOTEK	The revised Approved Makes list is AXIS/HONEYWELL/PELCO/SONY/ SIEMENS/TYCO/VIVOTEK
196	Page. 169 Sr. 27	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ **K - RATED ISOLATION TRANFORMER BASED PDU'S**	SCHNIEDER/VERTIV/DATSUN/ADLEC	Kindly add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: SCHNIEDER/VERTIV/DATSUN/ADLEC/ T&R/ GT	The revised Approved Makes list is CHNIEDER/VERTIV/DATSUN/ADLEC/ T&R/ GT
197	Page. 169 Sr. 10, 11,12,13,14	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ **ACCESS CONTROL SYSTEM**	HONEYWELL / LENEL / CARDAX /CARDKEY/ HID/ SCHNIEDER/ TYCO SOFTWARE HOUSE	The tender specifications of the tender supprt to only one brand. Apart from Honeywell, no OEM presence available in India. Kindly revised the technical specifications and add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: HONEYWELL / LENEL / CARDAX /CARDKEY/ HID/ SCHNIEDER/ TYCO SOFTWARE HOUSE/ MATRIX/ Smart-i	The Revised makes of Access Control System shall be HONEYWELL / LENEL / CARDAX /CARDKEY/ HID/ SCHNIEDER/ TYCO SOFTWARE HOUSE/ MATRIX/ Smart-i
198	Page. 170 Sr. 22	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ WATER LEAK DETECTION PANEL	HONEYWELL /TTK/TRACETEK/C SYSTEM	The tender specifications of the tender supprt to only one brand. Kindly revised the technical specifications and add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: HONEYWELL /TTK/TRACETEK/C SYSTEM/ SONTAY	The revised makes for the Water leak detection sysyem shall read as HONEYWELL /TTK/TRACETEK/C SYSTEM/ SONTAY
199	Page. 170 Sr. 1& 2	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ IT 42 RU RACKS	APC/VERTIV/NETRACK	The tender specifications of the tender supprt to only one brand. Kindly revised the technical specifications and add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: APC/VERTIV/NETRACK/ VERTIV/ RITTAL	Please refer to IITH response given to the query no. (52) above
200	Page. 170 Sr. 24	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ LOW VOLTAGE SYSTEM/ PUBLIC ADDRESSABLE SYSTEM	HONEYWELL / BOSCH	Kindly add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: HONEYWELL / BOSCH/ HEINRICH	The Revised makes of PA system shall be HONEYWELL / BOSCH/ HEINRICH

201	Page. 170 Sr.3	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ NETWORK/IP PDU	SCHNIEDER(APC)/VERTIV/(RARITAN)/	The tender specifications of the tender supprt to only one brand. Kindly revised the technical specifications and add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: SCHNIEDER(APC)/VERTIV/(RARITAN)/ ELCOM/ SERVERTECH/ RITTAL	Please refer to IITH response given to the query no. (52) and (53) above
202	Page. 170 Sr.4	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ NETWORK/ COLD AISLE CONTAINEMENT	APC/VERTIV/NETRACK	The tender specifications of the tender supprt to only one brand. Kindly revised the technical specifications and add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: APC/VERTIV/NETRACK/ RITTAL	Please refer to IITH response given to the query no.31 & 52 above
203	Page. 170 Sr.5	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ NETWORK/ CAT6A	SCHNIEDER/AMP TYCO / BELDEN /LEVITON	Kindly add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: SCHNIEDER/AMP TYCO / BELDEN /LEVITON/ R&M/ SYSTIMAX	For Network Switches please refer query no.52 and The Revised approved makes for the CAT6A Shall read as SCHNIEDER/AMP TYCO / BELDEN /LEVITON/ R&M/ SYSTIMAX
204	Page. 170 Sr.6	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ NETWORK/ STS	SOCOMEC/SCHNIEDER/VERTIV	The tender specifications of the tender supprt to only one brand. Kindly revised the technical specifications and add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: SOCOMEC/SCHNIEDER/VERTIV/ DELTA/ EATON	The Revised makes for the STS shall read as SOCOMEC/SCHNIEDER/VERTIV/ DELTA/ EATON
205	Page. 170 Sr.7	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ NETWORK/ L3 Switch	CISCO/JUNIPER/HP/ARISTA	The tender specifications of the tender supprt to only one brand. Kindly revised the technical specifications and add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: CISCO/JUNIPER/HP/ARISTA/ FORTINET	The revised makes for L3 switch shall read as CISCO/JUNIPER/HP/ARISTA/ FORTINET
206	Page. 170 Sr.8	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ NETWORK/ FIBER DUCT	PANDUIT/ COMSCOPE/CORNING	Kindly add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: PANDUIT/ COMSCOPE/CORNING/ R&M	The Revised makes for the Fiber Ducts now shall read as PANDUIT/ COMSCOPE/CORNING/R&M
207	Page. 170 Sr.8	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ HVAC/ PRECISION AIR CONDITIONING UNITS	VERTIV /SCHNIEDER ELECTRIC/SWEGON BLUE BOX/STULZ	The tender specifications of the tender supprt to only one brand. Kindly revised the technical specifications and add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: VERTIV /SCHNIEDER ELECTRIC/SWEGON BLUE BOX/STULZ/ RITTAL	Please refer to IITH response given to the query no.(46) above
208	Page no. 3	NOTICE INVITING TENDER/ 1.8	Last Date & Time for receiving of Pre-Bid Queries	The last date of pre-bid queries should be after 2 days of Pre-bid meeting. So if bidder can notice certain points after visit the site during the pre-bid meeting can raise. **Changes requested -** The last date of submission of pre-bid should be 2 working days after pre-bid meeting.	Tender condtions prevail.
209	General	LT SWITCHBOARDS (PANELS)	General queries	The tender has requested BBT system which IIT Hyderbad has requested IEC 61439 certified, the same way The LT panel should be design as per continous IEC 61439-1 & 2. It should tested preventative accidental arcing protection as per IEC 61641. The bidder should submit certificate of Panel OEM along with technical bid. This will help customer to get standard panel and its components which is installed as per standard guideline. Should we consider this? **Changes requested -** The LT panel should be design as per continous IEC 61439-1 & 2. It should tested preventative accidental arcing protection as per IEC 61641. The bidder should submit certificate of Panel OEM along with technical bid.	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.

210	Page. 26	LT SWITCHBOARDS (PANELS)	The bus bars shall be made of high conductivity, Electrical grade Aluminium or cop per (As specified in SLD), suitable for 415 volts, 3phase 4 wires 50 Hz, with minim um STC of 16KA for 1 Sec. unless otherwise specified or as specified in SLD for 1 Sec,	The copper busbar will give highest output compare to Aluminium bas bar. Both options having large cost variation. IIT should go with copper busbar to looking at operational and long term benefit. **Changes requested -** Kindly revised the clause as per below: The bus bars shall be made of high conductivity, Electrical grade copper, suitable for 415 volts, 3phase 4 wires 50 Hz, with minim um STC of 16KA for 1 Sec.	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
211	Page.149	RACK/ 13.1/2	RAL7021 Black powder coat on all sheet metal components of the rack.	RAL 7021 is indicating single OEM Vertiv. **Changes requested -** Kindly revised the clause to have broader participation of multiple OEMs with below: RAL7021/ RAL 9005/ RAL 7035 powder coat on all sheet metal components of the rack.	Acceptable.Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
212	Page.149	RACK/ 13.1/8	Rack frame shall support 1500kg static weight load, 1000kg dynamic (non- transit) weight load.	This features limited to one OEM. To looking at cooling density of 20 racks, the average heat load of rack is 11-12 kW, means average 1000 Kg is per rack will be sufficient to cater this. **Changes requested -** Kindly revised the clause to have broader participation of multiple OEMs with below: Rack frame shall support 1400kg static weight load, 1000kg dynamic (non- transit) weight load.	Acceptable.Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
213	Page.149	RACK/ 13.1/10	The roof of the racks should be removable from the interior of the enclosure with/without tools and should have cable entry holes to allow up to 1800 cables or 60A PDU plug.	This features is mentioning by one OEM in their rack specification. Routing 1,800 copper cables (e.g., CAT6/CAT6A) into a single standard rack enclosure requires a roof cutout exceeding 150,000 mm^2 (maintaining a standard 50% fill ratio). Cutouts of this magnitude severely compromise the structural integrity of the rack roof and are not standard factory configurations. Furthermore, dressing 1,800 copper cables exceeds the physical capacity of standard vertical cable managers also. **Changes requested -** The roof and bottom plate of the racks should be removable and OEM should provide rack top cover with standard cable entry plate/ hole with brush insert to protect IP rating of the rack to have maximum cooling efficiency.	The roof panel must feature dedicated cutout slots (often fitted with brush strips) large enough to pass high-density networking and power cabling.
214	Page. 151	13.2 In Rack centralized monitoring and management of Power and Environment/ IPDU/3	iPDU should have min. 24 numbers of hybrid outlets should be of hybrid nature which can be utilized as either C13 or C19 outlet. All outlets should provide high retention to avoid accidental dislodging of power cords. The IPDU hybrid outlets should meet electrical compliance and should be UL certified.	The iPDU has requested hybrid type which can allow C13 or C19 outlets. Below are the socket details which are utilising for multiple equipments. C13: IT Network equipment C15: Heavy Power-over-Ethernet (PoE) switches C19: Chassis, Blades, Core Networks, AI servers. C15A / C21: Fanless & ruggedized Server & Switches. If the iPDU is hybrid then it should allow all above IEC C13, C15, C15A, C19, and C21 plug types sockets in the iPDU. **Changes requested -** Kindly revised the clause to have broader participation of multiple OEMs with below: iPDU should have min. 24 numbers of hybrid outlets should be of hybrid nature which can be utilized as IEC C13, C15, C15A, C19, and C21 plug types. All outlets should provide high retention to avoid accidental dislodging of power cords. The IPDU hybrid outlets should meet electrical compliance and should be IEC/ UL certified.	Please refer to IITH response to the query no. (179) above

215	Page. 151	13.2 In Rack centralized monitoring and management of Power and Environment/ IPDU/6	IPDU should have 2 numbers 16A magnetic circuit breakers for overcurrent protection in single phase PDU and 6 numbers 16A magnetic circuit breakers for overcurrent protection in three phase PDU.	32A single phase iPDU will be not sufficient in current scenario, it will not allow to populate equipment more than 7kVA power. You have cosnidered 11-12 kW cooling load. It is advisable to authority to considered 32A 3-phase iPDU and electrical schematic need to be revised accordingly. This change will allow customer to increase load in future till 11-12 KVA per rack which will justify the investment and achieve highest PUE (Power utilisation effectiveness) level in the data center. **Changes requested -** Kindly revised the clause to looking at future scalability and utilisation: iPDU should have 6X16A Hymag magnetic circuit breakers for overcurrent protection in 32A three phase iPDU.	Please refer to IITH response to the query no. (1) above
216	Page. 151	13.2 In Rack centralized monitoring and management of Power and Environment/ IPDU/23	The IPDU should have approvals form RoHS, CE/UL, EN, IEC	This is specific to single OEM. EN is going to use for Europeon countries not for India. For India CE is more than sufficient. **Changes requested -** Kindly revised the clause to have broader participation of multiple OEMs with below: The IPDU should have approvals form RoHS, CE/UL/EN,IEC.	Please refer to IITH response to the query no. (181) above
217	Page. 166	INROW COOLING DX Unit	DX type In-row cooling units with inverter compressor, front discharge type incorporating R410A refrigerant.	The 55kW Dx based cooling unit size is only available with Vertiv. It is OEM specific. The scroll compressor is old technology. The all OEMs comme up with inverter based technology in Dx cooling. The In-row cooling system should be chilled water based. Dx system will not give	Please refer to IITH response to the query no. (127) above
218	Page. 168	INROW COOLING DX Unit	Controller with microprocessor The control system will include a microprocessor that will be programmed to manage all the functions of the air-conditioner. The system will include	This is OEM specific description. Kindly revised it and make it generic. **Changes requested -** Kindly revised with below: The controller should be as per OEM technology & design.	Acceptable.Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
219	Page No. 97	TECHNICAL SPECIFICATIONS ELV SYSTEM/ 11.4.6.1 - B	The system shall provide a Noves 1230 minimum design concentration of 4.2% by volume for Class A hazards and a minimum of 5.85% by volume for Class B hazards in all areas and/or protected spaces, at the minimum anticipated temperature within the protected area. System design shall not exceed 10% for normally occupied spaces, adjusted for maximum space temperature anticipated, with provisions for room evacuation before agent release.	Novec is EOL gas suppression agent, the specifications should be on FK 5-1-12 gas. As per Tender it is requried "The system shall provide a Noves 1230 minimum design concentration of 4.2% by volume for Class A hazards and a minimum of 5.85% by volume for Class B hazards in all areas:, however as per Latest NFPA 2001 Standard Design Concentration shall be 4.5% for Class A & C Hazards. **Changes requested -** Kindly revised the specifications as per FK 5-1-12.	Acceptable.Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
220	11.4.6.2 A Sr. no. 14	TECHNICAL SPECIFICATIONS ELV SYSTEM	The Fluro ketone fire suppression system shall be supplied with Cylinders, Discharge valves, Discharge hose, check valves, Nozzles, Orifices etc. from the same manufacturer and approved by Department of Transportation (DOT, USA) The certificate of origin for the entire system must be from a single source.	As Per Tender"The Fluro ketone fire suppression system shall be supplied with Cylinders, Discharge valves, Discharge hose, check valves, Nozzles, Orifices etc. from the same manufacturer and approved by Department of Transportation (DOT, USA) The certificate of origin for the entire system must be from a single source." however as per Local norms it will be CCOE Approved which is also mentioned in tender and hence manufactures in india. DOT USA not applicable for Products Manufactures in India, **Changes requested -** Kindly revised clause as per below: The Fluro ketone fire suppression system shall be supplied with Cylinders, Discharge valves, Discharge hose, check valves, Nozzles, Orifices etc. from the same manufacturer and approved by CCOE. The certificate of origin for the entire system must be from a single source.	Acceptable.Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
221	11.4.6.3	TECHNICAL SPECIFICATIONS ELV SYSTEM	The fire suppression agent shall be 3M™ Noves™ 1230 Fire Protection Fluid manufactured by 3M Company, St. Paul, MN or their approved supplier.	Agent : It has been Mentioned as Agent NOVEC1230 and as per BOM it is mentioned FK 5-1-12. Please note NOVEC 1230 Manufactured by 3M is Phased out, hence Except to Consider FK5-1-12 Manufactured by other OEM's Globally. **Changes requested -** Kindly revised the specifications as per FK 5-1-12.	Acceptable.Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.

222	11.4.7 E	TECHNICAL SPECIFICATIONS ELV SYSTEM	A room pressurization test shall be conducted in each protected space to determine the presence of openings, which would affect the agent concentration levels. The test(s) shall be conducted using the Retro-Tec Corp. Door Fan system, or equivalent, with integrated computer program. All testing shall be in accordance with NFPA 2001.	Kindly Provide No. of Rooms to be considered for Gas Suppression system as Qty. of Equipment is provided in tender BOM. **Changes requested -** The Site visit should be allowed to bidder after pre-bid queries. It is requested to provide autocad drawing file with Height, width and length of the room.	Acceptable.Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable. Autocad drawings will be shared with the successful bidder only. The Intending bidders are advised to visit the site for detail survey if needed.
223	BOQ Sr. No. 13	Fire and ELV BOQ	General queries	Addressable Agent Release module mentioned as 02 Nos. however It seems Different No.of areas to be protected with Gas Suppression system FK5112 is 4/5. **Changes requested -** The Site visit should be allowed to bidder after pre-bid queries. Kindly clarify	Acceptable.Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable. Autocad drawings will be shared with the successful bidder only. The Intending bidders are advised to visit the site for detail survey if needed.
224	BOQ Sr. No. 23 and 24	Fire and ELV BOQ	General queries	Please confirm Fire cable to be considered Fire Survival type or Fire Armoured Cable. **Changes requested -** The Site visit should be allowed to bidder after pre-bid queries. Kindly clarify	Acceptable.Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable. Autocad drawings will be shared with the successful bidder only. The Intending bidders are advised to visit the site for detail survey if needed.
225	BOQ Sr. No. 28	Fire and ELV BOQ	General queries	As per BOM it is mentioned 60 Kg GAS Cylinder, however standard Cylinder size is 80 KG. Please Clarify. **Changes requested -** The Site visit should be allowed to bidder after pre-bid queries. Kindly clarify	Acceptable.Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable. Autocad drawings will be shared with the successful bidder only. The Intending bidders are advised to visit the site for detail survey if needed.
226	BOQ Sr. No. 37	Fire and ELV BOQ	General queries	It is mentioned to consider Gas Release Panel, however Gas Release module is already considered in Fire Alarm System. Qty. of Gas release module shall be Considered as per OEM Compatibility. Kindly Confirm. **Changes requested -** The Site visit should be allowed to bidder after pre-bid queries. Kindly clarify	Acceptable.Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable. Autocad drawings will be shared with the successful bidder only. The Intending bidders are advised to visit the site for detail survey if needed.
227	BOQ Sr. No. 67	Fire and ELV BOQ	General queries	It is mentioned to consider 16 Ch. NVR, however qty. of camera is 24 Nos. **Changes requested -** The Site visit should be allowed to bidder after pre-bid queries. Kindly clarify	Acceptable.Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable. Autocad drawings will be shared with the successful bidder only. The Intending bidders are advised to visit the site for detail survey if needed.
228	BOQ Sr. No. 76	Fire and ELV BOQ	General queries	It is mentioned to Consider DDC as per IOS summary. Soft integration Poins mentioned in BOM. Please Provide IO Summary if any for Hard Integration Points **Changes requested -** The Site visit should be allowed to bidder after pre-bid queries. Kindly clarify	Acceptable.Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable. Autocad drawings will be shared with the successful bidder only. The Intending bidders are advised to visit the site for detail survey if needed.
229	Page No. 169 Sr. No. 8	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ **LOW VOLTAGE SYSTEM/ GAS SUPRESSION SYSTEM**	NOVEC 1230 /SIEMENS/ HONEYWELL/UTC KIDDE	Tender Make List is Given as NOVEC 1230 /SIEMENS/ HONEYWELL/ UTCKIDDE. NOVEC 1230 is phased out and SIEMENS has also phased our FK5112 Solutions offering. Kindly revised the clause and add some more brands who are having successful installations. Kindly revised the technical specifications and add other standard OEMs" **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: FK 5-1-12 /SIEMENS/ HONEYWELL/UTC KIDDE/ CRYPTZO/ TYCO	Please refer to IITH response given to the Query no.(194) above
230	Page No. 169 Sr. No. 17,18,19,20	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ **CCTV Camera - NVR-VMS- Joystick**	PELCO/AXIS/HONEYWELL/SONY/ SIEMENS	Tender Make List is given as AXIS/HONEYWELL/PELCO/SONY/ SIEMENS. Please note that SONY and SIEMENS is not offering CCTV Solutions and Products. Axis/ PELCO/ SIEMENS/ SONY doesnt have STQC as per Indian govt. Norms. So only Honeywell is qualified for this tender. Kindly revised the technical specifications and add other standard OEMs" **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: HONEYWELL/TYCO/ MATRIX/VIVOTEK	The revised Approved Makes list is AXIS/HONEYWELL/PELCO/SONY/ SIEMENS/TYCO/VIVOTEK

231	Page. 169 Sr. 27	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ **K - RATED ISOLATION TRANFORMER BASED PDU'S**	SCHNIEDER/VERTIV/DATSUN/ADLEC	Kindly add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: SCHNIEDER/VERTIV/DATSUN/ADLEC/ T&R/ GT	The revised Approved Makes list is CHNIEDER/VERTIV/DATSUN/ADLEC/ T&R/ GT
232	Page. 169 Sr. 10, 11,12,13,14	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ **ACCESS CONTROL SYSTEM**	HONEYWELL / LENEL / CARDAX /CARDKEY/ HID/ SCHNIEDER/ TYCO SOFTWARE HOUSE	The tender specifications of the tender supprt to only one brand. Apart from Honeywell, no OEM presence available in India. Kindly revised the technical specifications and add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: HONEYWELL / LENEL / CARDAX /CARDKEY/ HID/ SCHNIEDER/ TYCO SOFTWARE HOUSE/ MATRIX/ Smart-i	Please refer to IITH response given to the query no.(197) above
233	Page. 170 Sr. 22	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ WATER LEAK DETECTION PANEL	HONEYWELL /TTK/TRACETEK/C SYSTEM	The tender specifications of the tender supprt to only one brand. Kindly revised the technical specifications and add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: HONEYWELL /TTK/TRACETEK/C SYSTEM/ SONTAY	Please refer to IITH response given to the query no.(198) above
234	Page. 170 Sr. 1& 2	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ IT 42 RU RACKS	APC/VERTIV/NETRACK	The tender specifications of the tender supprt to only one brand. Kindly revised the technical specifications and add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: APC/VERTIV/NETRACK/ VERTIV/ RITTAL	Please refer to IITH response given to the Query no.(52) above
235	Page. 170 Sr. 24	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ LOW VOLTAGE SYSTEM/ PUBLIC ADDRESSABLE SYSTEM	HONEYWELL / BOSCH	Kindly add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: HONEYWELL / BOSCH/ HEINRICH	Please refer to IITH response to Query no (200) above
236	Page. 170 Sr.3	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ NETWORK/IP PDU	SCHNIEDER(APC)/VERTIV/(RARITAN)/	The tender specifications of the tender supprt to only one brand. Kindly revised the technical specifications and add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: SCHNIEDER(APC)/VERTIV/(RARITAN)/ ELCOM/ SERVERTECH/ RITTAL	Please refer to IITH response given to the Query No.(53) above
237	Page. 170 Sr.4	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ NETWORK/ COLD AISLE CONTAINEMENT	APC/VERTIV/NETRACK	The tender specifications of the tender supprt to only one brand. Kindly revised the technical specifications and add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: APC/VERTIV/NETRACK/ RITTAL	Please refer to IITH response given to the query no.(31) & (52) above
238	Page. 170 Sr.5	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ NETWORK/ CAT6A	SCHNIEDER/AMP TYCO / BELDEN /LEVITON	Kindly add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: SCHNIEDER/AMP TYCO / BELDEN /LEVITON/ R&M/ SYSTIMAX	Please refer to IITH response given to the query no.(203) above
239	Page. 170 Sr.6	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ NETWORK/ STS	SOCOMEC/SCHNIEDER/VERTIV	The tender specifications of the tender supprt to only one brand. Kindly revised the technical specifications and add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: SOCOMEC/SCHNIEDER/VERTIV/ DELTA/ EATON	Please refer to IITH response given to the query no.(204) above
240	Page. 170 Sr.7	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ NETWORK/ L3 Switch	CISCO/JUNIPER/HP/ARISTA	The tender specifications of the tender supprt to only one brand. Kindly revised the technical specifications and add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: CISCO/JUNIPER/HP/ARISTA/ FORTINET	Please refer to IITH response given to the query no.(205) above

241	Page. 170 Sr.8	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ NETWORK/ FIBER DUCT	PANDUIT/ COMSCOPE/CORNING	Kindly add other standard OEMs **Changes requested -**Kindly revised the technical specifications & considered below make for this product category: PANDUIT/ COMSCOPE/CORNING/ R&M	Please refer to IITH response given to the query no.206 above
242	Page. 170 Sr.8	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ HVAC/ PRECISION AIR CONDITIONING UNITS	VERTIV /SCHNIEDER ELECTRIC/SWEGON BLUE BOX/STULZ	The tender specifications of the tender supprt to only one brand. Kindly revised the technical specifications and add other standard OEMs. **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: VERTIV /SCHNIEDER ELECTRIC/SWEGON BLUE BOX/STULZ/ RITTAL	Please refer to IITH response given to the query no.46 above
243	Page no. 3	NOTICE INVITING TENDER/ 1.8	Last Date & Time for receiving of Pre-Bid Queries	The last date of pre-bid queries should be after 2 days of Pre-bid meeting. So if bidder can notice certain points after visit the site during the pre-bid meeting can raise. **Changes requested -** The last date of submission of pre-bid should be 2 working days after pre-bid meeting.	Please refer IITH response given to the query no.(208) above
244	General	LT SWITCHBOARDS (PANELS)	General queries	The tender has requested BBT system which IIT Hyderbad has requested IEC 61439 certified, the same way The LT panel should be design as per continous IEC 61439-1 & 2. It should tested preventative accidental arcing protection as per IEC 61641. The bidder should submit certificate of Panel OEM along with technical bid. This will help customer to get standard panel and its components which is installed as per standard guideline. Should we consider this? **Changes requested -** The LT panel should be design as per continous IEC 61439-1 & 2. It should tested preventative accidental arcing protection as per IEC 61641. The bidder should submit certificate of Panel OEM along with technical bid.	Please refer IITH response given to the query no.(209) above
245	Page. 26	LT SWITCHBOARDS (PANELS)	The bus bars shall be made of high conductivity, Electrical grade Aluminium or cop per (As specified in SLD), suitable for 415 volts, 3phase 4 wires 50 Hz, with minim um STC of 16KA for 1 Sec. unless otherwise specified or as specified in SLD for 1 Sec,	The copper busbar will give highest output compare to Aluminium bas bar. Both options having large cost variation. IIT should go with copper busbar to looking at operational and long term benefit. **Changes requested -** Kindly revised the clause as per below: The bus bars shall be made of high conductivity, Electrical grade copper, suitable for 415 volts, 3phase 4 wires 50 Hz, with minim um STC of 16KA for 1 Sec.	Please refer IITH response given to the query no.(210) above
246	Page.149	RACK/ 13.1/2	RAL7021 Black powder coat on all sheet metal components of the rack.	RAL 7021 is indicating single OEM Vertiv. **Changes requested -** Kindly revised the clause to have broader participation of multiple OEMs with below: RAL7021/ RAL 9005/ RAL 7035 powder coat on all sheet metal components of the rack.	Please refer IITH response given to the query no. 176 above
247	Page.149	RACK/ 13.1/8	Rack frame shall support 1500kg static weight load, 1000kg dynamic (non- transit) weight load.	This features limited to one OEM. To looking at cooling density of 20 racks, the average heat load of rack is 11-12 kW, means average 1000 Kg is per rack will be sufficient to cater this. **Changes requested -** Kindly revised the clause to have broader participation of multiple OEMs with below: Rack frame shall support 1400kg static weight load, 1000kg dynamic (non- transit) weight load.	Tender condtions prevail. Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.

248	Page.149	RACK/ 13.1/10	The roof of the racks should be removable from the interior of the enclosure with/without tools and should have cable entry holes to allow up to 1800 cables or 60A PDU plug.	This features is mentioning by one OEM in their rack specification. Routing 1,800 copper cables (e.g., CAT6/CAT6A) into a single standard rack enclosure requires a roof cutout exceeding 150,000 mm^2 (maintaining a standard 50% fill ratio). Cutouts of this magnitude severely compromise the structural integrity of the rack roof and are not standard factory configurations. Furthermore, dressing 1,800 copper cables exceeds the physical capacity of standard vertical cable managers also. Kindly visit the link of OEM where it is specified it. https://www.vertiv.com/4a0f9c/globalassets/products/facilities-enclosures-and-racks/integrated-solutions/vertiv-smartcloset/vertiv-vr-rack-br-en-na-sl-20819-web.pdf **Changes requested -** The roof and bottom plate of the racks should be removable and OEM should provide rack top cover with standard cable entry plate/ hole with brush insert to protect IP rating of the rack to have maximum cooling efficiency.	The roof panel must feature dedicated cutout slots (often fitted with brush strips) large enough to pass high-density networking and power cabling. Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
249	Page. 151	13.2 In Rack centralized monitoring and management of Power and Environment/ IPDU/3	iPDU should have min. 24 numbers of hybrid outlets should be of hybrid nature which can be utilized as either C13 or C19 outlet. All outlets should provide high retention to avoid accidental dislodging of power cords. The IPDU hybrid outlets should meet electrical compliance and should be UL certified.	The iPDU has requested hybrid type which can allow C13 or C19 outlets. Below are the socket details which are utilising for multiple equipments. C13: IT Network equipment C15: Heavy Power-over-Ethernet (PoE) switches C19: Chassis, Blades, Core Networks, AI servers. C15A / C21: Fanless & ruggedized Server & Switches. If the iPDU is hybrid then it should allow all above IEC C13, C15, C15A, C19, and C21 plug types sockets in the iPDU. **Changes requested -** Kindly revised the clause to have broader participation of multiple OEMs with below: iPDU should have min. 24 numbers of hybrid outlets should be of hybrid nature which can be utilized as IEC C13, C15, C15A, C19, and C21 plug types. All outlets should provide high retention to avoid accidental dislodging of power cords. The IPDU hybrid outlets should meet electrical compliance and should be IEC/ UL certified.	Please refer IITH response to the query no. 179 above
250	Page. 151	13.2 In Rack centralized monitoring and management of Power and Environment/ IPDU/6	IPDU should have 2 numbers 16A magnetic circuit breakers for overcurrent protection in single phase PDU and 6 numbers 16A magnetic circuit breakers for overcurrent protection in three phase PDU.	32A single phase iPDU will be not sufficient in current scenario, it will not allow to populate equipment more than 7kVA power. You have cosnidered 11-12 kW cooling load. It is advisable to authority to considered 32A 3-phase iPDU and electrical schematic need to be revised accordingly. This change will allow customer to increase load in future till 11-12 KVA per rack which will justify the investment and achieve highest PUE (Power utilisation effectiveness) level in the data center. **Changes requested -** Kindly revised the clause to looking at future scalability and utilisation: iPDU should have 6X16A Hymag magnetic circuit breakers for overcurrent protection in 32A three phase iPDU.	Please refer IITH response to the query no. 1 above. Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
251	Page. 151	13.2 In Rack centralized monitoring and management of Power and Environment/ IPDU/23	The IPDU should have approvals form RoHS, CE/UL, EN, IEC	This is specific to single OEM. EN is going to use for Europeon countries not for India. For India CE is more than sufficient. **Changes requested -** Kindly revised the clause to have broader participation of multiple OEMs with below: The IPDU should have approvals form RoHS, CE/UL/EN,IEC.	Please refer IITH response given to the query no. 181 above. Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.

252	Page. 166	INROW COOLING DX Unit	DX type In-row cooling units with inverter compressor, front discharge type incorporating R410A refrigerant.	The 55kW Dx based cooling unit size is only available with Vertiv. It is OEM specific. The scroll compressor is old technology. The all OEMs comme up with inverter based technology in Dx cooling. The In-row cooling system should be chilled water based. Dx system will not give good energy efficiencies. If data center is having up to 10 racks then Dx will be ok. But for 20 racks it should be chilled water based. **Changes requested -** Kindly revised the specifications based on Chilled water type In-row cooling units with EC Fan, front discharge type. If user only wants Dx based only then the cooling unit capacity should be 35kW which will allow maximum redundancy and multiple OEM participation.	Please refer IITH response given to the query no. 127 above. Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
253	Page. 168	INROW COOLING DX Unit	Controller with microprocessor The control system will include a microprocessor that will be programmed to manage all the functions of the air-conditioner. The system will include • An electronic board housing the microprocessor, fitted inside the electrical panel. • A user terminal as the interface. The electronic board complies with EEC directive 89/336. The user terminal is a backlit LCD with 132x64 pixel resolution and 6 buttons. All the messages will be displayed using icons; no specific language needs to be known. The main functions of the control system are to: • control room temperature • manage the compressor inverter; • manage fan speed; • monitor supply air temperature; • manage alarms and warnings for correct maintenance; • log up to 100 events; • manage the unit in standby; • control room humidity (if a humidity probe is connected) • manage the humidifier (if featured) • manage from 1 to 3 electric heater stages for reheating (if featured); • automatically manage the free cooling system (if featured); • allow remote monitoring and control of the unit via LAN, network or BMS (Lon Works, BACnet, Modbus…..). The controller requires 3 password levels and can manage the following parameters: • readings of sensors and probes and corresponding settings; • activation of alarms, event log, digital output settings; • LAN management; • BM communication parameter settings; When connected via LAN to other units - up to 10 - the controller can: • manage, based on set times or events, automatic rotation of the unit/units in standby (1 or 2) ; • manage the average temperature and humidity between the units; • access all the control boards from just one remote user terminal,	This is OEM specific description. Kindly revised it and make it generic. **Changes requested -** Kindly revised with below: The controller should be as per OEM technology & design.	Acceptable. Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
254	Page No. 97	TECHNICAL SPECIFICATIONS ELV SYSTEM/ 11.4.6.1 - B	The system shall provide a Noves 1230 minimum design concentration of 4.2% by volume for Class A hazards and a minimum of 5.85% by volume for Class B hazards in all areas and/or protected spaces, at the minimum anticipated temperature within the protected area. System design shall not exceed 10% for normally occupied spaces, adjusted for maximum space temperature anticipated, with provisions for room evacuation before agent release.	Novec is EOL gas suppression agent, the specifications should be on FK 5-1-12 gas. As per Tender it is requried "The system shall provide a Noves 1230 minimum design concentration of 4.2% by volume for Class A hazards and a minimum of 5.85% by volume for Class B hazards in all areas:, however as per Latest NFPA 2001 Standard Design Concentration shall be 4.5% for Class A & C Hazards. **Changes requested -** Kindly revised the specifications as per FK 5-1-12.	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
255	11.4.6.2 A Sr. no. 14	TECHNICAL SPECIFICATIONS ELV SYSTEM	The Fluro ketone fire suppression system shall be supplied with Cylinders, Discharge valves, Discharge hose, check valves, Nozzles, Orifices etc. from the same manufacturer and approved by Department of Transportation (DOT, USA) The certificate of origin for the entire system must be from a single source.	As Per Tender "The Fluro ketone fire suppression system shall be supplied with Cylinders, Discharge valves, Discharge hose, check valves, Nozzles, Orifices etc. from the same manufacturer and approved by Department of Transportation (DOT, USA) The certificate of origin for the entire system must be from a single source." however as per Local norms it will be CCOE Approved which is also mentioned in tender and hence manufactures in india. DOT USA not applicable for Products Manufactures in India, **Changes requested -** Kindly revised clause as per below: The Fluro ketone fire suppression system shall be supplied with Cylinders, Discharge valves, Discharge hose, check valves, Nozzles, Orifices etc. from the same manufacturer and approved by CCOE. The certificate of origin for the entire system must be from a single source.	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.

256	11.4.6.3	TECHNICAL SPECIFICATIONS ELV SYSTEM	The fire suppression agent shall be 3M™ Noves™ 1230 Fire Protection Fluid manufactured by 3M Company, St. Paul, MN or their approved supplier.	Agent : It has been Mentioned as Agent NOVEC1230 and as per BOM it is mentioned FK 5-1-12. Please note NOVEC 1230 Manufactured by 3M is Phased out, hence Except to Consider FK5-1-12 Manufactured by other OEM's Globally. **Changes requested -** Kindly revised the specifications as per FK 5-1-12.	Please refer to IITH response given to the Query no: 186 above
257	11.4.7 E	TECHNICAL SPECIFICATIONS ELV SYSTEM	A room pressurization test shall be conducted in each protected space to determine the presence of openings, which would affect the agent concentration levels. The test(s) shall be conducted using the Retro-Tec Corp. Door Fan system, or equivalent, with integrated computer program. All testing shall be in accordance with NFPA 2001.	Kindly Provide No. of Rooms to be considered for Gas Suppression system as Qty. of Equipment is provided in tender BOM. **Changes requested -** The Site visit should be allowed to bidder after pre-bid queries. It is requested to provide autocad drawing file with Height, width and length of the room.	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable. The Bidders are encouraged to visit the site for sny survey (if needed).
258	BOQ Sr. No. 13	Fire and ELV BOQ	General queries	Addressable Agent Release module mentioned as 02 Nos. however It seems Different No.of areas to be protected with Gas Suppression system FK5112 is 4/5. **Changes requested -** The Site visit should be allowed to bidder after pre-bid queries. Kindly clarify	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable. The Bidders are encouraged to visit the site for sny survey (if needed).
259	BOQ Sr. No. 23 and 24	Fire and ELV BOQ	General queries	Please confirm Fire cable to be considered Fire Survival type or Fire Armoured Cable. **Changes requested -** The Site visit should be allowed to bidder after pre-bid queries. Kindly clarify	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable. The Bidders are encouraged to visit the site for sny survey (if needed).
260	BOQ Sr. No. 28	Fire and ELV BOQ	General queries	As per BOM it is mentioned 60 Kg GAS Cylinder, however standard Cylinder size is 80 KG. Please Clarify. **Changes requested -** The Site visit should be allowed to bidder after pre-bid queries. Kindly clarify	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable. The Bidders are encouraged to visit the site for sny survey (if needed).
261	BOQ Sr. No. 37	Fire and ELV BOQ	General queries	It is mentioned to consider Gas Release Panel, however Gas Release module is already considered in Fire Alarm System. Qty. of Gas release module shall be Considered as per OEM Compatibility. Kindly Confirm. **Changes requested -** The Site visit should be allowed to bidder after pre-bid queries. Kindly clarify	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable. The Bidders are encouraged to visit the site for sny survey (if needed).
262	BOQ Sr. No. 67	Fire and ELV BOQ	General queries	It is mentioned to consider 16 Ch. NVR, however qty. of camera is 24 Nos. **Changes requested -** The Site visit should be allowed to bidder after pre-bid queries. Kindly clarify	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable. The Bidders are encouraged to visit the site for sny survey (if needed).
263	BOQ Sr. No. 76	Fire and ELV BOQ	General queries	It is mentioned to Consider DDC as per IOS summary. Soft integration Poins mentioned in BOM. Please Provide IO Summary if any for Hard Integration Points. **Changes requested -** The Site visit should be allowed to bidder after pre-bid queries. Kindly clarify	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.The Bidders are encouraged to visit the site for sny survey (if needed).
264	Page No. 169 Sr. No. 8	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ **LOW VOLTAGE SYSTEM/ GAS SUPRESSION SYSTEM**	NOVEC 1230 /SIEMENS/ HONEYWELL/UTC KIDDE	Tender Make List is Given as NOVEC 1230 /SIEMENS/ HONEYWELL/UTCKIDDE. NOVEC 1230 is phased out and SIEMENS has also phased our FK5112 Solutions offering. Kindly revised the clause and add some more brands who are having successful installations. Kindly revised the technical specifications and add other standard OEMs" **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: FK 5-1-12 /SIEMENS/ HONEYWELL/UTC KIDDE/ CRYPTZO/ TYCO	Please refer to IITH response given in query no-194 above

265	Page No. 169 Sr. No. 17,18,19,20	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ **CCTV Camera - NVR-VMS- Joystick**	PELCO/AXIS/HONEYWELL/SONY/ SIEMENS	Tender Make List is given as AXIS/HONEYWELL/PELCO/SONY/ SIEMENS. Please note that SONY and SIEMENS is not offering CCTV Solutions and Products. Axis/ PELCO/ SIEMENS/ SONY doesnt have STQC as per Indian govt. Norms. So only Honeywell is qualified for this tender. Kindly revised the technical specifications and add other standard OEMs" **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: HONEYWELL/TYCO/ MATRIX/VIVOTEK	The revised Approved Makes list is AXIS/HONEYWELL/PELCO/SONY/ SIEMENS/TYCO/VIVOTEK
266	Page. 169 Sr. 27	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ **K - RATED ISOLATION TRANFORMER** **BASED PDU'S**	SCHNIEDER/VERTIV/DATSUN/ADLEC	Kindly add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: SCHNIEDER/VERTIV/DATSUN/ADLEC/ T&R/ GT	The revised Approved Makes list is CHNIEDER/VERTIV/DATSUN/ADLEC/ T&R/ GT
267	Page. 169 Sr. 10, 11,12,13,14	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ **ACCESS CONTROL SYSTEM**	HONEYWELL / LENEL / CARDAX /CARDKEY/ HID/ SCHNIEDER/ TYCO SOFTWARE HOUSE	The tender specifications of the tender supprt to only one brand. Apart from Honeywell, no OEM presence available in India. Kindly revised the technical specifications and add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: HONEYWELL / LENEL / CARDAX /CARDKEY/ HID/ SCHNIEDER/ TYCO SOFTWARE HOUSE/ MATRIX/ Smart-i	Please refer to IITH response given to the query no.(197) above
268	Page. 170 Sr. 22	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ WATER LEAK DETECTION PANEL	HONEYWELL /TTK/TRACETEK/C SYSTEM	The tender specifications of the tender supprt to only one brand. Kindly revised the technical specifications and add other standard OEMs **Changes requested -**Kindly revised the technical specifications & considered below make for this product category: HONEYWELL /TTK/TRACETEK/C SYSTEM/ SONTAY	Please refer to IITH response given to the query no.(198) above
269	Page. 170 Sr. 1& 2	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ IT 42 RU RACKS	APC/VERTIV/NETRACK	The tender specifications of the tender supprt to only one brand. Kindly revised the technical specifications and add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: APC/VERTIV/NETRACK/ VERTIV/ RITTAL	Please refer IITH response to query no-52 above
270	Page. 170 Sr. 24	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ LOW VOLTAGE SYSTEM/ PUBLIC ADDRESSABLE SYSTEM	HONEYWELL / BOSCH	Kindly add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: HONEYWELL / BOSCH/ HEINRICH	Please refer IITH response given to query no-200
271	Page. 170 Sr.3	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ NETWORK/IP PDU	SCHNIEDER(APC)/VERTIV/(RARITAN)/	The tender specifications of the tender supprt to only one brand. Kindly revised the technical specifications and add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: SCHNIEDER(APC)/VERTIV/(RARITAN)/ ELCOM/ SERVERTECH/ RITTAL	Please refer to IITH response given to the Query No.(53) above
272	Page. 170 Sr.4	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ NETWORK/ COLD AISLE CONTAINEMENT	APC/VERTIV/NETRACK	The tender specifications of the tender supprt to only one brand. Kindly revised the technical specifications and add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: APC/VERTIV/NETRACK/ RITTAL	Please refer to IITH response given to the query no.(31) & (52) above

273	Page. 170 Sr.5	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ NETWORK/ CAT6A	SCHNIEDER/AMP TYCO / BELDEN /LEVITON	Kindly add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: SCHNIEDER/AMP TYCO / BELDEN /LEVITON/ R&M/ SYSTIMAX	Please refer to IITH response given to the query no.(203) above
274	Page. 170 Sr.6	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ NETWORK/ STS	SOCOMEC/SCHNIEDER/VERTIV	The tender specifications of the tender supprt to only one brand. Kindly revised the technical specifications and add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: SOCOMEC/SCHNIEDER/VERTIV/ DELTA/ EATON	Please refer to IITH response given to the query no.(204) above
275	Page. 170 Sr.7	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ NETWORK/ L3 Switch	CISCO/JUNIPER/HP/ARISTA	The tender specifications of the tender supprt to only one brand. Kindly revised the technical specifications and add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: CISCO/JUNIPER/HP/ARISTA/ FORTINET	Please refer to IITH response given to the query no.(205) above
276	Page. 170 Sr.8	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ NETWORK/ FIBER DUCT	PANDUIT/ COMSCOPE/CORNING	Kindly add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: PANDUIT/ COMSCOPE/CORNING/ R&M	Please refer to IITH response given to the query no.206 above
277	Page. 170 Sr.8	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ HVAC/ PRECISION AIR CONDITIONING UNITS	VERTIV /SCHNIEDER ELECTRIC/SWEGON BLUE BOX/STULZ	The tender specifications of the tender supprt to only one brand. Kindly revised the technical specifications and add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: VERTIV /SCHNIEDER ELECTRIC/SWEGON BLUE BOX/STULZ / RITTAL	Please refer to IITH response given to the query no.46 above
278	Page no. 3	NOTICE INVITING TENDER/ 1.8	Last Date & Time for receiving of Pre-Bid Queries	The last date of pre-bid queries should be after 2 days of Pre-bid meeting. So if bidder can notice certain points after visit the site during the pre-bid meeting can raise. **Changes requested -** The last date of submission of pre-bid should be 2 working days after pre-bid meeting.	Please refer IITH response given to the query no.(208) above
279	General	LT SWITCHBOARDS (PANELS)	General queries	The tender has requested BBT system which IIT Hyderbad has requested IEC 61439 certified, the same way The LT panel should be design as per continous IEC 61439-1 & 2. It should tested preventative accidental arcing protection as per IEC 61641. The bidder should submit certificate of Panel OEM along with technical bid. This will help customer to get standard panel and its components which is installed as per standard guideline. Should we consider this? **Changes requested -**The LT panel should be design as per continous IEC 61439-1 & 2. It should tested preventative accidental arcing protection as per IEC 61641. The bidder should submit certificate of Panel OEM along with technical bid.	Please refer IITH response given to the query no.(209) above
280	Page. 26	LT SWITCHBOARDS (PANELS)	The bus bars shall be made of high conductivity, Electrical grade Aluminium or cop per (As specified in SLD), suitable for 415 volts, 3phase 4 wires 50 Hz, with minim um STC of 16KA for 1 Sec. unless otherwise specified or as specified in SLD for 1 Sec,	The copper busbar will give highest output compare to Aluminium bas bar. Both options having large cost variation. IIT should go with copper busbar to looking at operational and long term benefit. **Changes requested -** Kindly revised the clause as per below: The bus bars shall be made of high conductivity, Electrical grade copper, suitable for 415 volts, 3phase 4 wires 50 Hz, with minim um STC of 16KA for 1 Sec.	Please refer IITH response given to the query no.(210) above

281	Page.149	RACK/ 13.1/2	RAL7021 Black powder coat on all sheet metal components of the rack.	RAL 7021 is indicating single OEM Vertiv. **Changes requested -**Kindly revised the clause to have broader participation of multiple OEMs with below: RAL7021/ RAL 9005/ RAL 7035 powder coat on all sheet metal components of the rack	Please refer IITH response given to the query no. 176 above
282	Page.149	RACK/ 13.1/8	Rack frame shall support 1500kg static weight load, 1000kg dynamic (non- transit) weight load.	This features limited to one OEM. To looking at cooling density of 20 racks, the average heat load of rack is 11-12 kW, means average 1000 Kg is per rack will be sufficient to cater this. **Changes requested -** Kindly revised the clause to have broader participation of multiple OEMs with below: Rack frame shall support 1400kg static weight load, 1000kg dynamic (non- transit) weight load.	Tender condtions prevail. Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
283	Page.149	RACK/ 13.1/10	The roof of the racks should be removable from the interior of the enclosure with/without tools and should have cable entry holes to allow up to 1800 cables or 60A PDU plug.	This features is mentioning by one OEM in their rack specification. Routing 1,800 copper cables (e.g., CAT6/CAT6A) into a single standard rack enclosure requires a roof cutout exceeding 150,000 mm^2 (maintaining a standard 50% fill ratio). Cutouts of this magnitude severely compromise the structural integrity of the rack roof and are not standard factory configurations. Furthermore, dressing 1,800 copper cables exceeds the physical capacity of standard vertical cable managers also. Kindly visit the link of OEM where it is specified it. https://www.vertiv.com/4a0f9c/globalassets/products/facilities-enclosures-and-racks/integrated-solutions/vertiv-smartcloset/vertiv-vr-rack-br-en-na-sl-20819-web.pdf **Changes requested -** The roof and bottom plate of the racks should be removable and OEM should provide rack top cover with standard cable entry plate/ hole with brush insert to protect IP rating of the rack to have maximum cooling efficiency.	The roof panel must feature dedicated cutout slots (often fitted with brush strips) large enough to pass high-density networking and power cabling. Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
284	Page. 151	13.2 In Rack centralized monitoring and management of Power and Environment/ IPDU/3	iPDU should have min. 24 numbers of hybrid outlets should be of hybrid nature which can be utilized as either C13 or C19 outlet. All outlets should provide high retention to avoid accidental dislodging of power cords. The IPDU hybrid outlets should meet electrical compliance and should be UL certified.	The iPDU has requested hybrid type which can allow C13 or C19 outlets. Below are the socket details which are utilising for multiple equipments. C13: IT Network equipment C15: Heavy Power-over-Ethernet (PoE) switches C19: Chassis, Blades, Core Networks, AI servers. C15A / C21: Fanless & ruggedized Server & Switches. If the iPDU is hybrid then it should allow all above IEC C13, C15, C15A, C19, and C21 plug types sockets in the iPDU. **Changes requested -** Kindly revised the clause to have broader participation of multiple OEMs with below: iPDU should have min. 24 numbers of hybrid outlets should be of hybrid nature which can be utilized as IEC C13, C15, C15A, C19, and C21 plug types. All outlets should provide high retention to avoid accidental dislodging of power cords. The IPDU hybrid outlets should meet electrical compliance and should be IEC/ UL certified.	Please refer IITH response to the query no. 179 above
285	Page. 151	13.2 In Rack centralized monitoring and management of Power and Environment/ IPDU/6	IPDU should have 2 numbers 16A magnetic circuit breakers for overcurrent protection in single phase PDU and 6 numbers 16A magnetic circuit breakers for overcurrent protection in three phase PDU.	32A single phase iPDU will be not sufficient in current scenario, it will not allow to populate equipment more than 7kVA power. You have cosnidered 11-12 kW cooling load. It is advisable to authority to considered 32A 3-phase iPDU and electrical schematic need to be revised accordingly. This change will allow customer to increase load in future till 11-12 KVA per rack which will justify the investment and achieve highest PUE (Power utilisation effectiveness) level in the data center. **Changes requested -**Kindly revised the clause to looking at future scalability and utilisation: iPDU should have 6X16A Hymag magnetic circuit breakers for overcurrent	Please refer IITH response to the query no. 1 above. Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.

286	Page. 151	13.2 In Rack centralized monitoring and management of Power and Environment/ IPDU/23	The IPDU should have approvals form RoHS, CE/UL, EN, IEC	This is specific to single OEM. EN is going to use for Europeon countries not for India. For India CE is more than sufficient. **Changes requested -**Kindly revised the clause to have broader participation of multiple OEMs with below: The IPDU should have approvals form RoHS, CE/UL/EN,IEC.	Please refer IITH response given to the query no. 181 above. Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
287	Page. 166	INROW COOLING DX Unit	DX type In-row cooling units with inverter compressor, front discharge type incorporating R410A refrigerant.	The 55kW Dx based cooling unit size is only available with Vertiv. It is OEM specific. The scroll compressor is old technology. The all OEMs comme up with inverter based technology in Dx cooling. The In-row cooling system should be chilled water based. Dx system will not give good energy efficiencies. If data center is having up to 10 racks then Dx will be ok. But for 20 racks it should be chilled water based. **Changes requested -**Kindly revised the specifications based on Chilled water type In-row cooling units with EC Fan, front discharge type. If user only wants Dx based only then the cooling unit capacity should be 35kW which will allow maximum redundancy and multiple OEM participation.	Please refer IITH response given to the query no. 127 above. Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
288	Page. 168	INROW COOLING DX Unit	Controller with microprocessor The control system will include a microprocessor that will be programmed to manage all the functions of the air-conditioner. The system will include • An electronic board housing the microprocessor, fitted inside the electrical panel. • A user terminal as the interface. The electronic board complies with EEC directive 89/336. The user terminal is a backlit LCD with 132x64 pixel resolution and 6 buttons. All the messages will be displayed using icons; no specific language needs to be known. The main functions of the control system are to: • control room temperature • manage the compressor inverter; • manage fan speed; • monitor supply air temperature; • manage alarms and warnings for correct maintenance; • log up to 100 events; • manage the unit in standby; • control room humidity (if a humidity probe is connected) • manage the humidifier (if featured) • manage from 1 to 3 electric heater stages for reheating (if featured); • automatically manage the free cooling system (if featured); • allow remote monitoring and control of the unit via LAN, network or BMS (Lon Works, BACnet, Modbus…..). The controller requires 3 password levels and can manage the following parameters:	This is OEM specific description. Kindly revised it and make it generic. **Changes requested -** Kindly revised with below: The controller should be as per OEM technology & design.	Acceptable. Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
289	Page No. 97	TECHNICAL SPECIFICATIONS ELV SYSTEM/ 11.4.6.1 - B	The system shall provide a Noves 1230 minimum design concentration of 4.2% by volume for Class A hazards and a minimum of 5.85% by volume for Class B hazards in all areas and/or protected spaces, at the minimum anticipated temperature within the protected area. System design shall not exceed 10% for normally occupied spaces, adjusted for maximum space temperature anticipated, with provisions for room evacuation before agent release.	Novec is EOL gas suppression agent, the specifications should be on FK 5-1-12 gas. As per Tender it is requried "The system shall provide a Noves 1230 minimum design concentration of 4.2% by volume for Class A hazards and a minimum of 5.85% by volume for Class B hazards in all areas:, however as per Latest NFPA 2001 Standard Design Concentration shall be 4.5% for Class A & C Hazards. **Changes requested -** Kindly revised the specifications as per FK 5-1-12.	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.

290	11.4.6.2 A Sr. no. 14	TECHNICAL SPECIFICATIONS ELV SYSTEM	The Fluro ketone fire suppression system shall be supplied with Cylinders, Discharge valves, Discharge hose, check valves, Nozzles, Orifices etc. from the same manufacturer and approved by Department of Transportation (DOT, USA) The certificate of origin for the entire system must be from a single source.	As Per Tender"The Fluro ketone fire suppression system shall be supplied with Cylinders, Discharge valves, Discharge hose, check valves, Nozzles, Orifices etc. from the same manufacturer and approved by Department of Transportation (DOT, USA) The certificate of origin for the entire system must be from a single source." however as per Local norms it will be CCOE Approved which is also mentioned in tender and hence manufactures in india. DOT USA not applicable for Products Manufactures in India, **Changes requested -** Kindly revised clause as per below: The Fluro ketone fire suppression system shall be supplied with Cylinders, Discharge valves, Discharge hose, check valves, Nozzles, Orifices etc. from the same manufacturer and approved by CCOE. The certificate of origin for the entire system must be from a single source.	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
291	11.4.6.3	TECHNICAL SPECIFICATIONS ELV SYSTEM	The fire suppression agent shall be 3M™ Noves™ 1230 Fire Protection Fluid manufactured by 3M Company, St. Paul, MN or their approved supplier.	Agent : It has been Mentioned as Agent NOVEC1230 and as per BOM it is mentioned FK 5-1-12. Please note NOVEC 1230 Manufactured by 3M is Phased out, hence Except to Consider FK5-1-12 Manufactured by other OEM's Globally. **Changes requested -** Kindly revised the specifications as per FK 5-1-12.	Please refer to IITH response given to the Query no: 186 above
292	11.4.7 E	TECHNICAL SPECIFICATIONS ELV SYSTEM	A room pressurization test shall be conducted in each protected space to determine the presence of openings, which would affect the agent concentration levels. The test(s) shall be conducted using the Retro-Tec Corp. Door Fan system, or equivalent, with integrated computer program. All testing shall be in accordance with NFPA 2001.	Kindly Provide No. of Rooms to be considered for Gas Suppression system as Qty. of Equipment is provided in tender BOM. **Changes requested -** The Site visit should be allowed to bidder after pre-bid queries. It is requested to provide autocad drawing file with Height, width and length of the room.	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable. The Bidders are encouraged to visit the site for sny survey (if needed).
293	BOQ Sr. No. 13	Fire and ELV BOQ	General queries	Addressable Agent Release module mentioned as 02 Nos. however It seems Different No.of areas to be protected with Gas Suppression system FK5112 is 4/5. **Changes requested -** The Site visit should be allowed to bidder after pre-bid queries. Kindly clarify	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable. The Bidders are encouraged to visit the site for sny survey (if needed).
294	BOQ Sr. No. 23 and 24	Fire and ELV BOQ	General queries	Please confirm Fire cable to be considered Fire Survival type or Fire Armoured Cable. **Changes requested -** The Site visit should be allowed to bidder after pre-bid queries. Kindly clarify	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable. The Bidders are encouraged to visit the site for sny survey (if needed).
295	BOQ Sr. No. 28	Fire and ELV BOQ	General queries	As per BOM it is mentioned 60 Kg GAS Cylinder, however standard Cylinder size is 80 KG. Please Clarify. **Changes requested -** The Site visit should be allowed to bidder after pre-bid queries. Kindly clarify	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable. The Bidders are encouraged to visit the site for sny survey (if needed).
296	BOQ Sr. No. 37	Fire and ELV BOQ	General queries	It is mentioned to consider Gas Release Panel, however Gas Release module is already considered in Fire Alarm System. Qty. of Gas release module shall be Considered as per OEM Compatibility. Kindly Confirm. **Changes requested -** The Site visit should be allowed to bidder after pre-bid queries.	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable. The Bidders are encouraged to visit the site for sny survey (if needed).
297	BOQ Sr. No. 67	Fire and ELV BOQ	General queries	It is mentioned to consider 16 Ch. NVR, however qty. of camera is 24 Nos. **Changes requested -** The Site visit should be allowed to bidder after pre-bid queries. Kindly clarify	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable. The Bidders are encouraged to visit the site for sny survey (if needed).
298	BOQ Sr. No. 76	Fire and ELV BOQ	General queries	It is mentioned to Consider DDC as per IOS summary. Soft integration Poins mentioned in BOM. Please Provide IO Summary if any for Hard Integration Points **Changes requested -** The Site visit should be allowed to bidder after pre-bid queries. Kindly clarify	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.The Bidders are encouraged to visit the site for sny survey (if needed).

299	Page No. 169 Sr. No. 8	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ **LOW VOLTAGE SYSTEM/ GAS SUPRESSION SYSTEM**	NOVEC 1230 /SIEMENS/ HONEYWELL/UTC KIDDE	Tender Make List is Given as NOVEC 1230 /SIEMENS/ HONEYWELL/UTCKIDDE. NOVEC 1230 is phased out and SIEMENS has also phased our FK5112 Solutions offering. Kindly revised the clause and add some more brands who are having successful installations. Kindly revised the technical specifications and add other standard OEMs" **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: FK 5-1-12 /SIEMENS/ HONEYWELL/UTC KIDDE/ CRYPTZO/ TYCO	Please refer to IITH response given in query no-194 above
300	Page No. 169 Sr. No. 17,18,19,20	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ **CCTV Camera - NVR-VMS- Joystick**	PELCO/AXIS/HONEYWELL/SONY/ SIEMENS	Tender Make List is given as AXIS/HONEYWELL/PELCO/SONY/ SIEMENS. Please note that SONY and SIEMENS is not offering CCTV Solutions and Products. Axis/ PELCO/ SIEMENS/ SONY doesnt have STQC as per Indian govt. Norms. So only Honeywell is qualified for this tender. Kindly revised the technical specifications and add other standard OEMs" **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: HONEYWELL/TYCO/ MATRIX/VIVOTEK	The revised Approved Makes list is AXIS/HONEYWELL/PELCO/SONY/ SIEMENS/TYCO/VIVOTEK
301	Page. 169 Sr. 27	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ **K - RATED ISOLATION TRANFORMER BASED PDU'S**	SCHNIEDER/VERTIV/DATSUN/ADLEC	Kindly add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: SCHNIEDER/VERTIV/DATSUN/ADLEC/ T&R/ GT	The revised Approved Makes list is CHNIEDER/VERTIV/DATSUN/ADLEC/ T&R/ GT
302	Page. 169 Sr. 10, 11,12,13,14	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ **ACCESS CONTROL SYSTEM**	HONEYWELL / LENEL / CARDAX /CARDKEY/ HID/ SCHNIEDER/ TYCO SOFTWARE HOUSE	The tender specifications of the tender supprt to only one brand. Apart from Honeywell, no OEM presence available in India. Kindly revised the technical specifications and add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: HONEYWELL / LENEL / CARDAX /CARDKEY/ HID/ SCHNIEDER/ TYCO SOFTWARE HOUSE/ MATRIX/ Smart-i	Please refer to IITH response given to the query no.(197) above
303	Page. 170 Sr. 22	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ WATER LEAK DETECTION PANEL	HONEYWELL /TTK/TRACETEK/C SYSTEM	The tender specifications of the tender supprt to only one brand. Kindly revised the technical specifications and add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: HONEYWELL /TTK/TRACETEK/C SYSTEM/ SONTAY	Please refer to IITH response given to the query no.(198) above
304	Page. 170 Sr. 1& 2	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ IT 42 RU RACKS	APC/VERTIV/NETRACK	The tender specifications of the tender supprt to only one brand. Kindly revised the technical specifications and add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: APC/VERTIV/NETRACK/ VERTIV/ RITTAL	Please refer IITH response to query no-52 above
305	Page. 170 Sr. 24	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ LOW VOLTAGE SYSTEM/ PUBLIC ADDRESSABLE SYSTEM	HONEYWELL / BOSCH	Kindly add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: HONEYWELL / BOSCH/ HEINRICH	Please refer IITH response given to query no-200
306	Page. 170 Sr.3	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ NETWORK/IP PDU	SCHNIEDER(APC)/VERTIV/(RARITAN)/	The tender specifications of the tender supprt to only one brand. Kindly revised the technical specifications and add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: SCHNIEDER(APC)/VERTIV/(RARITAN)/ ELCOM/ SERVERTECH/ RITTAL	Please refer to IITH response given to the Query No.(53) above

307	Page. 170 Sr.4	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ NETWORK/ COLD AISLE CONTAINEMENT	APC/VERTIV/NETRACK	The tender specifications of the tender supprt to only one brand. Kindly revised the technical specifications and add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: APC/VERTIV/NETRACK/ RITTAL	Please refer to IITH response given to the query no.(31) & (52) above
308	Page. 170 Sr.5	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ NETWORK/ CAT6A	SCHNIEDER/AMP TYCO / BELDEN /LEVITON	Kindly add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: SCHNIEDER/AMP TYCO / BELDEN /LEVITON/ R&M/ SYSTIMAX	Please refer to IITH response given to the query no.(203) above
309	Page. 170 Sr.6	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ NETWORK/ STS	SOCOMEC/SCHNIEDER/VERTIV	The tender specifications of the tender supprt to only one brand. Kindly revised the technical specifications and add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: SOCOMEC/SCHNIEDER/VERTIV/ DELTA/ EATON	Please refer to IITH response given to the query no.(204) above
310	Page. 170 Sr.7	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ NETWORK/ L3 Switch	CISCO/JUNIPER/HP/ARISTA	The tender specifications of the tender supprt to only one brand. Kindly revised the technical specifications and add other standard OEMs **Changes requested -**Kindly revised the technical specifications & considered below make for this product category: CISCO/JUNIPER/HP/ARISTA/ FORTINET	Please refer to IITH response given to the query no.(205) above
311	Page. 170 Sr.8	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ NETWORK/ FIBER DUCT	PANDUIT/ COMSCOPE/CORNING	Kindly add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: PANDUIT/ COMSCOPE/CORNING/ R&M	Please refer to IITH response given to the query no.206 above
312	Page. 170 Sr.8	SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS/ HVAC/ PRECISION AIR CONDITIONING UNITS	VERTIV /SCHNIEDER ELECTRIC/SWEGON BLUE BOX/STULZ	The tender specifications of the tender supprt to only one brand. Kindly revised the technical specifications and add other standard OEMs **Changes requested -** Kindly revised the technical specifications & considered below make for this product category: VERTIV /SCHNIEDER ELECTRIC/SWEGON BLUE BOX/STULZ/ RITTAL	Please refer to IITH response given to the query no.46 above
313	9 &10	Section 6.20.0, Table (Page 9-10)	"Modular frame of 300kVA comprising of total 300 kVA/300 kW hot swappable UPS Modules (each of minimum 50kW rating)"	The document states initial load is 100kVA but requirement is for 300kVA capacity. Will the 300kVA frame be fully populated (6 modules × 50kW = 300kW) for immediate deployment, or should we supply 3 modules (150kW) initially with future expansion capability?	Please consider minimum 500 kVA Modular UPS frame size with 200 kW UPS modules(each minimum 50kW hot swappable UPS modules) installed on Day Zero to ensure adequate load sharing and redundancy with future expansion capability. Battery Bank: Sized to support 150 kW IT load on Day Zero with 30min backup at Unity PF
314	1	Section 6.7.0 (Page 1)	"Supply of SMF VRLA Battery bank suitable for 30 min back up on Each UPS"	Is the 30-minute backup duration required at the FULL 300kW load (which would require approximately 300+kVAh of battery), or at the INITIAL load of 100kW (which would be significantly smaller)? This impacts battery sizing by a factor of 3x.	Please consider minimum 500 kVA Modular UPS frame size with 200 kW UPS modules(each minimum 50kW hot swappable UPS modules) installed on Day Zero to ensure adequate load sharing and redundancy with future expansion capability. Battery Bank: Sized to support 150 kW IT load on Day Zero with 30min backup at Unity PF
315	4	Section 6.15.6 (Page 4)	"Load Bus Synchronisation Mode applicable in Dual Bus configuration suitable for Server Load with Dual Input arrangement"	The scope mentions "01 nos. of 300kVA UPS connected in Stand Alone Configuration" but also describes Load Bus Synchronisation for dual UPS configuration. Is a single 300kVA UPS sufficient for the current IT load, or is a 2×300kVA N+N redundant configuration required as shown in the schematic? Please confirm if the LBS feature is mandatory for a single UPS or if it's a future requirement.	Please consider minimum 500 kVA Modular UPS frame size with 200 kW UPS modules(each minimum 50kW hot swappable UPS modules) installed on Day Zero to ensure adequate load sharing and redundancy with future expansion capability. Battery Bank: Sized to support 150 kW IT load on Day Zero with 30min backup at Unity PF. Any suitable Higher Specifications are acceptable.

316	4	Section 6.14.17 (Page 4)	"UPS shall have a feature called Dormancy Mode... extra modules will go in sleep mode"	Please confirm whether "Dormancy Mode" is a firm requirement. If a manufacturer's UPS supports "Intelligent Parallel Operation" or "Eco-Mode" that provides equivalent efficiency optimization, will this be accepted as compliant?	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
317	11	Section 6.20.0, 16.7 (Page 11)	"Noise Level < 70 dbA at 1 meter distance"	There is an inconsistency in the document. Section 6.12.6 states "Audible Noise: Up to 75 dBA at 1 meter" (Page 2), while Section 6.20.0 states "<70 dbA" (Page 11). Please confirm which specification is applicable for both the 300kVA and 30kVA UPS systems.	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
318	10	Section 6.20.0, 4.8 (Page 10)	"Generator Compatibility: Compatibility to genset supply required"	Please confirm if the UPS must be specifically tested/compatible with the proposed 500 kVA DG Set model (Cummins/Caterpillar/Greaves Cotton/Kirloskar). Should we provide documentation of compatibility testing with the specific DG set model, or will a general compatibility statement suffice?	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
319	11	Section 6.20.0, 7.2 (Page 11)	"Transfer Time (Inverter to Bypass / Bypass to Inverter): < 1 ms (Synchronized Mode) < 10 ms (Asynchronized Mode)"	The specification requires <1ms transfer time. Is this for "no-break" transfer where the load experiences zero interruption, or is this the static switch commutation time (which is typically <4ms)? Please clarify.	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
320	9	Section 6.20.0, 2.h (Page 9)	"Capability of independent or common battery bank operation of the UPS when operated in PRS"	Since the requirement is for a single stand-alone UPS (not parallel redundant), does this clause apply? Please confirm if we need to provision for future PRS operation.	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
321	11	Section 6.20.0, 13.3 (Page 11)	"Potential Free Contact - Required Potential Free Relay Card Contact - Relay Card"	How many potential-free relay contacts are required? Please specify the minimum number of Form-C contacts needed for alarm/status reporting to BMS/DCIM.	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
322	11	Section 6.20.0, 15.2 (Page 11)	"For a N+N system, UPS should have a provision for LBS connection... Both the UPS (with 10 meter distance apart in N+N config.) are in synch with each other."	Since only one UPS is specified, is the LBS requirement and 10-meter distance between UPS units applicable only if we propose a future N+N configuration? Please confirm.	Not Required at present. However Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
323	2	Section 6.13.4 (Page 2)	"SMF-VRLA Battery: 3.2 V/Cell to 3.8 V/Cell"	The battery cell voltage range (3.2V to 3.8V) is more consistent with Lithium-Ion (LiFePO4) cells than SMF-VRLA cells (which are typically 2V/cell to 2.4V/cell). Please confirm the intended battery chemistry for the 30-minute backup system.	Please consider SMF-VRLA batteries
324	10	Section 6.20.0, 4.7 (Page 10)	"Input Current Harmonic Distortion (THDi): @100% load <=3%"	Is the THDi requirement of <3% applicable at the input of the UPS or at the point of common coupling (PCC) considering the input THDv <1% condition? Please clarify the measurement methodology.	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
325	10	Section 6.20.0, 5.7 (Page 10)	"Output Voltage Distortion (THDu): <=1% (For 100% Linear / Resistive Load)"	Is the 1% THDu requirement applicable for the entire load range, or only at 100% linear load condition? Please clarify measurement methodology.	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
326	171	Section 4.0 Payment Terms (Page 171)	"2.5% of gross amount of payment shall be withheld as security deposit"	The document mentions 2.5% security deposit withheld from RA bills. Is this in addition to the 5% Performance Guarantee (PG) or is the security deposit part of the PG? Please clarify the total financial security requirement.	Please refer to the Tender Section-14, Schedule E, Page-204 and 205 regarding Security Deposit and Performance Guarantee retention. Tender conditions prevail.
327		BOQ	Tentative quantities mentioned	The BOQ quantities are marked as "tentative." Please confirm if the final quantities will be as per actual site requirements and if payment will be made on actuals. Are there any minimum order quantities guaranteed?	It is a EPC Mode I Works Contract only. The intending bidders are encouraged to survey the site before bidding.
328	174	Section 4.0 Payment Terms (Page 174)	"Stage 1 payment: maximum 5.0% upon submission and approval of design calculations, drawings, DBRs"	What is the expected timeline for approval of Stage 1 (Design) deliverables? Are there any milestones for design approval that could impact subsequent stages?	Tender conditions prevail.
329			**SECTION C: ELIGIBILITY & COMPLIANCE**		

330	7	Section 1.0, Eligibility Criteria (Page 7)	"Three similar completed works each costing not less Rs.2,56,78,317.00"	Is MSME Exemption in eligibility & past experience allowed. Does the "cost of work" refer to the total project cost or the value of the contract awarded to the bidder?	Tender conditions prevail.
331	7	Section 1.0, Eligibility Criteria (Page 7)	"The reference similar Data Centre needs to be successfully commissioned and shall be fully functional for a minimum period of 01 year (after commissioning)"	Should AMC letter from the client after warranty is sufficient. AMC means facility has been fully functional for >1 year after commissioning.	Tender conditions prevail.
332	7	Section 1.0, Eligibility Criteria (Page 7)	"The bidder shall submit a valid and applicable Electrical contractor license of 11 kV or above voltage level"	Please remove this clause, as most of the Data centre design and build companies and consultant doesn't have this license. Instead, you should be asked for energy auditors' certifications or capabilities. .	Tender conditions prevail.
333			**SECTION D: CONTRACTUAL & LEGAL**		
334	20	Section 6.1.3.2 (Page 20)	"Full load test of DC infrastructure by populating Rack Mountable Server Simulator Load Banks shall be arranged by the bidder. This test should be done for 48 hours"	Who bears the cost of 48-hour load bank testing, including the load banks themselves? The load bank is required for testing but may not be needed after commissioning. Can this be considered as a reimbursable cost?	All Testing expenses including Load bank shall be considered part of the scope of work of bidder/contractor.
335	216	Section 9.0, Special Conditions (Page 216)	"As the Contract is in EPC Mode-1, the Contractor have to supply designs and shop drawings and which got to be approved by respective consultants or Indian Institute of Technology or any other Institute of repute"	Are the approval timelines for design review fixed by the client, or do we need to factor in potential delays in the approval process? Please confirm if there is a guaranteed turnaround time for design approvals.	Timely submission of correct Designs is essential from the contractor to enable accord timely approval from the Department. Tender conditions prevail.
336		MSME Exemption		Query: As an MSME-registered firm (Udyam Registration No. UDYAM UP-28-0003198), we seek clarification on the following exemptions typically available under the Public Procurement Policy for Micro and Small Enterprises (MSEs), as per Ministry of MSME notification: (a) Is exemption from EMD (Earnest Money Deposit) applicable for this tender? (b) Is there any relaxation or exemption from the turnover criteria for MSEs? (c) Is there any relaxation or exemption from the eligibility criteria regarding past experience for MSEs? (d) Is there any relaxation on the performance security / bid security for MSEs?	Tender conditions prevail.
337		Eligibility - Partner Project Experience		Query: We have executed a Data Center project (part) for one of the Ministries of the Government of India, wherein we were the Design & Build (MEP) Partner for the entire Data Center project. The other partner (Lead Bidder) was responsible for Civil/Structural works. Can this reference project be considered for our eligibility criteria as a "similar work" under the definition provided in the RFP? We request a clarification on whether the experience of a partner/subcontractor can be attributed to the bidding firm for the purpose of technical evaluation.	Allowed subject to meeting the Eligibility criteria specified in the tender.
338		Electrical Contractor License - Class I		Query: During the pre-bid meeting, it was discussed that an 11kV Electrical Contractor License (Class I) is mandatory and must be in the name of the firm participating in the bid. However, we also note that the RFP (Clause 9.33) provides a format (Form 'L' - Willingness Certificate) where a license holder firm can associate with the main bidder to provide the license. Please clarify: (a) Is it mandatory for the license to be in the name of the bidding firm, OR (b) Can the license be submitted through an Associate Agency (as per Clause 9.33) with a valid Willingness Certificate (Form 'L')? We seek confirmation on which interpretation is acceptable as per the RFP.	Associate Agency is Acceptable subject to meeting tender terms and conditions.
339		Approved Makes - Equivalent Brands		Query: Regarding the "List of Approved Makes" provided in the RFP, we request clarification on whether equivalent makes from other established OEMs are acceptable for major equipment such as UPS and PAC systems, provided they meet all technical specifications and comply with the quality standards. If equivalent brands are permissible, what is the approval process and timeline for such approvals?	Only Tender Listed Approved makes are acceptable.
340		11.4.6.1 - B	TECHNICAL SPECIFICATIONS ELV SYSTEM	Design Concentration : As per Tender it is requried "The system shall provide a Noves 1230 minimum design concentration of 4.2% by volume for Class A hazards and a minimum of 5.85% by volume for Class B hazards in all areas:, however as per Latest NFPA 2001 Standard Design Concentration shall be 4.5% for Class A & C Hazards.	Acceptable. Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
341		11.4.6.2 A Sr. no. 14	TECHNICAL SPECIFICATIONS ELV SYSTEM	As Per Tender"The Fluro ketone fire suppression system shall be supplied with Cylinders, Discharge valves, Discharge hose, check valves, Nozzles, Orifices etc. from the same manufacturer and approved by Department of Transportation (DOT, USA) The certificate of origin for the entire system must be from a single source." however as per Local norms it will be CCOE Approved which is also mentioned in tender and hence manufactures in india. DOT USA not applicable for Products Manufactures in India,	Acceptable. Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.

342		11.4.6.3	TECHNICAL SPECIFICATIONS ELV SYSTEM	Agent : It has been Mentioned as Agent NOVEC1230 and as per BOM it is mentioned FK 5-1-12. Please note NOVEC 1230 Manufactured by 3M is Phased out, hence Except to Consider FK5-1-12 Manufactured by other OEM's Globally.	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
343		11.4.7 E	TECHNICAL SPECIFICATIONS ELV SYSTEM	Acceptance Test : It is mentioned to conduct "C.A room pressurization test shall be conducted in each protected space to determine the presence of openings, which would affect the agent concentration levels", Kindly Provide No. of Rooms to be considered for Gas Suppression system as Qty. of Equipment is provided in tender BOM.	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
344		BOQ Sr. No. 13	Fire and ELV BOQ	Addressable Agent Release module mentioned as 02 Nos. however It seems Different No.of areas to be protected with Gas Suppression system FK5112 is 4/5. Kindly clarify.	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
345		BOQ Sr. No. 23 and 24	Fire and ELV BOQ	Please confirm Fire cable to be considered Fire Survival type or Fire Armoured Cable.	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
346		BOQ Sr. No. 28	Fire and ELV BOQ	As per BOM it is mentioned 60 Kg GAS Cylinder, however standard Cylinder size is 80 KG. Please Clarify.	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
347		BOQ Sr. No. 37	Fire and ELV BOQ	It is mentioned to consider Gas Release Panel, however Gas Release module is already considered in Fire Alarm System. Qty. of Gas release module shall be Considered as per OEM Compatibility. Kindly Confirm.	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
348		BOQ Sr. No. 67	Fire and ELV BOQ	It is mentioned to consider 16 Ch. NVR, however qty. of camera is 24 Nos.	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
349		BOQ Sr. No. 76	Fire and ELV BOQ	It is mentioned to Consider DDC as per IOS summary. Soft integration Poins mentioned in BOM. Please Provide IO Summary if any for Hard Integration Points	Detail Engineering under contractor scope as EPC Mode I contract. Any suitable Higher Specifications are acceptable.
350	169	Page No. 169 Sr. No. 8	IIT_Hyderabad_DC_Tender	Tender Make List is Given as NOVEC 1230 /SIEMENS/ HONEYWELL/UTCKIDDE. NOVEC 1230 is phased out and SIEMENS has also phased our FK5112 Solutions offering. You are requested to accept Brand Incoporation "CRYPTZO". Make in India solutions offering having Entire UL Listed Solutions meeting tender Specificatios. CRYPTZO is also having many successful installation including Data Centers.	Please consider the revised Approved make list as; NOVEC 1230 /SIEMENS/ HONEYWELL/UTCKIDDE/CEASEFIRE/ROTAREX/FIREPRO/SAFEX, subject to all compliance of all statutory certifications
351	169	Page No. 169 Sr. No. 17,18,19,20	IIT_Hyderabad_DC_Tender	Tender Make List is given as AXIS/HONEYWELL/PELCO/SONY/ SIEMENS. Please note that SONY and SIEMENS is not offering CCTV Solutions and Products. You are requested to Accept TYCO Make for CCTV System as Same Make is also considered for Access Control System.	The revised Approved Makes list is AXIS/HONEYWELL/PELCO/SONY/ SIEMENS/TYCO/VIVOTEK
352		6.5.1 General	6.5.1 General This specification details the electrical characteristics and general requirements for a continuous open channel, low voltage bus bar system.	C&S Server busway is designed for primarily for overhead power distribution of electrical power. Once installed, the Track / Server busway Busway will provide Plug & Play, simple, versatile, fast and economic means of distributing power. Plugin units/Tap off boxes powering the cabinets can be added or removed from Track Busway without shutting down the busway and the busway should be continuous access where the plugin unit/Tap off can be connected anywhere along the busway.	Acceptable
353			The bus bar must be an open channel system with continuous access to the power. Tap off boxes must be able to be inserted and removed anywhere along the length of the busbar.	C&S server busway is front mounting fully enclosed having slots at a gap of 250mm i.e., in 3 meter of length 10 - 11 nos of plug in boxes are accessible accross the length which can be plug in & plug out during live conditions, having IP54 protection hence no need for finger probe test as system is fully enclosed.	Acceptable
354			The bus bar system must be hot swappable i.e., tap off boxes can be added or removed without shutting down the bus bar.	Plugin units/Tap off boxes powering the cabinets can be added or removed from Track Busway without shutting down the busway and the busway should be continuous access where the plugin unit/Tap off can be connected anywhere along the busway.	Acceptable

357			The busbar system, components and accessories shall be designed and manufactured to the following standards and guidelines: Low Voltage Directive 73/23/EEC including amendment 93/68/EEC Low Voltage Switchgear and Control Gear Assemblies, Part 1: Type Tested and Partially Type Tested Assemblies, IEC 61439-1:2011 Low Voltage switchgear and Control Gear Assemblies, Part 6: Busbar Trunking Systems, IEC 61439-2:2012 Seismic qualification: UBC-1997, IBC-2015, CBC 2013, ASCE7-10 and IEEE693 Impact Resistance: BS EN 62262:2002, Rating of IK10 Arc flash protection: IEC/TR 61641:2014 Certificates from an independent testing agency shall be made available on request.	Our BBT is Type Tested in Accordance to IEC 61439 Part 6 & All the Type Test as per IEC 61439 part 6 will be Provided	Tender coniditions prevail.
358		6.5.2.2 Electrical Specification	6.5.2.2 Electrical Specification The busbar system shall perform as stated in this specification while supplying rated full-load currents as shown on the project drawings. The busbar system must comply with the following electrical specification: Available Current Ratings 250A Earthing 100% isolated earth System Voltage 600V Insulation Voltage 1000V Frequency 50Hz or 60 Hz Short Circuit Rating Icw = Rated short-time withstand current (rms) – Minimum 25 KA per second RMS	Noted 3P+100%N+100% Isolated Earth+ 50% Integral Body Earth GTP Attached for all Technical Parameter	Tender coniditions prevail.
359		6.5.2.3.1	6.5.2.3.1 The busbar should be available in lengths up to 4m with options of colours (full chassis or only identification strip) to help differentiate/identification of power source from different power sources.	Straight Length comes in standard length of 1m & 3m with colours indentification strip for each power Source.	Acceptable.
360		6.5.2.3.2	6.5.2.3.2 The busbar housing shall be constructed of an extruded aluminium shell and provide a 100% rated earth path. Steel housings shall not be permitted.	The enclosure shall be made from 2 mm thickness of aluminum duly powder coated RAL 7032 with IP 54 protection. Bus bars would be in 'Air Insulated' and busbar insulator shall be Glass Filled Polyster overall providing Class F insulation.	Tender coniditions prevail.
361		6.5.2.3.6	6.5.2.3.6 The busbar conductors shall be continuous copper. Busbars shall be fabricated from high strength electrical grade Copper (C101 BS 1432/1433) 99.99% Purity to ETP 99.9	Server Busway straight length consist of Tin platted copper busbar fitted inside Aluminium housing Copper Tin Plated (ETP grade), 99.9% Pure	Tender coniditions prevail.
362		6.5.2.3.8	6.5.2.3.8 The conductors shall be electrically isolated from the housing using IEC certified, halogen free, non-flammable thermoplastic material. The insulation must have excellent dielectric strength and impact resistance.	Glass Filled Polyster (Class F) insulation will be Provided	Tender Conditions prevail. Any higher specifications are also acceptable.
363		6.5.2.3.9	6.5.2.3.9 The bottom of the busbar shall be a continuous open channel system with an Ingress Protection rating of IP2X.	C&S server busway is front mounting fully enclosed having slots at a gap of 250mm i.e., in 3 meter of length 10 - 11 nos of plug in boxes are accessible accross the length which can be plug in & plug out during live conditions, having IP54 protection hence no need for finger probe test as system is fully enclosed.	Acceptable.
364		6.5.2.3.11	6.5.2.3.11 A joint pack shall be used to make electrical and mechanical connections between the busbar sections and end feeds. The fitting of this joint pack shall be via a bolted means. No special tooling shall be required. The joint packs should be such that tap off units can be installed very close to the joints.	Uniblock Joint facilitates joining of two element of busway route. Heavy duty disc spring used on both sides for uniform distribution of pressure and to achieve perfect mechanical & electrical joint. Joint can be tightened easily with the help of spanner on nut side only. Shear off nut ensures tightness of joint at desired torque and eliminate the need of torque wrench during installation. Tamper proof cap over shear off nut prevents opening of nut after achieving desired torque. Nut can only be opened after breaking the cap.	Tender Conditions prevail.
365		6.5.2.3.12	6.5.2.3.12 Isolated earth to be provided.	100% Isolated Earth Will be Provided	Tender Conditions prevail.
366		6.5.2.3.13	6.5.2.3.13 The Vendor shall include 100% oversized neutral.	100% Nautral will be Provided	Tender Conditions prevail.
367			Tap offs units shall be capable of being inserted safely while the busbar is energised. The manufacturer shall provide a statement to confirm tap offs can be engaged whilst the busbar is live.	Tap off Units for overhead power distribution inside the data hall for supplying power to the server racks with plug in and plug out of tap off units during live condition to attain less downtime in Data Centre. 5.3.2 C&S Comply that Plug in units can be added, removed or repositioned without de-energizing the busway & as per IEC 61439 (1&6)	Tender Conditions prevail.
368			Tap off units shall have integral shutters.	Our Tap off points are finger proof, shutters are not required.	Acceptable.
369			The tap off units shall be compatible with all ratings of the busbar system.	As per the BOQ Requirement and Rack Capacity	Acceptable.

370			The required protection device shall be as indicated on the drawings.	IP 54	Acceptable.
371			Tap off units shall be configured by the manufacturer to balance the load based on the quantity of tap off units provided.	Noted Rack Capacity and No of Rack in a single row required	Acceptable.
372			Tap off units shall use either a circuit breaker or a fuse for branch circuit protection as indicated on the project drawings.	MCB Will be Provided	Tender Conditions prevail.
373			An MCB interlock shall be added to ensure that the tap off unit cannot be fitted/ removed while the circuit breaker is in the on position.	Our tap off boxes are suitable for Hot Swappable feature.	Acceptable.
374				Our End Feed shall be IP54 & based on suitable cabling arrangement requirement & gland knock out shall be provided during commissioning by the Erection Team	Tender Conditions prevail. Any higher specifications are also acceptable.
375			The end feed shall also be available as a Centre feed box to accommodate existing or future site conditions.	Our End Feed Unit sizes are optimized. To catter future inputs / output requirements bigger size of Box will required based on the space available at site.	Tender Conditions prevail.
376			The end point unit should have the capability of metering along with integration with BMS/DCIM over SNMP or Modbus.	Energy Meter will be Provided-7kt0308	Tender Conditions prevail.
377			Standard factory tests shall be performed on the equipment provided under this section.	As per IEC 61439 Part 6	Tender Conditions prevail.
378			All test shall be in accordance with the latest version of ISO, ANSI and NEMA standards.	As per IEC 61439 Part 6	Tender Conditions prevail.
379			Examine areas and conditions, with installer present, for compliance with requirements for conditions affecting performance of the busbar. Proceed with installation only after unsatisfactory conditions have been corrected.	Not in C&S Scope	Tender Conditions prevail.
380		6.5.6 Installation	6.5.6 Installation	Not in C&S Scope	Tender Conditions prevail.
381			The manufacturer shall provide submittal drawings for the busbar system and for tap off units. The manufacturer shall guarantee the entire system against defective material and workmanship for a period of one year from date of shipment.	Warranty / Defect Liability Period shall be 12 months from the date of Commissioning or 18 months from the date of Supply, whichever is earlier. The Contractor's liability shall be limited to repair or replacement of the defective goods, as the case may be.	Tender Conditions prevail.
382	9	2.2	IDC-02 proposed as Tier-1 and scalable to Tier-3 Data Centre	Kindly clarify whether the facility is required to meet any specific Uptime Institute Tier-III design criteria at this stage or only future scalability provisions are expected.	Plrease consider Tier-III criteria for future scalablility only
383	9	2.2	New Data Centre to meet growing academic, research and administrative demand	Kindly provide the expected initial IT load (kW), ultimate IT load (kW), and growth projection for the next 5 years.	Please refer to the IITH response given in Query no. 1 above.
384	13	4.1	Electrical & Electro-Mechanical works under scope	Kindly clarify whether raised floor system, false ceiling, civil partitioning, and room finishes are included in contractor scope.	Excluded from this tender scope
385	13	Electrical Works Indicative Scheme	Power supply proposed from existing 11 kV substation located ~650 m away	Kindly provide existing HT SLD, available feeder details, transformer loading and fault level at source.	Indicative SLD enclosed as Annexure-II

386	13	Electrical Works Indicative Scheme	Augmentation of existing HT panel required	Kindly confirm availability of spare feeder panel in existing HT switchboard and whether panel extension is anticipated.	1 No. 11kV, 630A HT Panel shall be added to the Exiting 11kV HT Panel by Augumenting the HT panel and from there proposed 630kVA CSS 11kV power cable shall be connected. It is under contractor scope of work in this tender.
387	13	Electrical Works Indicative Scheme	500 kVA DG set proposed	Kindly specify required DG autonomy period, fuel storage requirement and applicable CPCB emission norms.	Please refer to the IITH response given in Query no. 74 above.
388	14	Electrical Works	Minimum 300 kVA UPS for IT load	Kindly clarify whether N+1 modular redundancy is mandatory or standalone 300 kVA UPS architecture is acceptable.	1No's 500 kVA Modular UPS frame future scalable to N+N architecture
389	14	Electrical Works	Minimum 30 kVA UPS for non-IT load	Kindly provide details of non-IT critical loads intended to be connected to this UPS system.	Tender Conditions prevail.
390	14	HVAC Indicative Scheme	PAC units proposed for server room cooling	Kindly provide target temperature and humidity design criteria for server room operation.	Tender Conditions prevail.
391	14	HVAC Indicative Scheme	InRow cooling for IT racks	Kindly confirm total rack quantity and future rack expansion requirement considered for cooling design.	40 Rack in Total 20 Racks in this Project 20 Racks in the Future expansion
392	14	Safety, Security & Monitoring	BMS/DCIM required for centralized monitoring	Kindly clarify whether integrated BMS+DCIM platform is mandatory or separate systems are acceptable.	Being an EPC Mode I Contract, the Detail Design is in the scope of the bidder/contractor only.
393	16	Safety, Security & Monitoring	Centralized BMS/DCIM system proposed	Kindly confirm whether power capacity planning, cooling capacity planning and rack capacity planning functionalities are mandatory in DCIM.	Yes Please.
394	16	Access Control System	Biometric and smart card-based ACS	Kindly provide number of access-controlled doors and required integration with existing campus access systems.	This is a turnkey requirement. The vendor shall propose and supply the total quantity of access-controlled doors needed to ensure comprehensive security across all critical indoor zones and perimeter entry points of the Data Center.
395	16	CCTV System	IP CCTV surveillance system required	Kindly specify video retention period and storage requirement to be considered by bidder.	The requirement is for a complete CCTV coverage solution across the entire Data Center facility—including Cold aisel containment, Non IT rooms, and outdoor installations like DG sets and condenser units—with zero blind spots. Bidders shall propose a minimum of IP cameras to achieve complete sightline coverage with mininum 30 days backup.
396	16	Gas Suppression System	Gas suppression required for server room, UPS room and electrical rooms	Kindly provide room dimensions and required holding time for room integrity calculations.	Tender Conditions shall prevails
397	49-66	UPS Technical Specification	SMF VRLA battery specified	Kindly confirm whether Lithium-ion battery systems with equivalent or superior performance are acceptable.	Please consider SMF-VRLA batteries only
398	Various	O&M Scope	3-year warranty and maintenance support	Kindly clarify whether resident engineer deployment is mandatory during the O&M period and state minimum staffing requirements.	The Defect Liability Period/Warranty Period shall be minimum 36months only. However any additional warrante if offered by any OEM is also applicable without any additional cost to IITH. Day to Day Operations are excluded.
399	72	PAC Units	Double skinned fan section and side panel and insulation material shall be as per OEM design,	For PAC / Inrow can be provided with single Skinned fan.	Tender Conditions prevail. Any higher specifications are also acceptable.
400	72	PAC Units	The evaporator shall be staged coil to allow a maximum efficiency on partial loads.	The evaporator shall be Slant type coil for PAC / Inrow	Tender Conditions prevail. Any higher specifications are also acceptable.
401	73	PAC Units	Between the fans shall be installed an “S” shape separator design to eliminate turbulence effects of one fan to the others; it shall be also designed to increase efficiency compared to simple plate separator.	Shall be design as per OEM stds.	Tender Conditions prevail. Any higher specifications are also acceptable.
402	74	PAC Units	Unit Shall be equipped with a highly efficient dual power sources with minimum electrical losses.	ATS shall be provided externally.	Tender conditions prevail.
403	74	PAC Units	Three LED’s indicate the unit status – ‘Power on’ (Yellow), ‘Unit on’ (Green) and ‘Warning/Alarm activated’ (Red)	Power on and unit On shall be same color.	Tender conditions prevail.

404	74	PAC Units	General	Kinldy confirm the ODU TO IDU Distance in meters.	Please visit the site for any survey
405	74	PAC Units	General	Kinldy confirm the air flow and return ait temp.	Tender conditions prevail.
406	167	InRow Specification	The fans are designed to allow "hot replacement" in the event of faults, i.e. an individual faulty fan can be replaced without having to stop the entire unit, thus reducing system down time.	Fans can be replaced at site during service.	Tender conditions prevail.
407	168	InRow Specification	The user terminal is a backlit LCD with 132x64 pixel resolution and 6 buttons.	Shall be provided with 4.3 inch Tounch screen	Tender Conditions prevail. Any higher specifications are also acceptable.
408	168	InRow Specification	The controller requires 3 password levels and can manage the following parameters:	2 level passowrd can be provided.	Tender conditions prevail.
409	168	InRow Specification	The heaters feature modulating operation, in 3 stages.	Shall have 2 stages.	Tender conditions prevail.
410	149	Technical specification for 42U Server	42U Server rack with dimension (HWD) 2000mmX800mmX1200mm respectively.	Rack height shall be 1991mm.	Tender conditions prevail.
411	149	Technical specification for 42U Server	RAL7021 Black powder coat on all sheet metal components of the rack.	Shall be provided with RAL 9005	Please refer to the IITH response given in Query no. 176 above.
412	149	Technical specification for 42U Server	Rack frame shall support 1500kg static weight load, 1000kg dynamic (non- transit) weight load	Rack shall have max static load bearing capacity 1200Kg and Dynamic -600kg.	Tender conditions prevail.
413	150	Technical specification for 42U Server	The roof of the racks should be removable from the interior of the enclosure with/without tools and should have cable entry holes to allow up to 1800 cables or 60A PDU plug.	Rack roof shall have cut outs at top for provisioning of cable entry.	The roof panel must feature dedicated cutout slots (often fitted with brush strips) large enough to pass high-density networking and power cabling.
414	150	Technical specification for 42U Server	General	Please quantify the no of server and network racks for present and future expansion.	20 No. 42U Racks in the present solution and same qty. in future
415	151	In Rack centralized monitoring and management of Power and Environment	All the iPDU should have vertical form factor having input rating of 15 Racks with minimum 30kW and 15 Racks with 15kW PDU Capacity 230V for single phase & 400V for three phase.	Please specify the quantity per rack and density per rack which is not as per the layout.	Please refer to the IITH response given in Query no. 1 above.
416	151	In Rack centralized monitoring and management of Power and Environment	iPDU should have min. 24 numbers of hybrid outlets should be of hybrid nature which can be utilized as either C13 or C19 outlet. A	PDU shall have 48 outlets out of which 2* 24 outlets can be utilized for C13/C19.	Please refer to the IITH response given in Query no. 1 above.
417	151	In Rack centralized monitoring and management of Power and Environment	The IPDU should have color coded outlets based on circuit color for easy identification of circuits for quick troubleshooting and ease in maintenance.	Color coded stickers shall be provided with two different colors for primary and secondary power cables.	Please refer to the IITH response given in Query no. 3 above.
418	151	In Rack centralized monitoring and management of Power and Environment	All the three phase PDU should have color coded alternate phase outlets for simplified circuit/phase balancing and cable management.	Different color loackable power outlet cables can be provided.	Please refer to the IITH response given in Query no. 3 above.
419	51	TECHNICAL SPECIFICATIONS – UPS	01 nos. of 300 kVA/300 kW modular, Hot Swappable UPS systems connected in Stand Alone Configuration. Each power module shall be of minimum 50kW capacity.	Plesae mention if the redundacy frame level to be considered as N+N because in the layout it calls for 2 nos.	01 nos. 500 kVA Modular UPS frame
420	51	TECHNICAL SPECIFICATIONS – UPS	01 nos. of 300 kVA/300 kW modular, Hot Swappable UPS systems connected in Stand Alone Configuration. Each power module shall be of minimum 50kW capacity.	And the layout is mentuoned with 500 KVA UPS - 2 NOS. kindly confirm the actual frame size to be considered and the no of UPS.	01 nos. 500 kVA Modular UPS frame
421	52	TECHNICAL SPECIFICATIONS – UPS	SMF-VRLA Battery : 3.2 V/Cell to 3.8 V/ Cell	SMF - VRLA shall be with 2V per cell. Kindly confirm.	Please refer to the IITH response given in Query no. 6 above.
422	53	TECHNICAL SPECIFICATIONS – UPS	Online AC to AC efficiency without Iso Txr. : > 97 %	Can be provided with upto 96.7 % efficiency at 300 KW load.	Tender conditions prevail.
423	53	TECHNICAL SPECIFICATIONS – UPS	The UPS frame for the modules shall have provision of connecting input/ output/ battery connection cables (from TOP and BOTTOM side)	Can be provided from the top only.	Tender conditions prevail.

424	54	TECHNICAL SPECIFICATIONS – UPS	UPS shall have a feature called “Dormancy Mode “ which means , if load is lesser , all extra modules will go in sleep mode ,	We will be offering high efficieny at minimal load to ensure minimal losses. Therefore we do not offer sleep mode feature. Considering the operational feasibility we do not recommended the sleep mode inside UPS for PM.	Tender conditions prevail.
425	64	TECHNICAL SPECIFICATIONS – UPS	GENERAL TECH SPEC FOR SMF-VRLA SOLUTION (UPS APPLICATION)	The specification calls for LIB but the RFP is asked with VRLA . Kindly confirm on the same and if VRLA request for revised specification.	Please refer to the IITH response given in Query no. 397 above.
426	66	TECHNICAL SPECIFICATIONS – UPS	BMS Spec sheet	If Battery monitoring system is required for VRLA which can be additional t additional cost.	Tender conditions prevail.
427	69	TECHNICAL SPECIFICATIONS – UPS	1 No 30KVA/ 30 KW UPS with 30 Minute battery back up	Kindly confirm if this mechanical UPS shall be monolithic type and is this going to be single UPS without redundancy.	Tender conditions prevail.
428	141	Technical Specifications for Data centre Infrastructure monitoring (DCIM)	General	Can you plesae help to shatre the I/O summary of the equipments.	Being an EPC Mode I Contract, the Detail Design is in the scope of the bidder/contractor only.
429		General (Request to Consider Consortium Bidding)		As discussed during today's pre-bid tender meeting, we kindly request you to consider a consortium bidding approach so that we can also participate in this tender, as we meet the required eligibility criteria. Laser Systems Pvt. Ltd. has successfully executed Data Center projects, including the TTD Data Center, which has been in successful operation for the past 7 years. We are also an Authorized Partner for Schneider Electric, with extensive experience in delivering UPS, Data Center Infrastructure, Power Backup, and related solutions. We believe our experience and technical expertise will add significant value to the consortium and help strengthen the overall bid. We request your positive consideration and look forward to your support.	Tender conditions prevail.
430		Page 5 - Section 1	The interested firms should have the credentials to meet all of the following criteria to become eligible bidders	Bidder or OEM can submit the Similar completion of work	Tender conditions prevail.
431		Page 5 - Section 1	Experience of having successfully completed similar works during the last 07 years ending last day of the month previous to the one in which tenders are invited	Kindly consider One similar completed works with 4 CR (OR) Two similar completed works orders with 2 CR (OR) Three similar completed works Orders for 1 CR	Tender conditions prevail.
432		Page 5 - Section 1	Turnover: The Average annual financial turnover of the bidder should be at least Rs.1,92,58,738.00/- only during the immediate last three (03) consecutive financial years ending 31st March 2025 or ending 31st March 2026	Turnover value is less than the Estimated cost and Financial Credentials	Tender conditions prevail.
433		Page 20	Augmentation panel to be provided for tapping the Power from Main HT panel through modification in existing Bus-duct & provisioning the power to new LT panels for New DC.	Existing pannel Capacity	1 No. 11kV, 630A HT Panel shall be added to the Exiting 11kV HT Panel by Augumenting the HT panel and from there proposed 630kVA CSS 11kV power cable shall be connected. This work under contractor scope
434		Page 15 /Electrical works Indicative Scheme:	For IT Load a minimum of 300kVA UPS (with initial load of 100kVA) is proposed. However, for other specific Non IT loads a minimum of 30KVA UPS is proposed to be installed by the contractor. The contractor may provide the UPS of higher ratings as well as per its design and Engineering calculations.	Request you to pls share the rack level load details summary which includes the current & expected IT load in future . Consodering 100 kVA initial load on UPS , there seems to be over sizing on the rack PDUs & other accessories in teder specification. Pls share or clarify .	Please refer to the IITH response given in Query no. 1 above.
435		Page 49 / 6.6TECHNICAL SPECIFICATIONS – UPS	6.7.0 Scope of Work 6.The scope covers supply, installation, testing and commissioning of 01 nos. of 300 kVA/300 kW modular, Hot Swappable UPS systems connected in Stand Alone Configuration. Each power module shall be of minimum 50kW capacity.	We understand that only 1 UPS asked for powering IT Racks. Pls confirm whether IIT Provide second UPS power source fir IT Racks or bidder needs to split the UPS power in two to power 2 PDUs . PLs confirm as We suggest N+N redundancy configuration for IT Load UPS.	01 nos. 500 kVA Modular UPS frame
436		Page 49 / 6.6TECHNICAL SPECIFICATIONS – UPS	6.7.1.1 Supply of SMF VRLA Battery bank suitable for 30 min back up on Each UPS.	Pls confirm the type of battery to be considered as mentioned clause ask for VRLA hwre as specification mentioned in page 64 ask for NCM, LMO cell chemistry which specifies LI-ion.	Please refer to the IITH response given in Query no. 397 above.

437		Page 71 / 6.7 TECHNICAL SPECIFICATIONS FOR HVAC WORKS	THE AIR-COOLED PRECISION UNIT SHALL BE DESIGNED AS PER FOLLOWING CONDITIONS 6.8.3.2 Unit return air temperature : As per Boq 6.8.3.3 Ambient air design temperature : 48.3 Deg C (bidder/contractor shall verify this data) 6.8.3.4 Cooling Capacity : 20°C ± 1°C 6.8.3.5 Air Flow Direction : Bottom discharge-top return for Server room & Staging Room/ Front discharge – top return for UPS Rooms. 6.8.3.6 Air inlet Temp & RH : Set point ± 1°C (DB) & Set point ± 5% (Return Air) 6.8.3.7 Air Quantity : Modulating as per server (160 cfm/kW (min)	Request you to kindly cross check the design conditions .Kindly cross check the cooling capacity Ambient air design tempersture mentioned. ASHRAE N=20 is 46.4C (for Begumpet , Hyderabad)	Tender conditions prevail.
438		6.8.4.5 Fan section	Between the fans shall be installed an "S" shape separator design to eliminate turbulence effects of one fan to the others; it shall be also designed to increase efficiency compared to simple plate separator. Fan(s) removal(s) shall be made faster thanks to the use of buttonhole specifically designed and tested to allow 10 cm increasing height during the operation.	Kindly Accept as per OEM design standard	Acceptable
439		Page 151 / 13.2 In Rack centralized monitoring and management of Power and Environment	2. All the iPDU should have vertical form factor having input rating of 15 Racks with minimum 30kW and 15 Racks with 15kW PDU Capacity 230V for single phase & 400V for three phase. Input cable of the PDU's must be minimum 3-meter-long, and the input industrial plug should be IEC60309, Splash proof IP44.	We understand that all rack Pdus will be of 3 phase as the IT Load capacity mentioned is 30 & 15 kW . Single Phase PDU not required which supports upto 7 kW Only . Pls confirm.	Please refer to the IITH response given in Query no. 1 above.
440		Page 151 / 13.2 In Rack centralized monitoring and management of Power and Environment	6. IPDU should have 2 numbers 16A magnetic circuit breakers for overcurrent protection in single phase PDU and 6 numbers 16A magnetic circuit breakers for overcurrent protection in three phase PDU.	Considering 15 kW & 30 kW Load per rack as clause 2 , the mentioned clause should be revised as below : 6. IPDU supporting 15 kW load should have 6 numbers 16A magnetic circuit breakers for overcurrent protection and 12 numbers 16A magnetic circuit breakers for overcurrent protection for PDU supporting 30 kW IT loads .	Please refer to the IITH response given in Query no. 1 above.
441		Page 152 / 13.2 In Rack centralized monitoring and management of Power and Environment	15. The IPDU should support an android or iOS app to read power data securely. Some mode of communication should be provided using which IPDU data can be accessed while user is inside the datacenter and IOS/Android app should not use Bluetooth or Wi-Fi connectivity to prevent breach.	Request you to kinldy remove to prevent security breach .Monitoring should be available exclusively on DCIM or dedicated monitoring software.	Acceptable
442		Page 154 / 14.0 Cold Aisle Containment	Note: Racks & cold aisle containment shall be from Single OEM.	Kindly remove the clause as the Ailse Contacinment solution is customised as per site requirement .	Acceptable within the approved makes list
443		Page 163 / SERVER BUSWAY	SERVER BUSWAY SYSTEM	Kindly remove the specification as the requirement is already specified in clause "6.5 Technical Specifications of Bus ducts"	Tender conditions prevail.
444		Page 166 / PAC Specifications	Technical Specification INROW COOLING DX Unit	The Floor mounted downflow PAC units has already been mentioned in 6.7 TECHNICAL SPECIFICATIONS FOR HVAC WORKS for Server Room cooling . Pls clarify which type of PAC units to be considered for Server Room IT heat load.	Please refer to the IITH response given in Query no. 127 above.
445		Page 166 / Technical Specification INROW COOLING DX Unit	Inside design conditions : Temperature: 20 Deg C +/- 1 Deg C Relative humidity: 50+/-5% RH Noise level 60+/-5 dB A Outside conditions : Summer –35.6°C DBT 25.6°C WBT	Kindly Revise the clause as : Inside design conditions : Temperature: 22 Deg C +/- 1 Deg C Relative humidity: 50+/-5% RH , Noise level 70+/-5 dB A Return Air Temp. : 35C, Outside conditions : As per ASHRAE N=20	Tender conditions prevail.
446		Page 166 / EQUIPMENT SELECTION	Cooling version The unit will feature a cooling circuit with one compressor. The compressor will be a high efficiency scroll unit installed on the outdoor condensing unit so as to limit maintenance requirements inside the data center	The Mentioned Clause is highly restrictive in nature . Pls amend the clause as below for higher participation : Cooling version The unit will feature a cooling circuit with one compressor. The compressor will be a high efficiency scroll unit installed on the Indoor or outdoor condensing unit as per OEM Design standard.	Acceptable.
447		Page 166 / EQUIPMENT SELECTION	Control of the condensation stage . The condensation stage must be controlled by modulating the power supply voltage to the fans on the outside condenser.	Pls amend as : The condensation stage must be controlled by modulating the power supply voltage or with fan speed controlled to the fans on the outside condenser.	Acceptable.
448		Page 170 / SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS	19) BUS BAR TRUNKING : LEGRAND/C&S ELECTRIC/LAURITZ KNUDSEN (L&T)/SIEMENS/SCHNEIDER ELECTRIC	Pls add VERTIV as a part of approved make for Bus bar trunking	Please refer to the IITH response given in Query no. 30 above.

449		Page 172 / SECTION 07 LIST OF APPROVED MAKES FOR VITAL ITEMS	4) COLD AISLE CONTAINEMENT APC/VERTIV/NETRACK	Pls add AET Flexispace or equivalent as a part of approved make for Cold Aisle Containment.	Please refer to the IITH response given in Query no. 31 above.
450		Page No 236	Data Centre Indicative Layout Plan	Your Layout is missmatching with the given requirement Like 500 KVA, 55kWA Racks etc - Kindly check entire Layout	The provided layout is indicative only. Bidders are required to develop and present their own comprehensive solution design under EPC Mode 1.
451		Page no 127	1. Please clarify whether a server-grade platform with Intel Xeon processors is acceptable instead of the obsolete Intel Core i7 (2nd Generation) processor. 2. Please specify the maximum number of IP cameras to be supported by the Video Management Server. 3. Please specify the required recording retention period, recording mode (continuous/event-based), and expected storage calculation. 4. Please clarify whether the specified 3 TB storage refers to usable capacity after RAID-5 or raw disk capacity. - SSD or Usable capacity or raw capacity. / Number and size of HDDs. / Enterprise SATA/NL-SAS/SAS drives 5. Please specify the required operating system edition and whether the OS license shall be supplied by the bidder. 6. Please clarify whether Video Management Software (VMS) is part of the scope, including OEM, version, and the number of camera licenses. 7. Please clarify whether dual redundant hot-swappable power supplies are required. 8. Please confirm whether a dedicated SSD for the operating system is required. 9. Please clarify whether a modern external USB DVD writer is acceptable instead of an internal optical drive. 10. Please specify the required warranty period, support SLA, and onsite service requirements. 11. Please clarify whether the server should include remote management functionality (such as iDRAC, iLO, or equivalent). 12. Please specify the required rack form factor (1U/2U) and whether rack mounting rails and cable management accessories are to be included.	Please clarify - if anything need to consider	Tender conditions prevail.
452		Page 128	NAS : Clarify whether 27.2 TB is usable or raw storage capacity. Specify the number of cameras, resolution, FPS, codec, bitrate, and retention period. Confirm whether equivalent enterprise NAS/surveillance storage solutions from other OEMs meeting or exceeding the functional requirements are acceptable. Clarify whether H.265 support is required. Confirm whether 10GbE or higher network interfaces are acceptable. Clarify the VMS software/platform compatibility requirements. Specify the required warranty and support SLA. Clarify the maximum storage expansion capacity and future scalability requirements.	Please clarify - if anything need to supply	Tender conditions prevail.
453		Page 133	2 NOs of 50 inch display Units for CCTV Monitoring suitable for 24X7 duty. But in BOQ it mentioned S. No 111 : 32 Inch LED screen - Need clarity	Please confirm	Tender conditions prevail.
454		In BOQ -	24 Port POE layer 2 switch	Please confirm on - No of Year support and type of support like 8*5 NBD or 24*7 Support and if any BOM need to include - please confirm	Tender conditions prevail.
455		Page 67	1 No 30KVA/ 30 KW UPS with 30 Minute battery back up	Its not modular UPS - reqyest to change to monolithic and kindly update in BOQ	Tender conditions prevail.
456			There is no proper place to install or configure Pannel borad at existing 11KV ST Pannel Borad room	Kindly suggest	Tender conditions prevail.
457			Required Per Rack Load - to design the cooling	Kindly confirm	Please refer to the IITH response given in Query no.1 above.
458		Page 237	In Layout its showing 55 KW for cooling	Generally it comes with 40 to 45 KW - Please consider	Please refer to the query no. 1 and present the solution in the available Data Center Foot Print
459	169	34	Compact Sub station Approved Make	Please confirm, RMU shall be of same make as per CSS	Tender conditions prevail.
460	13	4.1	500kVA DG Specifications	DG Set, AMF Panel, and DG Low side works specifications are missing.Please DG Provide Specifications. As per the data available DG Qty is 1 number, Please confirm redundancy required or not.	Yes please. Tender conditions prevail.

461	169	31	DG Set approved make	As per DG set approved make is given Kirloskar. Please add Engine make kirloskar.	Acceptable.
462	43	6.5.1	1).This specification details the electrical characteristics and general requirements for a continuous open channel, low voltage bus bar system.	electricalpower. Onceinstalled, theTrack/Server busway Busway will provide Plug&Play,simple,versatile, fast and economic means of distributing power. Pluginunits/Tapoff boxes powering the cabinets can be added or removed from Track Busway without shutting down the bus way and the busway should be continuous access wheretheplug in unit/Tap off can be connected any where along the busway.	Acceptable.
463	43	6.5.1	2).The bus bar must be an open channel system with continuous access to the power. Tap off boxes must be able to be inserted and removed anywhere along the length of the busbar.	2) Our server busway is front mounting fully enclosed having slots at a gap of 250mm i.e., in 3 meter of length 10 - 11 nos of plug in boxes are accessible accross the length which can be plug in & plug out during live conditions, having IP54 protection hence no need for finger probe test as system is fully enclosed.	Acceptable
464	43	6.5.1	The busbar system, components and accessories shall be designed and manufactured to the following standards and guidelines: ▯ Low Voltage Directive 73/23/EEC including amendment 93/68/EEC ▯ Low Voltage Switchgear and Control Gear Assemblies, Part 1: Type Tested and Partially Type Tested Assemblies, IEC 61439-1:2011 ▯ Low Voltage switchgear and Control Gear Assemblies, Part 6: Busbar Trunking Systems, IEC 61439-2:2012 ▯ Seismic qualification: UBC-1997, IBC-2015, CBC 2013, ASCE7-10 and IEEE693 ▯ Impact Resistance: BS EN 62262:2002, Rating of IK10 ▯Arc flash protection: IEC/TR 61641:2014 Certificates from an independent testing agency shall be made available on request.	Our BBT is Type Tested in Accordance to IEC 61439 Part 6 & All the Type Test as per IEC 61439 part 6 will be Provided	Tender conditions prevail.
465	44	6.5.2.3.1	The busbar should be available in lengths up to 4m with options of colours (full chassis or only identification strip) to help differentiate/identification of power source from different power sources.	Straight Length comes instandard length of 1m &3m with colours indentification strip for each power Source.	Tender conditions prevail.
466	44	6.5.2.3.8	Theconductorsshallbeelectrically isolatedfromthehousingusingIECcertified,halogenfree,nonflammable thermoplastic material. The insulation must have excellent dielectric strength and impact resistance.	Glass Filled Polyster (Class F) insulation will be Provided	Tender Conditions prevail. Any higher specifications are also acceptable.
467	44	6.5.2.3.9	The bottom of the busbar shall be a continuous open channel system with an Ingress Protection rating of IP2X.	server busway is front mounting fully enclosed having slots at a gap of 250mm i.e., in 3 meter of length 10 - 11 nos of plug in boxes are accessible accross the length which can be plug in & plug out during live conditions, having IP54 protection hence no need for finger probe test as system is fully enclosed.	Acceptable
468	44	6.5.2.3.11	A joint pack shall be used to make electrical and mechanical connections between the busbar sections and end feeds. The fitting of this joint pack shall be via a bolted means. No special tooling shall be required. The joint packs should be such that tap off units can be installed very close to the joints.	Uniblock Joint facilitates joining of two element of busway route. Heavy duty disc spring used on both sides for uniform distribution of pressure and to achieve perfect mechanical & electrical joint. Joint can be tightened easily with the help of spanner on nut side only. Shear off nut ensures tightness of joint at desired torque and eliminate the need of torque wrench during installation. Tamper proof cap over shear off nut prevents opening of nut after achieving desired torque. Nut can only be opened after breaking the cap.	Acceptable
469	44	6.5.2.3.11	Tap off units shall have integral shutters.	Our Tap off points are finger proof, shutters are not required.	Acceptable
470	95	11.4	Novec 1230 Fire Suppression gas	Novec 1230 is discontinued by OEM; please confirm if equivalent FK-5-1-12 approved clean agent complying with NFPA 2001 is acceptable	Acceptable
471	69	6.7	HVAC Technical Specifications	1)As per drawing Inrow unit Capacity is 55kW, which is not available with any OEM, please confirm alternate capacity to be acceptable or not. 2) Please specify No of Racks to be considered as per drawing or not 3) Please Specify Per rack load 4) Please Specify total IT Load to be considered	Please refer to the IITH response given in Query no.1 above. Accordingly, the complete solution falls within the Bidder's scope of work.

472	13	4.1	An indicative and Schematic SLD of the power scheme of the Data Centre is provided along with this NIT Document for better understanding of Intending bidders.	Please provide Electrical SLD for Better Understanding	Please refer to the IITH response given in Query no.34 above.
473	9	2.2	IDC-02 proposed as Tier-1 and scalable to Tier-3 Data Centre	Kindly clarify whether the facility is required to meet any specific Uptime Institute Tier-III design criteria at this stage or only future scalability provisions are expected.	Tier-III for future scalablility
474	9	2.2	New Data Centre to meet growing academic, research and administrative demand	Kindly provide the expected initial IT load (kW), ultimate IT load (kW), and growth projection for the next 5 years.	Please refer to the IITH response given in Query no.1 above.
475	13	4.1	Electrical & Electro-Mechanical works under scope	Kindly provide details of non-IT critical loads intended to be connected to this UPS system.	Tender conditions prevail
476	13	Electrical Works Indicative Scheme	Power supply proposed from existing 11 kV substation located ~650 m away	Kindly provide existing HT SLD, available feeder details, transformer loading and fault level at source.	Indicative SLD is enlosed as Annexure.
477	13	Electrical Works Indicative Scheme	Augmentation of existing HT panel required	Kindly confirm availability of spare feeder panel in existing HT switchboard and whether panel extension is anticipated.	1 No. 11kV, 630A HT Panel shall be added to the Exiting 11kV HT Panel by Augumenting the HT panel and from there proposed 630kVA CSS 11kV power cable shall be connected. It is under contractor scope of work in this tender.
478	14	Electrical Works	Minimum 300 kVA UPS for IT load	Kindly clarify whether N+1 modular redundancy is mandatory or standalone 300 kVA UPS architecture is acceptable.	1No's 500 kVA Modular UPS frame future scalable to N+N architecture
479	14	Electrical Works	Minimum 30 kVA UPS for non-IT load	Kindly provide details of non-IT critical loads intended to be connected to this UPS system.	Tender conditions prevail
480	14	HVAC Indicative Scheme	PAC units proposed for server room cooling	Kindly provide target temperature and humidity design criteria for server room operation.	Tender conditions prevail
481	14	HVAC Indicative Scheme	InRow cooling for IT racks	Kindly confirm total rack quantity and future rack expansion requirement considered for cooling design.	Please refer to the IITH response given in Query no. 391 above.
482	14	Safety, Security & Monitoring	BMS/DCIM required for centralized monitoring	Kindly clarify whether integrated BMS+DCIM platform is mandatory or separate systems are acceptable.	Being an EPC Mode I Contract, the Detail Design is in the scope of the bidder/contractor only.
483	16	Safety, Security & Monitoring	Centralized BMS/DCIM system proposed	Kindly confirm whether power capacity planning, cooling capacity planning and rack capacity planning functionalities are mandatory in DCIM.	Yes. Please
484	16	Access Control System	Biometric and smart card-based ACS	Kindly provide number of Access controlled doors and required integation with existing campus access systems	This is a turnkey requirement. The vendor shall propose and supply the total quantity of access-controlled doors needed to ensure comprehensive security across all critical indoor zones and perimeter entry points of the Data Center.
485	16	CCTV System	IP CCTV surveillance system required	Kindly specify video retention period and storage requirement to be considered by bidder.	Please refer to the IITH response given in Query no. 395 above.
486	16	Gas Suppression System	Gas suppression required for server room, UPS room and electrical rooms	Kindly provide room dimensions and required holding time for room integrity calculations.	This is a turnkey requirement. The vendor shall propose and supply the total quantity of access-controlled doors needed to ensure comprehensive security across all critical indoor zones and perimeter entry points of the Data Center.
487	49-66	UPS Technical Specification	SMF VRLA battery specified	Kindly confirm whether Lithium-ion battery systems with equivalent or superior performance are acceptable.	Please consider SMF-VRLA batteries only
488	Various	O&M Scope	3-year warranty and maintenance support	Kindly clarify whether resident engineer deployment is mandatory during the O&M period and state minimum staffing requirements.	The Defect Liability Period/Warranty Period shall be minimum 36months only. However any additional warrante if offered by any OEM is also applicable without any additional cost to IITH. Day to Day Operations are excluded.
489	72	PAC Units	Double skinned fan section and side panel and insulation material shall be as per OEM design,	For PAC / Inrow can be provided with single Skinned fan.	Tender Conditions prevail. Any higher specifications are also acceptable.

490	72	PAC Units	The evaporator shall be staged coil to allow a maximum efficiency on partial loads.	The evaporator shall be Slant type coil for PAC / Inrow	Tender Conditions prevail. Any higher specifications are also acceptable.
491	73	PAC Units	Between the fans shall be installed an “S” shape separator design to eliminate turbulence effects of one fan to the others; it shall be also designed to increase efficiency compared to simple plate separator.	Shall be design as per OEM stds.	Tender Conditions prevail. Any higher specifications are also acceptable.
492	74	PAC Units	Unit Shall be equipped with a highly efficient dual power sources with minimum electrical losses.	ATS shall be provided externally.	Tender Conditions prevail.
493	74	PAC Units	Three LED’s indicate the unit status – ‘Power on’ (Yellow), ‘Unit on’ (Green) and ‘Warning/Alarm activated’ (Red)	Power on and unit On shall be same color.	Tender Conditions prevail.
494	74	PAC Units	General	Kinldy confirm the ODU TO IDU Distance in meters.	Please visit the site for any survey
495	74	PAC Units	General	Kinldy confirm the air flow and return ait temp.	Tender Conditions prevail.
496	167	InRow Specification	The fans are designed to allow “hot replacement” in the event of faults, i.e. an individual faulty fan can be replaced without having to stop the entire unit, thus reducing system down time.	Fans can be replaced at site during service.	Tender Conditions prevail.
497	168	InRow Specification	The user terminal is a backlit LCD with 132x64 pixel resolution and 6 buttons.	Shall be provided with 4.3 inch Tounch screen	Tender Conditions prevail. Any higher specifications are also acceptable.
498	168	InRow Specification	The controller requires 3 password levels and can manage the following parameters:	2 level passowrd can be provided.	Tender Conditions prevail.
499	168	InRow Specification	The heaters feature modulating operation, in 3 stages.	Shall have 2 stages.	Tender Conditions prevail.
500	149	Technical specification for 42U Server	42U Server rack with dimension (HWD) 2000mmX800mmX1200mm respectively.	Rack height shall be 1991mm.	Tender Conditions prevail.
501	149	Technical specification for 42U Server	RAL7021 Black powder coat on all sheet metal components of the rack.	Shall be provided with RAL 9005	Please refer to the IITH response given in Query no. 176 above.
502	149	Technical specification for 42U Server	Rack frame shall support 1500kg static weight load, 1000kg dynamic (non- transit) weight load	Rack shall have max static load bearing capacity 1200Kg and Dynamic -600kg.	Tender Conditions prevail.
503	150	Technical specification for 42U Server	The roof of the racks should be removable from the interior of the enclosure with/without tools and should have cable entry holes to allow up to 1800 cables or 60A PDU plug.	Rack roof shall have cut outs at top for provisioning of cable entry.	Please refer to the IITH response given in Query no. 413 above.
504	150	Technical specification for 42U Server	General	Please quantify the no of server and network racks for present and future expansion.	Please refer to the IITH response given in Query no. 127 above.
505	151	In Rack centralized monitoring and management of Power and Environment	All the iPDU should have vertical form factor having input rating of 15 Racks with minimum 30kW and 15 Racks with 15kW PDU Capacity 230V for single phase & 400V for three phase.	Please specify the quantity per rack and density per rack which is not as per the layout.	Please refer to the IITH response given in Query no. 1 above.
506	151	In Rack centralized monitoring and management of Power and Environment	iPDU should have min. 24 numbers of hybrid outlets should be of hybrid nature which can be utilized as either C13 or C19 outlet. A	PDU shall have 48 outlets out of which 2* 24 outlets can be utilized for C13/C19.	Please refer to the IITH response given in Query no. 179 above.
507	151	In Rack centralized monitoring and management of Power and Environment	The IPDU should have color coded outlets based on circuit color for easy identification of circuits for quick troubleshooting and ease in maintenance.	Color coded stickers shall be provided with two different colors for primary and secondary power cables.	Please refer to the IITH response given in Query no. 3 above.
508	151	In Rack centralized monitoring and management of Power and Environment	All the three phase PDU should have color coded alternate phase outlets for simplified circuit/phase balancing and cable management.	Different color loackable power outlet cables can be provided.	Please refer to the IITH response given in Query no. 3 above.
509	51	TECHNICAL SPECIFICATIONS – UPS	01 nos. of 300 kVA/300 kW modular, Hot Swappable UPS systems connected in Stand Alone Configuration. Each power module shall be of minimum 50kW capacity.	Plesae mention if the redundacy frame level to be considered as N+N because in the layout it calls for 2 nos.	1 nos. 500 kVA modular UPS frame featuring N+1 frame-level redundancy modules.

510	51	TECHNICAL SPECIFICATIONS – UPS	01 nos. of 300 kVA/300 kW modular, Hot Swappable UPS systems connected in Stand Alone Configuration. Each power module shall be of minimum 50kW capacity.	And the layout is mentuoned with 500 KVA UPS - 2 NOS. kindly confirm the actual frame size to be considered and the no of UPS.	Please refer to the IITH response given in Query no. 420 above.
511	52	TECHNICAL SPECIFICATIONS – UPS	SMF-VRLA Battery : 3.2 V/Cell to 3.8 V/ Cell	SMF - VRLA shall be with 2V per cell. Kindly confirm.	Please refer to the IITH response given in Query no. 6 above.
512	53	TECHNICAL SPECIFICATIONS – UPS	Online AC to AC efficiency without Iso Txr. : > 97 %	Can be provided with upto 96.7 % efficiency at 300 KW load.	Tender Conditions prevail.
513	53	TECHNICAL SPECIFICATIONS – UPS	The UPS frame for the modules shall have provision of connecting input/ output/ battery connection cables (from TOP and BOTTOM side)	Can be provided from the top only.	Tender Conditions prevail.
514	54	TECHNICAL SPECIFICATIONS – UPS	UPS shall have a feature called "Dormancy Mode " which means , if load is lesser , all extra modules will go in sleep mode ,	We will be offering high efficieny at minimal load to ensure minimal losses. Therefore we do not offer sleep mode feature. Considering the operational feasibility we do not recommended the sleep mode inside UPS for PM.	Tender Conditions prevail.
515	64	TECHNICAL SPECIFICATIONS – UPS	GENERAL TECH SPEC FOR SMF-VRLA SOLUTION (UPS APPLICATION)	The specification calls for LIB but the RFP is asked with VRLA . Kindly confirm on the same and if VRLA request for revised specification.	Please refer to the IITH response given in Query no. 397 above.
516	66	TECHNICAL SPECIFICATIONS – UPS	BMS Spec sheet	If Battery monitoring system is required for VRLA which can be additional t additional cost.	Tender Conditions prevail.
517	69	TECHNICAL SPECIFICATIONS – UPS	1 No 30KVA/ 30 KW UPS with 30 Minute battery back up	Kindly confirm if this mechanical UPS shall be monolithic type and is this going to be single UPS without redundancy.	Tender Conditions prevail.
518	141	Technical Specifications for Data centre Infrastructure monitoring (DCIM)	General	Can you plesae help to share the I/O summary of the equipments.	Being an EPC Mode I Contract, the Detail Design is in the scope of the bidder/contractor only.
519	73	VRF	VRF System	Please provide the Room Layouts for which VRF system to be installed. Please specify the Redundancy solution is required or not.	Tender Conditions prevail.
520	15	Electrical works Indicative Scheme:	For IT Load a minimum of 300kVA UPS (with initial load of 100kVA) is proposed. However, for other specific Non IT loads a minimum of 30KVA UPS is proposed to be installed by the contractor. The contractor may provide the UPS of higher ratings as well as per its design and Engineering calculations.	Request you to pls share the rack level load details summary which includes the current & expected IT load in future . Consodering 100 kVA initial load on UPS , there seems to be over sizing on the rack PDUs & other accessories in teder specification. Pls share or clarify .	Please refer to the IITH response given in Query no. 17 above.
521	49	6.6	6.7.0 Scope of Work 6.The scope covers supply, installation, testing and commissioning of 01 nos. of 300 kVA/300 kW modular, Hot Swappable UPS systems connected in Stand Alone Configuration. Each power module shall be of minimum 50kW capacity.	We understand that only 1 UPS asked for powering IT Racks. Pls confirm whether IIT Provide second UPS power source fir IT Racks or bidder needs to split the UPS power in two to power 2 PDUs . PLs confirm as We suggest N+N redundancy configuration for IT Load UPS.	Please refer to the IITH response given in Query no. 18 above.
522	49	6.7.1.1	Supply of SMF VRLA Battery bank suitable for 30 min back up on Each UPS.	Pls confirm the type of battery to be considered as mentioned clause ask for VRLA hwre as specification mentioned in page 64 ask for NCM, LMO cell chemistry which specifies LI-ion.	The battery type shall be SMF-VRLA only.
523	151	13.2 In Rack centralized monitoring and management of Power and Environment	2. All the iPDU should have vertical form factor having input rating of 15 Racks with minimum 30kW and 15 Racks with 15kW PDU Capacity 230V for single phase & 400V for three phase. Input cable of the PDU's must be minimum 3-meter-long, and the input industrial plug should be IEC60309, Splash proof IP44.	We understand that all rack Pdus will be of 3 phase as the IT Load capacity mentioned is 30 & 15 kW . Single Phase PDU not required which supports upto 7 kW Only . Pls confirm.	Please refer to the IITH response given in Query no. 1 above.
524	166		Technical Specification INROW COOLING DX Unit	The Floor mounted downflow PAC units has already been mentioned in 6.7 TECHNICAL SPECIFICATIONS FOR HVAC WORKS for Server Room cooling . Pls clarify which type of PAC units to be considered for Server Room IT heat load.	Please refer to the IITH response given in Query no. 127 above.
525	166		Inside design conditions : Temperature: 20 Deg C +/- 1 Deg C Relative humidity: 50+/-5% RH Noise level 60+/-5 dB A Outside conditions : Summer –35.6°C DBT 25.6°C WBT	Kindly Revise the clause as : Inside design conditions : Temperature: 22 Deg C +/- 1 Deg C Relative humidity: 50+/-5% RH Noise level 70+/-5 dB A Return Air Temp. : 35C Outside conditions : As per ASHRAE N=20	Tender conditions prevail.

526	152	13.2	15. The IPDU should support an android or iOS app to read power data securely. Some mode of communication should be provided using which IPDU data can be accessed while user is inside the datacenter and IOS/Android app should not use Bluetooth or Wi-Fi connectivity to prevent breach.	Request you to kinldy remove to prevent security breach .Monitoring should be available exclusively on DCIM or dedicated monitoring software.	Tender Conditions prevail. However, communication shall be fully protected and secured as per applicable norms and guidelines.
527	13	4.1	500kVA DG Works	Please specify DG Foundation Civil bed scope, wether contracter/IIT-Hyderabad.	Scope of the Bidder
552				Point – 2 - Kindly clarify power ratings of each PDU i.e. they come with following power ratings – 3.7kw 7.3kw and 14.6 kw – Single Phase 16A, 32A and 63A respectively, so also 11kw, 22kw and 43kw in Three Phase 16A, 32A and 63A, on confirmation we can arrive at the exact PDU model.	Please refer to the IITH response given in Query no. 1 above.
553				Point 3 – On both 1Phase PDU and 3Phase PDU – same 24 Nos. of Hybrid Outlets are required, kindly clarify. As Single Phase PDU draws less power compared to 3 phase PDUs and adding more number of Hybrid Outlets may lead to unintentional / accidental Power Tripping in single phase PDUs.	Please refer to the IITH response given in Query no. 1 above.
554				Point 6 – Color coded Outlets are mandatory or PDU block wise identification of Phases is acceptable?	Please refer to the IITH response given in Query no. 3 above.
555				Point 9 – We offer PDU with hot swappable controller, so that in case any of the port failure i.e. sensor port, usb port, serial port or network port , the issue can be addressed by swapping the controller rather than changing the entire PDU	Acceptable
556				Point 17 – This is Vendor specific feature and other OEMs cannot offer the same, and other good PDUs with better features shall be barred from participating in the Bid.	Tender conditions prevail. Any higher specifications are acceptable
557		6.7.0		Module rating needs to include 60 kVA.	Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
558		6.13.5 Efficiency		Online AC needs to change >/= 96%	
559		6.13.6 THD		Output THD needs to change < 1.5% for linear load	
560		6.14.7 Cable entry		Need to change bottom entry.	
561		6.14.20 Cable entry		Need to change bottom entry.	
562	58	Page 58.		4.7 Input THD at 50% load need to change < 6% at 75% load need to change < 5%	
563	58	Page 58		5.7 Output voltage THD < 1.5% for linear load.	
564	59	Page 59.		8.1 : Overall efficiency;	
565	67	Page no. 67		30 kVA Voltage range – 220-460V	
566			This section covers manufacture, supply, testing and commissioning of Server Busway system with Hot Swappable Tap o Units for overhead power distribution inside the data hall for supplying power to the server racks with plug in and plug out of tap o units during live condition to attain less downtime in Data Centre.	Complied o ering Air insulated Busway	Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
567			**SUPPLY VOLTAGE**		
568			For 3 phase, 4 wire/5 wire/6 wire, 50 cycles AC supply, operating voltage 1000 volts.	O ering 3P + N + FE + PE casing	
569					
570			**STANDARD FOR COMPLIANCE**		Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
571			IEC 61439- 1 & 6- Particular requirement of bus trunking system IS: 8623(I & II) / BS: 5486(II) CPRI certified	Certification shall be from International Laboratory LOVAG	
572			IEC- 60529 – Degree of protection	Complied)	
573			**CONSTRUCTION**		

574			The enclosure shall be made from 2 mm thickness of aluminium duly powder coated RAL 7032 with IP 54 protection. Bus bars would be in 'Air Insulated' and busbar insulator shall be Glass Filled Polyster overall providing Class F insulation. No drilling of Bus bars is permitted. Tinplatted Copper Conductors Half hard, ETP grade, 99.9% Pure and shall comply to JIS H 3140 & IS 613. Length of section will be limited to max 3 Mtrs. Bus bars of one section will be connected to Bus bars of adjacent section by uniblock joint system removable as separate subassembly, so that it can be inserted or removed without disturbing the adjacent sections. The Uni-block joint must have uniform torque irrespective of the ratings with double headed nut for proper torque tightening indication.	Enclosure 0.8mm in GI with GI Finish-IP55 with electrolytic copper version with 99.9% purity	Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
575			**Technical Parameter**		
576			1 Compliance Standard IEC 61436(1&6)	Complied	Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
577			2. Bus Bar Rating 250A-1250A	O ering 250A Cu as per Boq	
578			3. Short Circuit Rating (KA) 10KA - 50KA	25kA for 0.1Sec	
579			4. Configuration 4P: 3P+100%N+Integral Earth 5P: 3P+200%N+Integral Earth 6P: 3P+100%N+Isolated Earth 100% +Integral Earth	O ering 3P + N + FE + PE casing	
580			5. Bus Bar Material (Phase/ Neutral) Copper Tin Plated (ETP grade), 99.9% Pure	Busbar Material Electrolytic copper with 99.9% purity)	
581			6. Bus Bar Material (Internal Earth) Copper Tin Plated (ETP grade), 99.9% Pure	Busbar Material Electrolytic copper with 99.9% purity)	
582			7. Housing Integral (Earth) Aluminium (2.00mm) (	0.8mm GI Enclosure	Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
583			12. Rated Withstand Voltage 12KV	8KV	
584			● Server Busway comes up with the provision of tap o points at every 250mm i.e. 10 Nos of	Maximum Outlet may Provide 3+3	Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
585			Straight Length comes in standard length of 1m & 3m PIP (Plug in Points) are designed to tap power at every 250mm interval (total 10-11 PIP in 3 meter length). Server Busway straight length consists of Tin platted copper busbar fitted inside Aluminium housing on insulator.	Maximum Outlet may Provide 3+3, Busbar Material Electrolytic copper with 99.9% purity with GI Casing	Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
586			Plug in automatically ensures matching of polarity with track busway	Offering Air insulated busway, Pl confirm if requirement for Track Busway	
587			All the test needs to be carried out in presence of client / customer as per Quality assurance plan (QAP).	All expenses towards lodging, travel, and food shall be borne by the Contractor	Yes please.
588			42U Server rack with dimension (HWD) 2000mmX800mmX1200mm respectively.		Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
589			Horizontal Cable Management: 1U with PVC loops ; 2 units per rack.		
590			Vertical Cable Management: Vertical Cable Router, 150mm (W) x 1700mm (H), Powder Coated; 2 units per rack.		
591			RAL7021 Black powder coat on all sheet metal components of the rack.	RAL 9005	Please refer to the IITH response given in Query no. 176 above.

592			No wire connection among or to the frame except the doors & side panel. All components should be self-grounded.	As per OEM design, Cable connections are required for better grounding.	Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
593			Single front and split rear doors should be min 75% hexagonal perforated. Both the front and rear doors should be designed with quick release hinges allowing for quick and easy detachment with/without the use of tools. The front door of unit should be reversible so that it may open from either side.		
594			The front and rear doors should open a minimum of 130 degrees to allow easy access to the interior.		
595			EIA rails two sets should be fully depth adjustable within 980mm use space area. 19" Rails should accept tool less Cable Management Accessories.		
596			Two full height, multiple standard hole pattern for tool less accessories mounting should be part of the rack, which should have capability to hold two Rack PDUs each. Horizontal cable manager is to be considered for sorting out cables.		
597			Rack frame shall support 1500kg static weight load, 1000kg dynamic (non- transit) weight load.		
598			Single / split lockable side panels with Slam Latch should be removable in nature.		
599			The roof of the racks should be removable from the interior of the enclosure with/without tools and should have cable entry holes to allow up to 1800 cables or 60A PDU plug.		The roof panel must feature dedicated cutout slots (often fitted with brush strips) large enough to pass high-density networking and power cabling.
600			The racks should be comply to EIA-310, CE/UL and RoHS. The racks should have a minimum of IP 20 rating for protection against touch, ingress of foreign bodies, and ingress of water	IP20 indicates basic indoor protection: safe against fingers or solid objects larger than 12.5 mm, but no protection against water.	Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
601			Minimum 20 nos. of tool-less blanking panels to avoid air recirculation		
602			**PDU**		
603			Each rack should have 2 IPDUs. The IPDUs should be connected to the two different UPS sources A and B individually. The 2 IPDUs in each rack should have different chassis color for identification of UPS source.		Both IPDUs will be color-coded and clearly labeled for Source A and Source B to allow seamless migration from the current single UPS to a future dual-UPS (A/B) architecture without equipment downtime.
604			All the iPDU should have vertical form factor having input rating of 15 Racks with minimum 30kW and 15 Racks with 15kW PDU Capacity 230V for single phase & 400V for three phase. Input cable of the PDU's must be minimum 3-meter-long, and the input industrial plug should be IEC60309, Splash proof IP44.	3Phase 63A PDU can support 44KW and 3 Phase 32A PDU can support 22KW.	Please refer to the IITH response given in Query no. 1 above.
605			iPDU should have min. 24 numbers of hybrid outlets should be of hybrid nature which can be utilized as either C13 or C19 outlet. All outlets should provide high retention to avoid accidental dislodging of power cords. The IPDU hybrid outlets should meet electrical compliance and should be UL certified.	CE Certified	Acceptable
606			Monitoring parameters – The IPDU should have monitoring capability at the iPDU/Socket level metering Following monitoring parameter should be available at total and phase wise. a.Voltage (V) b.Current (A) c.Power factor d.Active power (W) e.Apparent power (VA) f.Energy consumption (kwh) The metering accuracy should be +/- 1% compliant to ANSI C12.1 and IEC 62053-21 at 1% Accuracy Class Requirements for strip level.	0.5% Accurecy	Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.

607			IPDU should have 2 numbers 16A magnetic circuit breakers for overcurrent protection in single phase PDU and 6 numbers 16A magnetic circuit breakers for overcurrent protection in three phase PDU.	6 numbers 16A magnetic circuit breakers for overcurrent protection in three phase 32A PDU and 12 numbers 16A magnetic circuit breakers for overcurrent protection in three phase 63A PDU	Please refer to the IITH response given in Query no. 1 above.
608			The IPDU should have color coded outlets based on circuit color for easy identification of circuits for quick troubleshooting and ease in maintenance.	Suitable marking will be available in the Pdu to identify respective CB for Quick troubleshooting	Please refer to the IITH response given in Query no. 3 above.
609			All the three phase PDU should have color coded alternate phase outlets for simplified circuit/phase balancing and cable management		Please refer to the IITH response given in Query no. 3 above.
610			IPDU should support High Operating temperature upto 60°C to take care of high operating temperature at back of Rack.		Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
611			Network communication – PDU should have two Network Ports. IPDU should support communication protocols including DHCP,HTTP, HTTPS, Ipv4, Ipv6, LDAP, NTP, RADIUS, RSTP, SSH, SMTP, SSL,SNMP (v1, v2, v3), Syslog and TACACS+. Communication module should be hot- swappable, so that it can be replaced without powering off the PDU.		
612			IPDU should support encryption via TLS1.3 for additional security.		
613			The IPDU should support the daisy chain of minimum 16 units to reduce network port requirement and ensure continuous flow of data on network to monitoring tool/BMS/DCIM even a break in daisy chain occurs.	Supports up to 32 units	
614			The IPDU shall have rotatable display, to easily read the displayed values when PDU is mounted upside down, based on the site requirement.		
615			IPDU should have USB support for firmware upgrade, backup, restored device configuration or expand logging capacity via USB storage device.		
616			The IPDU should support an android or iOS app to read power data securely. Some mode of communication should be provided using which IPDU data can be accessed while user is inside the datacenter and IOS/Android app should not use Bluetooth or Wi-Fi connectivity to prevent breach.	Through Data Cable	
617			Each IPDUs should be supplied with a combo sensor (Temp. and humidity & dew point).		Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
618			The IPDU should support grouping of minimum 16 rPDU and rPDU sensor in the interconnected array to create the aggregated measurements like total rack power, total row power, average power, max and min power, maximum temperature, maximum humidity, minimum temperature, minimum humidity, average temperature, average humidity in the row without use of any additional software.	Supports for linking the UPS up to 16 units and real time measurements are possible.	
619			IPDU should have separate reset buttons for reset to factory defaults and separate button to reset IP only, if other configurations are not to be altered.	For security reasons, this option enabled in GUI/Serial connectivity	
620			IPDU should support configuration of user defined thresholds, reports and email alerts and send it automatically to the configured users automatically on the scheduled time intervals		
621			The IPDU should support “circuit breaker loss load alarm”. A sudden loss of circuit load when operating under full circuit load will result in a rack IPDU device state alarm.		
622			IPDU should support strong password enforcement, where the user can select the minimum number of password characters, uppercase characters, digits, symbols. Additionally, the user can restrict the use of more than 2 repeat characters and restrict the inclusion of the username in the password.		

623			IPDU should support cryptographically signed firmware upgrades and must comply with FIPS 140-2 and CSNA requirements.		
624			The IPDU should have approvals form RoHS, CE/UL, EN, IEC	CE Certified, ROHS	Please refer to the IITH response given in Query no. 181 above.
625			IPDU should support configuration of user defined thresholds, reports and email alerts and send it automatically to the configured users automatically on the scheduled time intervals.		Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
626			IPDU must support integration with third party DCIM and telemetry software (Like NetBox, Zabbix), either via SNMP polling or REST APIs for providing periodical data of power consumption	Yes via SNMP	
627			**Cold Aisle Containment**		
628			**General**		
629			The Containment uses a series of panels, door frames and doors, and air blocks to enclose a cold aisle zone which contains cooling unit supply air		
630			The cold aisle zone is the space between two rows of IT equipment racks with cold air being supplied between the two rows of racks (or one row of racks and an architectural wall) and the IT equipment exhausts hot air away		
631			from the aisle. In this enclosed space cooling unit supply air is collected inside of the Containment. The cool air is supplied to the IT equipment while the IT equipment exhaust air is pushed outside the Containment and returned to the cooling unit.		
632			By preventing mixing of cool supply air and hot exhaust air, this self- contained configuration is capable of supporting a complete range of low, medium and high power/heat density loads, and can be deployed in multiple environments without affecting the surrounding area.		
633			The Cold Aisle Containment Glass has to withstand temperature of 80°C		Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
634			**Ceiling Panel**		
635			Ceiling panels shall be minimum 5.0 mm or more thick Lexan clearribbed panels or/136 mm thick V0 clear panels with aluminium framing.	polycorbinate will be UL-94V rated	
636			Flame spread rates: Smoke development index "0-65" and flame spread index “0” in accordance with UL723 or ASTM84. Nominal thickness:/136 mm (V0 clear) –or-- Smoke development index "20" and flame spread index "0" in accordance with UL723 or ASTM84.		
637			Nominal thickness: 6.0 mm (Lexan)		
638			Minimum Light Transmission per ASTM D1003 equal to 82% or greater.		
639			Ceiling panels shall be designed to be supported by the frames of the IT Equipment racks. Ceiling Panel frames sizes shall be suitable to match up with various rack widths, row width, and aisle widths.		
640			The ceiling system shall be designed to permit removal of the ceiling panel from within the contained zone without the use of tools for service access to the space above the Aisle	with minimum tool	
641			**Door Frames and Door**		

642			Metal door frames and doors shall be provided to establish air containment at the end of two rows of racks. The door frame system shall match the height of the rack based equipment, and match the design width of the contained aisle		Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
643			Doors shall be Sliding, to permit access into the contained aisle for maintenance or servicing		
644			Doors shall be provided with a window and handles		
645			Automatic door closure system for sliding door		
646			Frames and Component Seal		
647			Foam Rubber gaskets or metal/composite, brush, or plastic air blocks shall be installed at Aisle joints to minimize open gaps between containment system components, such as door frames, ceiling and duct panels, and IT Equipment racks and rack based equipment. Gasketing and/or air blocks may include, but not be limited to, the following.		
648			Joints between adjacent ceiling/duct panels		
649			Joints between ceiling/duct panels and top of racks, if not metal to metal		Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
650			Joints between door frames and ceiling/duct panels, if not metal to metal		
651			Joints between door frames and racks at the end of the row(s)		
652			Joints between rack bottom rear frame and floor		
653			Joints between duct panel and ceiling/roof of room		
654			**Blanking Panels, Height Adapters, and Depth Extenders**		
655			Can be used to provide an aesthetic alternative for varying dimension enclosures		
656			Blanking Panels shall be placed where gaps between racks exist to seal contained aisle. The panel shall match the height of the enclosures and match the width of the gap. It shall not be mounted to any adjacent blanking panels nor shall it support any adjustable height supports.	Not applicable	
657			Depth Extenders shall mount to front or back of enclosures to align aisle. The extender shall match the depth of the adjacent racks and match the width and height of the enclosure (including any height adapters) of which it is being mounted	Not applicable as we have offred 1200 depth rack already	
658			Height Adapters shall mount to the top of enclosures to align the enclosure height. The height adapter matches the height of the adjacent racks and shall match the width and depth of the rack (including any depth adapters) of which it is being mounted	Not applicable as we have offred 42U height rack already	
659			**Installation**		

660			Installation, Testing and Commissioning has to be done by a Certified ENGINEER IN CHARGE.	OEM certified Engineer	
661			**PAC Specification**		Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
662			Classification : INROW COOLING UNITS – Critical Areas : SERVER ROOM		
663			Inside design conditions : Temperature: 20 Deg C ⍰ 1 Deg C Relative humidity: 50+/5% RH Noise level 60+/-5 dB A	Around 72dB	
664			Outside conditions : Summer –35.6°C DBT 25.6°C WBT Operation : 24/7		
665			**EQUIPMENT SELECTION**		
666			Server room : DX type In-row cooling units with inverter compressor, front discharge type incorporating R410A refrigerant		
667			**Cooling version**		
668			The unit will feature a cooling circuit with one compressor. The compressor will be a high efficiency scroll unit installed on the outdoor condensing unit so as to limit maintenance requirements inside the data center. This is equipped with an electronic controller for managing cooling capacity. An electronic board fitted with microprocessor will control effective compressor capacity using a PID algorithm (proportional – integral – derivative) so as to ensure continuous and precise modulation of compressor rotation speed, R410A ecological refrigerant will be used; no alternatives are permitted. The cooling circuit will include: electronic thermostatic valve, solenoid valve, high and low pressure switches, liquid sight glass and filter-drier. The low pressure switch features automatic reset and activation can be delayed when restarting in winter. The high pressure switch requires manual reset		
669			The circuit will also include an oil separator to guarantee oil return to the compressor and reduce the risk of shutdown, plus a liquid separator.		
670			The evaporator coil will be made from copper pipes mechanically fixed to aluminium fins with hydrophilic treatment.		
671			**Air flow configuration**		
672			In the InRow versions, the air to be cooled is taken in at the rear of the unit, directly from the hot aisle of the data center (35°C), with considerable benefits both in terms of energy efficiency and cooling capacity; it is then cooled and delivered into the cold aisle (18-20°C), that is, the front of the same racks where the air is taken in from.		Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
673			The surface of the evaporator coil must be designed to deliver a high level of sensible cooling capacity, i.e. the SHR (Sensible Heat Ratio, ratio between sensible and total heat load) must be > 0.9, measured at an air inlet temperature of 35°C and 30% relative humidity. A steel condensate collection pan must be installed on the coil		
674			**Energy Efficiency**		
675			In order to provide best advantages in terms of energy saving, the CRAC efficiency shall increase when heat load reduces (partial load) or any time the cooling capacity exceeds the required capacity (for instance when outdoor temperature drops).		

676			**Control of the condensation stage**		
677			The condensation stage must be controlled by measuring the compressor discharge pressure i.e. on the condensing unit, so as to be able to manage the effective pressure difference across the compressor and allow simultaneous control of the evaporator-condenser system.		
678			The condensation stage must be controlled by modulating the power supply voltage to the fans on the outside condenser.		
679			**Active redundancy and shared mode**		Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
680			The cooling units will be capable of providing active redundancy. To ensure this, all the units installed, including the redundant unit, must be able of operate at the same time and at part loads.		
681			This feature must also be able to increase system efficiency by reducing energy consumption at part loads.		
682			**Protection function for long refrigerant lines**		
683			The unit will have a function that at regular intervals increases gas flow speed, so as to allow better oil return to the compressor even on very long refrigerant lines.		
684			**Fans**		
685			The air-conditioning unit will have fans with backward-curved blades made from reinforced ultra-light and highly resistant polymer material. The motors are coupled directly to the fans (plug-fan), and are EC (Electronically Commuted) brushless motors: this technology allows continuous modulation of air flow-rate by continuously controlling fan speed via a 0-10V signal. Fan rotation speed can also be controlled directly on the user terminal, so as to allow adjustment of the flow-rate or external static pressure (ESP)		
686			The motor can be powered at either 50 or 60Hz, and will have IP54 ingress protection. All the fans are statically and dynamically balanced, have self-lubricating bearings and are mounted on vibration-damping supports. The unit controller will be able to modulate fan speed at part loads, together with the compressor inverter. This further reduces power consumption during part-load operation		Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
687			The fans are designed to allow "hot replacement" in the event of faults, i.e. an individual faulty fan can be replaced without having to stop the entire unit, thus reducing system down time.		
688			**Power supply**		
689			The electrical panel is located at the front of the unit, and will be easily accessible and away from the air flow. This will be constructed and wired in compliance with standards IEC 204-1/EN60204-1 and will include:	It is located in the back side and easilly acessable	
690			contactors and overload protectors for compressors and fans, PCB, and safety devices.		
691			Power supply will be		
692			230 volts, single-phase, 50Hz. Or		
693			400 volts, three-phase + neutral, 50Hz		
694			**Controller with microprocessor**		

695			The control system will include a microprocessor that will be programmed to manage all the functions of the air-conditioner. The system will include		Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
696			• An electronic board housing the microprocessor, fitted inside the electrical panel.	Inside the PAC	
697			• A user terminal as the interface.	Unit with controller	
698			The electronic board complies with EEC directive 89/336.	it's a european standard which is not applicable for our solution	
699			The user terminal is a backlit LCD with 132x64 pixel resolution and 6 buttons.		
700			All the messages will be displayed using icons; no specific language needs to be known.		
701			The main functions of the control system are to:		
702			• control room temperature		
703			• manage the compressor inverter;		
704			• manage fan speed;		Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
705			• monitor supply air temperature;		
706			• manage alarms and warnings for correct maintenance;		
707			• log up to 100 events;		
708			• manage the unit in standby;		
709			• control room humidity (if a humidity probe is connected)		
710			• manage the humidifier (if featured)		
711			• manage from 1 to 3 electric heater stages for reheating (if featured);		
712			• automatically manage the free cooling system (if featured);		
713			• allow remote monitoring and control of the unit via LAN, network or BMS (Lon Works, BACnet, Modbus…..).	Not required for PAC units	
714			The controller requires 3 password levels and can manage the following parameters:		
715			• readings of sensors and probes and corresponding settings;		
716			• activation of alarms, event log, digital output settings;		
717			• LAN management;		
718			• BM communication parameter settings;		
719			When connected via LAN to other units - up to 10 - the controller can:		
720			• manage, based on set times or events, automatic rotation of the unit/units in standby (1 or 2) ;		
721			• manage the average temperature and humidity between the units;		

722			access all the control boards from just one remote user terminal		Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
723			In order to protect the software against incorrect settings, some parameters are protected by 2 password levels: User lever and Authorised service level.		
724			**Filters**		
725			Regenerable polyester fibre filtering media treated with synthetic resins, supported by a frame with protective metal mesh. Efficiency grade G2/G4 in accordance with standard CEN-EN 779, and average efficiency G4 to ASHRAE 90.1. The filter is non-flammable.		
726			**Noise**		
727			The units must be designed to reduce noise emissions. Specifically, in normal operation the compressor must not generate any type of impulse noise, not being measurable.	Aound 82 dB noise	
728			**Reheating**		
729			The unit will be equipped with electric heaters, to allow temperature control during dehumidification cycles. The electric heaters include stainless steel fins, and are fitted with safety thermostat to cut-off power supply and activate an alarm in the event of overheating. The heaters feature modulating operation, in 3 stages.		
730			**Humidifier**		
731			The unit will read the relative humidity (RH) and control the level by activating humidification cycles only when the return air humidity is too low (<40%, settable).		
732			The humidifier is an immersed electrode model with modulation of steam production. It also features automatic control of dissolved salt concentration so as to allow untreated water to be used		Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
733			**Communication boards**		
734			The unit will be fitted with RS485 communication board for ModBus protocol. Alarm sensors :		
735			Dirty filter sensor: this sensor is needed to optimise filter operation, so they can be replaced only when necessary		
736			Flood sensor: this sensor is needed if there is condensate water spillage outside unit.		
737			**6.7 TECHNICAL SPECIFICATIONS FOR HVAC WORKS**		
738			6.8Precision Air Conditioning Units		
739			6.8.2 SCOPE OF WORK		Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
740			The Scope of Work covers the supply, installation, commissioning, and warranty of Precision Air conditioner (herein referred to as “product”) and services provided for the same.		
741			6.8.3 GENERAL		
742			The AC Units should have high sensible heat ratios, to match high sensible loads of Computer/Server Rooms/ Switch room/UPS. A Microprocessor controlled Precision package AC system with R-407C/R- 410a refrigerant shall be suitable to take thermal and air qty. inputs from the server and adjust its operation accordingly so as to achieve highest levels of performance and efficiency.		
743			The Indoor unit shall comprise of Variable capacity Digital/inverter Scroll Compressor in independent or	Inverter scroll compressor	

744			Tandem circuit, corrosion resistant EC fans, Evaporator DX Cooling Coil with hydrophilic coating, Microprocessor controllers, Expansion valves, Driers, G4 Filter, Suction and Discharge piping, Internal power and Control wiring, Crankcase heaters, Humidifier, Heaters, HP/LP Cutouts, Power and Control contactors, water leak detectors and Other Electrical accessories.	Inverter scroll compressor	
745			Fixed capacity compressor technology like multiple scrolls or Fixed capacity Tandem scrolls are strictly not allowed. Systems should mandatorily be having variable capacity compressors and performance as per above specifications	Inverter scroll compressor	
746			**THE AIR-COOLED PRECISION UNIT SHALL BE DESIGNED AS PER FOLLOWING CONDITIONS**		
747			Unit return air temperature : As per Ambient air design temperature : 48.3 Deg C (bidder/contractor shall verify this data)		Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
748			Cooling Capacity : 20°C ± 1°C		
749			Air Flow Direction : Bottom discharge-top return for Server room & Staging Room/ Front discharge top return for UPS Rooms.	Front discharge and Rear section	
750			Air inlet Temp & RH : Set point ± 1°C (DB) & Set point ± 5% (Return Air)	21 ± 1°C	
751			Air Quantity : Modulating as per server (160 cfm/kW (min)		
752			Units should be able to provide 1 SHR at part load		
753			Units should be able to work for fixed supply air logic instead of return air control logic. Units should be also connected to cold aisle remote sensors for taking the temperature feedback from the top of the racks at multiple places. This would help to regulate the fan for required airflow in the cold aisles.		
754			6.8.3.10 The Units shall be designed for 70 DBA at 1.5 meter from the unit outlet quiet operation with all moving parts mounted on anti-vibration mounting and carefully balanced to ensure minimum vibration.	82dB Noise	Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
755			6.8.3.11 If required, the unit shall be tested at site for performance rating before acceptance. Performance test shall be a heat load test using heater supplied by the Precision unit supplier.	Performance teast can be done at factory before dispatch	
756			6.8.3.12 Its mandatory to submit software selection output of the proposed unit. The specific power consumption and other performance details shall be as mentioned in Boq.		
757			**TECHNICAL SPECIFICATIONS:**		
758			Design Requirements		
759			The environmental control system shall be Factory assembled unit. It shall be floor mounted, optimized for maximum cooling capacity in a minimum footprint. It shall be specifically designed for service from the front of the unit. The system shall be designed for draw-through air arrangement to insure even air distribution to the entire face area of the coil. The unit shall modulate cooling capacity and airflow based on requirements. The unit shall be ready to allow the installation of shackles for top handling. Forklift handling should be possible as well.		
760			**Quality Assurance**		Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
761			The specified system shall be factory end of line tested (functionality test) before shipment and designed to meet CE requirements. The system shall be designed and manufactured according to world-class quality standards. The manufacturer shall be ISO 9001 certified.		
762			**6.8.4.3 Cabinet**		

763			The cabinet is manufactured from CRCA externally painted with epoxy-polyester powder paint and assembled. Double skinned fan section and side panel and insulation material shall be as per OEM design, but the insulation material shall be fire resistant.	Racks are poweder coated As oer OEM design	
764			The frontal panel(s) are assembled on hinges to make the access easier; this can be opened by the fast closing lock. The rear and side panels are screwed to the supports. The rear panel(s) are screwed directly to the frame.	Front door and rear dorrs are openable	
765			**Cooling circuits**		
766			One /Two refrigeration circuit(s), (each) incorporating one / two high efficiency, fully hermetic Digital Scroll/Inverter Scroll compressor/s with crankcase heater, air-cooled condenser, liquid receiver with outlet service valve, safety valve, filter drier, moisture indicating sight glass, liquid line solenoid valve and an electronic expansion valve directly controlled by the unit microprocessor to allow the highest energy saving.	Inverter scroll compressor	Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
767			Each circuit is equipped with pre-set high pressure switch and low pressure transducer for protection against high condensing and low evaporating temperatures. The low pressure transducer is managed by microprocessor controller, whilst to avoid compressor cycling at high discharge pressures, the high pressure switch is equipped with a manual reset.		Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
768			The inclined evaporator coil is manufactured from copper tubes, mechanically bonded to hydrophilic painted aluminium fins, with a stainless steel condensate drain pan. The large face area/low velocity coil allows precise control of temperature and humidity during cooling and dehumidification, and is designed to optimize fluid velocity and minimize pressure drop. The evaporator shall be staged coil to allow a maximum efficiency on partial loads	Vertical Straight Coil	Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
769			The moisture indicating sight glass and liquid line solenoid valve for each circuit are mounted visible from a service window, immediately accessible once open the frontal door/s, to allow checking and adjustment while the unit is in operation.		Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
770			**Fan section**		
771			The unit is fitted with one /two/ three direct-driven, high efficiency, single inlet, backward curved, centrifugal 'plug' type innovating EC fan(s). The fan(s) have an impeller with curved blades corrosion resistant made of fiberglass plastic. This new technology allows keeping the current high strength of aluminium alloy adding the benefits of light weight and full flexibility on blade design of the new material. The good dampening behavior of the plastic also helps to reduce noise emissions.	Fans Blade Materails is PP Plastic	Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
772			The fan motors are Electronically Commutated, IP54, with internal protections, continuous speed regulation via controller signal. The motor is three-phase with IP54 protection; provided with internal thermal protection. The fan wheel is statically and dynamically balanced; the bearings are self-lubricating.		"Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract. "
773			Between the fans shall be installed an "S" shape separator design to eliminate turbulence effects of one fan to the others; it shall be also designed to increase efficiency compared to simple plate separator.		
774			Fan(s) removal(s) shall be made faster thanks to the use of buttonhole specifically designed and tested to allow 10 cm increasing height during the operation	Specs favouring to specific OEM. Solution comes with hot swappable FANs	
775			**Humidifier**		

776			The humidification system is provided by an electronic control humidifier. The dehumidification function, which is supplied as standard when the humidifier option is installed, acts by reducing the fan speed with consequent reduction of the air flow and at the same time operating the variable capacity compressors at full capacity	Immersible electrode humidifier	"Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract. "
777			Humidification control may be of the proportional or of the on-off type, according to the requirements of the installation: on/off is set as standard.		
778			The unit Shall be fitted with an humidifier suitable for use with water of varying degrees of hardness. The humidifier is complete with a water inlet valve, and a maximum water level sensor. The Humidifier Shall generate instantaneous moisture (preferably using non heating technology) and shall be independent of Water Quality and shall be easily cleanable		
779			**Heating / reheating**		"Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract. "
780			The heating resistors are of a rigid design for extended operational life and are normally utilized to maintain room dry-bulb conditions during a system call for dehumidification. Each stage of heaters shall be made of as per OEM design. Ionization effects are eliminated owing to the low heater surface temperature.		
781			Heating control is of the ON-OFF type. The heaters are phase balanced and are provided with a manual reset safety thermostat to disable them in the event of a high temperature.		
782			The heating system also incorporates Miniature Circuit Breaker(s) which protect the heater(s) from short circuits, should the harness be damaged accidentally		
783			**Air filtration**		"Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract. "
784			The standard filtration grade is G4 (95% down to 5 microns). The filter pleated structure gives high filtration efficiency, low pressure drop and permit to use the filter without metallic or cardboard frame. They are easily accessed/replaced by opening the front panels.The unit is fitted with a filter differential pressure switch, connected to the microprocessor controller to provide 'Filter Clogged' warning indication	filters with alluminium frame	
785			**Monitoring**		
786			The unit shall be supplied with suitable card for both SNMP & Modbus connectivity		
787			**Electrical panel**		
788			The electrical panel, located at the front of the unit in a compartment isolated from the airflow, contains the		"Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract. "
789			MCB's, contactors, transformers, controller PCB, overload relays etc. Each high voltage system component is provided with an MCB over-current protective device. All high voltage components are touch protected by means of a plastic cover. The electrical panel complies with the IEC norm en60204-1.	wothout Touch Protected	
790			Electrical power supply is 400V (±10%) / 3Ph / 50Hz (±2Hz) +N +E and are fitted with a mains isolator, mechanically interlocked with the electrical panel cover.		
791			Unit Shall be equipped with a highly efficient dual power sources with minimum electrical losses. The unit shall have In-Built /External two power modules as a back up to each other to ensure the seamless operation, thereby providing reliability and stability to the system.		
792			**Microprocessor controller**		

793			The Control System is microprocessor based, 32 bit RISC. It can be programmed to control the function of every device within the unit via I/O.		"Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract. "
794			The controller allows setting and monitoring of the following room parameters via a 3 button keypad:		
795			6.8.4.11.1 Air Temperature		
796			6.8.4.11.2 Temperature set-point		
797			6.8.4.11.3 Temperature band		
798			6.8.4.11.4 Humidity		
799			6.8.4.11.5 Humidity set-point		
800			6.8.4.11.6 Humidity band		
801			The parameters are indicated using symbols and text on a back-lit, 3 digits Liquid Crystal Display. Cooling and heating modes are also indicated on the LCD screen. Alarm conditions activate a visual indicator. Three LED's indicate the unit status – 'Power on' (Yellow), 'Unit on' (Green) and 'Warning/Alarm activated' (Red)		
802			The controller shall provide Unit to Unit Ethernet connection to operate with multiple units, run/stand-by rotation, automatic changeover and parameter sharing functions, external communications through BMS, sequential auto restart timer, with adjustable time delays to be applied to unit restart after a power loss.	sequencing Cabling to be done from unit to unit	"Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
803			The following warnings / alarms are included:		
804			• High temperature		
805			• Low temperature		
806			• High relative humidity		
807			• Low relative humidity		
808			• Humidifier failure		
809			• Fan failure		"Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
810			• Electrical heater high temperature (When applicable)		
811			• Sensor failure		
812			• Controller errors		
813			Terminals are provided for remote start/stop control plus Volt-free 'Common Alarm' and 'Unit Run' indication	PAC units can be integrated with BMS for Alarms and indications. Command can be through BMS.	
814			The display shall provide with track recorded of temperature and humidity with graphically display on the screen. A buzzer provides audible indication of a 'Warning' or 'Alarm' condition	Buzzer to be provide	
815			Unit memory shall hold the 200 most recent alarms with time and date stamp for each alarm		"Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
816			Unit memory shall hold the 400 most recent events with id number, time and date stamp for each event	200 most recent events	
817			Menu shall display accumulative component operating hours for major components including compressors, fan motor, humidifier and reheat.		
818			**Safety interlocks:**		
819			Operation of heaters & humidifiers shall be possible only when blower fan is in operation. Fire detection signal from fire detector system shall be able to switch off the package unit operation in event of fire in conditioned space.		
820			**Refrigerant piping:**		

821			Each refrigerant circuit shall be suitable for operation on R-407C/R410a and shall include the following items:	R410A	
822			a) Expansion valve with pressure equalization.		"Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
823			b) Removable liquid line drier / filter.		
824			c) Liquid line sight glass with moisture indicator.		
825			Hand shut off valves	Not required as solution works on automation based on return air temperature	
826			**FACTORY INSPECTION**		
827			The Units will be dispatched after factory inspection witnessed by department's representative. All the factory test reports will be submitted along with handover documentation. Vendor shall give minimum two weeks prior notice for Inspection.	With Addationl cost	
828			**6.8.5 WARRANTY**		
829			Warranty will be 03 Years from the date of complete Handover. The warranty coverage shall start after successful installation and integration of all the systems of both the Data Centre and Workspace and the bidder shall submit the OEM warranty coverage documents.		
830			The Quantities in BOQ are tentative. Contractor to order the Quantity as per site requirements and shall be paid accordingly.		"Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
831			**VARIABLE REFRIGERANT FLOW SYSTEM**	Not in our scope	
832			6.9.4 The specifications under this section covers the supply, installation, testing and commissioning of the VARIABLE REFRIGERANT FLOW SYSTEM conforming to these specifications and in accordance with the requirements of the Schedule of Equipment and detailed Bill of Quantities.		
833			6.9.4 General:		
834			Each VRF Unit shall consist of air cooled outdoor unit, multi-split system air conditioner indoor unit, each having capability to cool and heat for the requirements of the individual area to be air- conditioned. The VRF unit should be capable of connecting different type indoor units to one refrigerant circuit and controlled individually.		
835			Each VRF unit shall have minimum two number scroll compressors and in each module there shall be at least one inverter\Digital Compressor (With controller) and capable of changing the rotating speed to follow variations in cooling loads. Each indoor units shall have the capability to cool or heat for the requirement of the rooms.		
836			Compressor installed in each module unit shall be equipped with at least one Inverter\ Digital Compressor. The system shall be capable of changing the rotating speed of Inverter compressor by Inverter controller to follow variations in cooling and heating load. The vendor should supply imported factory assembled, wired and tested outdoor unit instead of being shipped in modular section and later being sub-assembled at site. The Outdoor units shall be suitable for mix-match connection of all type of Indoor units.		"Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
837			The Unit shall be capable of extending refrigerant piping up to maximum 150m in length with 50 mars.height difference between outdoor and indoor units.		
838			The unit shall be suitable for non CFC refrigerant R-410A .		

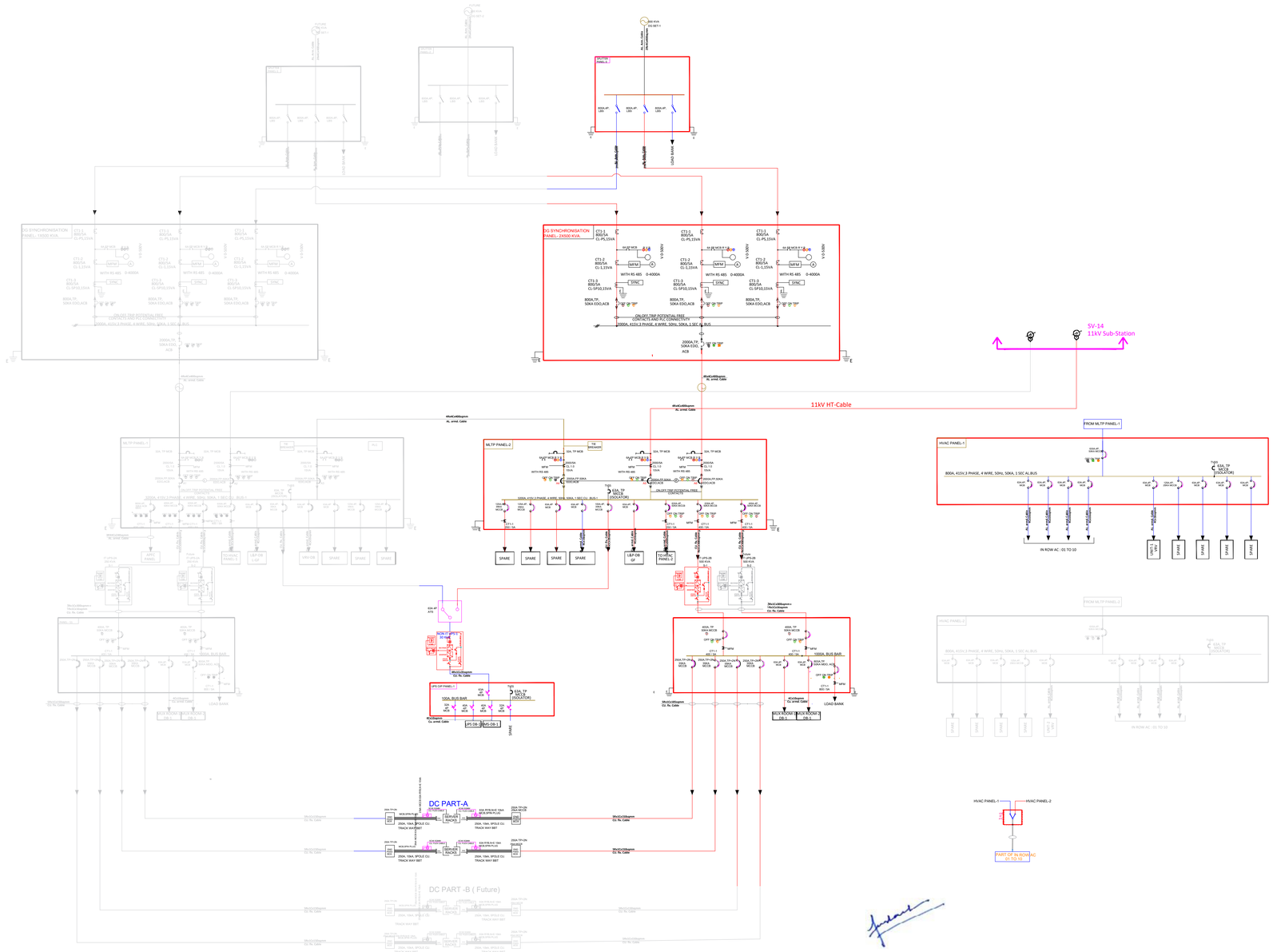
839			**OUTDOOR UNIT:**		
840			The outdoor unit shall be factory assembled, weather proof casing, constructed from heavy gauge mild steel panels and coated with baked enamel finish. The unit should be completely factory wired, tested with all necessary controls tested prior to dispatch conforming to the following specifications.		
841			a) All outdoor units module shall consist of minimum two scroll compressors above 8.0 HP Machine with one Inverter/Digital drive compressor capable to operate even when one compressor is unserviceable.		
842			b) The outdoor unit shall be such in design that it facilitates installation one after another close to each other. Preference would be given to compact units having smaller footprint.		"Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract. "
843			c) Outdoor units should be rugged of anti-corrosion design and should have strong base plate for easy mounting of unit.		
844			d) The outdoor unit shall comprise of sub cooling feature to effectively use the entire coil surface through proper circuit/bridge in order to prevent flushing of refrigerant owing to large length of piping.		
845			e) The condensing unit shall be provided with microprocessor based control panel.		
846			f) The outdoor unit shall be provided with Aero spiral design fan exhibiting low noise level characteristics complete with aero fitting grille to facilitate spiral discharge of airflow to effect reduction in pressure losses. The fan should be capable to respond to external static pressure of 5mm.		
847			g) The outdoor unit shall be factory gas charged with high efficiency refrigerant R-410A.		"Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract. "
848			h) Motor shall be speed controlled to ensure a stable operation for varying ambient, by a factory fitted direct acting head pressure activated variable speed drive to give precise discharge pressure and minimum power consumption of condenser fan motor.		
849			i) The condenser shall be complete with provisions for refrigerant piping connections, shut off valves and any other standard accessories necessary with the equipment supplied.		
850			The condensing unit shall be designed to facilitate fail safe operation when connected to multiple indoor units.		
851			**Scroll Compressor**		
852			The scroll compressor shall be an industrial quality rugged, cast iron, direct hermetic compressor with scroll plates, suction & discharge service valves. The compressor shall be completely enclosed in a chamber with no leakage path and providing the capability for scroll plates to separate. The compressor shall be provided with industrial solid motor mounts internal motor protection and vibration isolation pads. Each compressor shall be independently wired and piped to its own circuit for efficient operation & ease of maintenance. The compressor speed shall not exceed 3000 RPM.		
853			The compressor shall be highly efficient scroll type. One of the compressors should be of Inverter/Digital control. The inverter/Digital compressor shall change the speed in accordance to the variation in cooling or heating load requirement through signals analyzed through the microprocessor of the unit		
854			a) All outdoor units shall have to operate through inverter/Digital drive to give accurate cooling with minimum required power meet load fluctuation and indoor unit individual control. All parts of compressor shall be sufficiently lubricated stock. Forced lubrication may also be employed.		

855			b) Oil heater shall be provided in the compressor casing.		"Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
856			The Inverter compressor shall be efficient & reliable		
857			**HEAT EXCHANGER:**		
858			The heat exchanger shall be constructed with copper tubes mechanically bonded to aluminum fins to form a cross fin coil.		
859			a) The aluminum fins shall be covered by anti-corrosion resin film.		"Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
860			b) The unit should have optimized path of heat exchanger for better efficiency of condenser.		
861			c) The unit shall be provided with necessary number of direct driven low noise level propeller type fans arranged for vertical discharge. Each fan shall have a safety guard.		
862			**REFRIGERANT CIRCUIT**		
863			The refrigerant circuit shall include liquid & gas shut-off valves and a solenoid valves at condenser end. The equipment must have inbuilt refrigerant stabilization control for proper refrigerant distribution		
864			**SAFETY DEVICES**		
865			All necessary safety devices shall be provided to ensure safe operation of the system.		
866			Following safety devices shall be integral part of the outdoor unit :		"Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
867			a) High pressure switch		
868			b) Fan drive overload protection switch		
869			c) Fusible plug		
870			Overload relay including overload protection for inverter driven compressor		
871			**Oil Recovery System**		
872			Unit shall be equipped an oil recovery system to ensure stable operation with long refrigeration piping lengths. The system must be provided with oil balancing circuit to avoid poor lubrication in any unit.		
873			**6.9.12 INDOOR UNIT:**		"Tender conditions prevail. Any suitable higher specifications are also acceptable. Detailed engineering under contractor scope being EPC mode 1 contract.
874			This section deals with supply, erection, testing and commissioning of VARIOUS TYPE OF INDOOR UNITS confirming to general specification and suitable for the duty selected. The type, capacity and size of indoor units shall be as specified in Detailed Bill of Quantities.		

Annexure-II

भारतीय प्रौद्योगिकी संस्थान हैदराबाद
Indian Institute of Technology Hyderabad

INDIAN INSTITUTE OF TECHNOLOGY HYDERABAD.



GENERAL NOTES
All Dimensions NTS
All Dimensions are in Millimeter

Name of Work:"Construction/Establishment of New Institute Data Center (IDC) at Computer Science Engineer (CSE) Department in AD2 Building at IIT Hyderabad Campus, Kandi, Sangareddy (Sub Head:- Electro-Mechanical works)

Draughtsman(Civil)	JE (ELEC)	Sr.AE (ELEC)	AEE (ELEC)	EXECUTIVE ENGINEER(ELEC)