

Institute of Nano Science & Technology Habitat Centre, Sector-64, Phase-X, Mohali-160062
PREBID QUERIES FOR :Name of Work for the NIT

Construction of Auditorium Institute of Nano Science and Technology, Knowledge City, Sector-81, Mohali SH: Design, Supply, Installation of Wall paneling, False ceiling and Flooring including necessary Acoustic treatment, providing Auditorium chairs and SITC of Lighting and Audio-Visual System.
Annexure-A
(Amended Part-II for AV & Lighting). Annexure-B (Amended AV & lighting approved makes)

No. 15(3)/INST-2020/3404 Dated 09/10/2020

S.No	NIT Clause No. and page No.	Clarification/Request submitted by the firm	Clause/ Description	Existing Provisions / Request	Clarifications / To be read as	Remarks
1		Science Designing the Future	Bidding	In reference to the above mentioned NIT for Construction of Auditorium Institute of Nano Science and Technology, Knowledge City, Sector-81, Mohali, We would like to know whether the bids are to be submitted only in physical form or the bids are to be submitted online too. Awaiting for your kind response.	The bids are to be submitted <u>in physical form only</u>	NIL
2	Ref. NIT page no 187-192	Canara Lighting	Brand /Make of Electrical stage lighting.	Hope You're doing well. Our purpose of writing this letter is to express our deep concern that a professional highly reputed Institution like Institute of Nano Science and Technology Mohali must get good quality auditorium lighting system. This lighting system should be more reliable and worth for the money that you are going to invest. We consider the auditorium is a central and important space in Institution and Lighting is an important aspect as it enhances the aesthetic appeal and creates the mood and ambiance of a professional living space. Please find attached our request letter along with supporting documents for your kind perusal. Given a chance, assuring you the best quality and service all the time.	All tech specifications and Brands/Makes at pages 187 to 192 of NIT remains unchanged. However bidder can submit the Tech bid with equivalent brand with similar technical specification as the design of lighting. In addition, Bidder should submit CE/ISO/Factory registration, incorporation, licenses/Regional service centre authorization in support of the products from the manufacturer/OEM. A technical comparison between approved brand with the bidder's brand should also to be attached along with design based on relevant software, if any, along with bid.	Refer to Annexure-B (Amended AV & lighting approved makes)
3(a)	General tests to be carried out at site – NIT page No. 109, Audio Tests to be carried out- NIT page no. 111, Video Tests to be carried out- NIT page no. 112. ADDITIONAL SPECIFICATIONS & CONDITIONS Point No. 9, NIT Page No. 121		Various AV Tests Test Certificate: Test certificate for any materials brought to site before execution work of shall also be submitted failing which recovery @1% of total amount of respective item shall be made from running account bill. Also, both type test & routine test certificate as required shall be submitted.	Various AV Tests Test Certificate: Test certificate for any materials brought to site before execution work of shall also be submitted failing which recovery @1% of total amount of respective item shall be made from running account bill. Also, both type test & routine test certificate as required shall be submitted.	Type test certificate along with detailed tech specification sheet should be submitted by the executer before any materials brought at site. Further firm should submit the test certificate in ref to IEC/BIS/any other standard from the NABL LAB as and when the material reach at site. On-site tests after installation should be performed to the satisfaction of the site engineer	Refer to Annexure-A for Amended Part-II for AV
3(b)	ADDITIONAL SPECIFICATIONS & CONDITIONS Point No.37, NIT page No.126	M/s Godrej	The Engineer-in charge or his representative may carry out inspection and testing at manufacturer's works as per CPWD specifications/ tender specifications. No equipment shall be delivered without prior written confirmation from the Engineers-in-charge/ site Engineer	Inspection at manufacturer's work is not possible for AV items as all the AV items will be imported from different countries. Detailed Technical Datasheet can be provided prior to procurement and all the equipments supplied will be of same specifications and models. Hence, we request you to please delete this clause	Bill of entry for the material imported from the OEM/manufacturer and Test Certificate in ref to NABL LAB should be submitted along with the delivery of material/items.	Refer to Annexure-A for Amended Part-II for AV

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3©	Projector specifications on NIT page No. 183		Supply, Installation, testing and commissioning of Ceiling Mounted 6500 Lumens or better Projector with short throw lens to make screen size of 14.4 feet X 9 Feet from a distance of atleast 12 feet. The projector should be laser projector with 4K resolution or better with supporting back end equipments.	You are requested to please elaborate on supporting back end equipment's for us to quote accordingly.	Refer to the amended Specification for all Audio-Video Components in lieu of pages 178 to 187 in original NIT.	Refer to Annexure-A for Amended Part-II for AV and Annexure-B for Amended AV approved makes
4(a)	Referring to the NIT items of Digital Interface Box, Switcher & Transmitters etc.	AV Science & Technologies Pvt. Ltd.		You are requested to consider Kramer make in the said category of items which is already considered as approved make for the cables & connectors in the said tender.	Refer to the amended Specification for all Audio-Video Components in lieu of pages 178 to 187 in original NIT.	Refer to Annexure-B for Amended AV approved makes
4(b)	Referring to the NIT items of Motorized Screens –			You are requested to add Suvira & Prima brands in the said category of items, which are technically & commercially at par with the other make of NIT.	No change from Original NIT.	
5	Eligibility criteria of bidder	DNV Industrial Systems Pvt. Ltd.	As per tender Document similar work definition is Similar work shall mean design and execution of acoustic treatment including audio-visual system of an auditorium consisting one or more components of interior works of auditorium false ceiling, wall paneling, flooring, auditorium chairs all executed under one agreement in India.	Our Suggestion kindly modify Similar work shall mean design and execution of acoustic treatment including audio or visual system of an auditorium consisting one or more components of interior works of auditorium false ceiling, wall paneling, flooring, auditorium chairs all executed under one agreement in India.	No change in Original NIT	NIL
6(a)				1. Incorporation of our brand as approved brand, 2. Online Pre Bid.	1. Refer to the modified provisions. 2. For online Link Shared on 05.10.2020 and the representative attended the Pre-Bid meeting.	
6(b)				Page No 9; Illumination: "All internal and stage lights should be controlled individually or in group by DALI dimmable system." • Stage Lights are not DALI controlled, Hall lights can be DALI controlled, Detailed Specification and BOQ also shows DMX controls and not DALI controls. Thus DALI should only be used for Hall Lighting and not in service areas or Stage Lights.	In page-9, under the area 'illumination', 'DALI dimmable system' shall be read as DALI/DMX controlled, as appropriate.	
6(c)				Page No. 10 SITC of auditorium lighting including DALI dimming control system, power and control distribution for lighting with lighting bus bar above false ceiling. DALI Bus will not be solid copper/ Aluminium Bus Bar above false ceiling, instead it's a two wire bus which goes to each fixture, Each Fixture will have 4 wire inputs.	No change in Original NIT.	

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6(d)	Ref to Audio VedioBrand and other tech terms.	Effectron co		<p>Page 12: The eligibility bid shall be opened first on due date and time as mentioned above. The contractors who qualifying the eligibility bid shall be required to make 30 Minutes PPT presentation on the proposed INST Auditorium (both Audi-1 and Audi-2) design to be critically examined in respect of (i) 3D visualization, (ii) plan of project execution,(iii) RT60 value and acoustic simulation (iv) prior experience in AV integration in similar composite auditorium works with evidence of such works, before the Empowered Prior Experience and Work done along with ExecutionPlan should form part of technical bid and its presentation should be taken as a fair assessment of bidder's capabilities.Evaluation Committee (EEC) constituted by the Director, INST, Mohali.</p> <p>Since it's an item rate tender and not a lumpsum tender, it's assumed that 3 D Visualisation had already been frozen by the Architect/ Consultant and based on that and drawings items have been derived. Items and quantities derived have gone into minutest details of product / brand specifications which does not leave much scope for the bidders to alter / substitute items/ brand.</p> <p>This condition of Eligibility should be complied by the L1 bidder upon receipt of LOI and before award of work. As Preparing a 3D walk though, Ease plot consumes time and money.</p>	<p>No change in Original NIT. Auditorium 3D Design will be a key component for the technical evaluation of the bidder. Designs are expected from every bidder with reference to the BOQ for minimum functional requirements.</p>	Refer to Annexure-B (Amended AV & lighting approved makes)
6(e)			<p>Page 112, section 2.3.1. SPL Level / Sound Dispersion, Maximum Variation should be + 4dB,. o The standard is +_ 3dB; seems there has been typographical error, may please be corrected.</p>	<p>No change in Original NIT/Not discussed in the pre-bid meeting</p>		
6(f)			<p>In Projector section, we request you to approve Digital Projection which is an equivalent brand to Christie / Barco.</p>	<p>No change in Original NIT/Not discussed in the pre-bid meeting</p>		
6(g)			<p>Pg 184 Screen Makes mentioned is Milan/ Draper and Dalite whereas Milan is nly Indian brand, we request you to kindly add Suvira and GTC as approved Indian Brand of reputation.</p>	<p>No change in Original NIT/Not discussed in the pre-bid meeting</p>		
6(h)			<p>Specifications of Audio is very tightly binded in favour of one firm, in some place even model no is mentioned. Once the bidder is submitting an Ease plot confirming to design and STI, there should be flexibility to accommodate other equivalent brand with mnor specification deviation to the tune of +_ 10%.</p>	<p>No change in Original NIT/Not discussed in the pre-bid meeting</p>		
6(i)			<p>D&B and EAW do not have service Center in India and are represented through dealer, wheras brands live EV(Bosch), HARMAN (JBL/Crown/BSS) and QSC have not only their Indian offices but also R&D and Service Center in India. INCLUSION of THESE BRANDS will ensure after sales support even after the expiry of DLP.</p>	<p>No change in Original NIT</p>		
6(j)			<p>Stage Lights and Furnishing – our letter n.; Ref:EFL/TEN_NANO/02 dated 03-10-2020, forms the part of this letter wherin we had requested to kindly incorporate Effectron /Darbari as one amongst the other approved Brand, to promote the spirit of Atma Nirbhar Bharat and MSME boost muc required during this pandemic time, while not compromising on quality.</p>	<p>All tech specificationsand Brands/Makes at pages 187 to 192 of NIT remains unchanged. However bidder can submit the Tech bid with equivalent brand with similar technical specification as the design of lighting. In addition, Bidder should submit CE/ISO/Factory registration, incorporation, licenses/Regional service centre authorization in support of the products from the manufacturer/OEM. A technical comparison between approved brand with the bidder's brand should also to be attached along with design based on relevant software,if any, along with bid.</p>		

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6(k)				OEM Authorisation: The Lowest Bidder should submit the OEM Certificate after opening of financial bid but before award of Order. This will avoid better pricing from OEM leading to better bidding. It should not form part of the bid document, instead an undertaking may be taken by all bidders, to submit the OEM certificate within a stipulated time frame, failure to do so may lead to forfeiting of EMD or as deemed fit by your office.	No change in Original NIT	
7(a)		NEW Age Acoustics Pvt. Ltd.		In the pre-qualification criteria you have mentioned experience for similar work. You are requested to remove design part for the completion certificate.	Completion certificate is required to ensure experience in execution of similar works as per original NIT.	NIL
7(b)				In the pre-qualification criteria you have mentioned testing at site. You are requested to include that all the material of specified makes shall be installed and the test certificates of the manufacture shall be submitted. The final testing of RT levels may be done after completion of work.	No change in Original NIT	
8(a)	Eligibility criteria of bidder	M/s Kalsi Brothers		The Work of Auditorium has been done along with main building work but certificate for auditorium associated works is not available. Can we quote for the tender?	Completion certificate is required to ensure experience in execution of similar works as per original NIT.	Refer to Annexure-A for Amended Part-II for AV and Annexure-B for Amended AV approved makes
8(b)	Term and condition of bid			OEM Authorisation: The Lowest Bidder should submit the OEM Certificate after opening of financial bid but before award of Order. This will avoid better pricing from OEM leading to better bidding. It should not form part of the bid document, instead an undertaking may be taken by all bidders, to submit the OEM certificate within a stipulated time frame, failure to do so may lead to forfeiting of EMD or as deemed fit by your office.	No change in Original NIT	
8©				Audio Brands should be uniform for all items.	Please refer to the modified approved makes for AV items	
9	Page 6,24,& 44 of NIT	INST Corrigendum	Last date & Time of submission of Bid	12.10.2020 upto 11.00AM	22.10.2020 upto 2.00 PM	NIL
	Page 178 to 192		Time and date of opening of tender	12.10.2020 at 12.00 AM	22.10.2020 at 3.00 PM	
	Page 77 & 78 of NIT			Bill of quantities (Part-II)	Rates to be quoted on Amended Part-II (Attached)	
			Schedule of payments	Schedule of payments	Deleted	

Amended Part-II for AV

Sr. No.	Description	Minimum Qty.	Unit	Rate	Total
AUDIO for Auditorium – 1 (Mezzanine floor)					
1	Supply, installation, testing & Commissioning of Multi driver full range, IP54 or better rated loudspeaker system: The loudspeaker free space full range sensitivity shall be at least 92dB-SPL in the 50Hz to 16kHz range. The nominal horizontal beamwidth shall be 100 degrees, and the nominal vertical beamwidth shall be 70 degrees. The power handling capacity of the loudspeaker shall be at least 225 Watts continuous pink noise, band-limited from 50Hz to 16kHz. Max SPL shall be 117dB (123dB peak) or better with a nominal impedance of 8 Ohms or higher. Powder Coated steel grill or better with other accessories and provisions complete as per the site requirement for the complete functioning.	4	Nos		
2	Bracket for Speakers.	3	Nos		
3	Supply, installation, testing & Commissioning of Modular Dual 12" Installation friendly subwoofer with a free field Freq. Range of 36 Hz-250Hz or better. It should have an axial Sensitivity of >= 94dB (1W/1m) or more delivering a Max. Calculated SPL(Continuous) of >=123 dB (129dB Peak). The loudspeaker should have a nominal impedance of 4ohm or 2x8 ohms or better and continuous Power Handling of 2x400W (1600+1600W Peak) or more. At least 12 suspension / rigging points shall be available for flexible installs. The Subwoofer shall be enclosed in Baltic birch plywood with powder coated steel grille. Should include any other accessories and provisions complete as per the site requirement for the complete functioning.	2	Nos		
4	Bracket for Subwoofer	2	Nos		
5	Supply, installation , testing and commissioning of Compact Indoor/Outdoor type IP55 rated wall mount Music Loudspeaker: Free field Frequency range (-10dB) of 80Hz to 16kHz; Power handling of 64 Watt peak; Nominal dispersion of 150 H X 150 V; Free field Sensitivity of 84 dB SPL and Max SPL of 103 dB SPL peak; Nominal Impedance 8 Ohms; Integral multi-tap Transformer with tap settings of 2/4/8/16 W @ 100V with Powder-coated steel grille; Brackets with pitch/yaw adjustment included with other accessories and provisions complete as per the site requirement for the complete functioning.	2	Nos		
6	Supply, Installation, testing and commissioning of Wedge shaped Stage Monitor Loudspeaker with Frequency Response of 90 Hz to 16 kHz or better ; Horizontal Nominal Dispersion : 90 degree Horizontal X 60 degree Vertical or better (Rotatable Horn); Sensitivity (SPL / 1 W @ 1 m) of 92 dB SPL or better. Continuous Power of 200 Watt or better; Impedance of 8 Ohm; Max SPL @ 1 Mtr (Cont.) of 120 dB SPL or better; Transducers/Drivers of HF: 1 x 1.5" or better; LF: 1 X 8" or better complete with standard accessories and wall bracket with other accessories and provisions complete as per the site requirement for the complete functioning.	2	Nos		
7	Supply, installation, testing and commissioning of 2 way Indoor/outdoor type wall mount Music Loudspeaker: Frequency range (-10dB) of 60Hz to 20kHz; Power handling of 400Watt peak; Nominal dispersion of 120H X 120V; Sensitivity of 87 dB SPL and Max SPL of 113 dB SPL peak; Nominal Impedance 8 Ohms; Integral multi-tap Transformer with tap settings of 20/40/80W @ 100V or better with Powder-coated magnetic steel grill; U Brackets with pitch adjustment shall be included. Shall be rated for Outdoor IP55 rated as per IEC529. Includes any accessories and provisions complete as per the site requirement for the complete functioning.	6	Nos		

Sr. No.	Description	Minimum Qty.	Unit	Rate	Total
8	Supply of Digital Audio Conferencing Processor with at least 12 Mic/Line inputs & 8 analog outputs, 24 bit A-D and D-A Convertors; Sampling Rate : 48 kHz; THD : < 0.002 % ; Channel Separation (Crosstalk) : < 108 dB ; Frequency Response 20 Hz - 20 kHz ; Signal-to-Noise Ratio 90 dB ;Dynamic Range > 115 dB; 5 Control Inputs and Outputs; RS-232 and Ethernet Port for third party Control and Monitoring; 64x64 Bidirectional DANTE Audio Networking ports, Shall include USB Audio as standard Feature. In built DSP features like Conference room Routers, Input Equalizers, Router, Band Pass filter, Output Equalizer, Delay, Limiters, gates, Source selectors etc. Shall Support at least 15 remote Zone controllers with other accessories and provisions complete as per the site requirement for the complete functioning.	1	No		
9	SITC of 32-Input Manual Mixer complete with other accessories/provisions as per the site requirement for the complete functioning.	1	No		
10	SITC of 8 channel class D Networkable Power amplifier with a Max Output Power of 8x500W@8 ohms, or bridged mode output power of 4x 1000W @ 8/4 ohms. 20Hz - 20 KHz, SNR of 102dB and THD + N of <0.4% with built in protection such as Limiters, Temperature, DC, Short Circuit, Peak Current Limiters, Turn on delay etc. Built in DSP for Matrix routing, Speaker equalization, Delays, Array EQs etc complete with Ethernet Port for Network Control, programming and monitoring. Shall offer optional Network audio connectivity (Dante or CobraNet) through expansion slot with other accessories and provisions complete as per the site requirement for the complete functioning.	1	No		
11	Supply, installation, testing & Commissioning of Class D amplifier with 2 Channels of Load independent 600W outputs, LZ or HZ or mixed use operation; Frequency Response : 20Hz - 20kHz for LZ mode; Dynamic range> 100dBA and THD <0.04% at rated output complete with standard accessories as required. Phoenix input and output connector. Shall include a Multichannel input compatible with Audio DSPs form the same manufacturer with other accessories and provisions complete as per the site requirement for the complete functioning.	2	Nos		
12	Supply of Class D amplifier with 4 Channels of Load independent 300W outputs, LZ or HZ or mixed use operation; Frequency Response : 20Hz - 20kHz for LZ mode; Dynamic range> 100dBA and THD <0.04% at rated output complete with standard accessories as required.Phoenix input and output connector. Shall include a Multichannel input compatible with Audio. DSPs form the same manufacturer with other accessories and provisions complete as per the site requirement for the complete functioning.	2	Nos		
13	Supply, Installation, testing and commissioning of integrated high impedance Class D zone amplifier with output power of up to 90W @ 70/100V. Frequency response of 50Hz to 20kHz; THD <0.3%; Shall include priority override and Fire alarm interface, shall include necessary loudspeaker EQs with other accessories and provisions complete as per the site requirement for the complete functioning.	1	No		
14	SITC of Active DI Boxes for electronic instruments, complete with other accessories/provisions as per the site requirement for the complete functioning.	2	Nos		
15	Floor box with 3 X XLR for microphone connectivity and 1 X XLR for monitor connectivity complete with other accessories/provisions as per the site requirement for the complete functioning.	2	Nos		
16	Supply of Controller - Audio DSP - Controller with Power Supply: Programmable network controller manages gain settings or scene selections, Controls: Programmable functions over encoders / touch screen, Connectivity: Ethernet - 10 base 100 or better, Display: Multi character backlit LCD with other accessories and provisions complete as per the site requirement for the complete functioning.	1	No		

Sr. No.	Description	Minimum Qty.	Unit	Rate	Total
17	SITC of wireless handheld microphone with (UHF),12 Channel Preset or better , Display on Transmitter and Receiver , RF Power output 50mW or Better , Polar Pattern :- Cardioid , Carrier frequency range 500Mhz to 865Mhz , Frequency response 20Hz to 20Khz , Mute Button on Transmitter , Battery Operation time Minimum 8hr , Should have Charging Contact in Transmitter , Receiver dynamic range 80 dB (A-weighted) Or better , switching bandwidth Minimum 30 Mhz Or better with other accessories and provisions complete as per the site requirement for the complete functioning.	4	Nos		
18	SITC of wireless Single Ear Hook Head worn microphone with (UHF),12 Channel Preset or better , Display on Transmitter and Receiver , RF Power output 50mW or Better , Polar Pattern single Ear Hook :- Omni directional , Carrier frequency range 500Mhz to 865Mhz , Frequency response 20Hz to 20Khz , Mute Button on Transmitter , Battery Operation time Minimum 8hr , Should have Charging Contact in Transmitter , Receiver dynamic range 80 dB (A-weighted) Or better , switching bandwidth Minimum 30 Mhz Or better with other accessories and provisions complete as per the site requirement for the complete functioning.	2	Nos		
19	SITC of Hypercardioid dynamic handheld Vocal microphone having Frequency Response of 60 - 14,000 Hz, Open Circuit Sensitivity -54 dB (1.9 mV) re 1V at 1 Pa or better, Impedance-600 ohms or better, On/off switch, Integral 3-pin gold-plated XLRM-type connector, Rugged all-metal construction, complete with stand clamp and threaded adaptor and Foam Wind Screen with other accessories and provisions complete as per the site requirement for the complete functioning.	6	Nos		
20	SITC of Hypercardioid dynamic Instrument microphone, Suitable for acoustic guitar, overheads, percussion, strings and other acoustic instruments, Frequency Response 20 - 20,000 Hz, on/off switch, Dynamic Range: 137 dB 1 kHz at Max SPL, Signal-to-Noise Ratio: 83 dB 1 kHz at 1 Pa, Impedance -150-200 ohms. Should include other accessories and provisions complete as per the site requirement for the complete functioning.	4	Nos		
21	SITC of Cardioid Condenser Gooseneck Microphone, Frequency Response 70 - 16,000 Hz, Length of Gooseneck - Minimum 410mm, Low Frequency Roll off 80Hz, 18dB/octave or better, Impedance 100 ohms or better, Signal-to-noise Ratio 66 dB, 1 kHz at 1 Pa or better, complete with Foam Windscreen, with microphone shock mount along with other accessories and provisions complete as per the site requirement for the complete functioning.	2	Nos		
22	SITC of Dolby Cinema Processor with Eight-Channel Digital Input (4 x AES/EBU) for Digital Cinema Server and also includes support for Dolby Surround 7.1 with other accessories and provisions complete as per the site requirement for the complete functioning.	1	No		
23	SITC of 24 U Equipment Rack.	1	Nos		
24	SITC of 4 sq mm speaker cable.	200	m		
25	SITC of 2.5 sq mm speaker cable.	300	m		
26	SITC of 20/22 AWG microphone cable.	200	m		
27	Various Cable & Connectors	1	Lot		
28	Installation, Testing and Commissioning charges	1	Job		

Sr. No.	Description	Minimum Qty.	Unit	Rate	Total
VIDEO for Auditorium – 1 (Mezzanine floor)					
29a	Supply, Installation, testing and commissioning of Ceiling Mounted 7000 ANSI Lumens DLP Projector with lens to make screen size of 14.4 feet X 8.1 Feet from a distance of approx 8 feet. The projector should be laser projector with 4K UHD (3840 x 2160) resolution. The projector should have minimum contrast ratio of 2,000,000:1 or better. It should support HDR10 content. The projector must have HDMI X1, DVI-DX1, DPX1, USB X 1, HD Base T X 1 inputs and other accessories/provisions complete as per the site requirement for the complete functioning.	1	Nos		
29b	Supply, Installation, testing and commissioning of Ceiling Mounted 7000 ANSI Lumens DLP Projector with lens to make screen size of 14.4 feet X 8.1 Feet from a distance of approx 50-60 feet. The projector should be laser projector with 4K UHD (3840 x 2160) resolution. The projector should have minimum contrast ratio of 2,000,000:1 or better. It should support HDR10 content. The projector must have HDMI X1, DVI-DX1, DPX1, USB X 1, HD Base T X 1 inputs and other accessories/provisions complete as per the site requirement for the complete functioning.	1	Nos		
30	SITC of Digital Interface Box having high-performance 4K@60Hz (4:4:4) resolution with one HDBaseT/POE, three HDMI and one computer graphics (VGA) inputs. It should scale the video, embed the audio and outputs the signal to an HDMI and an HDBaseT output simultaneously. The box should be HDCP 2.2 Compliant. The box should provide Power (PoE) on HDBaseT Input to Compatible Devices and should have Max. VGA Resolution of 1920 x 1200 @60Hz. It should support Auto Input Switching - Last connected & auto-scan, selectable. The unit should have analog and embedded audio inputs and outputs and other accessories/provisions complete as per the site requirement for the complete functioning	1	Nos		
31	SITC of Free Standing/Floor Mounted type Digital Podium built of 1.6mm CRCA Steel sheet, screw less chasis, polymer powder coated, Wooden Top, All directional wheels with lock, Display feature-Highly Sensitive, Built-in interactive Capacitive touch Monitor with Tilt facility, Screen size- 22"(interactive type), Color LED, scratch resistant, antiglare & overlay tampered vandal resistant glass(3mm). The podium should be supplied with HDMI & VGA inputs at Top for connectivity, complete with other accessories/provisions as per the site requirement for the Complete functioning.	1	Nos		
32	SITC of Motorized Screen with Unity Gain Projection Screen with minimum Projection area of 14.4X8.1 Feet, complete with other accessories/provisions as per the site requirement for the Complete functioning.	2	Nos		
33	Floor box with LAN connectivity, complete with other accessories/provisions as per the site requirement for the Complete functioning.	2	Nos		
34	SITC of Camera having 1/3" 2 MP CMOS with Min. 20X or More Zoom. It should have Panning angle of +170 ~ -170° and Tilting angle of +90 ~ -30°. The camera should have Ethernet, HDMI and 3G-SDI outputs and all should be parallel output. The camera should have option of control over RS-422 / RS232 / Ethernet. The camera should have Gain Control of Auto/Manual, White Balance : Auto, Indoor, Outdoor, One-Push, Manual, Exposure Control: Auto, Manual, Focus System: Auto & Manual and Image Flip facility. The camera is to be supplied with HDMI to USB Converter for each camera and other accessories/provisions complete as per the site requirement for the Complete functioning.	3	Nos		

Sr. No.	Description	Minimum Qty.	Unit	Rate	Total
35	SITC of Recording and Streaming Solution having minimum HDMI, VGA, LAN inputs etc to which various components like Presenter Laptop / PC, Full HD PTZ Cameras, Document Cameras, etc can be connected to record upto 4 inputs simultaneously on the single frame alongwith Audio. It should be able to Capture from Multiple Sources and able to Record and Stream upto min Four Full Motion HD Videos simultaneously in one frame upto 1080p resolution. The system should support upto min 4 Channel Mixing and Switching where the user can do live recording of the Lecturers as per the requirement. The system should have one HDMI / DVI / VGA output for the Projector or for confidence monitor for the presenter. The system should come with min 1 TB of in-built hard disk for storing upto 400-500 Hours of recording. The system should have a facility to further extend the memory through USB or eSATA Hard Disk. System should support multiple encoding rates, multiple frame rates, Auto Logo Insertion during recording. System should also be able to support Webcast, Unicast and Multicast as Streaming Solution. The system should be able to support Video Processing at different frame rates upto 30 fps; Multiple Bit Rate from 64kps to 24Mbps in FullHD Resolution of 1080p with other accessories and provisions complete as per the site requirement for the complete functioning.	1	Nos		
36	SITC of Joystick for PAN/Tilt/Zoom and Focusing, RS232C/RS455/IP Communication Interfaces, High Brightness OLED Display, Auto Backlit Keys, should be able to control atleast 3 cameras, with other accessories and provisions complete as per the site requirement for the complete functioning.	1	Nos		
37	SITC of Switcher having 4 X HDMI, 2 DisplayPort, 2 HDBaseT and 2 user-definable (universal) analog video inputs (each can be set as computer graphics, composite video, s-Video (Y/C) or component video). It up-scales or down-scales to selectable output resolutions up to 4K and provides glitch-free switching between sources. It should have independent program and preview outputs with both operational simultaneously, or the unit can be configured for PIP, with all outputs mirrored. Outputs are available on two HDMI connectors, an HDBaseT, a DP, and a 15-pin-HD computer graphics video connector. It should have audio support with digital audio embedding and de-embedding, as well as 10 analog stereo inputs and analog, S/PDIF, and speaker outputs, with other accessories and provisions complete as per the site requirement for the complete functioning.	1	Nos		
38	SITC of HDMI, VGA + Audio Cable - 3 m.	2	Set		
39	SITC of HDMI Cable 1.5 m.	20	Nos		
40	SITC of HDMI, VGA + Audio Cable - 5 m.	2	Set		
41	SITC of HDMI Cable 15 m.	1	Nos		
42	SITC of Shielded CAT 6A(10G) Cable	305	m		
43	SITC of Connectors & Bulk Cables	1	Lot		
AUDIO for Auditorium – 2 (First floor)					
44	Supply, installation, testing & Commissioning of Multi driver full range, IP54 or better rated loudspeaker system: The loudspeaker free space full range sensitivity shall be at least 92dB-SPL in the 50Hz to 16kHz range. The nominal horizontal beam width shall be 100 degrees, and the nominal vertical beam width shall be 70 degrees. The power handling capacity of the loudspeaker shall be at least 225 Watts continuous pink noise, band-limited from 50Hz to 16kHz. Max SPL shall be 117dB (123dB peak) or better with a nominal impedance of 8 Ohms or higher. Powder Coated steel grill or better with other accessories and provisions complete as per the site requirement for the complete functioning.	2	Nos		
45	Pan Tilt Bracket for Speakers.	2	Nos		
46	Supply, Installation, testing and commissioning of of Wedge shaped Stage Monitor Loudspeaker with Frequency Response of 90 Hz to 16 kHz or better ; Horizontal Nominal Dispersion : 90 degree Horizontal X 60 degree Vertical or better (Rotatable Horn); Sensitivity (SPL / 1 W @ 1 m) of 92 dB SPL or better. Continuous Power of 200 Watt or better; Impedance of 8 Ohm ; Max SPL @ 1 Mtr (Cont.) of 120 dB SPL or better; Transducers/Drivers of HF: 1 x 1.5" or better; LF: 1 X 8" or better with wall bracket and other accessories/provisions complete as per the site requirement for the complete functioning.	1	No		

Sr. No.	Description	Minimum Qty.	Unit	Rate	Total
47	Supply, installation, testing & Commissioning of Modular 12" Installation friendly subwoofer with a free field Freq. Range of 36 Hz-250Hz or better. It should have an axial Sensitivity of ≥ 91 dB (1W/1m) or more delivering a Max. Calculated SPL(Continuous) of ≥ 117 dB (129dB Peak). The loudspeaker should have a nominal impedance of 8 ohms or better and continuous Power Handling of 400W (1600W Peak) or more. The Subwoofer shall be enclosed in Baltic birch plywood with powder coated steel grille and other accessories/provisions complete as per the site requirement for the complete functioning.	1	No		
48	Supply, installation , testing and commissioning of Digital Sound Processor with 8 Mic/Line inputs & 8 analog outputs, 24 Bit A-D and D-A Convertors; Sampling Rate : 48 kHz; THD : < 0.002 % ; Channel Separation (Crosstalk) : < 105 dB ; Frequency Response 20 Hz - 20 kHz ; Signal-to-Noise Ratio 80 dB ;Dynamic Range : > 115 dB; 5 Control Inputs and Outputs; RS-232 and Ethernet Port for third party Control and Monitoring; inbuilt DSP features like Input Equalizers, Router, Band Pass filter, Output Equalizer, Delay, Limiters, gates, Feedback suppressors, Source selectors etc with other accessories and provisions complete as per the site requirement for the complete functioning.	1	No		
49	Supply, installation, testing & Commissioning of Class D amplifier with 2 Channels of Load independent 600W outputs, LZ or HZ or mixed use operation; Frequency Response : 20Hz - 20kHz for LZ mode; Dynamic range > 100 dB and THD < 0.04 % at rated output complete with standard accessories as required. Phoenix input and output connector. Shall include a Multichannel input compatible with Audio DSPs form the same manufacturer along with other accessories and provisions complete as per the site requirement for the complete functioning.	3	Nos		
50	Supply, Installation, testing and commissioning of Mixer: Min 16 Mic/line Preamps input or better; 4 Subgroup outputs or better, Min 4 Aux or better and Mixer has inbuilt effects & Reverb feature; 9band stereo graphic EQ along with other accessories and provisions complete as per the site requirement for the complete functioning.	1	No		
51	SITC of wireless handheld microphone with (UHF),12 Channel Preset or better , Display on Transmitter and Receiver , RF Power output 50mW or Better, Polar Pattern :- Cardioid , Carrier frequency range 500Mhz to 865Mhz , Frequency response 20Hz to 20Khz , Mute Button on Transmitter , Battery Operation time Minimum 8hr , Should have Charging Contact in Transmitter , Receiver dynamic range 80 dB (A-weighted) Or better , switching bandwidth Minimum 30 Mhz Or better with other accessories and provisions complete as per the site requirement for the complete functioning.	2	Nos		
52	SITC of wireless Single Ear Hook Head worn microphone with (UHF),12 Channel Preset or better , Display on Transmitter and Receiver , RF Power output 50mW or Better , Polar Pattern single Ear Hook :- Omni directional, Carrier frequency range 500Mhz to 865Mhz , Frequency response 20Hz to 20Khz, Mute Button on Transmitter , Battery Operation time Minimum 8hr , Should have Charging Contact in Transmitter , Receiver dynamic range 80 dB (A-weighted) Or better , switching bandwidth Minimum 30 Mhz Or better with other accessories and provisions complete as per the site requirement for the complete functioning.	2	Nos		
53	SITC of Hypercardioid dynamic handheld Vocal microphone having Frequency Response of 60 - 14,000 Hz, Open Circuit Sensitivity -54 dB (1.9 mV) re 1V at 1 Pa or better, Impedance-600 ohms or better, On/off switch, Integral 3-pin gold-plated XLRM-type connector, Rugged all-metal construction, complete with stand clamp and threaded adaptor and Foam Wind Screen. Should include other accessories and provisions complete as per the site requirement for the complete functioning.	2	Nos		

Sr. No.	Description	Minimum Qty.	Unit	Rate	Total
54	SITC of Cardioid Condenser Gooseneck Microphone, Frequency Response 70 - 16,000 Hz, Length of Gooseneck - Minimum 410mm, Low Frequency Roll off 80Hz, 18dB/octave or better, Impedance 100 ohms or better, Signal-to-noise Ratio 66 dB, 1 kHz at 1 Pa or better, complete with Foam Windscreen, Complete with microphone shock mount. Should include other accessories and provisions complete as per the site requirement for the complete functioning.	1	No		
55	SITC of 24 U Equipment Rack.	1	No		
56	SITC of 4 sq mm speaker cable.	75	m		
57	SITC of 2.5 sq mm speaker cable.	175	m		
58	SITC of 20/22AWG microphone cable.	100	m		
59	SITC of Various Cable & Connectors	1	lot		
60	Installation, Testing and Commissioning charges	1	job		
VIDEO for Auditorium – 2 (First floor)					
61	Supply, Installation, testing and commissioning of Ceiling Mounted 5000 Lumens single Chip DLP Projector capable of making a screen size of 8 feet X 4.6 Feet. The projector should be laser projector with 4K UHD (3840X2160) resolution and should be capable of 360 degree projection. The projector should have minimum contrast ratio of 3000000:1 or better. It should have lens shift ratio of V: ±60% / H: ±23% or better. The projector must have HDMI x3, HDMI Out, USB Type A, USB Type mini B, VGA In, Monitor Out, Composite Video In, S-Video In, Audio In/ Out, Audio L/R in (RCA), RJ45, RS232, complete with other accessories/provisions as per the site requirement for the complete functioning.	1	Nos		
62	SITC of Digital Interface Box having high-performance 4K@60Hz (4:4:4) resolution with one HDBaseT/POE, three HDMI and one computer graphics (VGA) inputs. It should scale the video, embed the audio and outputs the signal to an HDMI and an HDBaseT output simultaneously. The box should be HDCP 2.2 Compliant. The box should provide Power (PoE) on HDBaseT Input to Compatible Devices and should have Max. VGA Resolution of 1920 x 1200 @60Hz. It should support Auto Input Switching - Last connected & auto-scan, selectable. The unit should have analog and embedded audio inputs and outputs complete with other accessories/provisions as per the site requirement for the complete functioning.	1	Nos		
63	SITC of Free Standing/Floor Mounted type Digital Podium built of 1.6mm CRCA Steel sheet, screw less chasis, polymer powder coated, Wooden Top, All directional wheels with lock, Display feature-Highly Sensitive, Built-in interactive Capacitive touch Monitor with Tilt facility, Screen size-22"(interactive type), Color LED, scratch resistant, antiglare & overlay tampered vandal resistant glass(3mm). The podium should be supplied with HDMI & VGA inputs at Top for connectivity, complete with other accessories/provisions as per the site requirement for the complete functioning.	1	Nos		
64	SITC of Motorized Wall Mount Unity Gain Projection Screen with minimum Projection area of 8 X 5 Feet (16:10 Aspect Ratio), complete with other accessories/provisions as per the site requirement for the complete functioning.	1	Nos		
65	Floor box with 1 X HDMI, 1 X VGA + Audio connectivity complete with other accessories/provisions as per the site requirement for the complete functioning.	1	Nos		
66	SITC of high-quality, long-reach 1:2 HDBaseT extender distributor that takes one HDMI input, with IR and RS-232 control signals, converts it to an HDBaseT extension line signal and distributes it to 2 HDBaseT outputs with up to 4K video resolution. It should have an HDMI LOOP output for connecting to an additional unit in a daisy chain complete with other accessories/provisions as per the site requirement for the complete functioning.	1	Nos		
67	SITC of high-performance, long-reach HDBaseT receiver for 4K60Hz (4:2:0) HDMI, RS-232 and IR signals over twisted pair.	2	Nos		
68	SITC of 55" or higher Ceiling Mounted 4K Professional Display Panel with 400 cd/m ² brightness and 178 degrees horizontal and vertical viewing angle. The display should have HDMI X3 In, DP X1 In, DVI - D X1 In, VGA X 1 In and HDMI X1 Out. It should have USB X 2 In , Serial Input X 1, complete with other accessories/provisions as per the site requirement for the complete functioning.	2	Nos		
69	SITC of HDMI, VGA + Audio Cable - 15 m.	2	Set		
70	SITC of HDMI, VGA + Audio Cable - 5 m.	1	Set		

Sr. No.	Description	Minimum Qty.	Unit	Rate	Total
71	SITC of HDMI Patch Cords - 3 m.	10	Nos.		
72	SITC of Shielded CAT 6A (10G) Cable	200	m		
Amended Part-II for Lighting					
S No.	Items	Minimum Qty	Unit	Rate	Total
1	SITC of 150W High Quality LED Parcan Light complete with, Lamp source 3200K CCT Colour temperature CRI & TLCI Values above 95 DmX 512 dimming with 3 channel control Beam Angle of 9° / 25° / 45° Total Power Consumption of 165W High quality output replacing 1000W Halogen Par Flicker Free 100% for Tv & Film Cameras 11.7KHz Refresh Rate, Linear Dimming 0 ~ 100% Fuse and Internal safety protections Strobe option Adjustable 1~25 times/Sec Variable Fixture provided with Yoke of Manual Adjustment 5 Pin XLR or 3 Pin XLR for DmX Black powder coated body with other accessories and provisions complete as per the site requirement for the complete functioning.	2	Nos		
2	SITC of 200W LED Blinder Light 30 Degree complete with 3200K CCT 2x100W Chip On Board LED Lamp source DmX 512 dimming with 4 / 8 Channel modes CRI & TLCI Value > 90 Strobe option Adjustable 1 ~ 25 times / Sec Variable Beam Angle 30 Degree Total Power Consumption of 220W 11.7KHz Refresh Rate In built preset's for effects Fuse and Internal safety protections Active Cooling with Low Noise Fan 5 Pin XLR or 3 Pin XLR for DmX High quality well designed inbuilt reflector Flicker Free 100% for Tv & Film Cameras Black finish housing, IP20 protection Having Strobe option and smooth dimming illuminate Stage with uniform light intensity levels.	8	Nos		
3	SITC of 100W LED COB Par Light having 3200K colour temperature High quality uniquely designed Fresnel Lens CRI, TLCI and R9 value above 96 LED COB Based Source No Multiple Shadows – Single Source illumination Total Power Consumption of 210W Linear dimming 0 ~ 100% Adjustment Flicker Free for High FPS, Power AC90-260V, 50/60HZ Working Temperature - +40° ~ -30° Active Cooling with Low Noise Fan DmX & RDM Control options with latest technology Fixture provided with Yoke of Manual Adjustment Manual and DMX control Option mode through 5pin/3pin xlr Black powder coated fabricated housing with normal yoke.	3	Nos		

Sr. No.	Description	Minimum Qty.	Unit	Rate	Total
4	<p>SITC of 12 x 10W LED Par Light RGBW, Beam Angle 45° complete with</p> <p>RGBW 10W Lamp source x 12 Pcs</p> <p>DmX 512 dimming with 8 Channel</p> <p>High Bright Red, Green, Blue, White LED's Source</p> <p>Unlimited Color Mixing through DmX</p> <p>0 ~ 100% Linear dimming</p> <p>In built presets for different colors</p> <p>Strobe Mode 20 times/Sec</p> <p>Data DmX through 3 / 5 Pin XLR's</p> <p>65dB ~ 130dB Sound sensing capacity</p> <p>Power In and Out Connections</p> <p>High precision colors, IP20 protection</p> <p>Powder coated Black finish housing</p> <p>Having Sound Control & Master Slave Auto Run Mode</p> <p>Illuminate the Indoor stage with unlimited colour effects</p> <p>Rigidly built pressure die-casted Aluminium body with other accessories and provisions complete as per the site requirement for the complete functioning.</p>	12	Nos		
5	<p>SITC of Light fixture mouting clamp</p> <p>Customized for suspending on fixed bars on stage</p> <p>Made up of Aluminium Die casted</p> <p>MS threaded T bolt with yellow passivation finish</p> <p>Complete with black powder coating matt black finish.</p> <p>Safe working load 150 KG</p> <p>Suitable to Batten of size 30 OD to 60 OD with other accessories and provisions complete as per the site requirement for the complete functioning.</p>	25	Nos		
6	<p>SITC of Light Fixture dual safety</p> <p>Chain made up of GI wire rope</p> <p>Bundled and twisted together</p> <p>Having load bearing capacity above 200 Kgs</p> <p>Sleve on the rope.</p> <p>Carabiner Clip with other accessories and provisions complete as per the site requirement for the complete functioning.</p>	25	Nos		
7	<p>SITC of Suspender cum clamps designed made out of</p> <p>MS material</p> <p>150mm x 150mm x 5mm MS Base plate</p> <p>Threaded rod,</p> <p>Black powder coated finish</p> <p>Suitable to hold various type grid & other rigging systems with other accessories and provisions complete as per the site requirement for the complete functioning.</p>	20	Nos.		

Sr. No.	Description	Minimum Qty.	Unit	Rate	Total
8	SITC of Fixed On-stage Lighting Bar 14 Mtrs Length Straight as per the design Made out of 48mm Outer Dai, 40 Nominal Bore Mild Steel Pipe Dual Barrel Arrangement Dual Construction Powder coated with Matt black Texture Fixing Through Suspenders as per site conditions End Caps on the Pipe end Upper pipe of dual construction is used to anchor the bar lower pipe is effectively used to hang the light fixtures with other accessories and provisions complete as per the site requirement for the complete functioning.	2	Nos.		
9	SITC of High quality power junction box 4 way made up of MS Sheet metal fabricated housing black powder coated, fibre glands of suitable size fitted with Powercon or IEC connector Box 10A with other accessories and provisions complete as per the site requirement for the complete functioning.	16	Nos.		
10	SITC of High quality Dimming In junction box 1 way made up of MS Sheet metal fabricated housing black powder coated, fibre glands of suitable size fitted with 5 Pin DmX XLR Female socket with other accessories and provisions complete as per the site requirement for the complete functioning.	1	Nos		
11	SITC of High quality Dimming Out junction box 1 way made up of MS Sheet metal fabricated housing black powder coated, fibre glands of suitable size fitted with 5 Pin DmX XLR Male socket with other accessories and provisions complete as per the site requirement for the complete functioning.	4	Nos		
12	SITC of Black Powder coated cable trays made out of MS Sheet fabricated for a size of 150mm with perforation for heat dessipation provided with lid with other accessories and provisions complete as per the site requirement for the complete functioning.	15	No		
13	SITC of Black Powder coated cable trays made out of MS Sheet fabricated for a size of 75mm with perforation for heat dessipation provided with lid with other accessories and provisions complete as per the site requirement for the complete functioning.	40	No		
14	SITC of DmX Male Female Connectors 5 Pin having rubber sheeth protection for Cross connecting DmX wiring connections with other accessories and provisions complete as per the site requirement for the complete functioning.	6	No		
15	SITC of DmX Male Termination Connector 5 Pin soldered with required capacity of resistor for signal deframing with other accessories and provisions complete as per the site requirement for the complete functioning.	4	Nos		
16	SITC of DmX Loop Junction Box having 1 No. of DmX 5 Pin XLR Female Socket & 1 No. DmX XLR Male Socket fitted on to a sheet metal fabricated compact Junction box powder coated with matt black texture finish paint with other accessories and provisions complete as per the site requirement for the complete functioning.	1	Nos		

Sr. No.	Description	Minimum Qty.	Unit	Rate	Total
17	SITC of Opto isolated RDM enabled DmX splitter unit provided with, 8 Isolated outputs Slow blow safety fuse 5 Pin XLR for output interface Dual mode to select 2 universe operation DmX Input through 5 Pin XLR Connector Powder coated compartment finish Mounting brackets for grid mount with other accessories and provisions complete as per the site requirement for the complete functioning.	1	No		
18	SITC of Digital Lighting Console with 512 DMX channels, 512 Channels. 10 Programmable Executors Master Fader, Keypad entry, LCD Display, Encoder Wheels Time control of scenes: Fade in/out, LTP slope Channels for each fixture 40 primary + 40 fine tune Switchable Page Scenes/Playbacks 10 Scenes to run simultaneously 600 Scene step Shape generators: Shapes of Dimmer, Pan/Tilt, RGB, CMY, Color, Gobo, Iris and Focus, Master slider - Global, playback, fixture USB Memory - FAT32 supported with other accessories and provisions complete as per the site requirement for the complete functioning.	1	Nos		
19	SITC of MS sheet metal fabricated power junction box duly powder coated and fitted with 2 10amps 3 pin IEC socket, ON/OFF switch and necessary glands to power splitters and console, duly powder coated with Matt black texture finish.	1	Nos		
20	SITC of FRLS Copper unarmoured Flexible cable having 3 Core each of 1.5 Sq mm size with other accessories and provisions complete as per the site requirement for the complete functioning.	400	No		
21	SITC of 5 Core DmX Cable with Sheathed housing on the cable, well designed insulation, low noise suitable to transmit DmX signal with other accessories and provisions complete as per the site requirement for the complete functioning.	100	Nos		
22	<u>Mezzanine Floor (Audi-1) only</u> LED lights with beam angle 12 to 36 degree Protection class IEC Safety class I (I) Initial luminous flux (system flux)- ≥ 2000 lm Initial LED luminaire efficacy ≥ 100 lm/W Init. Corr. Color Temperature ≥ 4000 K Init. Color Rendering Index ≥ 80 Initial input power 22 W or better Power consumption tolerance +/-10% Housing Material Aluminum Alloy Optic material Aluminum and polycarbonate Optical cover/lens material Polycarbonate Mounting device MBA Dimmable Yes Ingress protection code IP20 [Finger-protected] Mech. impact protection code IK02 [0.2 J standard] Surge Protection (Common/Differential) 2.5 kV Median useful life 40000 h or better with other accessories and provisions complete as per the site requirement for the complete functioning.	47	Nos		

Sr. No.	Description	Minimum Qty.	Unit	Rate	Total
23	First Floor (Audi-2) only LED lights with beam angle 120 degrees Protection class IEC Safety class I (I) Initial luminous flux (system flux) ≥1500 lm Initial LED luminaire efficacy ≥110 lm/W Init. Corr. Color Temperature ≥6500 K Init. Color Rendering Index ≥80 Initial input power 13.5 W or better Power consumption tolerance +/-10% Housing Material Aluminum die cast Optic material Polycarbonate Optical cover/lens material Polycarbonate Mounting device MBA Dimmable Yes Ingress protection code IP20 [Finger-protected] Mech. impact protection code IK02 [0.2 J standard] Surge Protection (Common/Differential) 2.5 kV Median useful life 50000 h or better with other accessories and provisions complete as per the site requirement for the complete functioning.	20	Nos		
Grant Total Part-II					
Grant Total Part-I & Part-II					

Seal & Signature of the contractor

Modified Approved Makes of AV Items (Annexure-B) with ref to Annexure-A

Sr. No.	Items	Approved Makes
1, 3, 5, 6, 7, 44, 46, 47	Speakers & Subwoofers	Bose / EAW / d&b audiotechnik/Martin Audio
8, 16, 48	DSP	Bose / Symetrix/ Biamp
9, 14, 50	Mixer & DI Boxes	Yamaha/ Music Tribe/ Allen & Heath.
10, 11, 12, 13, 49	Amplifiers	Bose / Powesoft / Lab gruppen/ Ashly Audio
17, 18, 19, 20, 21, 51, 52, 53, 54	Microphones	Beyerdynamic / Shure / Sennheiser
23, 55	Equipment Rack	Valrack, WQ, Rittal
24, 25, 26, 56, 57, 58	Cables	Belden, Kramer, Klotz.
29	7000 Lumens 4K Projector	Barco, Christie, Panasonic.
30, 37, 38, 39, 40, 41, 62, 66, 67, 69, 70, 71	Switching System	Kramer, Extron, Crestron, Lightware
31, 63	Podiums	Univeso, ATDSC, AHA
32, 64	Projection Screens	Milan, Draper, Dalite.
34,36	Cameras	Vaddio, Sony, Lumens.
35	Recording & Streaming Server	Mediasite, MediaPointe,Lumens,V-Brick
61	5000 Lumens 4KProjector	Christie,Panasonic, Benq.
68	LED Display	Christie,Panasonic, NEC.

Modified Approved Makes of Lighting Items (Annexure-B) with ref to Annexure-A

Sr. No.	Items	Approved Makes
1,2,3,5,6	150W High Quality LED Parcan Light, 200W LED Blinder Light, 100W LED COB Par Light, Light fixture mouting clamp, Light Fixture dual safety	Leksa Lighting / Desisti / Kenson Solace/Equivalent brand with similar technical specification as the design of lighting to the satisfaction of site engineer
4	10W LED Par Light RGBW	Leksa Lighting / Desisti / Altman / Arri/Equivalent brand with similar technical specification as the design of lighting to the satisfaction of site engineer
7,8,9,19	Suspender cum clamps, Fixed On-stage Lighting Bar, High quality power junction box, MS sheet metal fabricated power junction box	Stage Technologies / Leksa Lighting / Kenson Solace/Equivalent brand with similar technical specification as the design of lighting to the satisfaction of site engineer
10,11,14,16	High quality Dimming In junction box 1 way, High quality Dimming Out junction box 1 way, DmX Male Female Connectors 5 Pin, DmX Loop Junction Box	Kenson Solace / Nuetrick / Leksa Lighting/Equivalent brand with similar technical specification as the design of lighting to the satisfaction of site engineer
15	DmX Male Termination Connector 5 Pin	Amphenol / Nuetrick /Leksa Lighting/Equivalent brand with similar technical specification as the design of lighting to the satisfaction of site engineer
17,18	Opto isolated RDM enabled DmX splitter unit, Digital Lighting Console with 512 DMX channels	Lite Puter/ Leksa Lighting/ Elation/Equivalent brand with similar technical specification as the design of lighting to the satisfaction of site engineer
20	FRLS Copper unarmoured Flexible cable	Polycab / Walna / SBEE/Equivalent brand with similar technical specification as the design of lighting to the satisfaction of site engineer
21	5 Core DmX Cable	Falcon / Belden / Guru Astronics/Equivalent brand Equivalent brand with similar technical specification as the design of lighting to the satisfaction of site engineer to the satisfaction of site engineer
12, 13	Black Powder coated cable trays	Custom made matching specification to the satisfaction of site engineer
22, 23	LED lights for audience seating area	Philips/ Osram/ LT/Disano/Equivalent brand with similar technical specification as the design of lighting to the satisfaction of site engineer to the satisfaction of site engineer