

TENDER for Supply, Installation, Testing and Commissioning of Audio Visual, Video Conferencing at 7th Floor of NABARD Head Office

9 Pax Media Room 7B

Sr. No	Equipment Type	Equipment Description	Indicative Make	Indicative Models	Quoted Make & Model	Qty	UoM	Unit Price	Total Price
Video System									
1	Wireless Presentation Gateway TYPEz	Supply, Installation, Testing & Commissioning of Wireless Multimedia presentation and collaboration system for playing, sharing, and collaborating on digital content from a wide variety of devices via BYOD (Bring your own devices) and with integrated whiteboard and cloud connectivity. With resolution supporting devices required for functionality, 4 devices simultaneously displaying on same screen, Support for Touch Screen Displays, Touch Control for Windows, 1 x HDMI Outputs, Audio via HDMI Out & USB In/Out, Equipment should support the specified system architecture to achieve desired functionality.	Wolfvision / Biamp / Kramer	Cynap Pure Pro / Modena Hub+ / VIA Campus2		1	EA		
2	HDMI Transmitter	Supply, Installation, Testing & Commissioning of HDMI Transmitter over CATx cable, accept HDMI and give output, bi-directional RS-232 and IR signals, resolution of 4K@60 Hz at sampling rate of 4:2:0, support a minimum data rate of 10Gbps, support distance upto 70 or above, HDTV and HDCP 2.2 compatible, 2K and 4K support,EDM pass through, support, HDMI Uncompressed Audio Channels, Equipment should support the specified system architecture to achieve desired functionality.	Kramer/ Extron/ Crestron	TP-580T / DTP HDMI 4K 230 Tx / DM-TX-201-C		1	EA		
3	HDMI Wallplate Receiver	Supply, Installation, Testing & Commissioning of Wallplate HDMI receiver that should accept HDBaseT / Twisted pair and give out HDMI. Should support a minimum data rate of 10.2 Gbps. Should carry HDMI signal over 70m. Should be HDTV and HDCP 2.2 compatible.	Kramer/ Extron/ Crestron	WP-580R / DTP R HWP 4K 231 D / DM-RMC-4K-100-C-IG-B-T		1	EA		
4	HDMI Matrix Switcher	Supply, Installation, Testing & Commissioning of 8x8 4K HDR HDCP 2.2 Matrix Switcher with Digital Audio Routing Should support max. resolution 4K@60Hz (4:4:4) Should support Deep Color, 3D, ARC, up to 7.1 uncompressed audio channels, Selectable HDCP per input, Active source & acceptor detection, Automatic input selection based on priority selection or last connected input, Local control via front panel switching, memory, lock and EDD buttons, and Input/Output LED display 19" enclosure for rack mounting in a 1U rack space	Kramer/ Extron/ Crestron	VS-88Hz / DXP 88 HD 4K PLUS / HD-MD8X8-4KZ-E		1	EA		
5	Recorder & Streamer	Supply, Installation, Testing & Commissioning of Recording & Webcasting Hardware, Recording, Streaming and Web casting simultaneously, Built-in 4 Inputs (HDMI /IP/3G-SDI/DVI) HDMI Out, Can record upto any three inputs simultaneously in a single frame and as well as individual sources simultaneously, Should have minimum 1TB inbuilt storage.	Lumens/ MediaPONENTE / Mediasite	LC200 / DMR HD3 / RL-760		1	EA		
Video Conferencing System									
1	USB Switcher	Supply, Installation, Testing & Commissioning of 4 x 4 USB Hub Switch with 4 x USB Host, 4 x USB Peripherals, control through RS232 or LAN need to be supported. Equipment should support the specified system architecture to achieve desired functionality.	Aten/ Extron/ Blustream	US 3344 / SW4 USB Pro / MX24KVM		1	EA		
2	Teleprompter	Supply, Installation, Testing & Commissioning of Teleprompter with 15.4 inches content viewing size, Anti Glare type and native resolution of 1280x800 Should have contrast ratio of 400: 1 and brightness of minimum of 280 cd/meter square. Should have 1xHDMI & 1xVGA input. Software if required to be provided with wireless bluetooth remote and foldable metallic hood, Stand for PTZ camera to be considered, Software to install on Laptop/PC	Cronus Pro / Ikan / Prompter People	Pumba15 / PT2500 / Flex Plus 15"		1	EA		
3	USB PTZ Camera	Supply, Installation, Testing & Commissioning of Camera with 12X Zoom PTZ camera with USB port and resolution of 1920x1080, 1/2.7" CMOS Sensor, f=3.5mm to 42.3mm, Horizontal field of view 6.9° - 72.5°, vertical field of view 3.9° - 44.8°, Pan range +/- 170° with 1 year support resolution with remote(Has to go with poly as this has to be compatible with Poly VC)	Poly	Eagle eye IV USB		1	EA		
Control System									
1	Control System Type 1	Supply, Installation, Testing & Commissioning of Control system with Touch Panel should have sufficient bidirectional RS232, IR, Relays and GP/IO and Ethernet ports to control all the devices in the room. Equipment should support the specified system architecture to achieve desired functionality. Should have inbuilt or external IR sensor/learner to learn IR commands Should have inbuilt processing power and internal storage to store and process the control program. Should be compatible with any (IOS/Android) wireless or wired Touch screen of any size. Additional ports if required can be added with minimum hassle. Should have the flexibility to add as many user interfaces as required. Should have embedded webpage for control port settings. Should have Status LED to check for Control/Connection status. It should have minimum 5 license each included for both IOS & Android application Supply, Installation, Testing & Commissioning of 10-inch, multi-touch, touch panel with 1920x1080 or better resolution, with highest configuration to achieve desired functionality.	Kramer/ Extron/ Crestron	SL-280 with KT-2010 / IPCP Pro 535Q xi with TLP Pro 1025T / CP4 with TS-1070-B-S		1	EA		
Installation Equipment									
1	HDMI Cable 6 Feet	Supply, Installation, Testing & Commissioning of High Speed HDMI Mate to Male Cables 6 feet Should be High Speed with Ethernet HDMI Cable. Supports signals up to 4K@60Hz (4:2:0), Deep Color Should have 24k gold Plated pins. Should support Data Transfer rate of upto minimum 10Gbps. Should support upto 48 bit Deep Color. Connectors must have a minimal locking capability to prevent outing of cables from ports. Should have an overall shield against EMI/RFI interference. Should be CL2 flame tested.	Kramer/ Extron/ Crestron	C-HM/HM-6 / HDMI Ultra/6 / CBL-HD-6		7	EA		
2	HDMI Cable 15 Feet	Supply, Installation, Testing & Commissioning of High Speed HDMI Mate to Male Cables 15 feet Should be High Speed with Ethernet HDMI Cable. Supports signals up to 4K@60Hz (4:2:0), Deep Color Should have 24k gold Plated pins. Should support Data Transfer rate of upto minimum 10Gbps. Should support upto 48 bit Deep Color. Connectors must have a minimal locking capability to prevent outing of cables from ports. Should have an overall shield against EMI/RFI interference. Should be CL2 flame tested.	Kramer/ Extron/ Crestron	C-HM/HM-15 / HDMI Ultra/15 / CBL-HD-20		1	EA		
3	HDMI Cable 25 Feet	Supply, Installation, Testing & Commissioning of High Speed HDMI Mate to Male Cables 25 feet Should be High Speed with Ethernet HDMI Cable. Supports signals up to 4K@60Hz (4:2:0), Deep Color Should have 24k gold Plated pins. Should support Data Transfer rate of upto minimum 10Gbps. Should support upto 48 bit Deep Color. Connectors must have a minimal locking capability to prevent outing of cables from ports. Should have an overall shield against EMI/RFI interference. Should be CL2 flame tested.	Kramer/ Extron/ Crestron	C-HM/HM-25 / HDMI Pro/25 / CBL-HD-30		1	EA		
4	HDMI Cable 35 feet	Supply, Installation, Testing & Commissioning of High Speed HDMI Mate to Male Cables 35 feet Should be High Speed with Ethernet HDMI Cable. Supports signals up to 4K@60Hz (4:2:0), Deep Color Should have 24k gold Plated pins. Should support Data Transfer rate of upto minimum 10Gbps. Should support upto 48 bit Deep Color. Connectors must have a minimal locking capability to prevent outing of cables from ports. Should have an overall shield against EMI/RFI interference. Should be CL2 flame tested.	Kramer/ Extron/ Crestron	C-HM/HM-35 / HDMI Pro/35 / CBL-HD-30		1	EA		
5	Accessories, Cable Connector , patch cables etc	Supply, Installation, Testing & Commissioning of CAT6 cables, speaker cables, Mic Cables, Patch Cables, USB Patch cables, USB Active Extender Cables etc	Kramer/ Extron/ Belden	Kramer/ Extron/ Belden		1	LOT		

6	Cable Cubby Type 3	Supply, Installation, Testing & Commissioning of Retractable Cable Cubby with 1 x LAN retractor, 2 USB Charging 2.0, 2 x Power. Should be rectangular in shape. Should be retractable Lid. Should be modular in design. Should have the enclosure, an inner frame, a power socket, inserts and a power cord.	Kramer/ Extron/ Crestron	TBUS-10XL / FT2-700-PTL / CableCubby 700	2	EA
7	Cable Cubby Type 2	Supply, Installation, Testing & Commissioning of Retractable Cable Cubby with 1 x HDMI retractor, 1 x USB 3.0 retractor, 1 x LAN retractor, 2 USB Charging 2.0, 2 x Power. Should be rectangular in shape. Should be retractable Lid. Should be modular in design. Should have the enclosure, an inner frame, a power socket, inserts and a power cord.	Kramer/ Extron/ Crestron	TBUS-10XL / FT2-700-PTL / CableCubby 700	2	EA
8	AV rack Type 3	Supply, Installation, Testing & Commissioning of 12 U Equipment Rack with silent fans, shelves, PDU & Adjustable mounting, leveling feet included , Cable pass-through in top & bottom of rack Vertical cable management bar, Multiple stationary shelves	Valrack/ NavePoint/ APC	ProTek / MidDepth/ Flexibox	1	LOT

Sub Total for 9 Pax Media Room 7B of (A)

B

15 Pax Conference Room 7C

Audio System

1	Ceiling Mount Speaker	Supply, Installation, Testing & Commissioning of 4.5-inch, 2 way, wall-mount loudspeaker. Rated impedance- 8Ω, Transformer Taps- 70 V: 16, 8, 4, 2, 1 watts, 100V: 16, 8, 4, 2 watts, Frequency Range-70 Hz - 20 kHz, Rated noise power / voltage-16 watts / 11.3 volts (rms), Sensitivity-85 dB SPL, Coverage- 130° conical (500 Hz to 5 kHz), Maximum continuous SPL-97 dB, Maximum peak SPL- 112 dB, LF Transducer 114 mm (4.5-inch) Polypropylene woofer with 25 mm (1-inch) voice coil , HF Transducer - 25 mm (1-inch) Aluminium dome tweeter with 25 mm (1-inch) voice coil.	QSC/ Bose/ Martin Audio	AC-CAT/ FS4CE/ C4.8T	4	EA
2	Dual Channel Amplifier	Supply, Installation, Testing & Commissioning of 2 channel class-D amplifier with 60 watts/channel into Low-Z loads. Signal to Noise support (A weighted, 20 Hz-20 kHz)->100 dB, Frequency Response-20 Hz - 20 kHz, Input Sensitivity-1.23 Vrms (+4 dBu), Input Impedance->10 kΩ (balanced), >10 kΩ (unbalanced), Front Panel Indicators-Power, per channel Signal, per channel Protect/Limit, better to Energy Star compliant with all mounting accessories included. Equipment should support the specified system architecture to achieve desired functionality.	QSC/ Bose/ Martin Audio	SPA2-60/ IZA2120-HZ/ Revamp2060T	1	EA
3	Digital Signal Processor	Supply, Installation, Testing & Commissioning of audio, processing system with any combination required as per system architecture like 8 mic/line level analog audio inputs, 8 line level analog audio outputs, mic/line level analog audio inputs or outputs Up to 16 assignable and routable AEC processor instances, POTS and VOIP for telephony, USB-B port for AV-USB Bridging and configurable up to 16x8-channels, 128x256 Network Audio channels (AES67/Dante), Input Frequency Response-20Hz to 20kHz @ -24dBu, Input Impedance (balanced)-5k Ohms Nominal, Input Sensitivity Range (dB Steps)-39 dBu min to +21 dBu max, A/D - D/A Converters - 24-bit, Sampling Rate- 48kHz, Input Impedance (balanced)-5k ohms nominal, Output Dynamic Range-> 108dB, Inbuilt 16 Multitrack Player capacity, Front Panel monochrome OLED with capacitive touch buttons for settings, Control and integrate external devices using TCP/IP, RS232. Equipment should support the specified system architecture to achieve desired functionality	QSC/ Biamp/ Symmetrix	Core 110F/ Tesira Server I/O/ Prism 16x16	1	EA
4	Ceiling Mic	Supply, Installation, Testing & Commissioning of Ceiling mounted microphone array, mountable either onto or flush with the ceiling itself. mounting accessories should be included, including a ceiling suspension kit, a ceiling fixation bracket as well as mounting brackets for ceiling panels. Arrayed microphone with beamforming technology that automatically focuses on whoever is speaking in the room. The beam will automatically detect the position of the person speaking and will follow the person around the room at all times. A threshold for the detection shall be adjustable. Live monitoring of the horizontal and vertical angle of the position should be provided in real time via control software. Ceiling microphone with patented beamforming technology. Control workflows with software. The microphone can be easily controlled and monitored from anywhere in the network. -Connect the microphone via analogue/digital DANTE™/AES 67 audio outputs. Power-over-Ethernet (PoE) makes integration of the ceiling microphone very easy. An open media control protocol (API) allows you to make individual adjustments. Connectivity - The microphone array shall have a Dante™ interface. Configuration and monitoring should be possible via Network control and Power to be provided via PoE, using the PoE IEEE 802.3at Class 3 standard. A Hard ceiling mount allows the Ceiling array microphone to be mounted flush in the drywall or hard ceiling, providing a more finished appearance. Mount can be installed in the ciling and the microphone installed later. It should be paintable to match the ceiling color. The mount can be secured to framing along its sides, suspended and/ or attached to a metal framing above the ceiling. The mount should accommodate the 60 cm x 60 cm size of the tile microphone.	Shure / Yamaha / Sennheiser	MXA920 / Adecia / TCC2	1	EA
5	24 Port Network Switch	Supply, Installation, Testing & Commissioning of 24x1G PoE+ 480W 2x1G and 4xSFP+ Managed Switch Should be non blocking type layer 3 managed switch . Should support IGMP snooping , multicast and unicast addressing	Netgear / Cisco / Juniper	Netgear / Cisco / Juniper	1	EA

Video System

1	86" Display	Supply, Installation, Testing & Commissioning of 86" 4K UHD Display with brightness of 330 nit, Contrast ratio 1200:1, HDMI IN(2.0) x 3, USB 2.0 X 2, 3.5mm Stereo audio out x 1, RS232(In/Out)x1, RJ45X1(Ext Control) & Speaker 10W x 2	LG/ Samsung/ Sony	86UR640S / QB85 / FW-85BZ40H	1	EA
2	Wireless Presentation Gateway TYPE2	Supply, Installation, Testing & Commissioning of Wireless Multimedia presentation and collaboration system for playing, sharing, and collaborating on digital content from a wide variety of devices via BYOD (Bring you own devices) and with integrated whiteboard and cloud connectivity. With resolution supporting devices required for functionality, 4 devices simultaneously displaying on same screen, Support for Touch Screen Displays, Touch Control for Windows, 1 x HDMI Outputs, Audio via HDMI Out & USB In/Out, Equipment should support the specified system architecture to achieve desired functionality.	Wolfvision / Biamp / Kramer	Cynap Pure Pro / Modena Hub+ / VIA Campus2	1	EA
3	HDMI Matrix Switcher	Supply, Installation, Testing & Commissioning of 8x8 4K HDR HDCP 2.2 Matrix Switcher with Digital Audio Routing Should support max. resolution 4K@60Hz (4:4:4) Should support Deep Color, 3D, ARC, up to 7.1 uncompressed audio channels, Selectable HDCP per input, Active source & acceptor detection, Automatic input selection based on priority selection or last connected input. Local control via front panel switching, memory, lock and EDDM buttons, and Input/Output LED display 19" enclosure for rack mounting in a 1U rack space	Kramer/ Extron/ Crestron	VS-88Hz / DXP-88 HD 4K PLUS / HD-MD8X8-4KZ-E	1	EA
4	HDMI Transmitter	Supply, Installation, Testing & Commissioning of HDMI Transmitter over CATx cable, accept HDMI and give output, bi-directional RS-232 and IR signals, resolution of 4K@60 Hz at sampling rate of 4:2:0, support a minimum data rate of 10Gbps, support distance upto 70 or above, HDTV and HDCP 2.2 compatible, 2K and 4K support,EDMD pass through, support, HDMI Uncompressed Audio Channels, Equipment should support the specified system architecture to achieve desired functionality.	Kramer/ Extron/ Crestron	TP-580T / DTP HDMI 4K 230 Tx / DM-TX-201-C	1	EA
5	HDMI Wallplate Receiver	Supply, Installation, Testing & Commissioning of Wallplate HDMI receiver that should accept HDBaseT /Twisted pair and give out HDMI. Should carry HDMI signal over 70m. Should be HDTV and HDCP 2.2 compatible.	Kramer/ Extron/ Crestron	WP-580R / DTP R HWP 4K 231 D / DM-RMC-4K-100-C-1G-B-T	1	EA
6	Recorder & Streamer	Supply, Installation, Testing & Commissioning of Recording & Webcasting Hardware, Recording, Streaming and Web casting simultaneously, Built-in 4 Inputs (HDMI /IP /3G-SDI /DVI) HDMI Out, Can record upto any three inputs simultaneously in a single frame and as well as individual sources simultaneously, Should have minimum 1TB inbuilt storage.	Lumens/ MediaPONTE / Mediasite	LC200 / DMR HD3 / RL 760	1	EA

Video Conferencing System

1	USB Switcher	Supply, Installation, Testing & Commissioning of 4 x 4 USB Hub Switch with 4 x USB Host, 4 x USB Peripherals , control through RS232 or LAN need to be supported. Equipment should support the specified system architecture to achieve desired functionality.	Aten/ Extron/ Blustream	US 334d / SW4 USB Pro / MX44KVM	1	EA
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Control System

1	Control System Type 1	Supply, Installation, Testing & Commissioning of Control system with Touch Panel should have have sufficient bidirectional RS232, IR, Relays and GP/IO and Ethernet ports to control all the devices in the room. Equipment should support the specified system architecture to achieve desired functionality. Should have inbuilt or external IR sensor/learner to learn IR commands Should have inbuilt processing power and internal storage to store and process the control program. Should be compatible with any (IOS/Android) wireless or wired Touch screen of any size. Additional ports if required can be added with minimum hassle. Should have the flexibility to add as many user interfaces as required. Should have embedded webpage for control port settings. Should have Status LED to check for Control/Connection status. It should have minimum 5 license each included for both IOS & Android application Supply, Installation, Testing & Commissioning of 10-inch, multi-touch, touch panel with 1920x1080 or better resolution, with highest configuration to achieve desired functionality.	Kramer/ Extron/ Crestron	SI-280 with KT-2010 / IPCP Pro 555G xi with TLP Pro 1025T CP4 with TS-1070-B-S	1	EA		
Installation Equipment								
1	Wall Mount Bracket for 86" Display	Supply, Installation, Testing & Commissioning of Wall Mount for 86" Display - Should support minimum of 80 kg Supply, Installation, Testing & Commissioning of High Speed HDMI Mate to Male Cables 6 feet Should be High Speed with Ethernet HDMI Cable. Supports signals up to 4K@60Hz (4:2:0), Deep Color Should have 24k gold Plated pins. Should support Data Transfer rate of upto minimum 10GBps. Should support of upto 48 bit Deep Color. Connectors must have a minimal locking capability to prevent ousting of cables from ports. Should have an overall shield against EMI/RFI interference. Should be CL2 flame tested.	Logie/Lumi/Chief	Logie/Lumi/Chief	1	EA		
2	HDMI Cable 6 Feet	Supply, Installation, Testing & Commissioning of High Speed HDMI Mate to Male Cables 6 feet Should be High Speed with Ethernet HDMI Cable. Supports signals up to 4K@60Hz (4:2:0), Deep Color Should have 24k gold Plated pins. Should support Data Transfer rate of upto minimum 10GBps. Should support of upto 48 bit Deep Color. Connectors must have a minimal locking capability to prevent ousting of cables from ports. Should have an overall shield against EMI/RFI interference. Should be CL2 flame tested.	Kramer/ Extron/ Crestron	C-HM/HM-6 / HDMI Ultra/6 / CBL-HD-6	9	EA		
3	HDMI Cable 25 Feet	Supply, Installation, Testing & Commissioning of High Speed HDMI Mate to Male Cables 25 feet Should be High Speed with Ethernet HDMI Cable. Supports signals up to 4K@60Hz (4:2:0), Deep Color Should have 24k gold Plated pins. Should support Data Transfer rate of upto minimum 10GBps. Should support of upto 48 bit Deep Color. Connectors must have a minimal locking capability to prevent ousting of cables from ports. Should have an overall shield against EMI/RFI interference. Should be CL2 flame tested.	Kramer/ Extron/ Crestron	C-HM/HM-25 / HDMI Pro/25 / CBL-HD-30	1	EA		
4	HDMI Cable 35 Feet	Supply, Installation, Testing & Commissioning of High Speed HDMI Mate to Male Cables 35 feet Should be High Speed with Ethernet HDMI Cable. Supports signals up to 4K@60Hz (4:2:0), Deep Color Should have 24k gold Plated pins. Should support Data Transfer rate of upto minimum 10GBps. Should support of upto 48 bit Deep Color. Connectors must have a minimal locking capability to prevent ousting of cables from ports. Should have an overall shield against EMI/RFI interference. Should be CL2 flame tested.	Kramer/ Extron/ Crestron	C-HM/HM-35 / HDMI Pro/35 / CBL-HD-30	1	EA		
5	Cable Cubby Type 3	Supply, Installation, Testing & Commissioning of Retractable Cable Cubby with 1 x LAN retractor, 2 USB Charging 2.0, 2 x Power. Should be rectangular in shape. Should be retractable Lid. Should be modular in design. Should have the enclosure, an inner frame, a power socket, inserts and a power cord.	Kramer/ Extron/ Crestron	TBUS-10XL / FT2-700-PTL / CableCubby 700	2	EA		
6	Cable Cubby Type 2	Supply, Installation, Testing & Commissioning of Retractable Cable Cubby with 1 x HDMI retractor, 1 x USB 3.0 retractor, 1 x LAN retractor, 2 USB Charging 2.0, 2 x Power. Should be rectangular in shape. Should be retractable Lid. Should be modular in design. Should have the enclosure, an inner frame, a power socket, inserts and a power cord.	Kramer/ Extron/ Crestron	TBUS-10XL / FT2-700-PTL / CableCubby 700	2	EA		
7	Accessories, Cable Connector , patch cables etc	Supply, Installation, Testing & Commissioning of CAT6 cables, speaker cables, Mic Cables, Patch Cables, USB Patch cables, USB Active Extender Cables etc	Kramer/ Extron/ Belden	Kramer/ Extron/ Belden	1	EA		
8	AV rack Type 2	Supply, Installation, Testing & Commissioning of 24U Equipment Rack with silent fans, shelves, PDU & Adjustable mounting, leveling feet included , Cable pass-through in top & bottom of rack Vertical cable management bar, Multiple stationary shelves	Valrack/ NavePoint/ APC	ProTek / MidDepth/ Flexibox	1	EA		
Sub Total for 15 Conference Room 7C of (B)								
C	46 Pax Conference Hall 7E							
Audio System								
1	Surface Mount Speaker	Supply, Installation, Testing & Commissioning of minimum 4 inch, 2 way, wall-mount loudspeaker. Rated impedance- 8Ω, Transformer Taps- 70 V; 30,15,7.5,3.7,1.9 watts, 100V; 30 / 15, 7.5, 3.8 watts, Frequency Range-60 Hz – 20 kHz, Rated noise power / voltage-30 watts / 15.5 volts (rms), Broadband Sensitivity-86 dB SPL, Coverage around- 130° conical (500 Hz to 5 kHz), Maximum peak SPL- 113 dB, Equipment should support the specified system architecture to achieve desired functionality	QSC/ Bose/ Martin Audio	AC-S4T/ FS4SE/ A40T	4	EA		
2	Column Speaker	Supply, Installation, Testing & Commissioning of Column surface-mount loudspeaker. Multiple Transducer of minimum 2.75 in (69.8 mm) cone woofer. Frequency range- 60 Hz – 17 kHz, Rated noise power / voltage- 120 watts / 31 volts (rms), Sensitivity-87dB, Coverage (4 dB)- 160 x 20, 900Hz; 180 x 90, kHz; 180 x 35, 2kHz; 160 x 22, 4kHz; 180 x 20, Maximum Peak SPL- 114 dB, Impedance - 8Ω, Powder coated aluminum enclosure. Powder coated aluminum grille. All Mounting Accessories included. Equipment should support the specified system architecture to achieve desired functionality.	QSC/ BOSE/ Renkus Heinz	AD-S802T/ MA12/ UBX8	2	EA		

3	Dual Channel Amplifier	Supply, Installation, Testing & Commissioning of 2 channel class-D amplifier with 60 watts/channel into Low-Z loads. Signal to Noise support (A weighted, 20 Hz-20 kHz)->100 dB, Frequency Response-20 Hz - 20 kHz, Input Sensitivity-1.23 Vrms (+4 dBu), Input Impedance->10 kΩ (balanced), >10 kΩ (unbalanced), Front Panel Indicators-Power, per channel Signal, per channel Protect/Limit, better to Energy Star compliant with all mounting accessories included. Equipment should support the specified system architecture to achieve desired functionality.	QSC/ Bose/ Biamp	SPA2-60/ IZA2120-HZ/ Revamp2060T	1	EA		
4	Quad Channel Amplifier	Supply, Installation, Testing & Commissioning of 4 channel class-D amplifier with 60 watts/channel into Low-Z loads.4 channels can also be bridged in pairs, each pair providing up to 100 watts rms into 4 /8 ohms or 125 watts rms into 70V/100V. Signal to Noise (A weighted, 20 Hz-20 kHz)->100 dB, Frequency Response-20 Hz - 20 kHz, Input Sensitivity-1.23 Vrms (+4 dBu), Input Impedance->10 kΩ (balanced), >10 kΩ (unbalanced), Front Panel Indicators-Power, per channel Signal, per channel Protect/Limit, compact in Size. Mounting hardware included	QSC/ Bose/ Martin Audio	SPA4-60 / IZA-2120-HZ x 2 / Revamp4120T	1	EA		
5	Digital Signal Processor	Supply, Installation, Testing & Commissioning of audio, processing system with any combination required as per system architecture like 8 mic/line level analog audio inputs, 8 line level analog audio outputs, mic/line level analog audio inputs or outputs Up to 16 assignable and routeable AEC processor instances, POTS and VOIP for telephony, USB-B port for AV-USB Bridging and configurable up to 16x16 channels. 128x128 Network Audio channels (AES67/Dante), Input Frequency Response-20Hz to 20kHz @ +21dBu, Input Impedance (balanced)->5K Ohms Nominal, Input Sensitivity Range (x1dB Step)->39 dBu min to +21 dBu max, A/D -> D/A Converters - 24-bit, Sampling Rate-48kHz, Input Impedance (balanced)->5k ohms nominal, Output Dynamic Range-> 108dB, Inbuilt 16 Multitrack Player capacity, Front Panel monochrome OLED with capacitive touch buttons for settings, Control and integrate external devices using TCP/IP, RS232. Equipment should support the specified system architecture to achieve desired functionality	QSC/ Biamp/ Symmetrix	Core 110F/ Tesla Server I/O/ Prism 16x16	1	EA		
Video System								
1	65" Display	Supply, Installation, Testing & Commissioning of 65" 4K UHD Display	LG/ Samsung/ Sony	65UR640 / Q865 / FW-65BZ30J	4	EA		
2	55" Display	Supply, Installation, Testing & Commissioning of 55" 4K UHD Display	LG/ Samsung/ Sony	55UL1J / Q855 / FW-55BZ30J	4	EA		
3	Signage Player	Supply, Installation, Testing & Commissioning of 4K Digital Signage player with 4K60p video decoding Single 1080p60 video decoding Dual HD video decoding 4K Video codecs: H.265 at 60p and H.264 at 30p 4K Video Containers: .ts, .mov, .mp4, .mkv Full HD Video Codecs: H.265, H.264 (MPEG-4, Part 10), MPEG-2 Full HD Video Containers: .ts, .mpg, .vob, .mov, .mp4, .m2ts Images: BMP, JPEG, PNG up to 4K resolution Audio: MP2, MP3, AAC and WAV (AC3 is passed through) HTML5, HTML, Chromium-based, CSS, JavaScript, WebGL, Locking Power Connector Primary micro SD card slot	BrightSign / Scala	HD1025 / Media Player-S-AP	4	EA		
5	65" Interactive Display	Supply, Installation, Testing & Commissioning of 65" Multitouch Interactive Display with 4K UHD Display with brightness of 390 nit, Multi Touch Point - Max 20 . Operating System - Windows 7/8/10 / Windows XP / Linux / Mac / Android, Contrast ratio 1200:1, HDMI IN x 3, Audio in In x1, USB 3.0 X 3 , 3.5mm Stereo audio Out x 1, RS232(in/Out)x1, RJ45X1 & Speaker 10W, x 2, Touch USB x 2 & wide viewing angle of 178 degrees, OPS slot x 1 Certifications(Safety/EMC) : UL/CE/FCC, IES.	LG/ Samsung/ Panasonic	65TR3DJ / WM6GR / Board Pro RP6503	1	EA		
6	USB Switcher	Supply, Installation, Testing & Commissioning of 4 x 4 USB Hub Switch with 4 x USB Host, 4 x USB Peripherals , control through RS232 or LAN need to be supported. Equipment should support the specified system architecture to achieve desired functionality.	Aten/ Extron/ Blustream	US 3344i/ SW4 USB Pro / MX44KVM	1	EA		
7	USB Extender	Supply, Installation, Testing & Commissioning of Local Extender and Remote Extender pair for USB 3.0 Local Extender Should have 1 X USB, 1 RJ45, 1 Ethernet Link port, Remote Extender should have 4x USB 3.1 A Receptacles 1x RJ45 Ethernet 100/1000 Port USB Speeds SuperSpeed 5 Gbps, High-Speed, Full-Speed, Low-Speed USB Bandwidth Up to 5Gbps Device Compatibility: All Device Types and Classes (Control, Interrupt, and Bulk) Host Compatibility: OHCI, UHCI, EHCI, xHCI Available Current at REX: 1.2A (6W) per USB port	Icron / Startech / Crestron	Raven 3104 / USB3004EXT2 / USB-EXT-3 KIT	4	EA		
8	Wireless Collaboration System	Supply, Installation, Testing & Commissioning of Wireless Multimedia presentation and collaboration system for playing, sharing, and collaborating on digital content from a wide variety of devices via BYOD (Bring your own devices) and with integrated whiteboard and cloud connectivity. Main Master control unit for AV-over-IP collaboration solution. Device runs on a Linux read-only operating system and has numerous built in security features. The image output must be able to support 4K UHD. The device must have two LAN interfaces and one separate WLAN modules. The device can be operated as a stand-alone system or be integrated into an existing network. Stand-alone operation must support the frequency bands 2.4GHz and 5GHz. The device must be able to connect to an existing access point (Infrastructure Mode) or be able to allow other devices to connect to it (Access Point Mode) or via WLAN. The channels in the UNII-1 and UNII-2 band must be supported with 4K UHD resolution supporting devices up to 4K UHD: 2160p60 (4.2.0), 2160p30 (4.4.4), 1080p60 (4.4.4) operating on Airplay and Miracast protocol, 4 devices simultaneously displaying on same screen. Also supports dual Screen function, Microsoft 365 integration, Support for Touch Screen Displays, Touch Control for Windows, Should have 2 x HDMI inputs, 2 x HDMI Outputs, Audio In x 1, Audio Out x 1, USB 3.0 x 6 Supporting Network protocols TCP/IP, FTP, HTTP, HTTPS, SNT/NT, SSL, SSH, UDP, LDAP, LDAPS. Should support interactive & touch back connectivity with wirelessly shared content with required Software feature packs	Wolfvision / TV /	Cynap Pro with Software Feature Pack / T1V Hub with Software/	1	EA		
9	Recorder & Streamer	Supply, Installation, Testing & Commissioning of Recording & Webcasting Hardware, Recording, Streaming and Web casting simultaneously, Built-in 4 Inputs (HDMI /IP/3G-SDI/DVI) HDMI Out, Can record upto any three inputs simultaneously in a single frame and as well as individual sources simultaneously. Should have minimum 1TB inbuilt storage.	Lumens/ MediaPOINTE / Mediasite	LC200 / DMR HD3 / RL 760	1	EA		

10	4x1 HDMI Switcher	Supply, Installation, Testing & Commissioning of 4K@60Hz 4:4:4 Switcher with 4 HDMI inputs, 1 HDMI output On a female HDMI connector, 1 Balanced Stereo Audio: On 5-pin terminal block connector with de-embedded analog audio output, 2K and 4K support, Min. data rate data rate of 17.82Gbps, HD1V Compliant, HDCP 2.2 & HDR10 Compliant, Automatic Switching, 1 Unbalanced Stereo Audio: On a 3.5mm mini jack, Supporting deep color, xv Color™, CEC, Lip sync, HDMI uncompressed audio channels, Dolby TrueHD, DTS-HD, 2K, 4K, and 3D as specified in HDMI 2.0, Ethernet, Remote Contact Closure ports, Input selection buttons, DIP switches for configuring switching mode and audio de-embedding source, mini USB port for firmware upgrade, Health, Safety, Environmental Certifications : RoHS, WEEE, CE etc complete as required.	Kramer/ Extron/ Crestron	VS-411X/ SW4 HD 4K PLUS/ HD-MD4X1-4KZ-E	4	EA		
11	Seamless HDMI Matrix Switcher	Supply, Installation, Testing & Commissioning of Seamless Multiviewer with 4 Window Multi-viewer, 18G 4K HDMI product with 4 HDMI inputs and HDBT and HDMI outputs, should support Rotation HDMI up to 4K@50/60Hz 4:4:4 and HDBT up to 4K@50/60Hz 4:2:0, HDR10, CEC (for outputs only), 4K@60Hz, Image Rotation – 90, 180 and 270-degree rotation support for 4K output resolutions on input 1 in matrix mode	Kramer/ Extron/ TvOne	MV-3X / MGP-641 / C3-503	1	EA		
12	AVoIP Encoder	Supply, Installation, Testing & Commissioning of AVoIP Encoder Should be AVoIP Encoder for 4K60 4:2:0 over IG network. Should have 1 HDMI input & 1 HDMI loop output. Should have 1 balanced stereo audio input, 1 RS232, 1 USB host, Ethernet port. Should support Scalable one to many/many to many/video wall/KVM-over IP media distribution. Should have built in scaling & video encoding/compression Should have enterprise IT-grade security – 802.1x and HTTPS/TLS. Should support Power – PoE or external power supply. Should have restart and factory reset rear panel button & embedded web pages, front panel navigation buttons. Should support API commands via Ethernet front panel navigation buttons. Should be controllable via Web UI, API, and command for third party control system support. Extra component or equipment may be added to match the complete specs. Equipment should support the specified system architecture to achieve desired functionality	Kramer/ Extron/ Crestron	KDS-EN7 / NAV-E-501 / DM-NVX-360	8	EA		
13	AVoIP Decoder	Supply, Installation, Testing & Commissioning of AVoIP Decoder for 4K60 4:2:0, over 1G network, 1 HDMI output Should have 1 HDMI output, better if it supports HDMI input. Should have 1 balanced stereo audio output, RS232, USB, Ethernet port. Should support Scalable one to many/many to many/video wall/KVM-over IP media distribution Should have built in scaling & video encoding/compression Should support enterprise IT-grade security – 802.1x and HTTPS/TLS. Should support Power – PoE or external power supply. Should have restart and factory reset rear panel button, embedded web pages, front panel navigation buttons. Should support API commands via Ethernet. Should be controllable via Web UI, API, and command for third party control system support. Extra component or equipment may be added to match the complete specs. Equipment should support the specified system architecture to achieve desired functionality	Kramer/ Extron/ Crestron	KDS-DEC7 / NAV-SD-501/ DM-NVX-360	10	EA		
14	AVoIP Controller	Supply, Installation, Testing & Commissioning of High-performance, highly-scalable, AVoIP Manager for configuration and monitoring of AVoIP deployments. Should support controlling and configuring the matrix, video wall, and KVM modes of connected devices. Should support device grouping and group operations. Should be able to setting up all connected encoder/decoder units, including IP configuration, compatibility settings, and extender status are clearly displayed and easily updated. Should be able to access via Remote Web UI or using local monitor with a USB keyboard and mouse. Should support enterprise IT-grade security – 802.1x and HTTPS/TLS, Security certification and Can be deployed in the same LAN used for AV devices streaming or in a separate LAN. Equipment should support the specified system architecture to achieve desired functionality	Kramer/ Extron/ Crestron	KDS-7-MNGR / NAVIGATOR/ NVX-dir-80	1	EA		
15	48 Port Network Switch	Supply, Installation, Testing & Commissioning of 48 Port Network Switch (40x1G PoE+ 60xW and 8xSFP+). Should be non blocking type layer 3 managed switch. Should support IGMP snooping, multicast and unicast addressing required for AVoIP encoders & Decoders. Should support PoE+ on minimum 40 ports	Netgear/ Cisco/ Juniper	Netgear/ Cisco/ Juniper	1			
Video Conferencing System								
1	Camera Extension Kit	Supply, Installation, Testing & Commissioning of following 1. Transmitter Receiver Pair for existing Poly Camera 2. Distance between TX & RX should support upto 100mts using single cat 6 cable. Transmitter should power the Camera., Power only at receiver end. The receiver should power the transmitter over cat6 using the same cat 6 cable. Power, Control & Video all in one cat 6 cable and should support upto 100mts. HDCI Cable and Mini HDCI cable both to be included with the TX RX pair., Mini HDCI cable should be of 1ft at the camera end., HDCI cable should be of 1 mtr at the receiver end(Has to go with SCT as this has to be compatible with Poly VC).	Sound Control Technologies	RC4-E4P	4	EA		
2	Camera Distribution Amplifier	Supply, Installation, Testing & Commissioning of Video Distribution unit for Poly Camera, Integrated RS232 Port to enable camera control via third party control systems, to be used in conjunction with the Extension Kit, Integrated 1x2 HDMI Distribution Amplifier(Has to go with SCT as this has to be compatible with Poly VC).	Sound Control Technologies	RC-SDA	1	EA		
3	Conferencing Controller	Supply, Installation, Testing & Commissioning of controller for Chairram and Delegate system with following specs - Should have Integrated recording capabilities - Should have Integrated web server for control via tablet, smartphone - Should have digital RJ 45 ports - Should have Branch or loop connection (redundancy) between Chairman/ Delegate Units - Should have LAN connection for web server or camera control protocol – Plug and Play - XLR out, XLR in, RCA in and two RCA out Equipment should support the specified system architecture to achieve desired functionality	Televie/ Bosch/ Audio Technica	D-Cerno CUR / CCS1000D Control Unit / ATUC-50CU	1	EA		
4	Delegate Unit	Supply, Installation, Testing & Commissioning of Delegate Discussion unit with gooseneck microphone of minimum 40 cm in length and should have following specs - Should have Microphone connector - Should have Microphone button and better to have volume control button - Should have Built-in loudspeaker - Cables should be included - Better if gooseneck microphone has bi-colour led ring indication (red / green), Microphone with minimum 400mm Gooseneck Length - Should have Polar Pattern: Unidirectional or Cardioid, Max SPL @ 1kHz: 110 dB SPL (1% THD+N) or higher. S/N Ratio: > 67 dB(A) or better, sensitivity: < -40 dBV @ 1Pa, 1kHz or better, Connection: Screw Lock / as per OEM, Better if it has Headphone connector. Equipment should support the specified system architecture to achieve desired functionality	Televie/ Bosch/ Shure	D-Cerno D SL+ D-MIC 40 SL / CCSD-DL / ATUC-50DU + ATUC-M43H /	40	EA		

5	Chairman Unit	Supply, Installation, Testing & Commissioning of Chairman Discussion unit with gooseneck microphone of minimum 40 cm in length and should have following specs - Should have Microphone connector - Should have Microphone button and better to have volume control button - Should have Built-in loudspeaker - Cables should be included - Better if gooseneck microphone has bi-colour led ring indication (red / green). Microphone with minimum 400mm Gooseneck Length - Should have Polar Pattern: Unidirectional or Cardioid. Max SPL @ 1kHz: 110 dB SPL (1% THD+N) or higher. S/N Ratio: > 67 dB(A) or better. sensitivity: -40 dBV @ 1Pa, 1kHz or better. Connection: Screw Lock / as per OEM. Better if it has Headphone connector. Equipment should support the specified system architecture to achieve desired functionality	Televie/ Bosch/ Shure	D-Cerno C SL+ D-MIC 40 SL / CCSD-DL / ATUC-50DU + ATUC-M43H /	5	EA			
Control System									
1	Control System Type 1	Supply, Installation, Testing & Commissioning of Control system with Touch Panel should have minimum 8 bidirectional RS232, 8 IR, 8 Relays and 8 GP/IO and 1 Ethernet port to control all the devices in the room. Should have inbuilt or external IR sensor/learner to learn IR commands Should have inbuilt processing power and internal storage to store and process the control program. Should be compatible with any (IOS/Android) wireless or wired Touch screen of any size. Additional ports if required can be added with minimum hassle. Should have the flexibility to add as many user interfaces as required. Should have embedded webpage for control port settings. Should have Status LED to check for Control/Connection status. It should have minimum 5 license each included for both IOS & Android application Certification: CE, ISO 9001, ISO 14001, OHSAS 18001. Supply, Installation, Testing & Commissioning of 10-inch, IPS, multi-touch, touch panel with 1920x1200 resolution, Quad Core A93, 4GB RAM, 32GB ROM PoE and power adapter	Kramer/ Extron/ Crestron	SI-280 with KT-2010 / IPCP Pro 555Q xi with TLP Pro 1025T CP4 with TS-1070-B-S	1	EA			
2	Wireless Touch Control	Supply, Installation, Testing & Commissioning of Wireless touch controller with minimum 10 inch screen, 64GB storage, WIFI connectivity and Docking station Should have 20W USB-C Power Adapter with LED backlit Multi-Touch display and IPS technology Should have 2360x1640-pixel resolution at 264 pixels per inch (ppi) 500 nits brightness Should have Fingerprint-resistant oleophobic coating, 4K video recording at 24 fps, 25 fps, 30 fps or 60 fps Wi-Fi 6 (802.11ax) with 2x2 MIMO, speeds up to 1.2 Gbps Should have Simultaneous dual band, Bluetooth 5.2 Touch ID, Three-axis gyro, Accelerometer, Barometer, Ambient light sensor. Should support iPadOS 16/Android 13	Apple	I-Pad 64 GB Wifi	1	EA			
3	Wireless Access Point	Supply, Installation, Testing & Commissioning of Wireless Access point, 2.4ghz And 5ghz N600 Wireless Gigabit Ceiling Mount Access Point, 600 Mbps,	Netgear/ Linksys/ TP-Link	WNDR3400/ LAPN600/ TL-WDR3500	1	EA			
Installation Equipment									
1	Portrait Wall Mount Bracket for 55" Display	Supply, Installation, Testing & Commissioning of Portrait Wall Mount Bracket for 55" Display - Should be able to support max load of 45 kg - Should support Vesa Mount from 50x30 to 600x400 - Should be made of steel	Lumi/ B-tech /Logic	LP42-64AF / BT8320 / LVXSUP	4	EA			
2	Floor Mount for 65" Interactive Display	Supply, Installation, Testing & Commissioning of Floor Mount Trolley for 65" Interactive Display - Should have free tilting and swivelling - Should support a minimum weight of 39 kg	Lumi/ B-tech / Logic	FS11-46T / BT8504 / LG-EMERALD 1	1	EA			
3	Ceiling Mount for 65" Display	Supply, Installation, Testing & Commissioning of Ceiling Mount for 65" Display -Shopuld support max load of 50kg -Should support of VESA mount of 200x200 to 600x400 -Should be made of steel	Logie/Lumi/Chief	Logie/Lumi/Chief	4	EA			
4	Ceiling Mount kit for Camera	Supply, Installation, Testing & Commissioning of Ceiling Mount for Camera mounting for existing Poly Camera	Logie/Lumi/Chief	Logie/Lumi/Chief	4	EA			
5	HDMI Cable 10 Feet	Supply, Installation, Testing & Commissioning of High Speed HDMI Male to Male Cables 10 feet Should be High Speed with Ethernet HDMI Cable. Supports signals up to 4K@60Hz (4:2:0), Deep Color Should have 24k gold Plated pins. Should support Data Transfer rate of upto minimum 10GBps. Should support of upto 48 bit Deep Color. Connectors must have a minimal locking capability to prevent outing of cables from ports. Should have an overall shield against EMI/RFI interference. Should be CL2 flame tested.	Kramer/Crestron/ Extron	C-HM/HM-10 / HDMI Ultra/9 / CBL-8K-HD-9	11	EA			
6	HDMI Cable 6 Feet	Supply, Installation, Testing & Commissioning of High Speed HDMI Male to Male Cables 6 feet Should be High Speed with Ethernet HDMI Cable. Supports signals up to 4K@60Hz (4:2:0), Deep Color Should have 24k gold Plated pins. Should support Data Transfer rate of upto minimum 10GBps. Should support of upto 48 bit Deep Color. Connectors must have a minimal locking capability to prevent outing of cables from ports. Should have an overall shield against EMI/RFI interference. Should be CL2 flame tested.	Kramer/ Crestron/ Extron	C-HM/HM-6 / HDMI Ultra/6 / CBL-HD-6	20	EA			

7	HDMI Cable 3 Feet	Supply, Installation, Testing & Commissioning of High Speed HDMI Male to Male Cables 3 feet Should be High Speed with Ethernet HDMI Cable. Supports signals up to 4K@60Hz (4:2:0), Deep Color Should have 24k gold Plated pins. Should support Data Transfer rate of upto minimum 10GBps. Should support of upto 48 bit Deep Color. Connectors must have a minimal locking capability to prevent ousting of cables from ports. Should have an overall shield against EMI/RFI interference. Should be CL2 flame tested.	Kramer / Crestron / Extron	C-HM/HM-3 / HDMI Ultra/3 / CBL-8K-HD-3	20	EA		
8	Cable Cubby Type 1	Supply, Installation, Testing & Commissioning of Retractable Cable Cubby with 1 x HDMI retractor, 1 x LAN retractor, 2 USB Charging 2.0, 2 x Power. Should be rectangular in shape. Should be retractable Lid. Should be modular in design. Should have the enclosure, an inner frame, a power socket, inserts and a power cord.	Kramer / Extron / Crestron	TBUS-10XL / FT3-700-PTL / CableCubby 700	13	EA		
9	Cable Cubby Type 2	Supply, Installation, Testing & Commissioning of Retractable Cable Cubby with 1 x HDMI retractor, 1 x USB 3.0 retractor, 1 x LAN retractor, 2 USB Charging 2.0, 2 x Power. Should be rectangular in shape. Should be retractable Lid. Should be modular in design. Should have the enclosure, an inner frame, a power socket, inserts and a power cord.	Kramer / Extron / Crestron	TBUS-10XL / FT3-700-PTL / CableCubby 700	3	EA		
10	Accessories, Cable Connector , patch cables etc	Supply, Installation, Testing & Commissioning of CAT6 cables, speaker cables, Mic Cables, Patch Cables, USB Patch cables, USB Active Extender Cables etc	Kramer / Extron / Belden	Kramer / Extron / Belden	1	LOT		
11	AV rack Type 1	Supply, Installation, Testing & Commissioning of 42U Equipment Rack with silent fans, shelves, PDU & Adjustable mounting, leveling feet included , Cable pass-through in top & bottom of rack Vertical cable management bar, Multiple stationary shelves	Valrack / NavePoint / APC	ProTek / MidDepth / Flexibox	1	EA		
Sub-total 46 Pax Conference Hall 7E of (C) Board Room 7A								
D Audio System								
A								
1	Ceiling Mount Speaker	Supply, Installation, Testing & Commissioning of minimum 4 inch, 2-way, Full Range, Ceiling-mount loudspeaker. Rated Power - 16Watts, Sensitivity-89 dB SPL, Coverage Angle (-6 dB)-140° (500 Hz to 5 kHz), Maximum SPL Continuous/Peak-101dB/107dB, Rated Impedance - 8 Ohms, Transformer Tapping - 70V/100V(16, 8, 4.2 watts), Transducer - 4.5-inch Polypropylene cone with butyl rubber surround, Material - Painted ABS polymer Baffle and Power coated steel grille. Safety rating - UL1480, UL2043. Mounting rails and C-Ring for ceiling tile included.	QSC / Bose / Martin Audio	AC-C4T / FS4CE / C4-8T	6	EA		
2	Column Speaker	Supply, Installation, Testing & Commissioning of Column surface-mount loudspeaker. Multiple Transducer of minimum 2.75 in (69.8 mm) cone woofer. Frequency range- 90 Hz – 17 kHz, Rated noise power / voltage- 120 watts / 31 volts (rms), Sensitivity- 87dB , Coverage (-6 dB)- 160 x 20, 500Hz: 180 x 90, kHz: 180 x 35, 2kHz: 160 x 22, 4kHz: 180 x 20. Maximum Peak SPL - 114 dB, Impedance - 8Ω, Powder coated aluminum enclosure. Powder coated aluminum grille. All Mounting Accessories included. Equipment should support the specified system architecture to achieve desired functionality.	QSC / BOSE / Renkus Heinz	AD-S802T / MA12 / UBX8	2	EA		
3	Dual Channel Amplifier	Supply, Installation, Testing & Commissioning of 2 channel class-D amplifier with 60 watts/channel into Low-Z loads. Signal to Noise support (A weighted, 20 Hz-20 kHz)->100 dB, Frequency Response-20 Hz - 20 kHz, Input Sensitivity-1.23 Vrms (+4 dBu), Input Impedance->10 kΩ (balanced), >10 kΩ (unbalanced), Front Panel Indicators-Power, per channel Signal, per channel Protect/Limit, better to Energy Star compliant with all mounting accessories included. Equipment should support the specified system architecture to achieve desired functionality.	QSC / Bose / Martin Audio	SPA2-60 / IZA2120-HZ / Revamp2060T	1	EA		
4	Quad Channel Amplifier	Supply, Installation, Testing & Commissioning of 4 channel class-D amplifier with 60 watts/channel into Low-Z loads.4 channels can also be bridged in pairs, each pair providing up to 100 watts rms into 4 / 8 ohms or 125 watts rms into 70V/100V. Signal to Noise (A weighted, 20 Hz-20 kHz)->100 dB, Frequency Response-20 Hz - 20 kHz, Input Sensitivity-1.23 Vrms (+4 dBu), Input Impedance->10 kΩ (balanced), >10 kΩ (unbalanced), Front Panel Indicators-Power, per channel Signal, per channel Protect/Limit, compact in Size. Mounting hardware included	QSC / Bose / Martin Audio	SPA4-60 / IZA2120-HZx 2 / Revamp4120T	1	EA		
5	Digital Signal Processor	Supply, Installation, Testing & Commissioning of audio, processing system with any combination required as per system architecture like 8 mic/line level analog audio inputs, 8 line level analog audio outputs, mic/line level analog audio inputs or outputs Up to 16 assignable and routable AEC processor instances, POTS and VOIP for telephony, USB-B port for AV-USB Bridging and configurable up to 16x6x-channels, 128x128 Network Audio channels (AES67/Dante), Input Frequency Response-20Hz to 20kHz @ -21dBu, Input Impedance (balanced)-5k Ohms Nominal, Input Sensitivity Range (dB Steps)-39 dBu min to +21 dBu max, A/D - D/A Converters - 24-bit, Sampling Rate-48kHz, Input Impedance (balanced)-5k ohms nominal, Output Dynamic Range-> 108dB, Inbuilt 16 Multitrack Player capacity, Front Panel monochrome OLED with capacitive touch buttons for settings, Control and integrate external devices using TCP/IP, RS232. Equipment should support the specified system architecture to achieve desired functionality	QSC / Biamp / Symmetrix	Core 110F / Tesira Server I/O / Prism 16x16	1	EA		
Video System								
1	136" LED Wall	Supply, Installation, Testing & Commissioning of 136" Display with 1920 x 1080 resolution having Contrast ratio more than 3000:1, minimum brightness 500 nits having pixel pitch not more than 1.6 mm, indoor application	LG / Planar / Samsung	LAFC015 / MG015 /	1	EA		

2	17" Motorised Touch Display	Supply, Installation, Testing & Commissioning of Professional electrically retractable 17.3" widescreen FULL HD monitor with 20 degrees of automatic inclination to be integrated into furniture. Should have Solid aluminium monitor housing in natural anodised finishing with a black edged anti-reflection glass. Should have modern and elegant design with round corners. Up-table cover plate in brushed stainless steel. DVI-I and DVI-D HDCP compliant inputs. Should have Lift system with electrical engine activated through integrated push buttons in the cover plate, external GPI controls (contact closure) or AHnet Protocol (RS422) through CAT 5 cable with loop-through, addressing and termination switch.	Arthurn Holm / Albiral / ElementOne	AH17DX2HDGA Touch ALB17HDMR with Touch/ CONVERS BLADE 173 FullHD Touch	3	EA
3	17" Motorised Non-Touch Display	Supply, Installation, Testing & Commissioning of Professional electrically retractable 17.3" widescreen FULL HD monitor with 20 degrees of automatic inclination to be integrated into furniture. Solid aluminium monitor housing in natural anodised finishing with a black edged anti-reflection glass. Modern and elegant design with round corners. Up-table cover plate in brushed stainless steel. DVI-I and DVI-D HDCP compliant inputs. Lift system with electrical engine activated through integrated push buttons in the cover plate, external GPI controls (contact closure) or AHnet Protocol (RS422) through CAT 5 cable with loop-through, addressing and termination switch.	Arthurn Holm / Albiral / ElementOne	AH17DX2HDGA Glass ALB17HDMR / CONVERS ONE 173 FullHD	8	EA
4	Wireless Collaboration System	Supply, Installation, Testing & Commissioning of Wireless Multimedia presentation and collaboration system for playing, sharing, and collaborating on digital content from a wide variety of devices via BYOD (Bring your own devices) and with integrated whiteboard and cloud connectivity. Main Master control unit for AV-over-IP collaboration solution. Device runs on a Linux read-only operating system and has numerous built in security features. The image output must be able to support 4K UHD. The device must have two LAN interfaces and one separate WLAN module. The device can be operated as a stand-alone system or be integrated into an existing network. Stand-alone operation must support the frequency bands 2.4GHz and 5GHz. The device must be able to connect to an existing access point (Infrastructure Mode) or be able to allow other devices to connect to it (Access Point Mode) or via WLAN. The channels in the UNII-1 and UNII-2 band must be supported with 4K UHD resolution supporting devices up to 4K UHD: 2160p60 (4.2.0), 2160p30 (4.4.4), 1080p60 (4.4.4) operating on Airplay and Miracast protocol, 4 devices simultaneously displaying on same screen. Also supports dual Screen function, Microsoft 365 integration. Support for Touch Screen Displays, Touch Control for Windows, Should have 2 x HDMI inputs, 2 x HDMI Outputs, Audio In x 1, Audio Out x 1, USB 3.0 x 6 Supporting Network protocols TCP/IP, FTP, HTTP, HTTPS, SFTP/NTP, SSI, SSH, UDP, LDAP, LDAPS. Should support interactive & touch back connectivity with wirelessly shared content with required Software feature packs	Wolfvision / Tiv /	Cynap Pro with Software Feature Pack / Tiv Hub with Software/	1	EA
5	AVoIP Extender	Supply, Installation, Testing & Commissioning of AVoIP collaboration system for playing, sharing, and collaborating on digital content. The device must be able to be a part of AV-Over-IP Solution allowing End user to annotate on content shown on the main display. The output of the device must support minimum full HD 1080p resolution. The USB connection on the device must be able to receive touch commands from the touch display. The solution must be scalable depending on the number of participants who wish to annotate and see the content on their individual display. The system is an AV-over-IP based collaboration solution that connects up to 40 suitable devices, shares video and audio between multiple display screens using network infrastructure. A main unit can be connected to other devices using "Networked AV" technology to form a cluster. In this cluster, a main unit can display content on-screen from different stations on the main screen, or forward the signal to all other stations for display	Wolfvision/ Kramer/ Extron	Cynap Pure Receiver / KDS-EN7 + KDS-DEC7 / NAV E 501 + NAV SD 501	2	EA
6	Recorder & Streamer	Supply, Installation, Testing & Commissioning of Recording & Webcasting Hardware, Recording, Streaming and Web casting simultaneously, Built-in 4 Inputs (HDMI /IP/3G-SDI/DVI) HDMI Out, Can record upto any three inputs simultaneously in a single frame and as well as individual sources simultaneously. Should have minimum 1TB inbuilt storage.	Lumens/ MediaPOINTE / Mediastie	LC200 / DMR HD2 / RI 760	1	EA
7	AVoIP Encoder	Supply, Installation, Testing & Commissioning of AVoIP Encoder Should be AVoIP Encoder for 4K60 4:2:0 over IG network Should have 1 HDMI input & 1 HDMI loop output. Should have a balanced stereo audio input, 1 RS232, 1 USB host, Ethernet port. Should support Scalable one to many/many to many/video wall/KVM-over IP media distribution. Should have built in scaling and video encoding/compression Should support enterprise IT-grade security – 802.1x and HTTPS/TLS. Should support Power – PoE or external power supply. Should have restart and factory reset rear panel button & embedded web pages, front panel navigation buttons. Should support API commands via Ethernet front panel navigation buttons. Should be controllable via Web UI, API, and command for third party control system support. Extra component or equipment may be added to match the complete specs. Equipment should support the specified system architecture to achieve desired functionality	Kramer/ Extron/ Crestron+ED117:E117	KDS-EN7 / NAV E 501 / DM-NVX-360	9	EA
8	AVoIP Decoder	Supply, Installation, Testing & Commissioning of AVoIP Decoder for 4K60 4:2:0, over IG network, 1 HDMI output Should have 1 HDMI output, better if it supports HDMI input. Should have a balanced stereo audio output, RS232, USB, Ethernet port. Should support Scalable one to many/many to many/video wall/KVM-over IP media distribution Should have built in scaling & video encoding/compression Should support enterprise IT-grade security – 802.1x and HTTPS/TLS. Should support Power – PoE or external power supply. Should have restart and factory reset rear panel button, embedded web pages, front panel navigation buttons. Should support API commands via Ethernet. Should be controllable via Web UI, API, and command for third party control system support. Extra component or equipment may be added to match the complete specs. Equipment should support the specified system architecture to achieve desired functionality	Kramer/ Extron/ Crestron	KDS-DEC7 / NAV SD 501/ DM-NVX-360	8	EA
9	AVoIP Controller	Supply, Installation, Testing & Commissioning of High-performance, highly-scalable, AVoIP Manager for configuration and monitoring of AVoIP deployments. Should support controlling and configuring the matrix, video wall, and KVM modes of connected devices. Should support device grouping and group operations. Should be able to setting up all connected encoder/decoder units, including IP configuration, compatibility settings, and extender status are clearly displayed and easily updated. Should be able to access via Remote Web UI or using local monitor with a USB keyboard and mouse. Should support enterprise IT-grade security – 802.1x and HTTPS/TLS, Security certification and Can be deployed in the same LAN used for AV data streaming or in a separate LAN. Equipment should support the specified system architecture to achieve desired functionality	Kramer/ Extron/ Crestron	KDS-MNGR/ Navigator/ NVX-dir-80	1	EA
10	Transmitter HDMI USB	Supply, Installation, Testing & Commissioning of 4K60 4:2:0 HDMI PoE Transmitter with USB, Ethernet, RS-232, IR & Stereo Audio Embedding over Extended-Reach HDBaseT 2.0 and 4K60 4:2:0 HDMI PoE Receiver with USB, Ethernet, RS-232, IR & Stereo Audio De-embedding over Extended-Reach HDBaseT 2.0	Kramer/Extron/ Crestron	TP-590TXR DTP HDMI 4K 330 Tx+USB Extender Plus T DM-TX-201-C+USB-EXT-2-LOCAL	1	EA
11	Receiver HDMI USB	Supply, Installation, Testing & Commissioning of 4K60 4:2:0 HDMI PoE Receiver with USB, Ethernet, RS-232, IR & Stereo Audio Embedding over Extended-Reach HDBaseT 2.0 and 4K60 4:2:0 HDMI PoE Receiver with USB, Ethernet, RS-232, IR & Stereo Audio De-embedding over Extended-Reach HDBaseT 2.0	Kramer/Extron / Crestron	TP-590RXR/ DTP HDMI 4K 330 Rx+USB Extender Plus R/ DM-RMC-4KZ-100-C+USB-EXT-2-REMOTE	1	EA
12	1:4 HDMI Distribution Amplifier	Supply, Installation, Testing & Commissioning of 1:4 HDMI distributor up to 4K HDR, HDMI signals with HDCP 2.2 with Max. Data Rate – 17.82Gbps (5.94Gbps per graphic channel), 4K@60Hz (4:4:4), HDR, HDCP 2.2 compliant signal, supporting deep color, x.v.Color™, lip sync, 7.1 PCM, Dolby TrueHD, DTS-HD, CEC (OUT 1 only), 2K, 4K, and 3D as specified in HDMI 2.0	Kramer/ Extron/ Crestron	VM-4Hz / DA4 HD 4K PLUS / HD-DA4-4KZ-E	2	EA
13	48 Port Network Switch	Supply, Installation, Testing & Commissioning of 48 Port Network Switch (40x1G PoE+ 960W and 8xSFP+). Should be non blocking type layer 3 managed switch . Should support IGMP snooping , multicast and unicast addressing required for AVoIP encoders & Decoders. Should support PoE- on minimum 40 ports	Netgear/ Cisco/ Juniper	Netgear/ Cisco/ Juniper	1	EA

Video Conferencing System									
1	Conferencing Controllier	Supply, Installation, Testing & Commissioning of controller for Chairamm and Delegate system with folwoing specs - Should have Integrated recording capabilities - Should have Integrated web server for control via tablet, smartphone - Should have digital RJ 45 ports - Should have Branch or loop connection (redundancy) between Chairman/Delegate Units - Should have LAN connection for web server or camera control protocol - Plug and Play - XLR out, XLR in, RCA in and two RCA out Equipment should support the specified system architecture to achieve desired functionality	Televic/ Bosch/ Audio Technica	D-Cerno CUR / CCS100D Control Unit / ATUC-50CU	1	EA			
2	Delegate Unit	Supply, Installation, Testing & Commissioning of Delegate Discussion unit with gooseneck microphone of minimum 40 cm in length and should have following specs - Should have Microphone button and better to have volume control button - Should have Built-in loudspeaker - Cables should be included - Better if gooseneck microphone has bi-colour led ring indication (red / green). Microphone with minimum 400mm Gooseneck Length - Should have Polar Pattern: Unidirectional or Cardioid. Max SPL @ 1kHz: 110 dB SPL (1% THD+N) or higher. S/N Ratio: > 67 dB(A) or better. sensitivity: -40 dBV @ 1Pa, 1kHz or better. Connection: Screw Lock / as per OEM. Better if it has Headphone connector. Equipment should support the specified system architecture to achieve desired functionality	Televic/ Bosch/ Audio Technica	D-Cerno D SL+ D-MIC 40 SL / CCSD-DL / ATUC-50DU + ATUC-M43H /	18	EA			
3	Chairman Unit	Supply, Installation, Testing & Commissioning of Chairman Discussion unit with gooseneck microphone of minimum 40 cm in length and should have following specs - Should have Microphone connector - Should have Microphone button and better to have volume control button - Should have Built-in loudspeaker - Cables should be included - Better if gooseneck microphone has bi-colour led ring indication (red / green). Microphone with minimum 400mm Gooseneck Length - Should have Polar Pattern: Unidirectional or Cardioid. Max SPL @ 1kHz: 110 dB SPL (1% THD+N) or higher. S/N Ratio: > 67 dB(A) or better. sensitivity: -40 dBV @ 1Pa, 1kHz or better. Connection: Screw Lock / as per OEM. Better if it has Headphone connector. Equipment should support the specified system architecture to achieve desired functionality	Televic/ Bosch/ Audio Technica	D-Cerno C SL+ D-MIC 40 SL / CCSD-DL / ATUC-50DU + ATUC-M43H /	3	EA			
Control System									
1	Control System Type 1	Supply, Installation, Testing & Commissioning of Control system with Touch Panel should have minimum 8 bidirectional RS232, 8 IR, 8 Relays and 8 GP/IO and 1 Ethernet port to control all the devices in the room. Should have inbuilt or external IR sensor/learner to learn IR commands Should have inbuilt processing power and internal storage to store and process the control program. Should be compatible with any (IOS/Android) wireless or wired Touch screen of any size. Additional ports if required can be added with minimum hassle. Should have the flexibility to add as many user interfaces as required. Should have embedded webpage for control port settings. Should have Status LED to check for Control/Connection status. It should have minimum 3 license each included for both IOS & Android application Certification: CE, ISO 9001, ISO 14001, OHSAS 18001. Supply, Installation, Testing & Commissioning of 10-inch, IPS, multi-touch, touch panel with 1920x1200 resolution, Quad Core A53, 4GB RAM, 32GB ROM PoE and power adapter	Kramer/ Extron/ Crestron	SL-280 with KT-2010 / IPCP Pro 555Q xi with TLP Pro 1025T CP4 with TS-1070-B-S	1	EA			
2	Wireless Touch Control	Supply, Installation, Testing & Commissioning of Wireless touch controller with minimum 10 inch screen, 64GB storage, WIFI connectivity and Docking station Should have 20W USB-C Power Adapter with LED backlit Multi-Touch display and IPS technology Should have 2360x1640-pixel resolution at 264 pixels per inch (ppi) 500 nits brightness Should have Fingerprint-resistant oleophobic coating 4K video recording at 24 fps, 25 fps, 30 fps or 60 fps Wi-Fi 6 (802.11ax) with 2x2 MIMO; speeds up to 1.2 Gbps Should have Simultaneous dual band, Bluetooth 5.2 Touch ID, Three-axis gyro, Accelerometer, Barometer, Ambient light sensor. Should support iPadOS 16/Android 13 The equipment must support the specified system architecture to ensure the successful attainment of desired functionality	Apple	I-Pad 64 GB WiFi	1	EA			
3	Wireless Access Point	Supply, Installation, Testing & Commissioning of Wireless Access point, 2.4ghz And 5ghz N600 Wireless Gigabit Ceiling Mount Access Point, 600 Mbps,	Netgear/ Linksys/ TP-Link	WNRD3400/ LAPN600/ TL-WDR3500	1	EA			
Installation Equipment									
1	Wall Mount Bracket for 136" Display	Supply, Installation, Testing & Commissioning of Wall Mount for 136" Display - Should support minimum of 220 kg - Should support Videowall cabinet mounting as per system requirement to achieve desired functionality	Logic/Lumi/Chief	Logic/Lumi/Chief	1	EA			
2	HDMI Cable 10 Feet	Supply, Installation, Testing & Commissioning of High Speed HDMI Male to Male Cables 10 feet Should be High Speed with Ethernet HDMI Cable. Supports signals up to 4K@60Hz (4:2:0), Deep Color Should have 24k gold Plated pins. Should support Data Transfer rate of upto minimum 10GBps. Should support upto 48 bit Deep Color. Connectors must have a minimal locking capability to prevent ousting of cables from ports. Should have an overall shield against EMI/RFI interference. Should be CL2 flame tested.	Kramer/Crestron/ Extron	C-HM/HM-10 / HDMI Ultra/9 / CBL-8K-HD-9	6	EA			
3	HDMI Cable 6 Feet	Supply, Installation, Testing & Commissioning of High Speed HDMI Mate to Male Cables 6 feet Should be High Speed with Ethernet HDMI Cable. Supports signals up to 4K@60Hz (4:2:0), Deep Color Should have 24k gold Plated pins. Should support Data Transfer rate of upto minimum 10GBps. Should support upto 48 bit Deep Color. Connectors must have a minimal locking capability to prevent ousting of cables from ports. Should have an overall shield against EMI/RFI interference. Should be CL2 flame tested.	Kramer/ Extron/ Crestron	C-HM/HM-6 / HDMI Ultra/6 / CBL-HD-6	10	EA			

4	HDMI Cable 3 Feet	Supply, Installation, Testing & Commissioning of High Speed HDMI Male to Male Cables 3 feet Should be High Speed with Ethernet HDMI Cable. Supports signals up to 4K@60Hz (4:2:0), Deep Color Should have 24k gold Plated pins. Should support Data Transfer rate of upto minimum 10GBps. Should support of upto 48 bit Deep Color. Connectors must have a minimal locking capability to prevent ousting of cables from ports. Should have an overall shield against EMI/RFI interference. Should be CL2 flame tested.	Kramer/ Crestron/ Extron	C-HM/HM-5 / HDMI Ultra/3 / CBL-8K-HD-3	17	EA	
5	Accessories, Cable Connector , patch cables etc	Supply, Installation, Testing & Commissioning of CAT6 cables, speaker cables, Mic Cables, Patch Cables, USB Patch cables, USB Active Extender Cables etc	Kramer/ Extron/ Belden	Kramer/ Extron/ Belden	1	LOT	

**Board Room 7A
Lobby area of 7th Floor E wing
Video System**

1	55" Display with Customized Kiosk	Supply, Installation, Testing & Commissioning of 55" 4K UHD Display with Customized SS Kiosk for hosting the display and Signage Equipment	LG/ Samsung/ Sony	55UL3J with Kiosk / QB55 with Kiosk/ FW-55BZ30J with Kiosk	2	EA	
2	Signage Player	Supply, Installation, Testing & Commissioning of 4K Digital Signage player with 4k60p video decoding Single 1080p60 video decoding Dual HD video decoding 4K Video codes: H.265 at 60p and H.264 at 30p 4K Video Containers: .ts, .mov, .mp4, .mkv Full HD Video Codes: H.265, H.264 (MPEG-4, Part 10), MPEG-2 Full HD Video Containers: .ts, .mpg, .vob, .mov, .mp4, .mts Images: BMP, JPEG, PNG up to 4K resolution Audio: MP2, MP3, AAC and WAV (AC3 is passed through) HTML5, .html, Chromium-based, CSS, JavaScript, WebGL Locking Power Connector Primary micro SD card Slot with LAN PATCH Cable	BrightSign / Scala	HD1025 / Media Player-S-AP	2	EA	
3	HDMI Cable 6 Feet	Supply, Installation, Testing & Commissioning of High Speed HDMI Mate to Male Cables 6 feet Should be High Speed with Ethernet HDMI Cable. Supports signals up to 4K@60Hz (4:2:0), Deep Color Should have 24k gold Plated pins. Should support Data Transfer rate of upto minimum 10GBps. Should support of upto 48 bit Deep Color. Connectors must have a minimal locking capability to prevent ousting of cables from ports. Should have an overall shield against EMI/RFI interference. Should be CL2 flame tested.	Kramer/ Extron/ Crestron	C-HM/HM-6 / HDMI Ultra/6 / CBL-HD-6	2	EA	

Lobby area of 7th Floor E wing

F Providing Comprehensive Annual maintenance Contract and provision of Resident Engineers at NABARD Head Office as per terms and conditions specified in the tender

	Description	Years	Amount quoted per years	Total(3 X 4)
1	2	3	4	5
1	Comprehensive AMC for 4 years from the completion of Defect Liability Period as per terms and condition of Tender	4th Year		
		5th Year		
		6th Year		
		7th Year		
		1st Year		
		2nd Year		
		3rd year		
		4th year		
		5th year		
		6th year		
7th Year				
1	Should be minimum qualification of Diploma in any technical stream such as Electronics , Computers, IT, Electrical, Instrumentaion etc Should have minimum of 2 years of similar experience of working as Residential Engineer with sound knowledge of AV devices Should be available during working hours, on all working days, to setup and keep the meeting rooms ready for smooth functionality of the meetings . Certification from AVIXA will be an added advantage. Alternate resource should be made available in case of absence of the actual resource. In case if required the resource should be available on weekends or national holidays.	1st Year		
		2nd Year		
		3rd year		
		4th year		
		5th year		
		6th year		
		7th Year		
		1st Year		
		2nd Year		
		3rd year		

Sub total for CAMC and Resident Engineer

BUYBACK

1	BUYBACK	Rebate for dismantling, buying back and taking away all equipment of existing in old AV system as indicated in Sr.No. 19 of Notice Inviting Tender			
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**Total(A+B+C+D+E+F-G)
GST @ 18%
Grand Total**

Note :

a	The Defect Liability Period(Warranty) will be for 3 years from the date of Virtual Completion and the relevant clauses of the technical bil will be treated accordingly.
b	Comprehensive AMC charges shall be quoted separately for 4th, 5th, 6th and 7th Year whereas charges for Resident Service Engineer
c	The quoted rates confirm to the instructions to bidders and general conditions of contract
d	It is mandatory to quote for all the items of the price bid and L1 will be decied on the basis of total quoted amount.
e	It is mandatory to obtain insurance as specified in the tender document
f	The contractors are advised to visit at site and fully satisfy themselves with the existing site condntions & requirements for smooth working quantity assessments etc. before quoting the rates and for assessment of the requisite length of wiring etc.
g	The bidder will clearly mention the model number and make of the quoted product in the technical bid.

Accepted all terms and conditions

Authorized signatory