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Corrigendum-II

Bihar Medical Services and Infrastructure Corporation Limited (BMSICL) had invited E-Bids from the interested parties for installation, operation and maintenance of 3T MRI Machine and 128 Slice CT Scan Machine on PPP Mode for NMCH, Patna vide Re-Tender No.-BMSICL/2026-27/ME-495. During Pre-bid meeting various suggestions were received from different prospective bidders regarding amendment in technical specification of equipment which were discussed and deliberated on by the experts. On the basis of their recommendations certain amendments in the technical specification of the equipment have been made which are annexed as **Annexure-I** of this corrigendum.

Note: -

- 1. Bidders are advised to refer to the Annexure-I of this corrigendum before submission of bid.**
- 2. Those who have submitted their bids are requested to re-submit their bids in accordance with this corrigendum.**

Annexed: - as above

**Sd/-
GM (Procurement)
BMSICL**

Annexure-I			
Name of Equipment: - 3T MRI Machine Diagnosis			
SI. No	Technical Specification as per tender		Final Amendment
	Note 1:		
	The bidder is to provide the confirmation that the installed 128 Slice CT Scan and 3T MRI machine shall perform and provide the required diagnostic tests failing which its bid is liable to be ignored.		No Change
	Note 2:		
	General: Bidders are requested to make sure that they should attach the list of equipment for carrying out routine and preventive maintenance wherever asked for and should make sure that Electrical Safety Analyzer / Tester for Medical equipment to periodically check the electrical safety/ Radiation Safety aspects as per BIS/AERB Safety Standards. If the Electrical Safety Analyzer/Tester is not available, they should provide a commitment to get the equipment checked for electrical safety compliance with Electronic Regional Test Labs / Electronics Test and Development Centers across the country on every preventive maintenance call		No Change
	Required MRI MACHINE Services	Applicable for Machine to be installed (Yes / No)	No Change
	• MRI Head – Without Contrast		No Change
	• MRI Head – With Contrast		No Change
	• MRI Orbits – Without Contrast		No Change
	• MRI Orbits – With Contrast		No Change
	• MRI Nasopharynx and PNS – Without Contrast		No Change
	• MRI Nasopharynx and PNS – With Contrast		No Change
	• MR for Salivary Glands with Sialography		No Change
	• MRI Neck - Without Contrast		No Change
	• MRI Neck- with contrast		No Change
	• MRI Shoulder – Without contrast		No Change
	• MRI Shoulder – With contrast		No Change
	• MRI shoulder both Joints - Without contrast		No Change
	• MRI Shoulder both joints – With contrast		No Change
	• MRI Wrist Single joint - Without contrast		No Change
	• MRI Wrist Single joint - With contrast		No Change
	• MRI Wrist both joints - Without contrast		No Change
	• MRI Wrist Both joints - With contrast		No Change
	• MRI knee Single joint - Without contrast		No Change
	• MRI knee Single joint - With contrast		No Change
	• MRI knee both joints - Without contrast		No Change

	• MRI knee both joints - With contrast		No Change
	• MRI Ankle Single joint - Without contrast		No Change
	• MRI Ankle single joint - With contrast		No Change
	• MRI Ankle both joints - With contrast		No Change
	• MRI Ankle both joints - Without contrast		No Change
	• MRI Hip - With contrast		No Change
	• MRI Hip – without contrast		No Change
	• MRI Pelvis – Without Contrast		No Change
	• MRI Pelvis – with contrast		No Change
	• MRI Extremities - With contrast		No Change
	• MRI Extremities - Without contrast		No Change
	• MRI Temporomandibular – B/L - With contrast		No Change
	• MRI Temporomandibular – B/L - Without contrast		No Change
	• MRI Temporal Bone/ Inner ear with contrast		No Change
	• MRI Temporal Bone/ Inner ear without contrast		No Change
	• MRI Abdomen – Without Contrast		No Change
	• MRI Abdomen – With Contrast		No Change
	• MRI Breast - With Contrast		No Change
	• MRI Breast - Without Contrast		No Change
	• MRI Spine Screening - Without Contrast		No Change
	• MRI Chest – Without Contrast		No Change
	• MRI Chest – With Contrast		No Change
	• MRI Cervical/Cervico Dorsal Spine – Without Contrast		No Change
	• MRI Cervical/ Cervico Dorsal Spine – With Contrast		No Change
	• MRI Dorsal/ Dorso Lumbar Spine - Without Contrast		No Change
	• MRI Dorsal/ Dorso Lumbar Spine – With Contrast		No Change
	• MRI Lumbar/ Lumbo-Sacral Spine – Without Contrast		No Change
	• MRI Lumbar/ Lumbo-Sacral Spine – With Contrast		No Change
	• Whole body MRI (For oncological workup)		No Change
	• MRI cholecysto-pancreatography.		No Change
	• MRI Angiography - with contrast		No Change
	• MRI Enteroclysis		No Change
	Clauses		
	Page No 1. Heading : TENDER FOR INSTALLATION, OPERATION AND MAINTENANCE OF 128 Slice CT Scan and 3		No Change

	Tesla MRI MACHINE UNDER PUBLIC PRIVATE PARTNERSHIP (PPP) MODE AT NMCH Patna OF BIHAR.	
	Page No 11. Diagnostic tests to be performed by 3T MRI MACHINE	No Change
	Page No 11. Diagnostic tests to be performed by 128 CT SCAN Machine	No Change
	Tender tenure should be minimum 10 years for operation under PPP mode	No Change
	Page No 51. ii. Technical: a. The service provider should have experience of operating, managing and maintaining a minimum of 1 (one) MRI MACHINE Machine (3 Tesla or more) and 1 (one) CT Scan Machine (128 Slice) in one or multiple centers/locations continuously for atleast one year	Technical: a. The service provider should have experience of operating, managing and maintaining a minimum of 1 (one) MRI Machine (1.5 Tesla or more) and 1 (one) CT Scan Machine (128 Slice) in one or multiple centers/locations continuously for at least one year
	Page No. 5 (9.)Contract period shall be ten years (10 years) from the date of commissioning of services	Contract period shall be ten years (10 years) from the date of commissioning of services and it may be further extended up to 03 years after satisfactory operation as per decision taken by consignee.
	Section VII & Annexure IV Experience of operating Own Diagnostic Imaging Centers	No Change
	Page No 4 Service Providers for installation, operation and maintenance of 128 Slice CT Scan and 3 T MRI MACHINE under PUBLIC PRIVATE PARTNERSHIP (PPP) MODE	No Change
	Page No 14. (L) To provide radiological diagnostic services, the service provider will charge the patients at offered discount on prevalent Central Government Health Scheme (CGHS), Patna rates. The service provider shall not charge a patient more than the offered discount CGHS Rates.	No Change
	Page No. 22 Point No 20.1 (A) Technical experience in years of operating, managing and maintaining such centers	No Change
	Page No. 22 Point No 20.1 (B) Financial Credibility (Total Net worth)	No Change
	Page No. 52 (2) Joint Venture or Member of Consortium are allowed with the following conditions:	No Change
Name of Equipment: - 128 Slice CT Scan Machine Diagnosis		

SI. No	Technical Specification as per tender		Final Amendment
	Required CT SCAN Services	Applicable for Machine to be installed (Yes / No)	
	The bidder is to provide the confirmation that the installed 128 Slice CT Scan and 3T MRI machine shall perform and provide the required diagnostic tests failing which its bid is liable to be ignored.		No Change
	CT SCAN Head – With Contrast		
	CT SCAN Orbits – Without Contrast		No Change
	CT SCAN Orbits – With Contrast		No Change
	CT SCAN Nasopharynx and PNS – Without Contrast		No Change
	CT SCAN Nasopharynx and PNS – With Contrast		No Change
	CT SCAN Neck - Without Contrast		No Change
	CT SCAN Neck- with contrast		No Change
	CT SCAN Shoulder – Without contrast		No Change
	CT SCAN Shoulder – With contrast		No Change
	CT SCAN shoulder both Joints - Without contrast		No Change
	CT SCAN Shoulder both joints – With contrast		No Change
	CT SCAN Wrist Single joint - Without contrast		No Change
	CT SCAN Wrist Single joint - With contrast		No Change
	CT SCAN Wrist both joints - Without contrast		No Change
	CT SCAN Wrist Both joints - With contrast		No Change
	CT SCAN knee Single joint - Without contrast		No Change
	CT SCAN knee Single joint - With contrast		No Change
	CT SCAN knee both joints - Without contrast		No Change
	CT SCAN knee both joints - With contrast		No Change
	CT SCAN Ankle Single joint - Without contrast		No Change
	CT SCAN Ankle both joints - With contrast		No Change
	CT SCAN Ankle both joints - Without contrast		No Change
	CT SCAN Hip - With contrast		No Change
	CT SCAN Hip – without contrast		No Change
	CT SCAN Pelvis – Without Contrast		No Change
	CT SCAN Pelvis – with contrast		No Change
	CT SCAN Extremities - With contrast		No Change
	CT SCAN Extremities - Without contrast		No Change
	CT SCAN Temporomandibular – B/L - With contrast		No Change

	CT SCAN Temporomandibular – B/L - Without contrast		No Change
	CT SCAN Temporal Bone/ Inner ear with contrast		No Change
	CT SCAN Temporal Bone/ Inner ear without contrast		No Change
	CT SCAN Abdomen – Without Contrast		No Change
	CT SCAN Abdomen – With Contrast		No Change
	CT SCAN Breast - With Contrast		No Change
	CT SCAN Breast - Without Contrast		No Change
	CT SCAN Spine Screening - Without Contrast		No Change
	CT SCAN Chest – Without Contrast		No Change
	CT SCAN Chest – With Contrast		No Change
	CT SCAN Cervical/Cervico Dorsal Spine – Without Contrast		No Change
	CT SCAN Cervical/ Cervico Dorsal Spine – With Contrast		No Change
	CT SCAN Dorsal/ Dorso Lumbar Spine - Without Contrast		No Change
	CT SCAN Dorsal/ Dorso Lumbar Spine – With Contrast		No Change
	CT SCAN Lumbar/ Lumbo-Sacral Spine – Without Contrast		No Change
	CT SCAN Lumbar/ Lumbo-Sacral Spine – With Contrast		No Change
	Whole body CT SCAN (For oncological workup)		No Change
	CT SCAN cholecysto-pancreatography.		No Change
	CT SCAN Angiography - with contrast		No Change
	CT SCAN Enteroclysis		No Change
Name of Equipment:- 3.0 T MRI System			
Sl. No	Technical Specification as per tender	Final Amendment	
A	TECHNICAL SPECIFICATIONS OF 3.0 T MRI		
1	The bidder is to provide the confirmation that the installed 128 Slice CT Scan and 3T MRI machine shall perform and provide the required diagnostic tests failing which its bid is liable to be ignored.	No Change	
2	The quoted model must be FDA & CE approved for clinical use. The aim is to buy the latest equipment with good performance. The Country of Origin shall be US/Europe/Japan.	No Change	
3	The 3.0 T MRI System quoted must be launched not before 2015.	No Change	
1	MAGNET SYSTEM	No Change	
	A) Whole body 3.0 Tesla Magnetic Resonance Imaging system optimized for higher performance in cardiac and neurological	No Change	

	examinations with short superconducting magnet, high performance gradients and digital Radio frequency system. The system should have minimum 64 RF channel in one FOV.	
	B) Guaranteed Homogeneity of magnet using VRMS Method should be <0.5 PPM @ 40cm DSV.	No Change
	C) It should have at least 70 cms or more patient bore with flared opening.	No Change
	D) It should have facilities of better illumination, ventilation and designed to avoid patient claustrophobia & with built in 2 way intercom for communication with patient.	No Change
	E) The FOV (Field of View) in X, Y & Z directions should be : 45 cms or more.	No Change
	F) The scan range for imaging should be 180cms or more.	No Change
	G) Magnet should be shielded from external interferences. Smaller fringe field preferred 5 Gauss and 10 Gauss Line in X, Y, Z axis specify yours Quote value for 5 gauss and 10 gauss line. The 5 Gauss line will have to be marked.	No Change
	H) Cryogen vessel to be of Helium only with appropriate super thermal shielding and refrigeration facility for minimum Helium boil-off. Specify the Helium tank capacity and boil-off rate.	No Change
	I) Display for the physiological parameters of patient on the magnet facade should be there or on the control console.	No Change
2	SHIM SYSTEM	No Change
	A) High performance, highly stable shim system with global and localized manual shimming for high homogeneity magnetic field required for (MRI / fMRI), single voxel spectroscopy (MRS) and spectroscopic imaging (MRSI), 3D shimming for volume imaging and CSI.	No Change
3	GRADIENT SYSTEM	No Change
	A) The gradient system should be actively shielded. The Gradient Imaging performance with Maximum Amplitude of 44 mT/m & peak Slew Rate with 200T/m/s should be offered.	No Change
	B) The Duty cycle should be 100 percent.	No Change
	C) Field of View should be at least 45 cm in all three axis. Specify the minimum and maximum FOV achievable for the quoted MR System.	No Change
	D) The Gradient system should have provision for eddy current compensation.	No Change
	E) Minimum TE & TR in 2D/3D should be specified in relation to the sequences.	No Change
	F) Minimum Slice Thickness in 2D & 3D should be specified in relation to the sequences.	No Change
4	RF SYSTEM	No Change
	A) A fully digital Dual RF capable of transmitting power of at least 25 KW or more. System should be offered with Multi Transmit / Multi Drive / True shape.	No Change
	B) It should also have at least minimum of 64 independent Channel in one FOV with each having bandwidth of 1MHz or	No Change

	more along with necessary hardware to support Quadrature/CP array coils (capability of faster reconstruction, please specify).	
	C) It should support Parallel acquisition techniques like ASSET/SENSE/iPAT/Sence/Grappa/DS Sense with a factor of at least 4.	No Change
	D) Should allow remote selection of coils and/or coil elements.	No Change
5	PATIENT TABLE & COMMUNICATION	No Change
	A) The patient table/Type should be Fixed/Dockable Table/Dockable Trolley.	No Change
	B) The table should be fully motorized, computer controlled table movements in vertical and horizontal directions.	No Change
	C) The table should have facility for manual traction in case of emergency.	No Change
	D) Cushions and other patient comfort accessories. All parts of the table should be protected from liquid spill.	No Change
	E) A CCTV system with LCD display to observe the patient should be provided.	No Change
	F) The table should deliver the protocols for automatic bolus chasing in peripheral angio with automatic table movement.	No Change
	G) There should be a hand held alarm for patients.	No Change
	H) Table should be able to handle patient weight of 200kg or above.	No Change
	I) MR compatible patient shifting trolley should be offered as standard.	No Change
	J) ECG triggering, peripheral triggering and respiratory triggering gating to be provided with Wired, Bluetooth or wireless sensors for the same. The Respiratory Sensor/Respiratory Autonavigator, Kinetic Sensor/Autonavigator & BEAT Sensor/ Cardiac Autonavigator should be offered as standard.	No Change
6	SYSTEM COIL & RF COIL	No Change
	A) The system body Coil integrated to the magnet must be quadrature /CP. In addition to this coil, following Coils (preferably be with equal number of elements as the channels) be quoted. RF coils in addition to main body coil (Transmit / Receive or receive coils) auto tune, array or no tune coils. Coils for the following applications should be available with the system. Coil / RF design should support compatibility to coils manufactured by other manufacturers.	No Change
	B) All coil offered should have SENSE / Ipat2 / GEM compatibility. System body coil should be able to do metastasis study for fully Body.	No Change
	C) Please offer coils to do high resolution head, neck, spine in one go up to 75cm coverage with parallel imaging techniques.	No Change
	D) Head coil 48 Channel or Head Neck 64 Channel for advance brain imaging like Spectroscopy, fMRI.	No Change
	E) Neurovascular Imaging (48-channel or more) for neurovascular applications by combination of coils for imaging from Circle of Willis to Arch of Aorta - Single or in Combination.	No Change

	F) Spine Array/Matrix Coils for thoracic and lumbar Spine imaging—atleast 32 elements or more.	No Change
	G) Body Array/Matrix coil With at least 16 channel or more. "Higher number of elements preferred". Please specify the length of the body coil & no. of elements	No Change
	H) Dedicated coil for shoulder and Dedicated Coil for knee - 16Ch or more channel	No Change
	I) General purpose wrap around flexible coils (One Qty.) for Elbow, Hip & Wrist (Large and Medium) imaging – the coil elements & channels should be atleast 16 channel or more with parallel imaging capability. Higher elements preferred.	No Change
	G) <u>Dedicated Bilateral Breast Coil</u> with at least 8- channel or more with biopsy Compatible.	No Change
	I) Coil storage cart	No Change
7	APPLICATION SEQUENCES	No Change
	All available software's at the time of purchase should be provided in their latest version with software upgrades regularly till the machine is in use. All the routine sequences with complete, neuro suite, Ortho suite, cardiac imaging suite, body imaging suite, breast imaging suite and oncology suite should be made available	No Change
	A) The system should have basic sequences package with Spin Echo, Inversion Recovery, Turbo Spin Echo with high turbo factor of 256 slice or more. Gradient Echo with ETL of 255 or more FLAIR.	No Change
	B) Single Slice, multiple single slice, multiple slice, multiple stacks, radial stack and 3D acquisitions for all applications	No Change
	C) Single and multi-shot EPI imaging techniques with ETL factor of 255 or more.	No Change
	D) Fat suppression for high quality images both STIR and SPIR	No Change
	E) The system should acquire motion artifact free images in T2 studies of brain and whole body in restless patients also less sensitive to motions such as CSF and blood flow or flow artifacts, breathing, patient tremor or voluntary movements. Motion artifact free imaging with Diffusion weighted studies and musculoskeletal studied will be added advantage. This application to be compatible with PAT - like Propeller 3.0, Multivane XD, Presto, Snapshot, Blade etc. also offer body navigators	No Change
	F) Dynamic acquisition (pre and post contrast scans and time intensity studies) with capability to initiate scan sequences either from the magnet panel or from the console. The number of repeat scans and the delay time (identical or variable) should be selectable	No Change
	G) MR Angio imaging : Should have 2D/3D TOF, 2D/3D PC, MTS and TONE, ceMRA, facilities for Accelerated time resolved vascular imaging with applications like Twist/Tracks/Tricks sequences.	No Change

	H) Fat and water excitation package. Diffusion Weighted imaging. With at least B value of 5000 or more	No Change
	I) Bolus chasing with automatic and manual triggering from Fluro mode to 3D acquisition mode with moving table facility.	No Change
	J) Offer all the Non contrast enhanced MR angiography like QISS, Trance, B Trance, Inhance In-Flow IR, Inhance Delta flow, Inhance Velocity	No Change
	K) Whole body screening imaging studies for metastasis – head to toe coverage without patient repositioning should be offered.	No Change
	L. While body diffusion weighted imaging with background suppression - please specify the techniques used and specify time taken for head to toe coverage.	No Change
	M. High resolutions Abdominal and liver imaging in breath hold and free breathing modes with respirator triggered volume acquisitions.	No Change
	N. The system should have basic and advanced MRCP packages including free breathing and 3D techniques	No Change
	O. The system should facility for flow quantification of CSF, Vessel flow and hepatobiliary system.	No Change
	P. The system should have the hydrogen, Single Voxel spectroscopy, multivoxel, Multi slice & Multiangle 2D, 3D Spectroscopy and chemical shift imaging in 2D/3D. The complete processing/post-processing software including color metabolite maps should be available on main console.	No Change
	Q. Advanced breast imaging package. Please offer High-resolution 3D isotropic fat-suppressed gradient-echo T1W imaging of both breasts simultaneously - Like Vibrant, Bliss + eThrive. Should be PAT compatible	No Change
	R. Perfusion imaging of brain and breast with software for analysis	No Change
	S. Susceptibility weighted imaging to detect micro bleeds with phase for differentiation of calcium - Like SWI, SWIP, SWAN	No Change
	T. Multi Direction DWI and DTI with min 256 directions, (Fibertrack, Fibertrack Specialist, DTI tractography)	No Change
	U. Functional imaging with package for BOLD imaging like, Syngo Bold, Bold Specialist and evaluation line Inline Bold, Iview Bold and spectroscopic imaging and processing package.	No Change
	V. Arterial spin labeling sequences of brain with software applications Like 3DASL/ pCASL.	No Change
	W. High resolution 3D imaging for inner ear.	No Change
	X. High resolution imaging for cartilage and musculoskeletal imaging (CARTIGRAM/ Cartilage Assessment/ MapIT)	No Change
	Y. Advanced 3D spine applications package for nerve root analysis/Peripheral nerve imaging	No Change
	Z. Please quote to do high resolution 3D isotropic sequences for spine like CUBE, SPACE, VISTA	No Change
	AA. Please quote for high resolution time resolved angiography like TRICKS, TWIST, TRACS +Key Hole	No Change

	BB. Please quote for in phase/out phase 2D/3D Dual echo sequences for body applications	No Change
	CC. Single sequence for Triglyceride Fat and iron .quantification software for Liver should be offered - Like IDEAL IQ, Liver LAB, mDixon Quant . Also quote the iron quantification package for Liver and cardiac	No Change
	DD. Small FOV Diffusion like FOCUS/ ZOOMiT should be offered.	No Change
8	COMPUTER SYSTEM IMAGE PROCESSOR / OPERATOR CONSOLE	No Change
	The vendor should supply the latest computer system along with the MR system to handle all the latest applications available on the MR platform. During the warranty period, any hardware updates that are globally should be supplied and installed	No Change
	(a) Computer should be latest in the industry, fast and efficient	No Change
	(B) One color console for acquisition, all calculations, post processing etc Console must have full colour with user define protocols with programmable inter scan delay	No Change
	(C) Necessary image processor with large RAM for ultra-fast image reconstruction should be provided It should be at least 32 or higher GB RAM. Please specify RAM and reconstruction speed in images per second for full FOV 256 matrix. Higher will be preferred.	No Change
	(D) Computational Speed to match the single shot Echo Planar Imaging (EPI). Interactive angiogram, multi-planar three dimensional (3D) reconstruction, surface rendering, dynamic Imaging, vascular Imaging/angiography, functional imaging, DTI etc. The main host computer should have at least 18-inch or more TFT/LCD type color monitor.	No Change
	(E) The main console should have facility for music system for the patient in the magnet room.	No Change
	(F) Filming and adequate storage for images and other applications.	No Change
	(G) Total hard disk memory to be sufficient to store at least 250,000 images of 256 x 256 matrix data size.. Systems offering higher storage will be preferred. The system should have CD/DVD archiving facility on the main console and work station.	No Change
	(H) Dual DVD write/CD Read/Rewrite drive for writing of images, spectra and raw data along with the necessary software for reading the Images and spectra on DVD/CD storing capabilities. Provision for archival of k-space data and raw (unprocessed) images.	No Change
	(I) There should be a provision of retrieval of the reconstruction data (raw files) in an user friendly manner.	No Change
	(J) DICOM interface to hook DICOM dry/laser camera capable of storing printing 1024 x 1024 matrix size images at least in 16 format without loss of digital resolution.	No Change

	(K) The system should be capable to connect to PACS through RIS/HIS at no extra cost. Highest version of DICOM connectivity be provided.	No Change
	(L) Remote diagnosis	No Change
9	OEM Independent Workstation	No Change
	(A) Dedicated OEM Independent Workstation is required with the availability of all necessary software including basic post processing software including MIP, MPR, Surface reconstruction and volume rendering technique advanced post processing offered applications like exam preparation & processing, package, including perfusion quantification, MTT, TTP, Advanced diffusion and DTI, Processing 2D/3D CSI data, with color metabolite mapping, diffusion color maps, quantification of CSF flow data, vascular analysis package, fusion, breast analysis.	No Change
10	Latest Advanced Technologies	No Change
	(A) Latest AI Techniques for scan time reduction should be offered like AIR Recon/ Deep Resolve/SMARTSpeed.	No Change
	(B) Latest Deep Learning Technologies with Neural Network based for SNR Improvement & Scan Time reduction should be offered like AIR Recon DL/ Deep Resolve Boost & SWIFT Brain.	No Change
	(C) Latest Time Reduction techniques like Turbo Suite Excellence / Hyperworks should be offered.	No Change
11	SAFETY FEATURES	No Change
	A) The magnet system should include an Emergency Ramp Down unit ERDU for fast reduction of the magnetic field with Ramp Down time below 3 minutes	No Change
	B) The magnet should have quench bands that contain the fringe fields to a specified value in the event of a magnet quench	No Change
	C) Real time SAR calculation should be performed by software to ensure that RF power levels comply with regulatory guidelines and are displayed on each image	No Change
	D) The system shall have manual override of the motor drive for quick removal of the patients from the magnet bore	No Change
	E) Temperature sensor (built in) for magnet refrigeration efficiency must be provided	No Change
12	SUITABLE RF ENCLOSURE	No Change
	A) RF cabin: The system should be supplied with RF cabin & RF room shielding, RF Door screen, and interiors for the same should be carried out suitably	No Change
13	ACCESSORIES	No Change
	A) Water chiller for Cold Head/Gradients	No Change
	B) Non-ferromagnetic patient transfer trolley of international make should be provided (2 nos.)	No Change
	C) 3 T MR compatible music system	No Change
	D) MR Compatible Wheel Chair	No Change
14	Training	No Change

	Onsite training: The application specialist of the company will stay on the site of installation for training the utilization of the equipment for a total period of Two months for the faculty and Radiographers.	No Change
15	Power Dual head Injector for MRI	No Change
	Tender specifications for 128 slice Computed Tomography Scanner with AI Automatic patient positioning	
	State of the art Whole body & Cardiac 64rows, 128-slice CT scanner with 38mm or more physical detector Z axis dimension. The quoted model should be with iterative reconstruction technology for dose reduction. The system should be able to position patient automatically with FAST AI 3D Camera.	No Change
Sl. No	Specification	No Change
1	Gantry	No Change
1.1	Aperture ≥ 70 cm	No Change
1.2	Scan field of view ≥ 50 cm	No Change
1.3	Integrated display panel on Gantry front showing patient and/or machine information.	No Change
1.4	Laser Lights: The gantry should have 3D positioning Laser lights	No Change
1.5	Tilt: ± 30 degree Physical/digital tilt or better	No Change
2	X-RAY GENERATOR	No Change
2.1	Output capacity (actual): ≥ 72 KW	No Change
2.2	Continuous helical time: ≥ 100 s	No Change
3	TUBE ASSEMBLY	No Change
3.1	Tube Voltage (actual): 80-140 kV or better (mention kVp steps)	No Change
3.2	Max. Tube current range (Actual): 20-600 mA or better	No Change
3.3	Mention the Dual Focal spot size (as per IEC 60336: 2005)	No Change
3.4	Tube Anode Heat capacity (actual): ≥ 7 MHU	No Change
3.5	Scan time for full 360-degree rotation for cardiac & whole body: ≤ 0.35 sec	No Change
4	DETECTOR	No Change
4.1	Number of physical rows: ≥ 64 physically distinct rows	No Change
4.2	Number of slices: Ability to acquire or generate 128 slices or better per 360-degree rotation	No Change
4.3	Z axis axial coverage in 360-degree rotation with 1:1 pitch: ≥ 38 mm for all scan mode	No Change
4.4	Pitch: Pitch should be freely selectable between 0.5-1.5 or more	No Change
4.5	Range of acquisition & visualization slice thickness (Axial mode & Helical mode): 0.625 — 5 mm or better	No Change
5	PATIENT TABLE	No Change
5.1	Maximum load capacity: ≥ 200 kg	No Change
5.2	Scannable range (Axial & Helical): ≥ 1500 mm	No Change
5.3	Longitudinal table speed: ≥ 150 mm per sec	No Change
5.4	Table Positioning: Reproducibility of table positioning (mm) should be ± 0.25 mm	No Change

5.5	Table dimensions: Specify the width and length of the table, distance between gantry front and table base (minimum and maximum should be specified)	No Change
6	SCANNING ACQUISITION FEATURES ON CONSOLE	No Change
6.1	Dedicated metal artifact reduction for plain & contrast studies with single exposure:	No Change
6.2	Dual Energy Scan acquisition & processing: renal stone characterization, gout & metal artifact removal	No Change
6.3	Temporal resolution: Must be 44 msec or lower	No Change
6.4	Acquisition of gated & non-gated study in same sequence & display in same image	No Change
6.5	Pulmonary Angio: Free Breathing pulmonary/dynamic angio of coverage 30 cm or more	No Change
6.6	ECG Gating: Prospective ECG trigger facility	No Change
6.7	ECG Editing: Facility for ECG editing for removing irregular or ectopic beat (Retrospective)	No Change
6.8	Dynamic Neuro perfusion: 4D Perfusion coverage of 8 cm or better	No Change
6.9	Artificial Intelligence (AI)	No Change
	3D Camera based automatic patient positioning system to be offered as standard. The offered system should be able to adjust the patient centering automatically in x-y-z with the help of 3D camera & position a patient for a particular protocol.	No Change
7	PATIENT REGISTRATION	No Change
7.1	It should be possible to do pre-registration of patient at any time prior to scans	No Change
7.2	Special emergency registration should be possible without interacting with console computer	No Change
7.3	System must transfer patient information from departmental existing RIS & HIS via DICOM Work list	No Change
	System must transfer examination information and Images from scanner into departmental existing HIS & RIS and PACS	No Change
8	PATIENT COMUNICATION	No Change
8.1	There should be Integrated patient two-way communication system capable of playing recorded audio	No Change
8.2	Automatic Patient instruction: A standard set of commands for patient communication before, during, and after scanning should be available In the English and Hindi language	No Change
9	OPERATOR CONSOLE WITH TABLE	No Change
9.1	Operator console should be supplied with Console Table, Chair & monitor adjusting bracket/stand etc	No Change
9.2	Minimum of 4.00,000 \$12x\$12 images should be able to store on console	No Change
9.3	Dual 19" high resolution monitors with a display on 1024X1024 or better	No Change
9.4	System should be able to export DICOM format with DVD/CD/USB other than png, jpg, avi, movie etc	No Change
10	PROCESSING APPLICATION ON CONSOLE	No Change

10.1	MPR:	No Change
	Real-time multi-planar reconstruction (MPR) of secondary views, with viewing perspectives in all planes including curved & orthogonal MPR	No Change
10.2	ROI Evaluation:	No Change
	Parallel evaluation of multiple ROI In circle, irregular and polygonal forms.	No Change
10.3	Statistical Evaluation:	No Change
	Area/ volume, Standard deviation, Mean value, Image annotation and labeling, Angle measurement, Distance measurement Histogram, rime intensity curves, Peak enhancement images, Time-to-peak images.	No Change
10.4	2D:	No Change
	including image zoom and pan, image manipulations, including averaging, reversal of grey-scale values, and mirroring; image filter functions, including advanced smoothing algorithm and advanced bone correction	No Change
10.5	3D:	No Change
	MIP, Min IP, VRT and other advanced 3D applications and color-coding for different tissues.	No Change
10.6	Comparison:	No Change
	Able to compare exams with prior studies including oncology cases, neuro cases, body imaging, comparison according to RECIST criteria, PETCT cross time point evaluation.	No Change
10.7	CT Angiography:	No Change
	Automatic table and bone subtraction in a angiography. Single click bone removal, manual and automatic vessel tracking, Carotid Stenosis measurement, Single energy calcium removal	No Change
10.8	CT brain perfusion:	No Change
	Software for advanced cerebral perfusion study with stroke protocol and summary maps of the perfused area	No Change
10.9	CT Colonoscopy & Endoscopy:	No Change
	CT Colonoscopy & Endoscopy with virtual navigation	No Change
11	IMAGE POST PROCESSING	No Change
11.1	Platform:	No Change
	Latest OEM Workstation with multi-modality processing capabilities (syngo.via VB70 or later/ISP 12/AW 4.7/similar	No Change
12	Software licenses	No Change
12.1	MPR	No Change
	Real-time multi-planar reconstruction (MPR) of secondary views, with viewing perspectives in all planes including curved & orthogonal MPR.	No Change
12.2	ROI Evaluation	No Change
	Parallel evaluation of multiple ROI In circle, irregular and polygonal forms.	No Change
12.3	Statistical Evaluation	No Change

	Area volume, Standard deviation, Mean value, Image annotation and labeling, Angle measurement, Distance measurement Histogram, time intensity curves, Peak enhancement images, Time-to-peak images.	No Change
12.4	2D	No Change
	2-D, including image zoom and pan, image manipulations, including averaging, reversal of grey-scale values, and mirroring; image filter functions, including advanced smoothing algorithm and advanced bone correction	No Change
12.5	3D	No Change
	MIP, Min IP, VRT and other advanced 3D applications and color-coding for different tissues.	No Change
12.6	Comparison	No Change
	Able to compare exams with prior studies including oncology cases, neuro cases, body imaging, comparison according to RECIST criteria, PETCT cross time point evaluation.	No Change
12.7	CT Angiography:	No Change
	Automatic table and bone subtraction in a angiography, Single click bone removal, manual and automatic vessel tracking, Carotid Stenosis measurement, Single energy calcium removal	No Change
12.8	CT perfusion brain	No Change
	Software for advanced cerebral perfusion study with stroke protocol and summary maps of the perfused area	No Change
12.9	Body CT perfusion	No Change
	Multi-slice calculation of blood flow, blood volume, permeability images, Vol measurement tools for perfusion characteristics	No Change
12.1	Fusion rigid registration with two different volumes for multi-time point compare	No Change
12.11	Lung Nodule analysis & segmentation	No Change
	lung nodule segmentation and analysis, lung segmentation with parenchyma analysis	No Change
12.13	Multi time point compare with WHO & RECIST	No Change
	Should be offered as standard	No Change
12.15	Cardiac Function analysis	No Change
	Cardiac analysis including LV & RV Analysis with EF & bulls eye	No Change
12.16	Automated spine labelling software:	No Change
12.17	Software to generate, adjust and export meshes for 3D printing purposes	No Change
12.18	TAVI planning software	No Change
13	IMAGE RECONSTRUCTION	No Change
13.1	Recon speed:	No Change
	Minimum 40 frames per second	No Change
13.2	Recon Matrix:	No Change
	1024 x 1024	No Change
13.3	Real time display speed:	No Change
	50 fps or better	No Change

14	IMAGE QUALITY	No Change
14.1	High contrast Spatial Resolution obtained with entire width of the detector:	No Change
	It should be not less than 18 lines pair per cm or better maximum at 0-2% MTF X-Y axis acquired with beam collimation not less than 38cm on Catphan Phantom	No Change
14.2	Low-contrast resolution:	No Change
	Mention the values	No Change
14.3	Spatial resolution: ≤ 0.30 mm	No Change
16	DOSE REDUCTION TECHNIQUES	No Change
	16.1 Input	No Change
	Input: Basic Iterative Recursive/Exact - type: HIS, or more done reducing software	No Change
	RIS : <2% ADMIT: FIRST or similar	No Change
	16.2 Profile Settings	No Change
	Perspective rating should be provided for dose reduction	No Change
	16.3 Organ Dose modulation:	No Change
	Advanced dose limiting for critical organs using ODM / xCARE or equivalent should be inferred as standard	No Change
	16.4 Doze Modulation of tube current along X-Y & Z-axis for different patient size and organs should be offered as standard	No Change
	16.5 Pediatric & infant Imaging protocols with Low dose BMI based protocols must be provided	No Change
	17 NETWORKING	No Change
17.1	DICOM Storage (Send/Receive)	No Change
17.2	DICOM Modality Worklist User	No Change
17.3	Modality Performed Procedure Step (MPPS)	No Change
17.4	DICOM Print User	No Change
17.5	Query/Retrieve User and Provider	No Change
17.6	DICOM 3 compliance	No Change
17.7	Integration with departmental RIS and HIS must be done. Any licenses or software needed for the same is to be provided by the vendor	No Change
18	LOCAL ARCHIVING/Saving	No Change
18.1	Removable Media	No Change
18.2	DVD-RAM archive	No Change
18.3	DICOM CD Writer	No Change
19	ACCESSORIES	No Change
19.1	DUAL HEAD PRESSURE INJECTOR	No Change
19.1.1	Dual head Pressure injector with 20 syringes and extension tubes	No Change
19.3	UPS	No Change
19.3.1	Power: Full System UPS for 15 min backup with maintenance free batteries	No Change
19.4	LEAD GLASS: Lead glass of size 6ft x 3ft should be installed between examination room and console room	No Change

19.5	Dual Head Injector for C.T	No Change
	Added Point	One workstation for image archiving and reporting in HOD room/ as per their direction.