

**Amendment No. XI Dated 22.03.2018**  
**HSCC/PUR/CNCI/Kolkata/Medical Equipment/03 dt. 15.11.2017**

**Procurement of Medical Equipment CNCI 2nd Campus**

All bidders are requested to note the following:

Item No	Name of the equipment / Instrument	Last date & time sale/downloading of Tender document	Last date & time closing/submission for receipt of tender	Date of opening of Techno – Commercial bids.	Earlier date of opening	Amendment Status for opening date
1	MRI 3 Tesla	04.04.2018, up to 13.00 hrs IST	04.04.2018, 14.00 hrs IST	04.04.2018, 14.30 hrs IST	19.03.2018	Technical Specification updated
2	CT Scan 256 Slice					
3	Digital Mammography					
4	Digital Fluro Radiography					
5	Digital Mobile X – Ray					
6	High End Ultrasound Machine					
7	Mid End Ultrasound Machine					

All other terms and conditions of the tender enquiry document shall remain unchanged.

Prospective bidders are advised to regularly visit HSCC website/ CPP as corrigendum /amendments etc. if any, will be notified on this portal only, no separate advertisement will published in the news papers.

<b>Item No.1 MRI 3 Tesla</b>	
<b>Tender Specifications Item No.1 MRI 3 Tesla</b>	<b>Technical Specification May please read as</b>
3.E. Silent MRI" sequence package. Please specify the decibel levels for silent MRI and list the sequences where silent MRI not available to be included in standard package.	<b>Tender terms prevail.</b>
<b>4. RF System</b> 2.A) If the vendor has additionally technology like Zoom it/FOCUS or equivalent for selective excitation within a user specified FoV, the same should be quoted. True shape and true form or equivalent technology such as multi drive/multi transit 4D to be quoted	If the vendor has additionally technology like Zoom it/FOCUS or equivalent for selective excitation within a user specified FoV, the same should be quoted. High resolution, distortion free diffusion capabilities should be offered
4.B. It should also have at least 32 independent RF receiver channels "acquisition" with each having bandwidth of 1 MHz or more along with necessary hardware to support quadrature array / Matrix coils.	<b>Tender terms prevail.</b>
4.c. It should support Parallel acquisition techniques with a <b>factor of 12 or more</b> . Highest available PAT factor to be quoted.	<b>Tender terms prevail.</b>
5.A Patient table should be fully motorized with computer controlled table movements in vertical and horizontal directions. (Specify the patient load capacity).	<b>Previous Tender terms prevail.</b>

8.i Multichannel Head coil with 32 channels or more for EPI/DTI application.	<b>Tender terms prevail.</b>
8.v. Suitable surface coil for peripheral angiography application of at least 32 channels Suitable surface / phased array coil for peripheral angiography application of at least 32 channels with coverage of minimum 80 cm, with single or combination of coils. For Angio application if the coils offered are in combination it will be counted as 1 coil for the purpose of peripheral angiography.	<b>Tender terms prevail.</b>
8.vi. Bilateral Breast Coil with at least 16 channels with fully functional spectroscopy	
8.ix Dedicated Wrist Coil - 8 channels	<b>Tender terms prevail.</b>
8.x. Large (2 quantity) - 4 channel Small (2 quantity)- 4 channel	<b>Tender terms prevail.</b>
8.xi. Small flex coil for paediatric and neonatal head and neck applications- 8 channels or more	Small flex coil for paediatric and neonatal head and neck applications- 4 channels or more
8.xii. Dedicated Ankle Coil with 16 channels or more.	<b>Tender terms prevail</b>
9( I ) Prostate Imaging with Parametric cards (Ktrans, Kep, Ve, Vp) – quote this as optional and price will not be included in calculation for L1	Prostate Imaging with Parametric cards (Ktrans, Kep, Ve, Vp) – quote this as standard.
9( J ) Workflow improvement Techniques with availability of “Previous ” Scans” such as Smart Exam/Auto Align/Ready for Brain application to be provided.	Workflow improvement Techniques with availability of “Previous ” Scans” .
10. iv) MRI – HIFU complete system with application for fibroid, prostate, bone etc.	Point deleted.
10.v. "Silent MRI" sequence package. Please specify the decibel levels for silent MRI and list all the sequences with their acquisition time where silent MRI is not available.	Point deleted.
10.vii) Breast coil, biopsy attachment – 4 channels.	<b>Previous Tender terms prevail.</b>
10.ix) Coil for Cardiac application	Coil is required as standard.
11. Client server architecture-server with 5 concurrent clients (Dexus, intelligence portal, Syngo. Via etc or higher) capable of rendering 4000 images at peak performance. Workstation hardware should be industry standards, and should be the latest with the vendors, as per their globally launched product catalogue	Client server architecture-server with 5 concurrent clients (Dexus, intelligence portal, Syngo. Via etc or higher) capable of rendering 20000 images at peak performance. Workstation hardware should be industry standards, and should be the latest with the vendors, as per their globally launched product catalogue
11. A.ii) Advanced post-processing offered applications including FMRI, perfusion quantification, advanced diffusion and DTI, advanced cardiac evaluation(EF, Calculation, Wall motions, analysis) including perfusion analysis, processing of 2D/3D CSI data, with color metabolite mapping, quantification of CSF flow data, vascular analysis package on at least two clients concurrently.	All optional items to be quote as standard.
<b>13. Accessories</b> <b>A-</b> DICOM compatible Dry Chemistry laser camera (1 No.s) with integrated processor for filming from main console & workstation. The camera should be capable of printing on films of 14" x 17", 11" x 14" and 10" x 8" sizes in a resolution <b>of 600 or more dpi.</b> It	<b>Tender terms prevail.</b>

should be possible to connect other imaging modalities to the printer. 2000 compatible films to be provided. Films to be provided after installation as and when required by the user. Main equipment (MRI) in the emergency block to be networked with cameras of CT and DRF camera in the emergency block .	
	<b>i) All necessary licences for connectivity with treatment planning system, Linear accelerator and Brachytherapy machine.</b> <b>ii) Flat table top compatible for Linear Accelerator for Radiotherapy Treatment Planning.</b>
<b>Item No. 2 CT Scan 256 Slice</b>	
iv) The sub millimetre Slice @ 0.63 mm or less in 128 rows or more of detector with 256 or more acquisitions should be available. The system should be in position to perform 256 acquisition Slices/ Rotation for general, cardiac/vascular applications. (Specify the submillimetre slice thickness in millimetres)	<b>Tender terms prevail.</b>
ii) The System X ray power should be 100 kW (actual power) and above	<b>Tender terms prevail.</b>
iii) The mA range available should be between 20 to 800 mA or more with increments in steps of not more than 10mA.	<b>Tender terms prevail.</b>
<b>3) Detectors:</b> ii) The 256 acquisition slice or more per Rotation should be possible. The Systems should have at least 128 Physical Rows of the detector or more.	at least 128 physical detectors rows as single layer/dual set/dual layer.
iii) Specify the Fan Angle of the X rays and the geometry. The detectors should not require frequent calibration.	The detectors should not require frequent calibration.
<b>4) Patient Couch:</b> vii) Remote UP/DOWN, FWD/BWD of the Patient Couch should be standard	Remote FWD/BWD of the Patient Couch should be standard
<b>6. iv)</b> Multi Slice CT Fluoroscopy to be quoted as standard. Price should be quoted separately.	Please quote as standard.
<b>7) Computer Section:</b> x) CT should be with dual monitor console with two concurrent workstations (thin client server architecture based solution) comprising of medical grade monitors (2 mega pixel resolution) with at least 8GB RAM. The server should have image storage capacity of 3 Tera bytes, minimum 20000 concurrent slice processing power and at least 32 GB RAM. It can be single/dual server configuration. The two concurrent workstations should have processing capabilities for basic 2D /3D and following advanced applications.	Tender terms prevail.
8. i) Computer Aided Detection (CAD) to be provided	for lungs and colons.
8. ii) Computer Aided Detection (CAD) to be provided	for lungs and colons.
8. x) The system should have standard software like 3D Volume rendering, MIP, CT angio, colorangio Display, CT Perfusion , Dental scan , Bone Mineral Study should be available as standard on the Workstation.	Osteo CT deleted.
<b>9) Resolution:</b> ii) The high contrast resolution should be more then 14.5 lp/mm in	<b>Tender terms prevail.</b>

all routine scan, including spiral and axial mode.	
iii) The low contrast resolution should not be more than 3 mm at 0.5 %. Shoulder, Pelvis Streak Artifact suppression Software should be standard.	The low contrast resolution should not be more than 5 mm at 0.3 %. Shoulder, Pelvis Streak Artifact suppression Software should be standard.
10)Accessories:(Make and Model of all the quoted accessories should be specified)	Multi parametric CT performance evaluation Phantom (Slice geometry/noise/HCD/LCD/sensitometry/MTF) ACR phantom.
xi) CT Phantom with various density for CT no. check.	
xv) Tumour ablation system with treatment planning solution & RF generator .	<b>Tender terms prevail.</b>
xvi) Specifications as below. a) Computerized needle positioning guiding tool along with radio frequency ablation system for CT guidance in tumor ablation. b) System should support different ablation system. c) Registration of the data, post processing segmentation before and after ablation should be possible d) Overlay of non-contrast images with contrast images to be possible. e) Should include radio frequency ablation generator with: 1) Frequency at least 450KHz. 2) To support multiprong electrode and capable of 7cm ablation in one sitting. 3) Temperature range should be 15-125 deg C with steps of 1 deg C. 4) RFA accessories- Intelliflow pump, RFA probes, multiprong electrodes and coaxial biopsy gun of 9cm and 15cm with 20cm throw.	Intelli flow pump has been deleted.
iii) <b>Penalty clause:</b> Penalty at the rate of RS.10,000/ per day for short falling of 95% uptime guarantee. If the machine lies non-functional for a period of more than two weeks continuously, the same penalty will be imposed even if 95% uptime clause is met with for the given calendar year.	As per CNCI bid document.
<b>11. iii) Penalty clause:</b> Penalty at the rate of 10,000/- per day	As per CNCI bid document.
<b>11. iv) Uptime warranty:</b> if downtime exceeds 5% there shall be penalty of Rs 10,000/per day	As per CNCI bid document.
12) Training i) Qualified personnel nominated by the depts, should be given application training by the vendor at their cost at site for three months and as and when required.	On site application training for one month. Two doctors and four technologist at site/ reputed institute having the same CT with the same specifications for two weeks in phases.
<b>13)Certifications:</b> vi) Dual energy application must be possible on all workstation and all fields of view with minimum FOV 33cm.	Dual energy application must be possible on all workstation and all fields of view. Please specify minimum FOV.
<b>vii)</b> Also Specify the DUAL ENERGY APPLICATION like Metal Artifact Correction/Beam	<b>Original Tender terms prevail</b>
viii) Hardening artifact Correction, Brain Haemorrhage and virtual non contrast and direct Angio are available in the system. Any other application for dual energy if present in future upgrades should be part of the system.	<b>Original Tender terms prevail</b>
	<b>The quoted model must have AERB type approval /NOC at the time of bid submission. All necessary licences for connectivity with treatment planning system, Linear accelerator and Brachytherapy machine.</b>

<b>Item No.3 Digital Mammography</b>	
I (1) Should be an advanced high-end digital mammography machine upgradable to 3D mammography / Tomosynthesis. Tomosynthesis upgrade should not be a separate add on and should be integral to the system. Tomosynthesis should be possible in all positions i.e. inclusive of CC and MLO	Tender terms prevail.
2. Should have facility to do stereotactic biopsy.	Tender terms prevail.
3. Facility to place the Patient for stereotactic biopsy on a couch for patient Comfort.-(supine or lateral). Couch should be supplied.	Tender terms prevail.
II 2. Power output should be 5 KW or more. Please mention the mA range, mAs range, kV range, exposure time range and advantages.	Tender terms prevail.
III (1) Dual track X-ray tube with dual focus for each track. III (2) Focal spot size 0.1 and 0.3 mm for both tracks.	III (1) Dual track/ Single track X-ray tube with dual focus for each track.
3. Anode heat storage capacity should be at least 150 KHU	Tender terms prevail.
<b>IV. Gantry assembly:</b> 1. It should be an isocentric system	Should be preferably iso-centric system.
IV (4) The patient compression device should be motorised automatic and should have multispeed variable system. It should be state of the art.	Tender terms prevail.
<b>6. Should have facility for magnification 1.5 and 1.8</b>	<b>Should have facility for magnification. Please specify factors.</b>
12.(a).Large paddle for 18X24 and 24X30 cms.	<b>It should be 18x24 and 24X30 +/-1cm.</b>
<b>12 d.</b> Special paddles if available should be quoted-optional.	Two Special paddles if available should be quoted as standard example: <b>1.Spot magnification paddle</b> <b>2.Perforated localization paddle</b>
V(2) The anode track and filters shall be selected automatically and manually.	Tender terms prevail.
<b>VI. Flat panel detector 1.</b> Should have a large flat panel detector of size at least 24x29cms and the pixel size should be 100 micro meter or less	<b>Flat panel detector 1.</b> Should have a large flat panel detector of size at least 24x29cms +/- 1 cm.
6. No Ghosting or lag effect should be present, specify image depth .	Tender terms prevail.
VII (10).Acquisition workstation should be height adjustable for operator convenience.	Acquisition workstation / monitor should be height adjustable for operator convenience.

<p><b>VIII. Reporting Work station</b>  <b>2.</b> Monitor should be approved for Mammography reporting. Where Web QA is available, vendor to provide license for web QA.</p>	Tender terms prevail.
<p><b>3 h.</b> Image evaluation like contrast enhancement histogram display, length measurements before and after comparison etc.,</p>	<p><b>3 h.</b> Image evaluation like length measurements before and after comparison etc., If any other please specify.</p>
<p><b>4</b> There should be a DVD ROM drive, Quadrant zooming or selected zooming function should be available. The RAM should be minimum 4GB. The online storage capacity should be more than 5000 images. Hard disk capacity should be expandable. There should be multi modality viewer should display ultra sound x-ray digital mammography, MRI, PET, CT etc. At least 2 high contrast resolution 5mp LCD medical grade monitors should be provided.</p>	in addition 5MP monitors should be FDA approved for mammography and tomosynthesis reporting.
<p><b>IX 3.</b> Facility for needle core biopsy, Fine needle aspiration and wire localization should be available.</p>	with core biopsy gun.
<p>4. Should be compatible to use with vacuum assisted biopsy.</p>	Tender terms prevail.
<p><b>X. SYSTEM CONFIGURATION</b></p>	
<p>6. Height adjustable &amp; Trendlenberg chair for patient 01</p>	Motorized, Height adjustable & Trendlenberg chair for patient 01: Akurai or equivalent
<p>XI(4) UPS/CVT of suitable rating conforming to IS-302 to be supplied.</p>	Tender terms prevail.
<p>XII (4) The digital mammography unit with all features as per specification and thestereotactic system shall be CE &amp;FDA approved and if other international standard certificates are available should be mentioned. Tomosynthesis should be CE Certified.</p>	<p><b>In addition:  The FDA approval must be on the name of the quoted model". FDA certificate with model name and number should be provided.</b></p>
<p>The unit and x ray tube should be approved by AERB.</p>	<p><b>The quoted model must have AERB type approval /NOC at the time of bid submission</b></p>
<p>5. The offered unit should have a minimum of 5 installations in the country, of the same model, and this should be supported by end user certificates, purchase order copies and installation reports.</p>	<p>The offered unit should have a minimum of 3 installations in the country, of the same model, and this should be supported by end user certificates, purchase order copies and installation reports.</p>
<p><b>XIII 6.</b> Five years comprehensive onsite warranty of entire system (Spares and labour), without any exclusion, including detector, X-ray tube, computers and all other accessories peripherals like UPS etc.. This will be followed by 5 years CMC to be quoted separately, year wise.</p>	UPS batteries shall be covered under warranty and CMC period.
<p><b>7.</b> CMC should cover all updates.</p>	UPS batteries shall be covered under warranty and CMC period.
<p><b>Uptime guarantee:</b> During warranty and the CMC period, the uptime of the system shall be at least 95% of the 365 days in a year. If downtime exceeds 5%, there shall be a penalty of Rs.2000 / per day.</p>	Tender terms prevail

<b>Item No.4 Digital Fluro Radiography</b>	
<p><b>General :</b> High powered X-ray unit with Digital flat panel for various fluroscopy and radiography examinations for the department of radio diagnosis. The Unit should be equipped with integrated high-frequency generator, digital detector and Digital Image processing system. It should be capable of performing all plain and contrast enhanced radiology and fluoroscopy along-with angiography facility for interventional procedures. Among three major components tube/generator /detector at least two component must be manufactured by quoting vendor themselves. It should be US FDA approved. Type approval from AERB is mandatory. The vendor should have prior experience of supplying same/similar equipment in India in the reputed government or private institutions as per DGHS /MOHFW guidelines. The order copies and performance certificates from these reputed (Govt./Private institutions) should be available. The system should have the following essential features. The bidder should quote their latest model. Please mention year of launch. Supplier should have a trained service engineer in the state of supply for better uptime.</p>	<p><b>The quoted model must have AERB type approval /NOC at the time of bid submission.</b> Performance certificate from reputed (Govt./Private institutions) in India/ reputed hospitals in <b>abroad</b> should be available. In addition supplier should have a trained service engineer <b>in or around Kolkata for better uptime.</b> Rest of the Tender Terms Prevail.</p>
Point 1.i. 1000mA unit with microprocessor controlled high frequency (100 KHz) X-ray generator.	1000mA unit with microprocessor controlled high frequency ( <b>≥50 KHz</b> ) X-ray generator.
ix) Fluoro mA 0.2-6 mA.	<b>Fluoro mA 0.2-4 mA</b> or more.
<b>2) TABLE:</b> ii) Table should have minimum lowest height of 90 cm or lesser to facilitate easy patient transfer.	Table should have maximum height of 90 cm or lesser to facilitate easy patient transfer.
iii) System should have motor driven longitudinal and horizontal table top movements. Please specify the range of movements.	<b>System should have motor driven longitudinal table top/detector movements and horizontal table top movements. Please specify the range of movements”.</b>
iv) Table should have angulations from vertical to head down positions. (Vertical +90 Degrees to Trendelenburg - 20 degrees).	Table should have angulations from vertical to head down positions. <b>(Vertical +90 Degrees to Trendelenburg -20 degrees or more)</b>
v) Table should support patient weight upto 250 kgs.	Table should support patient weight upto <b>200 kg with all movements.</b>
3.ii. The X Ray tube should have dual focal spots. Large focal spot of 1 mm or lower. Small focal spot of 0.7 mm or lower.	Tender Terms Prevail
v) “Large focal spot power rating should be in the range 70 to 90 kW”	Tender Terms Prevail
<b>4) Digital Imaging system for Fluroscopy:</b> i) Field of view of at least 40cms or more.	Tender Terms Prevail
<b>5.i</b> “Tube Column – detector assembly movement should be motorized and not less than 160cm”	“Tube Column – detector assembly movement should be motorized and <b>not less than 105 cm”</b>
5.ii. Tube Column – detector assembly movement should be motorized and not less than 160cm.	<b>Tube Column – detector assembly movement should be motorized and not less than 105 cm or more.</b>
5.iii. Tube rotation should be preferably motorized -90/+180 degrees	Tender Terms Prevail
<b>6) DETECTOR SYSTEM :-</b> ii) Detector must be at least 40x40 cms or more	Tender Terms Prevail
iv) Pixels size should be 150 microns or lesser.	Pixels size should be <b>160 microns or lesser.</b>

.viii. Specify refresh cycle (time for second exposure).	Tender Terms Prevail
ix) Frame rate should be at least 1 to 30 image/sec.	Tender Terms Prevail
x) Dynamic range should be 16 bits or more.	<b>Dynamic Digitization Depth/range should be 16 bits or more.</b>
7. iii) "Digital Fluoroscopy at minimum of 15 f/s at 1024 matrix or better"	"Digital Fluoroscopy at <b>minimum of 12 f/s at 1024 matrix or better</b> "
xi) "The system should have capability of online digital subtraction angiography facility with image filters road mapping and peak pacification facilities.	Tender Terms Prevail
xii) "In DSA mode the frame rate should be at least 8 per second."	Please specify frame rate.
8 i) "Total of 4 monochrome monitors of 19 inches each to be provided - of these two should be ceiling suspended in examination room. Other two in console room."	"Total of 4 monochrome monitors of 19 inches each to be provided - of these two should be in examination room. Other two in console room."
<b>iii)</b> Post acquisition image processing viewing reprocessing hardcopy documentation and onward transmission should be possible while doing fluoroscopy or radiography. System should have the facility to integrate display of sources such as endoscopy / ultrasound on the right-hand monitor of the examination room display unit.	Post acquisition image processing viewing reprocessing hardcopy documentation and onward transmission should be possible while doing fluoroscopy or radiography. Preferably System should have the facility to integrate display of sources such as endoscopy / ultrasound .
9. ii) "The system should have facility for edge enhancement, positive/negative image display windowing contrast brightness electronic shuttering image pixel shifting vertical and horizontal image reversal zoom functions"	Tender Terms Prevail
<b>12) C.M.C :</b> Comprehensive Maintenance charges of complete system for which order is placed including turnkey works must be quoted year-wise for next 5 years after completion of warranty.	UPS batteries shall be covered under warranty and CMC period.
19.iii. Dry Chemistry Digital Camera (2 Nos.), capable of printing all film sizes online with spatial resolution of 500 DPI or more. All film sizes should be freely configurable at user level. It should have contrast resolution of 12 bits/pixel or more. It should have all line film sizes. The imager should preferably come with standard films sorter at the output for sorting the films bases on modality connected. It should have a normal through put of 75 films per hour for the largest size. Access time for 1st film 90 seconds or less. The imager should be DICOM compatible for receive send and print facility. The system allow at least 3 sizes from the five sizes to be loaded at any time. Printer status should be displayed for any error status etc.	
19.iv. Dual head pressure injector US FDA approved with 2000 syringes	
<b>Item No.5 Digital Mobile X- Ray</b>	
The unit should be compact easily transportable digital mobile radiographic unit with articulated or telescopic arm and built in monitors. It should be suitable for bedside x-ray for ward patients, intensive care units and operation theatres. If the DR system is inoperable it should be able to function as conventional system. Out of three major components (Detector, X-Ray Tube & X-Ray Generator) at least two should be from the same manufacturer. It should be FDA approved. Type approval from AERB is mandatory.. The vendor should have prior experience of supplying same/similar equipment in India in the reputed government or private institutions as per DGHS /MOHFW guidelines. The order copies and performance certificates from these reputed (Govt./Private institutions) should be available. The system	<b>Preferably articulated or telescopic arm if other please specify.</b> Out of three major components (Detector, X-Ray Tube & X-Ray Generator) at least two should be <b>preferably</b> from the same manufacturer"  The quoted model should be FDA and European CE approved. The vender should have service centre around Kolkata, "Type approval from AERB/NOC is mandatory" Rest Tender terms prevail.



should have the following essential features. The bidder should quote their latest model. Please mention year of launch. The system must include the following:	
<b>B) The Generator:</b> ii) It should have a digital display of mAs and kV and an electronic timer.	It should have a digital display of mAs and kV.
<b>iii) KV range:</b> 40kV to 125kV or more in increments of 1kV	KV range: <b>Within 40kV to 125kV.</b>
v) mAs range: 0.1 – 350 mAs ( to specify mA and seconds separately)	mAs range: <b>0.2 – 320 mAs or more</b> ( to specify mA and seconds separately)
vi) Exposure time range: 0.004 – 10 s	Exposure time range: <b>Please specify.</b>
<b>C) X-Ray Tube:</b> ii) Focal spot should be less than 1 mm	<b>Tender terms prevail</b>
iv) Heat storage capacity of the anode : 120 KHU or better	<b>Tender terms prevail</b>
<b>E) Flat panel detector:</b> iii) The detector pixel matrix size should be 2.0K x 2.0K or more.	<b>Tender terms prevail</b>
iv) Pixel size 200 microns or less	Pixel size <b>150</b> microns or less <b>It should have ingress protection</b>
v) The machine should have a detector storage compartment.	<b>Tender terms prevail</b>
vi) The image viewing time after exposure should not be more than 10 sec.	<b>Tender terms prevail</b>
F. v) The battery should be able to be charged from a normal 15A 230 V single phase socket in less than 6 hours.	The battery should be able to be charged from a normal 15A 230 V single phase socket in less than <b>8</b> hours.
<b>G. Workstation:</b> iv) The touch screen size should be at least 15 inches.	<b>Tender terms prevail</b>
vii) Dry Chemistry Printer:- The System should be supplied with dry imager (dry chemistry) with a spatial resolution of 500 ppi/dpi or more. It should have contrast resolution of <b>12 bits</b> /pixel or more. <b>It should have all possible film sizes. The imager should preferably come with standard films sorter at the output for sorting the films based on modality connected.</b> It should have a normal through put of 75 films per hour for the largest size. Access time for 1st film 90 seconds or less. The imager should be DICOM compatible for receive send and print facility. <b>The system allows at least 3 sizes from the five sizes to be loaded at any time.</b> Printer status should be displayed for any error status etc.	Dry Chemistry Printer:- The System should be supplied with dry imager (dry chemistry) with a spatial resolution of 500 ppi/dpi or more. It should have contrast resolution of <b>12 bits</b> /pixel or more. <b>It should have all possible film sizes..</b> It should have a normal through put of 75 films per hour for the largest size. Access time for 1st film 90 seconds or less. The imager should be DICOM compatible for receive send and print facility. <b>The system allows at least 3 sizes from the five sizes to be loaded at any time.</b> Printer status should be displayed for any error status etc.
I. vi) 2 Grids of at least 8:1 or better ratio and frequency should be provided.	2 Grids of at least <b>6:1</b> or better ratio and frequency should be provided.
<b>Addendum request:</b>	<b>Supplier should provide one time detector replacement during warranty due to whatever failure</b>
iii) The exposure release switch should be detachable with a cord of at least 5 meters. Exposures with remote control should be possible. Remote control should be offered with system.	The exposure release switch should be detachable with a cord of at least <b>4.5</b> meters. Exposures with remote control should be possible. Remote control should be offered with system.

<b>Item No.6 High End Ultra sound machine</b>	
6. The system should have minimum 192 hardware channels and 80000 or more digitally processing channels. Original manufacturing letter to be attached for confirming above channel numbers	Tender terms prevail.
7. The system should perform up to 1000 frames/sec. or more. Also system should support transducers of frequency range from 1-18 Mhz.	Tender terms prevail.
17. Up to <b>10X digital zoom</b> should be available, on live, frozen, cine, dual screen images-Preserves full image resolution within the zoom ROI. HD zoom should be available	Up to <b>8X digital zoom</b> should be available, on live, frozen, cine, dual screen images-Preserves full image resolution within the zoom ROI. HD zoom should be available
18. The System should have THREE active transducer ports or more.	Tender terms prevail.
36. Monitor: i. Monitor should be high resolution, 21" (inch) or more Back Lit LED/LCD Monitor with 1080 x1080 matrix or more. Please specify resolution range with IPS technology.	Tender terms prevail.
37.i) The freely programmable, mode-sensitive <b>10" or more</b> Color Touch Command Screen which enables direct access to all basic and advanced system controls.	The freely programmable, mode-sensitive <b>9" or more</b> Color Touch Command Screen which enables direct access to all basic and advanced system controls.
38. Data Management: i) A large-capacity minimum 1TB HDD should be provided in the standard configuration, facilitating efficient management of acquired images. Images can be viewed in Image Review Mode. Also cine memory of more than 2000 frames should be available.	Tender terms prevail.
40. (i) Convex Probe with Band width of 1 MHz to 6 MHz OR MORE with Biopsy Guide for Abdominal applications and Support for Strain and Shear wave Elastography and Fusion with Navigation Application.	Tender terms prevail.
(ii) Convex volume probe 2-7MHz with 4D package.(including multi slice ,MPR, curved VOI, fetal stic)	Convex volume probe 2-7MHz with 4D package.(including multi slice ,MPR, curved VOI)
<b>ADDENDUM- ACCESSORIES</b>	Adequate A.C as per room and machine requirement Almirah, bookrack and wall cabinet for storage purpose, revolving chairs and departmental books.
<b>Item No.7 Mid End Ultra sound machine</b>	
1. The system must be latest and state of the art with fully digital technology equipment to incorporate the facility of 2D, M-Mode, CDI, PW Doppler, CW Doppler, Power Doppler, directional power angio, real time 3D(4-D) Elastography imaging. The vendor should have at least 5 installations in Government Institution in India in last 5 years.	The vendor should have at least 5 installations in Government/Corporate Institution in India in last 5 years.
3. System should have 60,000 digital processing channels or more.	Tender terms prevail.
4. System should have dynamic range of 200dB or more.	Tender terms prevail.
5. System should be offered with a 2D frame rate of at least 630 or more frames/second.	Tender terms prevail.
11. System should be offered with a 19 inch or more high resolution flat panel medical grade display monitor with facility for position adjustments.	Tender terms prevail.

19 System should be capable of scanning up to depth of 30cm or more.	Tender terms prevail.
<b>Transducers</b> 1. 2-6 MHz or better Broadband Convex Transducer for General Imaging, Abdomen, Renal, OB/GYN imaging with capabilities of CEUS and strain elastography.	Tender terms prevail.

All Bidders are requested to note that the word “optional” stands deleted wherever mentioned in the technical specification. Bidders shall quote their price of complete set of equipment covering all technical specification.

**Amendment of Commercial Terms for Radiology items (regarding penalty):** There will be 95% uptime warranty /CMC Period 24 hrs x 7 days x365 days basis. If downtime exceeds 5%, there will be penalty by extension of warranty by double the downtime period/ or financial penalty at given rates per machine which may be adjusted with AMC charges, as the case may be.

**Chief General Manager, HSCC (I) Ltd  
For & on behalf of Director CNCI, Kolkata**