

**LOT 4 – GENERAL IMAGING**

S/NO.	LOT NO.	EXPECTED EQUIPMENT	QTY	ESTIMATED UNITS PRICE	ESTIMATED TOTAL PRICE
1.	4-1	MRI Compatible Anesthetic Machine with ventilator and Monitor	2		
2.	4-2	MRI Compatible syringe Pumps	3		
		MRI injector pump	1		
3.	4-3	Patient Monitor	4		
4.	4-4	Instruments Set for HSG Instruments for barium studies e.g. swallow, meal, enema	5(each)		
5.	4-5	Instruments Set for IVP	5		
6.	4-6	LEAD Shield GLASS (Portable/ movable)	1		
7.	4-7	LEAD protective wear including aprons, goggles, thyroid shields and gloves, gonad shields etc. APRONS with stands and hangers	20 Aprons, 5 each for remaining 2 pair gloves		
8.	4-8	Premium Ultrasound system (With Cardiac Echo)	1		
9.	4-9	High-end ultrasound systems (4D) Vascular ultrasound machine	2		
10.	4-10	Portable vascular and echo paramount ultrasound with height adjustable stands for use in theatre	4		
11.	4-11	Height Adjustable Ultrasound examination couches	4		
12.	4-12	Biopsy systems for prostates	10		
13.	4-13	Emergency Trolley (ordinary)	4		
14.	4-14	Wheelchairs (Ordinary)	5		

S/NO.	LOT NO.	EXPECTED EQUIPMENT	QTY	ESTIMATED UNITS PRICE	ESTIMATED TOTAL PRICE
15.	4-15	MRI compatible wheel chairs	2		
16.	4-16	Patient stretchers (Ordinary)	5		
17.	4-17	Portable suction units	2		
18.	4-18	MRI compatible Stretcher	2		
19.	4-19	MRI Compatible resuscitation tray	1		

**LOT 4-1 MRI Compatible Anaesthetic Machine with Ventilator and Monitor**

Item Code No.	Department	Section	Item Description	
LOT 4-1	Imaging Equipment	MRI	MRI Compatible Anaesthetic Machine with Ventilator and Monitor	
S/No	Specifications of MRI compatible Anaesthetic Machine:		Complied/Not-complied	Remarks
1.	<b>Construction:</b> machine should be constructed with sturdy frame of medical grade material / durable material having one drawer /shelves, mounted on 4 antistatic wheels, with top shelf for keeping the monitor.			
2.	Should be MRI Compatible Anaesthetic machine for use in MRI Suite (1.5 and 3.0 Tesla).			
3.	Integrated Magnetic Field Strength Monitor			
4.	System should be US FDA approved or have European CE with 4-digit notified body number.			
5.	<b>Gas System:</b>			
	a) Separate cylinder and pipeline pressure gauges for Oxygen (O <sub>2</sub> ), Nitrous oxide (N <sub>2</sub> O) and Air.			
	b) Provision to attach pin type cylinders one each of O <sub>2</sub> and N <sub>2</sub> O.			
	c) Provision for non-interchangeable gas specific central pipeline inlet for O <sub>2</sub> , N <sub>2</sub> O and Air with connecting hoses.			
	d) Dual cascaded rotameter tubes (flow meters) for O <sub>2</sub> and N <sub>2</sub> O, and a single tube for Air.			
	e) Oxygen shortage and failure indicator			
	f) N <sub>2</sub> O supply should be immediately shut off when O <sub>2</sub> pressure drops or interrupted.			
	g) O <sub>2</sub> ratio controller/inbuilt hypoxic guard to ensure minimum supply of 25% of Oxygen at any given time.			
	h) The breathing system should have outlet for excess gas / pressure			

Item Code No.	Department	Section	Item Description	
LOT 4-1	Imaging Equipment	MRI	MRI Compatible Anaesthetic Machine with Ventilator and Monitor	
			relief valve, semi-close mode and mounting for double /single chamber circle absorber.	
			i) Unit should incorporate inbuilt FiO2 analyzer.	
<b>6.</b>	<b>Breathing System:</b>			
			a) Integrated double canister breathing system	
			b) Bag to ventilator quick changeover switch for one step switchover from manual to mechanical ventilation.	
			c) Minimum absorber capacity of 1.5-2Kg	
			d) The breathing system should be fully integrated, compact, with latex-free components which can be dismantled without help of tools. The breathing system should be within the footprint of the machine.	
			e) Adjustable pressure limiting valve shall be flow and pressure compensated.	
			f) It should indicate display messages if Canister is loosely fitted.	
			g) Open circuit switch should be integrated with message displayed when switched ON.	
			h) Universal bellows to be used for adult, Paediatric and neonatal application, without the need to change the same.	
			i) Emergency O2 flush provides @ 35 litres/Minute of minimum flow.	
<b>7</b>	<b>Vaporizer:</b>			
			a) The vaporizers should be calibration free & flow, temperature and pressure compensated.	
			b) Two vaporizers one Isoflurane and one sevoflurane each with	

Item Code No.	Department	Section	Item Description	
LOT 4-1	Imaging Equipment	MRI	MRI Compatible Anaesthetic Machine with Ventilator and Monitor	
	selectatec mounting should be supplied.			
	c) The system should be able to mount two vaporizers at a time.			
<b>8</b>	<b>Ventilator:</b>			
	a) The ventilator should be integrated with the main unit.			
	b) It should be electrically/pneumatically driven and electronically controlled.			
	c) Ascending below clearly visible, to show any leaks in the patient airway visually, is preferred.			
	d) Modes of ventilation: VCV, PCV, SIMV & PSV with apnea backup, and Manual.			
	e) It should use the same universal bellow for adult, paediatrics and infants.			
	f) Tidal volume compensation should be standard.			
	g) Tidal volume:20 –1500ml			
	h) Rate: 4 to 100 bpm			
	i) I: E ratio: 2:1 to 1:8			
	j) PEEP: 4 – 30 cm H <sub>2</sub> O			
	k) Should have monitoring display for FiO <sub>2</sub> , tidal volume, minute volume, frequency, Airway pressure			
	l) Alarm messages			
	m) Pressure/time waveform display.			
<b>9</b>	<b>Multipara gas and hemodynamic monitor:</b>			
	a) This should be integrated with the main unit			
	b) The multipara gas monitor should be able to display pressure, flow,			

Item Code No.	Department	Section	Item Description	
LOT 4-1	Imaging Equipment	MRI	MRI Compatible Anaesthetic Machine with Ventilator and Monitor	
	and volume curves along with airway mechanics (peak airway pressures), tidal volumes, modes of ventilation, the concentration of oxygen, air and nitrous oxide, the percentage concentration and minimum alveolar concentration of volatile inhalational anaesthetics and end-tidal carbon-dioxide monitoring (waveforms and values).			
	c) The integrated hemodynamic monitor should be able to display at least 2 channel ecg with arrhythmia and ST analysis tracking, heart rate, blood pressure (invasive and non- invasive), pulse oximetry, central venous pressures along with both waves and values.			
	d) The machines should be supplied with a slave monitor which can be kept outside the MRI console for vital monitoring including end-tidal carbon-dioxide monitoring.			
<b>10</b>	<b>Scope of Supply</b>			
	1. MRI compatible anaesthesia machine with integrated ventilator and vaporizers, multipara gas and hemodynamic monitor along with slave monitor from same manufacturer.			
	2. Dual Cascaded Flowmeter for O2 and N2O and single flow meter for Air with flow control knobs for O2, N2O and Air.			
	3. Integrated, Fully autoclavable Advanced Breathing System with absorber.			
	4. Colour coded Pipeline Hoses and Inlets for Oxygen, N2O and Air			
	5. Oxygen Cylinder Yoke			
	6. N2O Cylinder Yoke			
	7. Auxiliary Common Gas Outlet (ACGO) to connect open/semi-open circuits.			

Item Code No.	Department	Section	Item Description
LOT 4-1	Imaging Equipment	MRI	MRI Compatible Anaesthetic Machine with Ventilator and Monitor
	8. Integrated Passive Anaesthetic Gas Scavenging System (AGSS)		
	9. AC Power inlet.		
	10. Integrated high end Electronic Ventilator		
	11. Double CO <sub>2</sub> canister of 1.5-2.0 kg.		
	12. Adult reusable patient circuit -5 nos. (five numbers)		
	13. Pead Reusable Patient circuit- 5 nos. (five numbers)		
	14. Disposable adult circuit (Box of 20): Disposable Paediatric circuit (20 nos)		
	15. Reusable Face mask of all sizes 0,1,2,3,4,5. Additional reusable masks of size 3, 4 and 5 -1 each.		
	16. xtra flow sensors – 2 nos.		
	17. MRI compatible ECG cables adult and paediatric (2Nos). MRI compatible ECG electrodes, MRI compatible pulse oximetry probe (adult and paediatric), MRI compatible non-invasive blood pressure cuff (adult and paediatric), MRI compatible transducers, ETCO <sub>2</sub> side ports		
	18. Rate for CMC should be done with consumables for consumables for a period of 5 years.		

#### LOT 4-2 MRI Compatible Syringe Pump

Item Code No.	Department	Section	Item Description
LOT 4-2	Imaging Equipment	MRI	MRI Compatible Syringe pumps
1.	<b>General Description</b> <ul style="list-style-type: none"> <li>Should be US FDA and CE (Notified body) approved model. Manufacturer should be ISO 9001 &amp; ISO 13485 certified for quality standards.</li> <li>Shall comply to ISO/IEC 60601-1-2, Electro Magnetic Compatibility (EMC Standard): The pump confirms to EU Standard on electromagnetic compatibility and hence not affected by</li> </ul>		

Item Code No.	Department		Section	Item Description
LOT 4-2	Imaging Equipment		MRI	MRI Compatible Syringe pumps
	<p>electromagnetic field from external sources and do not emit electromagnetic waves to affect other electronic devices.</p> <ul style="list-style-type: none"> <li>• Should have Ingression Protection of level IPX1 or above.</li> </ul>			
	<p><b>Technical Specification:</b></p> <ol style="list-style-type: none"> <li>1. A handle for easy and convenient carrying.</li> <li>2. Should be MRI compatible up to 3Tesla.</li> <li>3. Should have the provision of status indicator on the control panel.</li> <li>4. The slope of the panel face has been increased so that the reading and indicator light can be easily checked from a distance.</li> <li>5. Should have (audio and visual alarms) warning light alerts for the operator for low battery, low volume, occlusion and internal malfunctioning.</li> <li>6. Connects to external DC power source, enabling use of the pump in an ambulance.</li> <li>7. Should be compatible with multiple brands of Syringes available in market.</li> <li>8. Disposable Syringes in nominal sizes of 10 cc, 20 cc, 30 cc &amp; 50 cc/60 cc should be used.</li> <li>9. Maximum flow rate Rate from 0.1 ml/hr to 1,500 ml/h with steps of 0.1 ml/hr.</li> <li>10. Accuracy of <math>\pm 2\%</math> or better.</li> <li>11. Check by indicator lights that the setting is right.</li> <li>12. Should have 2 hour battery backup with 24 hours charging in case of power failure.</li> <li>13. Automatically switches over to battery with alarm, if plug is accidentally pulled or there is a power failure.</li> <li>14. Should have 3 level battery indicator displaying the status of the battery.</li> <li>15. Bolus function for primary and when bolus injection is called for. To prevent in-correct operation the bolus function should be designed to work only when the ml key and bolus key are pressed at the same time.</li> <li>16. Bolus rate should be programmable to approx. 500 ml, with infused volume display.</li> <li>17. Selectable occlusion pressure trigger levels selectable from 300, 500 and 900 mmHg.</li> <li>18. Continuously Monitors Plunger: A plunger detection sensor checks that the plunger is set properly and an internal mechanism continuously monitors plunger movement during infusion.</li> <li>19. Should have occlusion detecting pressure alarm for detecting occlusion and setting off the occlusion alarm.</li> <li>20. Facility to know the exact amount of infusion taken place any time.</li> <li>21. Retains flow rate and total infusion volume settings - When the power is turned off, the unit stores and retains current flow rate and total infusion volume settings for the next use.</li> </ol>			



Item Code No.	Department		Section	Item Description
LOT 4-2	Imaging Equipment		MRI	MRI Compatible Syringe pumps
	<b>22. Power supply:</b> 23. Power input to be 220 – 240V AC, 50Hz fitted with UK BS plug of appropriate rating. <b>24. Warranty:</b> Should have at least 2yrs. of manufacturer warranty.			

#### LOT 4-3 Patient Monitor

Item Code No.	Department	Section	Item Description
LOT 4-3	Imaging	CT-Scanner Rooms	Patient Monitor
1. General Description			
Portable Bedside monitor suitable for use in ICU. Should be capable of continuous measuring/monitoring of the following parameters in adults, neonatal and pediatric. <ul style="list-style-type: none"> <li>• SpO<sub>2</sub></li> <li>• Temperature</li> <li>• Blood pressure</li> <li>• ECG</li> <li>• Respiration</li> <li>• CO<sub>2</sub></li> <li>• Pulse Rate</li> </ul>			
2. Composition			
2.1.	Main unit		
3. Performance Specifications			
3.1. Main Unit			
<b>Portable Bed side monitors</b>			
Type		Roll stand Mounted type, complete with internal rechargeable battery	
Application		Can be used as a both bedside monitor and a transport monitor	
Parameter & waveforms		SpO <sub>2</sub> , Pulse rate, ECG, NIBP, IBP, Respiration, CO <sub>2</sub> and temperature	
SpO <sub>2</sub> , with reusable sensor		0 - 100% ± 3%	
Pulse Rate		30-300 bpm ± 1%	
Temperature		0-50°C ± 0.1%	
NIBP		Mean 10- 300mmHg ± 5 mmHg	
IBP X2		Mean 00 – 300mm Hg ± 1 mmHg	
ECG		5 lead, standard configuration	

Item Code No.	Department	Section	Item Description
LOT 4-3	Imaging	CT-Scanner Rooms	Patient Monitor
	CO <sub>2</sub>	0 to 99 mmHg ± 4 mmHg	
	Display	Minimum 12.0 inches color touch screen/scroll type	
		6 to 8 waveforms with large font	
	Networking	Wireless and wired connection to the central work station	
	Storage	Capable of storing patient data and transferring to the central workstation for viewing or printing.	
	Audio and visual alarm Printer	For all parameter. Inbuilt Thermal Printer	
	Alarm setting limits	Adjustable by user	
	Low battery indicator	Audio and visual alarm	
	Power Requirement	Rechargeable internal battery, that can last at least 3 hours when fully charged	
	Wireless networking	Latest technology.	
4.	Accessories	The following accessories will be provided as startup kits.	
4.1.	ECG connection lead and reusable electrodes	2 Set	
4.2.	SpO <sub>2</sub> connection cable and sensor (finger probe), reusable	2 Sets	
4.3.	Adult cuff	3 Sets	
4.4.	Pediatric cuff	2 Sets	
	Temperature connection cable and probe (reusable)	2 Sets	
4.5.	Recording paper	20 Boxes	
5.	Quality standards		
5.1.	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485	
5.2.	Conformity to standards	Directive 2004 / 108 / EC, CE and FDA marked	
6.	Local back up service		

Item Code No.	Department	Section	Item Description			
LOT 4-3	Imaging	CT-Scanner Rooms	Patient Monitor			
6.1.	Available	Should be available locally				
6.2.	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables and qualified and skilled technical staff				
7.	Delivery point					
7.1.	See Schedule	For inspection and testing				
7.2.	Nil					
8.	Pre installation requirements					
	Nil					
9.	Installation and testing					
	Complete installation and setup of the machine as per manufacturer's instructions					
10.	Training					
10.1.	User Training	On site user training on operation and daily upkeep				
10.2.	Maintenance training	Onsite maintenance training on preventive maintenance				
11.	Technical documentations					
11.1.	User manuals	2 Sets				
11.2.	Service Manual	1 Set				
11.3.	Drawings	Nil				
12.	Commissioning					
12.1.	Testing and commissioning of the machine to the satisfaction of the user.					
13.	Warranty					
13.1.	Equipment	Minimum of one year after commissioning on all parts.				
13.2.	Equipment System	Nil				

**LOT 4-4 LEAD GLASS PORTABLE LEAD GLASS SHIELD** separate from the infrastructural lead glass shields in the rooms)

Item Code No.	Department	Section	Item Description
LOT 4-4	Imaging	General X-Ray Rooms	Lead Glass
1. General Description			
2. Composition			
2.1.	Main unit		
3. Description of the medical supply unit design type			
Lead equivalent of 3 mm			
Portable wheels and breaks			
Height and width ( confirm with standard market dimensions)			

**LOT 4-5 LEAD APRONS with hangers** LEAD protective wear including aprons, goggles, thyroid shields and gloves, gonad shields etc. APRONS with stands and hangers

Item Code No.	Department	Section	Item Description
LOT 4-5	Imaging	General X-Ray Rooms	LEAD APRONS with hangers
1. General Description			
Radiation Protective Lead Apron with Thyroid Shield Size: Large LEAD protective wear including aprons, goggles, thyroid shields and gloves, gonad shields etc.			
2. Composition			
2.1.	Main unit		
3. Description of the medical supply unit design type			
3.1. The Company should be approved by KNRA. 3.2. Complete frontal protection 3.3. Padded shoulders for reduced shoulder stress and equitable distribution of weight. (Consider top and skirt for better weight distribution) 3.4. Wide stretchable insert with Velcro fastening for a snug fit. 3.5. Also available with snap lock instead of Velcro. 3.6. Easy to wear and remove. 3.7. Lead equivalence: - 0.25mm Pb, 0.35mm Pb, 0.50 mm Pb adhesive Backing. ( Specify lead equivalent for each room e.g general, CT, angio suite, cath lab etc, number and color coding for the lead equivalents) 3.8. Manufacture/ Supplier should give 3 Year guarantee. 3.9. The Lead Apron should be 30-40% lighter than conventional PB Apron. The same will be verified at the time of Technical Evaluation.			

**LOT 4-6 Premium Ultrasound System (With Cardiac Echo)**

Item Code No.		Department	Section	Item Description		
LOT 4-6		Imaging	Ultrasound Rooms	Premium Ultrasound System (With Cardiac Echo)		
1. General Description						
Premium General ultrasound unit comprising of scanning unit, display, probes, console printer, jelly dispenser holder and U.P.S. all mounted on a dedicated trolley on four (4) antistatic castors, two (2) of which should have breaks.						
2. Composition						
2.1.	Main unit					
3. Description of the medical supply unit design type						
3.1. Should be USFDA or European CE approved product.						
3.2. Manufacturer or Supplier should have ISO 13485 certification for quality standards.						
3.3. Electrical safety conforms to the standards for electrical safety IEC 60601- General requirements (or equivalent BS Standard) Add specific safety standard for ultrasound machine updated/ current: IEC 60601- particular for U/S: current version						
3.4. Shall meet internationally recognized for Electromagnetic Compatibility (EMI/EMC)						
<b>Technical Specification:</b>						
3.5. Multipurpose High Density full digital colour Doppler system						
3.6. Offered system should have whole body scanning Applications & software for a wide range of applications that includes: <ul style="list-style-type: none"><li>• abdominal,</li><li>• OB/Gyn,</li><li>• cardiology,</li><li>• urology,</li><li>• small parts,</li><li>• vascular,</li><li>• orthopedic, and</li><li>• MSK applications</li></ul>						
3.7. System should have following Scanning Modes: <ul style="list-style-type: none"><li>• B, Dual B, Quad B,</li><li>• THI, PIH, Trapezoid Imaging,</li><li>• Real-time Panoramic Imaging (B mode), M, Color M,</li><li>• Anatomic M, Color Doppler, Power Doppler Imaging,</li><li>• Directional PDI, TDI, PW with HPRF, CW,</li><li>• Dual-Live, Duplex: B and Doppler/M,</li><li>• Triplex: B, Color Flow, and PW/CW Doppler.</li></ul>						
3.8. Should have Full digital ultrasound beam forming technology						
3.9. Should have Auto Image optimization function, Physical key should be available on the keyboard for easy access. It should also offer 8 slider controls for TGC						
3.10. System should have minimum 19” high resolution display with swivel and tilt facility.						

Item Code No.	Department	Section	Item Description
LOT 4-6	Imaging	Ultrasound Rooms	Premium Ultrasound System (With Cardiac Echo)
<p>3.11. System should have minimum 4 probe Connectivity ports as standard which can support all transducers.</p> <p>3.12. Probes offered should be Broad band frequency probes offering at least user 3 selectable frequency range.</p> <p>3.13. System should offer Scanning depth of more than 30 cms.</p> <p>3.14. Should have at least 256 gray scale for better imaging</p> <p>3.15. System should have 1TB or more hard disk for digital image storage</p> <p>3.16. System should have at least 3 ports of Hi Speed USB for data transfer and inbuilt CD/DVD writer</p> <p>3.17. System Should have multiple focusing method minimum 6 focus</p> <p>3.18. System should have Cine loop of minimum 500 Frames/sec or more.</p> <p>3.19. System should have Tissue Harmonic Imaging Facility with all the probes</p> <p>3.20. System should be provided with DICOM connectivity as standard.</p> <p>3.21. System should have inbuilt Calculations of full OB/GYN calculation package( both early pregnancy and mid-third trimester calculations), Vascular calculations, Urology calculations, Cardiac Calculations, Doppler calculations, Auto Trace</p> <p>3.22. Should be able to measure velocity without taking Doppler tracings.</p> <p>3.23. System should be upgradable to Volume 3D Imaging in Future.</p> <p>3.24. System should be supplied with following probes.</p> <ol style="list-style-type: none"> <li>1. Broad Band Convex probe (Frequency Range 2 – 6 MHz)</li> <li>2. Broad Band Linear Probe for Vascular and small parts applications. (Frequency Range 5 – 12 MHz)</li> <li>3. Broad Band Endocavitary / Transvaginal Probe (frequency range 4-9 MHz)</li> <li>4. Broad Band sector transducer for cardiac studies Cardiac Probe</li> </ol> <p>3.25. <b>Color Printer: -</b></p> <ol style="list-style-type: none"> <li>a. <b>Accessories to be supplied along with</b> <ol style="list-style-type: none"> <li>i. Online UPS of appropriate KVA with 2 hr backup</li> <li>ii. Color Laser Printer for direct image and report print out</li> <li>iii. For parallel processing of Imaging Data, System should be provide with a separate latest configuration with 1 Tera Byte Hard Disk based work station with USB and serial port with at least 19” TFT/LCD monitor with very high quality image Management Software with same capabilities as main machine such as retrieving data along Zoom, Pan, Volume Rendering Multi-planar Reformatting, MIP, retrieving information from CD/DVD with reporting and software exporting JPG &amp; AVI file format to ink other stations in the hospital</li> <li>iv. Black and white video thermal printer of good quality and 30 rolls of high glossy thermal paper.</li> </ol> </li> <li>v. Ergonomic ultrasound-US chair for sonologist           <ul style="list-style-type: none"> <li>• System should be offered with color Printer offering color prints of 6 X 8 Inch Size.</li> <li>• Color Printer should be able to connect directly to the Video Output of Ultrasound machine.</li> </ul> </li> </ol>			

Item Code No.	Department	Section	Item Description
LOT 4-6	Imaging	Ultrasound Rooms	Premium Ultrasound System (With Cardiac Echo)
<ul style="list-style-type: none"> <li>User selectable print options should be available to select from 1,2,4,6,9 Image formats on 1 sheet.</li> <li>Bidder should also enclose the warranty certificate from original manufacturer of color printer.</li> <li>System should be supplied with following suitable Color Printer &amp; Workstation PC</li> <li>Bidders should offer optional prices for future purchases for 1 Box of 6x8" Media separately under Format-C. Please specify the print quantity in each box.</li> </ul>			
<b>3.26. Power Supply:</b> <ul style="list-style-type: none"> <li>Power unit: Input voltage- 220V-240V AC, 50Hz Single-phase.</li> <li>Should be provided with online UPS for power back up of minimum 30 minutes.</li> </ul>			
<b>3.27. Technical documentations</b> <ul style="list-style-type: none"> <li>User manuals 2 Sets</li> <li>Service Manual 1 Set</li> <li>Soft copy of each</li> </ul>			
<b>3.28. Commissioning</b> <ul style="list-style-type: none"> <li>Testing and commissioning of the machine to the satisfaction of the user.</li> </ul>			
<b>3.29. Warranty</b> <ul style="list-style-type: none"> <li>Minimum of two years after commissioning on all parts.</li> </ul>			
<b>3.30. Capacity to provide maintenance and repair service</b> <ul style="list-style-type: none"> <li>Vendor/manufacturer shall have adequate facilities, spare parts, qualified and skilled technical staff to support for at least 10 years from commissioning.</li> </ul>			
<b>3.31. Comprehensive preventive and repair service</b> <ul style="list-style-type: none"> <li>Provision for a comprehensive preventive and repair maintenance service contract including parts and material for a period of 10 years from commissioning date</li> </ul>			

#### LOT 4-7 High-End Ultrasound Systems (4D)

Item Code No.	Department	Section	Item Description
LOT 4-7	Imaging	Ultrasound Rooms	High-end ultrasound systems (4D)
1. General Description			
2. Composition			
2.1.	Main unit		
3. Description of the medical supply unit design type			
<b>3.1. Product &amp; Manufacturer Quality Standards:</b> <ul style="list-style-type: none"> <li>Should be USFDA or European CE approved product.</li> <li>Manufacturer or Supplier should have ISO 13485 certification for quality standards.</li> </ul>			

Item Code No.	Department	Section	Item Description
LOT 4-7	Imaging	Ultrasound Rooms	High-end ultrasound systems (4D)
<p>a. Electrical safety conforms to the standards for electrical safety IEC 60601- General requirements (or equivalent BIS Standard) Add specific safety standard for ultrasound machine updated/ current: IEC 60601- particular for U/S: current version</p> <p>b.</p> <p>c. Shall meet internationally recognized standards for Electromagnetic Compatibility (EMI/EMC)</p> <p><b>3.2. Technical Specification:</b></p> <p>It should be robust state of art fully digital high end latest color Doppler ultrasound system under current production capable of performing imaging applications in abdominal</p> <p>1. Obst/gynae,</p> <p>2. Musculoskeletal,</p> <p>3. Cardiovascular,</p> <p>4. Small parts,</p> <p>5. Urology,</p> <p>6. Cardiology,</p> <p>7. Real time 4d,</p> <p>8. Tissue elastography,</p> <p>9. Contrast etc.</p> <p>b. System should have broad band beam former capable of processing signals from 2-13 MHZ</p> <p>c. System should incorporate facility for high resolution 2D, M-mode, PW, CW, Color Flow imaging, Color power Angio imaging, Directional Color Power angio imaging modes, live real time 3D/4D.</p> <p>d. System should have full spectrum imaging, Speckle Reduction Filter, Spatial Compound imaging, Pulse Inversion Harmonic Imaging, Trapezoidal Imaging &amp; Contrast Enhanced Imaging (Low – MI)</p> <p>e. System should have oblique view, Multi Slice View, OVIX (Oblique View Extended Imaging), Multi OVIX, Volume Contrast Enhancement (VCE), Volume CT.</p> <p>f. System should have real time duplex and triplex mode facility in 2D, color and Doppler modes.</p> <p>g. System should have dynamic range of 190 db or higher, Higher will be preferred.</p> <p>h. System should have high PRF.</p> <p>i. System should have scan depth of up to 30 cm or more. Please specify through data sheet.</p> <p>j. System should have 256 shades of gray display</p> <p>k. System should have facility for real time and frozen, pan or point zoom.</p> <p>l. System should have cine lop review minimum 10,000 frames</p> <p>m. System should have minimum 10,00,000 or more receiving channels. Please specify through data sheet.</p> <p>n. System should have panoramic extended field of view.</p>			



Item Code No.	Department	Section	Item Description
LOT 4-7	Imaging	Ultrasound Rooms	High-end ultrasound systems (4D)
<p>o. System should have independent steering of B mode and color on linear probe.</p> <p>p. System should have advanced real time 4D capabilities</p> <p>q. System should have Acoustic Radiation Force Impulsion (AFRI), Transient elastography and shear wave imaging.</p> <p>r. It should have extensive software and automatic and user programmable calculation package for gray scale, color Doppler, 3D and 4D applications.</p> <p>s. It should have minimum 20" high resolution medical grade TFT/LCD screen monitor with articulated arm</p> <p>t. System should have Touch Screen control 9" wide or more.</p> <p>u. It should be provided with following transducers.</p> <ul style="list-style-type: none"> <li>i. Convex abdominal 2-6 MHZ approximately</li> <li>ii. Endocavitary (TVS + TRUS) 4-9 MHZ approx. with 180 degree or more radius</li> <li>iii. Linear high frequency 5-13 MHZ approx.</li> <li>iv. Convex 4D probe 2-6 MHZ approx.</li> <li>v. Convex volume probe small parts, vascular, musculoskeletal 4D capability 6-12 MHZ approx.</li> <li>vi. Cardiac echo/sector probe 2.5-4.5MHZ.</li> <li>vii. It should be capable of supporting at least three or more transducers ports with switching form console.</li> </ul> <p>v. System should have built in image Management software, for offline application when patient has gone after examination, such as image manipulation, Multi Planner reformatting, surface &amp; volume rendering etc. It should have hard disk memory of 1TB or more with built in CD/DVD/ USB read write.</p> <p>w. System should be capable to do Elastography with convex, TVS and linear probes.</p> <p>x. System should be capable to do Contrast Enhanced Ultrasonography</p> <p>y. System should be capable to do Volume NT.</p> <p>z. System should be capable to HDVI (high density volume imaging)</p> <p>aa. System should be capable to do 3D MXI (Volume Slice View, Mirror View)</p> <p>bb. System should be provided with free comprehensive software up gradation guarantee (compatible with existing platform) for 10 years after installation.</p> <p>cc. <b>Accessories to be supplied along with</b></p> <ul style="list-style-type: none"> <li>v. <b>Online</b> UPS of appropriate KVA with 2 hr backup</li> <li>vi. Color Laser Printer for direct image and report print out</li> <li>vii. For parallel processing of Imaging Data, System should be provide with a separate latest configuration with 1 Tera Byte Hard Disk based work station with USB and serial port with at least 19" TFT/LCD monitor with very high quality image Management Software with same capabilities as main machine such as retrieving data along Zoom, Pan, Volume Rendering Multi-planar Reformatting, MIP, retrieving information from CD/DVD with reporting and software exporting JPG &amp; AVI file format to ink other stations in the hospital</li> <li>viii. Black and white video thermal printer of good quality and 30 rolls of high glossy thermal paper.</li> <li>ix. Ergonomic ultrasound-US chair for sonologist.</li> </ul>			

Item Code No.	Department	Section	Item Description
LOT 4-7	Imaging	Ultrasound Rooms	High-end ultrasound systems (4D)
dd. <b>Power Supply:</b> i. Power unit: Input voltage- 220V-240V AC, 50Hz Single-phase.			

#### **LOT 4-8      Portable Ultrasound**

Item Code No.	Department	Section	Item Description
LOT 4-8	Imaging	Ultrasound Rooms	Portable Ultrasound
1. General Description			
<del>Portable Musculoskeletal Ultrasound Machine</del> Portable machine with at least 3 probes to enable vascular/ small parts, general and endocavitary probe			
2. Composition			
2.1.	Main unit		
3. Description of the medical supply unit design type			
3.1. Imaging modes and processing: Broadband, multi frequency imaging. 3.2. The unit should be state of the art latest high frequency linear probe and convex probe (additional linear probe or ability to add probes at a later date) and will provide high resolution musculoskeletal & vascular images. 3.3. Basic functionality, such as gain adjustment and depth measurement, Tissue harmonic imaging should be available for all probes . 3.4. Color and spectral doppler capability for all probes 3.5. Ability to operate over both high & low frequencies. 3.6. Computer Package for measurement and calculation provision for the distance area volume and circumference complete vascular & other organs. 3.7. Image storage and extraction capability, ability to upload images to PACS. It should have at least USB Ports (at least 2 high speed USB 2.0 Ports) for external portable CD/DVD-RW/External hard-disk/ USB false driver or equivalent for transfer of images to PC. Export formats supported should be: MPEG-4. JPEG, BMP and HTML. 3.8. Screen with size (18”) and high spatial resolution to allow viewing from at least 2-3 ft. (60-90 cm) away. 3.9. ECG port/ connector 3.10. Mobility adequate to allow bedside examination. 3.11. Backlit QWERTY keyboard, System should have features including display annotation, patient ID display and alphanumeric keyboard with provision for reverse, invert facility. 3.12. Should operate on 220v 50z AC. 3.13. The unit should have the following two electronic probes : A) Linear array probe 6-14 MHz (+1 MHz) B) Convex probe 2-5 MHz ( _+1 MHz) C) Endocavitary probe (4-9 MHZ)			

Item Code No.	Department	Section	Item Description
LOT 4-8	Imaging	Ultrasound Rooms	Portable Ultrasound
3.14. Ability to run on batteries (rechargeable Lithium-ion, battery backup 2hrs. 3.15. Ability to record video, the system should have the capacity of storing on hard disk/flash card. 3.16. Indigenous Mobile cart-light weight (basic equipment without transducers should be less than 10kg). 3.17. Adjustable stand, the system should have the capacity of storing at least 2 probes and Gel holder. 3.18. Guarantee/Warranty: Minimum for 2 years 3.19. CMC rates for 5 year after expiry of warranty period including labor cost and cost of spare parts for whole equipment including all probe other accessories should be quoted separately. <b>Technical documentations</b> <ul style="list-style-type: none"> <li>User manuals 2 Sets</li> <li>Service Manual 1 Set</li> <li>Soft copy of each</li> </ul> <b>Commissioning</b> <ul style="list-style-type: none"> <li>ii. Testing and commissioning of the machine to the satisfaction of the user.</li> </ul> <b>Warranty</b> <ul style="list-style-type: none"> <li>iii. Minimum of two years after commissioning on all parts.</li> </ul> <b>Capacity to provide maintenance and repair service</b> <ul style="list-style-type: none"> <li>iv. Vendor/manufacturer shall have adequate facilities, spare parts, qualified and skilled technical staff to support for at least 10 years from commissioning.</li> </ul> <b>Comprehensive preventive and repair service</b> Provision for a comprehensive preventive and repair maintenance service contract including parts and material for a period of 10 years from commissioning date			

#### LOT 4-9      Ultrasound Examination Couches

Item Code No.	Department	Section	Item Description
LOT 4-9	Imaging	Ultrasound Rooms	Ultrasound Examination Couches
1. General Description			
Ultrasound Examination Couch Stainless Steel with Mattress			
2. Composition			
2.1.	Main unit		
3. Description of the medical supply unit design type			
3.1 Constructed from round polished SS (stainless steel) Pipes 3.2 Fully adjustable headrest. Top of Polished SS Sheet. 3.3 Top is upholstered and covered with washable plastic material 3.4 Legs fitted with thick high-quality nylon gromets.			

Item Code No.	Department	Section	Item Description
LOT 4-9	Imaging	Ultrasound Rooms	Ultrasound Examination Couches
3.5	5 cm 50PU density foam cushioned top covered with leathered Rexene of 2mm thickness		
3.6	Top dimensions – L = 72inch X W= 24inch H= 32 inches		
3.7	All the Stainless Steel should be seamless conforming to 304 grade/ 16 gauge and polished finished		
3.8	Box with three drawers and three cabinets.		
3.9	Should have sliding footstep.		
3.10	Adjustable height of the couch( vertical height)		
The head section should be raised with mechanical pneumatic			

#### **LOT 1-14 — Biopsy systems for prostates-COLLABORATION WITH RENAL AND IMAGING**

IMAGING				
Item Code No.	Department	Section	Item Description	
LOT 1-14	Imaging	Ultrasound Rooms	Biopsy systems for prostates	
1. General Description		Reusable biopsy guns with single use biopsy needles		
Biopsy systems to include kidney, bladder and prostate sets with ultrasound guidance				
2. Composition				
2.1.	Main unit			
3. Description of the medical supply unit design type				

#### **LOT 4-10 Emergency Trolley**

LOT 4-10 Emergency Trolley			
Item Code No.	Department	Section	Item Description
LOT 4-10	Imaging	Brachytherapy	Emergency Trolley
1. General Description			
Resuscitation trolley for use in ICU. Epoxy coated mild steel, with drawers, protection perimeter and defibrillator holder. The Unit should be mobile on four castors, 2 lockable			
2. Composition			
2.1.	Main unit,		
3. Performance Specifications			
3.1. Main Unit			
3.1.1. Should be durable with Ergonomic handle and should have easy grip			
3.1.2. Height should be 40-45"			
3.1.3. Should have 6-8 drawers of sizes 3x3",2x6",1x9"			

Item Code No.	Department	Section	Item Description
LOT 4-10	Imaging	<b>Brachytherapy</b>	Emergency Trolley
3.1.4. Should have interchangeable 3",6",9" drawers which run smoothly on good quality channels 3.1.5. Should have provision of side storage which allows storage of variety accessories like can, storage bins, glove storage, sharp container set 3.1.6. An over bridge can with baskets, shelves and bins to keep important things 3.1.7. Should have AMS top surface & advance polymer material which is easy to clean. It should not dent, chip flake or corrode 3.1.8. Should be easily rolling and has toe brakes 3.1.9. Should have I.V. pole with clamps each 3" drawer should have provision for 25-30 compartments 3.1.10. Should have twin swivel castors & central lock 3.1.11. Should be CE and ISO 9001/2000 and FDA approved 3.1.12. Should have CPR board & O2 cylinder holder			

#### **LOT 4-11 Wheelchairs**

Item Code No.	Department	Section	Item Description
LOT 4-11	Imaging	Imaging	Wheelchairs
1. General Description			
The wheelchair unit is required to transport physically impaired patients from one place to another whilst in a seated position.			
2. Composition			
2.1.	Main unit		
3.			
3.1.	The wheelchair shall be suitable for adult patients and shall be capable of withstanding minimum patient weights of 100 kg.		
3.2.	The wheelchair shall be as light as possible (not more than 15kg) and its frame shall only be manufactured from aluminum which is resistant to scratches and heavy detergents cleaning materials.		
3.3.	The wheelchair shall incorporate two handlebars for an attendant to be able to push the wheelchair from one place to another.		
3.4.	The wheelchair shall be both patient and attendant propelled.		
3.5.	The width of the seat shall measure not less than 460mm±30mm		
3.6.	The depth of the seat shall measure not less than 400mm ±50mm		
3.7.	The unit shall incorporate swinging detachable footrests.		
3.8.	The armrests shall also be flipping back and/or detachable.		
3.9.	The front and rear tyres shall be solid.		
3.10.	The rear tyres shall have a diameter of 610mm±200mm and shall also be solid.		
3.11.	The front tyres must be castor type and shall vary anywhere between 150mm and 200 mm in diameter.		

Item Code No.	Department	Section	Item Description
LOT 4-11	Imaging	Imaging	Wheelchairs
<p>3.12. The wheelchair shall be supplied in K.D. Form.</p> <p>3.13. The wheelchair shall be supplied fully assembled.</p> <p>3.14. The wheelchair's upholstery shall be in welded nylon material</p> <p>3.15. All materials from which this wheelchair is to be manufactured from shall be easy to clean and shall be resistant to various disinfectant solutions utilized in a hospital environment.</p> <p>3.16. The Wheelchair shall also incorporate a safety belt to ensure that the patient can be kept securely in place especially when in motion.</p> <p>3.17. Brakes extend from the frame to the wheels with some form of mechanical locking (LEVER) system, which permit the wheels to be locked in place preventing unwanted motion. Brake lever must not protrude above seat level to the extent that it interferes with the transferring process when armrest is flipped back.</p> <p>3.18. The original manufacture's specification brochure must always be included.</p> <p>3.19. All equipment supplied shall be supplied brand new, implying that any demo unit or already used equipment will not be considered acceptable for the purpose of this tender.</p> <p><b>Documentation:</b></p> <ul style="list-style-type: none"> <li>• Two copies of Service Manuals</li> <li>• Two copies of Operators' Manuals</li> <li>• Declaration of Conformity' from the parent Company</li> <li>• FDA/ CE Declaration Certificate</li> <li>• All Tenderers are requested to submit the manufacturer and model of the equipment offered. Failing this, the submission/quotation will be ignored and refused irrevocably.</li> </ul>			

#### LOT 4-12 Patient Stretchers (With siderails)

Item Code No.	Department	Section	Item Description
LOT 4-12	Imaging	Imaging	Patient stretchers (with siderails)
1. General Description			
Standard Patient stretcher with siderails individually packaged and cleared marked in English with the name and characteristics of the article and number of units per carton and with Manufacturer's Name			
<p><b><u>Submission of sample:</u></b> Submit a brochure for evaluation</p>			
2. Composition			
2.1.	Main unit		
3.			
<ul style="list-style-type: none"> <li>• Shock absorbing, non-marking wrap around bumper system protects stretcher, and facility walls</li> <li>• 3in High density foam mattress</li> </ul>			

Item Code No.	Department	Section	Item Description
LOT 4-12	Imaging	Imaging	Patient stretchers (with siderails)
<ul style="list-style-type: none"> <li>• 24in Patient surface width</li> <li>• Collapsible side rails</li> <li>• 2 IV receptacles</li> <li>• 1 Stainless steel IV pole</li> <li>• Central locking brakes</li> <li>• Steering pedal activator</li> <li>• Integrated oxygen bottle holder</li> <li>• Storage compartment</li> <li>• Retractable 5<sup>th</sup> wheel steering system</li> <li>• Dual pneumatic assisted backrest (0-80 degrees)</li> <li>• Dual sided foot pedal for height adjustment</li> <li>• Hands free trendelenburg</li> <li>• Patient restraints</li> <li>• O<sub>2</sub> holder (requires shelf); holds E-size tank</li> <li>• Heavy-gauge, tubular frame, powder coated white</li> <li>• Continuous heavy rubber bumper</li> <li>• Overall length: 2-2.5M</li> <li>• Overall width (side rails up): 80-85cm</li> <li>• Overall width (side rails down): 60-70cm</li> <li>• High: 85-90cm</li> <li>• Low: 50-65cm</li> <li>• Backrest: 0-80 degrees</li> <li>• Trend/ Reverse trend: <math>\pm 18</math> degrees</li> <li>• Weight capacity: 300-350kg</li> <li>• Caster size: Approx. 200mm</li> </ul> <p><b>Quality standards:</b>  Manufacturing standards: - IEC 60601-1, ISO 9001, ISO 13485  • Conformity to standards: - FDA/ CE Standard</p>			

#### LOT 4-13      Portable Electric Suction Units

Item Code No.	Department	Section	Item Description
LOT 4-13	Imaging	Imaging	Portable Electric Suction Units
1. General Description			
<p>Suction machine suitable for use in theatre, for both adult and pediatric use.  Should be constructed from coated non-corrosive, extreme heat resistance material and electrically insulated and mobile on antistatic castors <math>\phi</math> 60 mm, 2 No. lockable, with high level push handle.</p>			
2. Composition			
2.1.	Main unit		

Item Code No.	Department	Section	Item Description
LOT 4-13	Imaging	Imaging	Portable Electric Suction Units
3. Performance Specifications			
3.1.	Main Unit		
3.1.1.	High flow rate	40 litres per minute.	
3.1.2.	Suction vacuum	Maximum 700mmHg	
3.1.3.	Suction pump	oil free	
3.1.4.	Jars	2 X 2 liter polycarbonate autoclavable and unbreakable complete with overflow devices and valves.	
3.1.5.	Vacuum gauge	Graduated in mmHg and kPa.	
3.1.6.	Vacuum control	Adjustable at the front panel	
3.1.7.	Switch	Main on front panel and foot switch (water proof type)	
3.1.8.	Cable towage	On back with reversible cleats	
3.1.9.	Anti-bacterial filters	Available preferable autoclavable	
3.1.10.	Suction tubing connection	Antistatic neoprene or silicone	
3.1.11.	Safety	Overflow pump protection	
3.1.12.	Handle	High level push handle type	
3.1.13.	Movements	Mobile on four antistatic castors 2 No. lockable.	
4.	Physical characteristics		
4.1.	Main unit	Mobile on castors with push handle	
5.	Operating environment		
5.1.	Power Requirements	240V, A/c 50 Hz, Single phase, 3 Pin Plug BS standard, 3m long cord with PE	
5.2.	Ambient temperature	10° C to 40° C	
5.3.	Relative humidity	20% to 90%	
6.	Accessories	The following accessories will be provided as startup kits.	
6.1.	Sterilizable, silicone tubing	5 Set	
6.2.	Bacterial filters	1 Box	



Item Code No.	Department	Section	Item Description		
LOT 4-13	Imaging	Imaging	Portable Electric Suction Units		
6.3.	Foot switch	1 No.			
6.4.	Cannula with handle for general purpose	4 Sets			
7.	Quality standards				
7.1.	Manufacturing standards	EN 10079-1, IEC 60601-1, ISO 9001, ISO 13485			
7.2.	Conformity to standards	CE and FDA marked			
8.	Local back up service				
8.1.	Available	Should be available locally			
8.2.	Capacity to service equipment	Agent shall have adequate facilities, spare parts, and qualified and skilled technical staff			
9.	Delivery point				
9.1.	See Schedule	For inspection and testing			
9.2.	Nil				
10.	Pre installation requirements				
	Nil				
11.	Installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
12.	Training				
12.1.	User Training	On site user training on operation and daily upkeep			
12.2.	Maintenance training	Onsite maintenance training on preventive maintenance			
13.	Technical documentations				
13.1.	User manuals	2 Sets			
13.2.	Service Manual	1 Set			
13.3.	Drawings	Nil			
14.	Commissioning				

Item Code No.	Department	Section	Item Description			
LOT 4-13	Imaging	Imaging	Portable Electric Suction Units			
14.1.	Testing and commissioning of the machine to the satisfaction of the user.					
15.	Warranty					
15.1.	Equipment	Minimum of one year after commissioning on all parts.				
15.2.	Equipment System	Nil				

**Drawn by:**

Name: ..... Signature ..... Date: .....

**Reviewed by:**

Name..... Signature ..... Date .....

**Confirmed by:**

1. Name: ..... Signature..... Date .....

2. Name: ..... Signature..... Date.....

3. Name.....Signature.....Date.....