

#	Item Name	Description	Quantity	Unit
لات اول بخش تجهیزات طبی رادیولوژی (Imaging Equipment's)				
1	CR – machine with three try printer Model:CR 15 AGFA or equivalent	<p>GENERAL</p> <p>Digitizer type</p> <ul style="list-style-type: none"> • Single cassette feed • Throughput: 35 x 43 cm (14 x 17") = 1pproxi. 60 plates/hour 35 x 35 cm (14 x 14") = 1pproxi. 60 plates/hour 24 x 30 cm (9.5 x 12") = 1pproxi. 71 plates/hour 18 x 24 cm (7 x 9.5") = 1pproxi. 76 plates/hour 15 x 30 cm (6 x 12") = 1pproxi. 82 plates/hour 24 x 30 cm mammo = 1pproxi. 32 plates/hour 18 x 24 cm mammo = 1pproxi. 38 plates/hour <p>Display</p> <ul style="list-style-type: none"> • LED Status Indicator • Status and error messages on external PC monitor Greyscale resolution • Data acquisition: 20 bits/pixel • Output to processor: 16 bits/pixel square root compressed Dimensions and weight • (W x D x H): 693 x 701 x 546 mm (27.2 x 27.6 x 21.5") Depth including input tray: 769 mm (30.3") • Weight: 1pproxi. 72 kg (158 lbs) Power • 220 – 240 V, 1.0 A/50-60 Hz • 100 – 120 V, 2.0 A/50-60 Hz <p>Minimum requirements</p> <ul style="list-style-type: none"> • CR MD4.0T General Cassette • CR MD4.0T Full Leg/Full Spine Cassette • CR MD4.0 General Plate • CR MM3.0T Mammo Cassette and Plate • NX Environmental conditions • Temperature: 15 – 30° C (59 – 86° F) • Humidity: 15 – 80 % RH • Magnetic fields: max. 3.8 μT in conformance with EN 61000-4-8: level 2 • Rate of change of temperature: 0.5° C/minute (0.9° F) Environmental effects • Noise level: max. 65 dB (A) • Heat dissipation: standby 80 W, max. 200 W <p>Cassette:(8/10)(14/17)(10/14)</p>	8	Piece

		<p>Note: Installation & Basic Operation Training is Supplier responsibility Warranty for 1 years one of the standard certificate</p> <p>Technical notes: following points must be noted:</p> <ul style="list-style-type: none"> • ISO or CE or FDA certificates • Brochure • User and Service manual and technical documentation in English. • Post-sale service must be provided within 5 days from malfunctioning report. • One preventive maintenance visit per Six Months. • Spare parts for service of the equipment and preventive annual maintenance must be available for 10 years. 		
2	<p>Ultrasound Machine portable Model: HS-2700 Honda or equivalent</p>	<p>12.1 inch LCD Monitor Simple and Easy operation keyboard Clear and rich monochrome image by H-res Easy handling by light weight trolley with durable wheels Scanning probe: Linear/Convex Display mode: B,B/B,B/M,M, B/Z Range frequency:2.8mhz – 11mhz Doppler: CFM, PD Cine memory: 255 frames Measurement function: Distance, Area, circumference, volume, hip joint, histogram, pregnancy week, Velocity, LV calculation Net weight: 20kg Power source: AC 100 – 240V 50/60Hz Probes: Convex, Linear</p> <p>Made in USA, Europe and JAPAN Note: Installation & Basic Operation Training is Supplier responsibility Warranty for 1 years</p> <p>Technical notes: following points must be noted:</p> <ul style="list-style-type: none"> • ISO 9001 or 2000/FDA or CE certificates • Brochure • User and Service manual and technical documentation in English. • Post-sale service must be provided within 5 days from malfunctioning report. • One preventive maintenance visit per Six Months. • Spare parts for service of the equipment and preventive annual maintenance must be available for 10 years. 	14	Piece

<p>3</p>	<p>2d echo machine Model:3300 Philips or equivalent</p>	<p>Specifications of ECHO machine 1. System should be a fully digital color Doppler echocardiography system. A) System should offer high performance ultrasound and color Doppler in a zero footprint, compact unit, weighing less than or equal to 6 KGs.b) System should work on battery and mains with minimum one hour battery operations') Should be supplied with trolley for easy transport from patient to patient. 2.System should use digital beam former technology, capable of incorporating future techniques, should be upgradable through software and hardware.3.System should have Multi array Probe technology for Phased Array, Linear Array, and curved Array and should support TE.4.System should have high resolution, flicker free at least 10" TFT LCD monitor.5.The system shall capable of providing the following imaging and operating modes.a) 2D, M-mode, Colour M-Modeb) Colour Flow Doppler Imaging) Fully Steerable Pulsed Doppler) Fully Steerable Continuous Wave Recalle) Digital cine replay of all imaging and Doppler modalities') On screen Cine Storage & Image recallg) Digital Image Storage and Patient Archive with true scanner frame rates.h) Full measurement and analysis capabilities. Both on line and offline preferable. I) Imaging frequencies from 1 MHZ to 15 MHZj) Review of stored ultrasound images') User adjustable B Colorization maps, gain settings, color Doppler baseline, angle correction and other important parameters with live/frozen/archived images/loops.6.System should have minimum keys and knobs for easy patient data, annotation and report entries.7.Should have a display of single, dual images side by side.8.System should have a programmable architecture with data processing of phase, amplitude and frequency with raw data digital replay for cine/single loops allowing the adjustable of all major parameter and measurements.9.Should have a built-in digital archival system for image storage and archival with reporting facilities. The internal HDD should atleast 4 GB. CD/DVD/USB drives should be available.</p> <p>10.System should have on board, in built training and education guide/tutorial/ software for easy access of video images/library.11.System should have user definable report formats with inbuilt reporting text.12.Should have a zoom capability with live/frozen/stored images. Should have capability of zooming the archived cine loops.13. Should be DICOM 3 complaint.14.Should be directly compatible with color inkjet printers.15.Should have 3 or more tissue harmonic imaging frequencies in all imaging modes.16.Colour rotating (360 dig) M Mode cursor.17.Should be quoted within)Neonatal phased array cardiac probe with imaging frequencies from 5 MHZ to 8MHZ small footprint between 10-14 mm.ii)Linear 6-13 MHZ probe with small foot print(20-25mm)Printer, UPS for the entire set up18.System inclusive of screen and transducers should permit liquid disinfection and should be splash proof.19.Should be FDA approved. Demonstration compulsory20.Training of hospital engineers & staff.21. Comprehensive warranty (3 years) & 5 years CMC after completion of warranty period.22.Rates of consumables & accessories should be freezed for 8 years.23.Operating and detailed service manual should be supplied.24.Must submit User list and performance report. Or equivalent</p> <p>Note: Installation & Basic Operation Training is Supplier responsibility Warranty for 2 years</p> <p>Technical notes: following points must be noted:</p> <ul style="list-style-type: none"> • ISO 9001:2000 or FDA or CE certificates • Brochure • User and Service manual and technical documentation in English. • Post-sale service must be provided within 5 days from malfunctioning report. • One preventive maintenance visit per Six Months. 	<p>10</p>	<p>Piece</p>
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		<ul style="list-style-type: none"> Spare parts for service of the equipment and preventive annual maintenance must be available for 10 years. 		
4	C- arm machine Model:BV Pulsera or equivalent	<p>System should be High Frequency 50Khz Microprocessor controlled C-arm machine providing excellent image quality at low radiation, ideally suited for entry level surgery in many application fields such as orthopedics', trauma surgery and general surgery. X-RAY GENERATOR should have following: Type High frequency 50 KHz Power Output 6.0 K.W or more KV RANGE 40 to 110KVP or more. Fluoroscopy mA Continuous Flour scope Flour mA 0.1 to 4 mA or more High Definition Fluoroscopy mA 0.2 to 8 mA or more Radiography mA 80 mA or more 2 CONTROL should have following A very compact, soft touch control panel(APR) with 20 X 3 (column x rows) LCD display on which KV, radiography mAs, fluoro time, FmA, I.I ZOOM, Error inter lock for KV, filament, thermal are displayed on wide angle LCD. Console panel should have following functions & indications. • Anatomical programming for radiography of 4 body parts (up to 8 programmes). • Selection of Continuous/multi pulse/single pulse fluoroscopy. • Machine ON/OFF switch. • I.I magnification(I.I field) selection switch • "Emergency fluoro". •</p> <p>Flouro and Radio mode selection. • In built radio timer that enables to select mAS from 0.1 to 300 in 25steps for radiography • Fluoroscopy timer (Five minute cumulative timer with buzzer that activates after the completion of 300seconds of exposure and to reinstate the exposure reset switch should be provided.) • ABS (Automatic brightness Stabilization) selection for hands free operation. • KV and mAs increase and decrease switches. • X-Ray on switch with indicators. • Switches for up/down movement of "C". • Emergency OFF Switch on the control panel 3 X-RAY TUBE HEAD should have following Anode type: Rotating Anode Small focal spot: 0.3mm (Max. Power:- 5KW) Large focal spot: 0.6mm (Max. Power:- 17KW) Anode heat storage capacity: 250 KHU or more The X-Ray Tube Head should be thermally protected</p> <p>4 CCD CAMERA High resolution compact CCD camera ½" size. Total pixels: 752(H) X 582(V) should be there. 5 MONITOR Two nos. 17" high resolution monitors along with a trolley. 6 COLLIMATORFix Type. Or equivalent Note: Installation & Basic Operation Training is Supplier responsibility Warranty for 2 years Technical notes: following points must be noted:</p> <ul style="list-style-type: none"> ISO 9001:2000 or FDA or CE certificates Brochure User and Service manual and technical documentation in English. Post-sale service must be provided within 5 days from malfunctioning report. One preventive maintenance visit per Six Months. Spare parts for service of the equipment and preventive annual maintenance must be available for 10 years. 	1	Piece
5	CT Scan	<p>SPECIFICATIONS FOR 128 SLICE 'ALL PURPOSE' C. T. SCANNER Philips or equivalent The product should be Spiral multi-slice CT scanner, with capability of acquiring 128 Slices per 360° degree rotation for comprehensive whole body imaging, including cardiac, neuro, chest, abdomen,</p>	2	Piece

<p>Model:128 slice Philips incisive or equivalent</p>	<p>musculoskeletal and vascular imaging in isotopic resolution. It should also be capable of 3-D reconstructions and display at fast speed during acquisition on-line as well as real time, with feasibility of volume rendering and advanced vessel analysis.</p> <p>Technical specifications:</p> <ol style="list-style-type: none"> 1. Model: 2. Gantry <ul style="list-style-type: none"> • Should incorporate low Voltage Slip Rings • Minimum scan time for a 360° rotation should be less than or equal to 0.35 sec. (350 mili sec.) • Should have minimum tilt of 30 degrees on either side and remote tilt should be available as standard • Gantry should be provided with user control panels on either side for positioning of the patient • The sub millimetre slice @0.63 mm or less in 64 row 128 acquisitions should be available. The system should be in position to perform 128 slices / rotation for general, cardiac and vascular applications • Should have 3D positioning laser lights • The scan FOV in acquisition mode be at least 200 mm to 500 mm with intermediate steps for scanning different anatomies • Gantry aperture should be at least 70 cm. in diameter 3. X-Ray Generator <ul style="list-style-type: none"> • Should be compact and in-built in the gantry • It is to be of high frequency type having at least 100 kW (actual power) output or more than that if available • The mA range available should be between 20 to 800 or more, with increment steps of not more than 10 mA. 4. X-Ray Tube <ul style="list-style-type: none"> • The X-ray tube should be essentially dual focus with heat storage capacity of 8 MHU or more, with effective storage of at least 25 MHU. <p>Peak heat dissipation rate of anode should be at least 1600 KHu/min</p> <ul style="list-style-type: none"> • X-ray tube cooler unit should be inside the gantry • Specify the configuration of focal spots, and type of X-ray tube • Any special feature of X-Ray tube to be highlighted (with due support of product data sheet) eg. Dual – energy acquisition by single source. 5. Detectors <ul style="list-style-type: none"> • These should be of solid state type. • 128 Slice acquisition per rotation should be possible with the detectors, in 0.63 mm mode. <p>The system should have at least 64 ‘physical rows’ of the detectors.</p> <ul style="list-style-type: none"> • The Z-axis coverage of at least 40 mm / rotation should be possible for standard and cardiac scans • Specify the fan-angle of X-rays and the geometry • Detectors should not require frequent calibration 6. Patient Table <ul style="list-style-type: none"> • should have minimum weight bearing capacity of 200 kilograms • The minimum table top height should not be more than 35 cms from floor level for easy transport of trauma patients • Table top width to be at least 42 Cms for better comfort • The range of metal free scanable range should be at least 160 cms. • The vertical range (max. Ht. – min. Ht.) : • Remote controlled UP / DOWN and FWD / BWD movement. Pitch to be freely selectable in automatic / 		
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	<p>manual mode: 0.15 – 1.5</p> <ul style="list-style-type: none"> • specify the reproducing accuracy of the Table <p>7. Topogram / Scanogram</p> <ul style="list-style-type: none"> • Length and Width: As per standard • Scan times: Standard, and whether real time image option available • Views: should be feasible in Frontal and Lateral orientations • Should be possible to interrupt acquisition manually, if necessary <p>8. Spiral / Helical section</p> <ul style="list-style-type: none"> • The system should have spiral capability of at least 100 seconds continuous. Real time spiral @ 10 f / s should be standard • Range of spiral facility in axial direction should be more than 100 cms • Reconstruction time in spiral scan should not be more than 100 mili sec. • The system should perform tilt spiral scan as standard at any of the chosen angle in multislice mode. • Facility of multi-spirals, bi-directional spirals and back to back spirals: Should be available • There should be smart prep or equivalent facility and ability to track contrast media, to trigger scanning should be included • High – resolution scan package of 0.63 mm or less should be offered as Standard with this CT system • Multi slice CT fluoroscopy, with at least 3 slice positions and reconstruction @ 10 images / sec, as on optional feature <p>9. Host Computer</p> <ul style="list-style-type: none"> • It should be offered with latest ‘multi-tasking’ processors and a menu driven platform, with 64 Bit CPU and 8 GB or more RAM memory • Two monitors independent console shall be preferred, with latest Medical Grade Color Monitors of at least 18” – flat screen. The twin monitor system would work on either shared or common data base • The display matrix should be at least 1024 x 1280 or more • The reconstruction time for an axial scan should not be more than 100 milli seconds • The Hard disk capacity for both image and raw data should be at least 250 GB or more • It should have facility to store 4,00,000 images or more, of 512 matrix • the system should be supported with ‘Archiving’ facility in DVD & CD of 600 or 700 MB capacity • DICOM facility to send, store, print, receive, Query/Retrieve, MWM, and MPPS etc. should be standard. • PC based connectivity should be offered as standard, for easy transfer of images & Report • Additional two independent work-stations (4 GB or higher RAM) with thin client server architecture with capacity of all 2D and 3D post – processing, cardiac recon, Angio, and archiving as well as DICOM print facility should be included in scope of supply. <p>10. Image Processor</p> <ul style="list-style-type: none"> • Specify: the Operating System configuration <p>(Processor shall be a high speed CPU: 3.0 GHz or better and with an Independent Hard disk storage capacity of 125 GB or more)</p> <ul style="list-style-type: none"> • Image reconstruction time should be at least 20 images per second or better for all types of acquisition modes including cone beam correction • The system is to have standard software like 3D volume rendering, MIP, CT Angio (Color display), virtual endoscopy, CT perfusion, prospective 		
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	<p>ECG gated scan, Dental and bone mineral study on the main console as well as on atleast ONE workstation.</p> <ul style="list-style-type: none"> • The following software should be offered as standard (MPR, CPR, SSD, MIP, MinIP, ROI, VOLUME CALCULATION, CT NUMBER DISPLAY, WW, WL, TOPOGRAM DISPLAY, CINE DISPLAY, HRCT LUNG, DYNAMIC SCAN, QUANTITATIVE VESSEL ANALYSIS) • Cardiac scan attachment with ECG gated segmental recon., calcium score, plaque analysis cardiac function, flythrough in coronaries should be available in the main console as well as in the workstation. • Automatic display of MPR images after scan will be preferred. • Bolus triggered Brain perfusion study (at least 3 – levels) with automatic CBF, CBV, MTT, TTP maps, ROI placing & comparing and saving maps. • Neuro DSA with auto bone removal software • Lung CT : low dose protocols for lung nodule, assessment and follow-up; Lung segmentation software for nodule detection • Complete cardiac package with ECG gated studies (prospective and retrospective tagging) with cardiac review & functional analysis (ventricular motion and regional wall motion); One touch volume rendering of the whole heart, ECG gated dose modulation; Calcium and ‘coronary angio’ reporting. • Volume rendering technique with axial cross reference imaging alongwith measurement tools on VR 2D & 3D images, and small volume measure package; MIP slab viewer etc. shall be preferred • There should be ‘state of Art’ workstations (2 in No.) with at least 4 GB or higher RAM; CD / DVD / Archival / DICOM viewer. These should support all the software as listed on the main console. <p>16</p> <p>11. Contrast RESOLUTION</p> <ul style="list-style-type: none"> • Spatial resolution of system should be mentioned with parameters • The high contrast resolution be more than 20 lp/mm in all routine scans, including spiral and axial mode • The low contrast resolution should not be more than 3 mm at 0.5% • Shoulder and Pelvis streak artifact suppression software would be standard with the system offered • Noise suppression protocols to maintain LCR at low dose. <p>Cardiac CT: value of (i) Spatial (mm) and (ii) Temporal (m sec.) resolution</p> <ul style="list-style-type: none"> • Special software (like mA modulation in routine and cardiac mode) to ensure Dose efficiency should be standard. <p>12. Specify : CT Dose Index</p> <ul style="list-style-type: none"> • Should have iterative reconstruction technique for X-ray dose reduction • Low dose Pediatric CT mode should be available • Patient’s Radiation Dose (CTDI vol.; DLP) must be displayed on the monitor and the imaging films. <p>13. Software for Remote Diagnostics service over a tephone line</p> <ul style="list-style-type: none"> • System must be PACS interface ready 		
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	<ul style="list-style-type: none"> • Fully DICOM 3.0 compliant, including DICOM modality work list (with automatic procedure selection) and capability from HIS – RIS interface. <p>14. Accessories : Essential</p> <ul style="list-style-type: none"> • Dry Chemistry Laser Imager (dpi 500 or more) of a reputed make : Integrated with main console and workstation • Color Laser Printer (High Resolution) for color coated images • Lead Glass of 120 x 80 cms dimension • UPS with half hour 'back-up' to run entire CT system, Workstations and Laser Imager (should be 160 kVA or more, as per CT system's rating) • Dual – Head Pressure imager of reputed make (500 syringes & Tubing's to be supplied with it) • Multi para monitor with pulse – oximeter (for monitoring vitals) of standard make • Zero Lead Aprons (5 No.) with one Apron stand • All accessories (standard & mandatory) for 'positioning in comfort' of a patient (Infant old aged) for fast CT Scanning <p>17</p> <p>15. Product Data Sheets</p> <ul style="list-style-type: none"> • All compliance to the 'Technical Specifications' of 128 Slice CT in this Tender MUST be supported in form of original Data sheets / Original certificate from the principle / manufacturer. <p>16. Certifications</p> <ul style="list-style-type: none"> • Offered model of 128 Slice CT should be European CE and / or US F.D.A. approved Copy of certificates should be submitted with the Tender • The quoted model of 128 Slice CT 'Must' be AERB approved : document of type approval should be attached <p>17. Warranty and comprehensive Maintenance Contrast</p> <ul style="list-style-type: none"> • To mention in details. This may be negotiated in due course. <p>C.T. applications proposed to be done on 128 Slice MDR CT</p> <p>Sl. No. Name of CT Investigation</p> <ol style="list-style-type: none"> 1- Head - (Plain) 2- Head - (Plain & Contrast) 3- Facial Structures 4- PNS / Orbits 5- Neck / Larynx 6- Temporal bone HRCT 7- Dent scan 8- Thorax (Chest) 9- Abdomen - Upper 10- Abdomen - Whole 11- Pelvic region 12- Musculoskeletal (any one limb) 13- Joint (any one) 14- Spine (one region) 15- CT Angiography 		
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6	<p>X-Ray Film Processing Unit Model: Cyrix 60 Agfa or Equivalent</p>	<p>Technical data: - Size LWH: 80x65x38cm; 94cm length when the feeder tray is added. - Weight: 54kg empty, 64kg full - Connection: 200-230V, 50 or 60Hz - Power: max. 1500W - Capacity: 60 films/h - Film formats: 10x10cm to 35x43cm - Film transport speed: 28cm/minute - 3 color-coded tanks: one each for the developer, fixer and water. - Bath temperature 34°C for developer and fixer - Warming up time: 7min - Cycle time: 3 minutes - Drying system: infrared Chemical product recommended by manufacturer: Agfa Giaever Developer reference: G153 Fixer Reference: G 353 or 354 Unit of presentation: 1 unit, delivered with 6x2.5 liters of developer and fixer, 3 spare tank covers, 3 tank valves, and a multilingual user and maintenance manual. With Red Light and completely equipped dark room BA-88A Semi Auto Chemistry Analyzer (Micro Lab) or equivalent Features: . 7.0" TFT touch-screen & pop-up keypad . Two test mode: flow cell or cuvette</p>	29	Piece

		<ul style="list-style-type: none">. Supports bi-chromatic tests for end point, fixed-time, kinetics methods. External keyboard or mouse support via USB. User-friendly interface and multi-language operation software. Built-in thermal printer. Or equivalent <p>Note: Installation & Basic Operation Training is Supplier responsibility Warranty for 1 year.</p> <p>Technical notes: following points must be noted:</p> <ul style="list-style-type: none">• ISO 9001:2000 or CE certificates• Brochure• User and Service manual and technical documentation in English.• Post-sale service must be provided within 5 days from malfunctioning report.• One preventive maintenance visit per Six Months.		
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