

Annexure -I

(1) Technical Specification of High Frequency 2.5 KW or more with stationary Anode X-Ray Machine:

1. X-Ray Generator: High Frequency X-Ray Generator.
2. mA: 100mA or more
3. Output : 2.5 KW or more
4. mAs : Up to 200mAs
5. KVP Range : 40 to 100KVP or more
6. Machine weight less than 250 Kg (including table) & height less than 185 cm.
7. Control :
 - (A) Attractive & Ergonomically designed Control Panel with total Soft Touch Switches for various operations.
 - (B) KV Increase & Decrease Switches.
 - (C) MAs Increase & Decrease Switches.
 - (D) Machine On/OFF Switch.
 - (E) Bucky Selection Switch.
 - (F) Collimator Lamp 'ON' Switch.
 - (G) Standby & Exposure Release Switch.
 - (H) X-Ray on Indicator.
 - (I) Incoming Voltage Indicator.
 - (J) A dual action hand Switch with Retractable cord is provided for Radiation Protection of Operator.
8. Tube Head: Mono block version, Stationary Anode BEL/ Toshiba/IAE, ITALY X-Ray Tube, Focus 2.8 mm².
9. Stand: Floor to Ceiling Stand & with Counter Balanced Tube Head (Rotatable \pm 180 Degree), 360 Degree Rotatable; mounted on Floor Ceiling Rails for convenient movements.
10. Table: Horizontal Bucky Table (6¼ x 2¼ feet) should be for over couch & Bucky radiography of various body parts. The Table should consists of motorized reciprocating Bucky with more than 14" x 17" should have Grid Ratio of 6:1, 60 lines/Inch & a stainless steel cassette Tray is provided. The Bucky should travel the entire length of the table and can be located at any desired position by a lock. The tabletop should be made of low radiation absorption, waterproof material and Compression Band.
11. Vertical bucky with Bucky Selection Switch should be provided.
12. Accessories :
 - (A) Collimator Aluminium filter.
 - (B) Hand Switch with retractable cord for exposure.
13. Power supply: 230V, AC, 50Hz. 15 Amps with line regulation of \pm 10%. Line resistance < 0.4 ohms. Machine should work on single phase.
14. Other Requirement :
 - (A) The company should be ISO Certified.
 - (B) The unit should be approved by BIS and AERB.
 - (C) The company should have a local Service center.

- (D) Catalogue with circuit diagram (operation & service manual)
15. Following Consumable Items of Dark Room & Accessories also to be supplied by the firm.
- (A) Large stainless steel tank with cover containing two tank having capacity of 13.5 liters each for developer and Fixer and one tank for Rinsing water having capacity.
 - (B) Safe light.
 - (C) Hangers two each of various sizes.
8" x 10", 10" x 12", 12" x 15" and 14" x 17"
 - (D) Two lead aprons 0.5 mm of lead.
 - (E) 10 sets of lead numbers markers alphabets.
 - (F) Lead divider two sets.
 - (G) Cassettes with intensifying high speed screen (400) blue/green base films (two packets of 50 Nos. each) of 8" x 10", 10 x 12", 12" x 15" and 14" x 17"
 - (H) Thyroid and Gonad protection.
 - (I) Binder.
 - (J) 2 Cones-Pituitary & Neck.
16. LED VIEW BOX with single plate (1 film of 14" x 17") X-ray viewing screen with uniform illumination of minimum 5500 LUX and LED life of 1 Lac Hours.. It should be able to secure the X-ray film when is use. NO UV Emission and the brightness control should be provided.
17. Consumable: X-Ray Films, Developer, Fixer & Intensifying Screen.

(2). Specifications of Semi Auto Biochemistry Analyzer:

1. Analyzer – semi automated bench top device using wet chemistry reagents.
2. Analyzer should have ability to use both external cuvettes and integrated flow cell.
3. Analyzer should have direct test access keys on the key board for routine chemistry parameters.
4. Analyzer should have more than 190 programmable channels.
5. Analyzer must have key board with water proof membrane.
6. Analyzer must have following assay types:
 - 1-Point (End Point), 1-Point with sample blank
 - 2-Point (Fixed Time)
 - Rate-A (Kinetic)
 - Absorbance Measurement.
7. Analyzer must have following calibration types:
 - Linear, Two Point
 - K Factor
 - Log-Logit.
8. In kinetic assays, measurement interval should be 1 second.
9. Analyzer must have storage for three different calibration for each chemistry.
10. Three level controls (QC) with day to day Levy Jennings chart stored and displayed.
11. The flow cell must be Quartz.
12. The flow cell must have an optical path of 10 mm.
13. The flow cell volume should be less than 20 µl.
14. Measurement temperature range should be from 20-40 degree C with variable 1 degree C increment.
15. Analyzer must have following wavelengths as standard:

EL

- 340 nm, 415 nm, 510 nm
 - 546 nm, 578 nm, 600 nm
 - 660 nm, 700 nm
16. Analyzer should have absorbance range from 0.00 – 3.0 Abs units.
 17. Analyzer resolution must be 0.0001 Abs.
 18. Analyzer detector should be more than 12 bit silicon photo diode.
 19. Analyzer must store 1000 results.
 20. Analyzer must store reaction graphs for previous 10 samples.
 21. One year QC data can be stored.
 22. Internal thermal printer should be available.
 23. Analyzer should be capable to do multiple testing up to 3 replicates. Should display mean . SD, CV.
 24. Measuring time programmable from 2-998 seconds for kinetic & two point type tests and delay from 0-999 seconds.
 25. Analyzer should have semi-automatic aspiration of reaction mixture directly into flow cell using peristaltic pump.
 26. Analyzer should be able to perform HbA1c testing.
 27. USFDA/ CE approval is must, certificate be enclosed
 28. Consumables: lamp & Tubings.

(3). Specification of Folding Scoop Stretcher:

- a. It should telescope to accommodate the tallest patient and fold for compact storage.
- b. Attendants should be able to uncouple either end of the stretcher and gently scoop up the patient using scissors.
- c. Should have tubular aluminum construction with extruded aluminum blades.
- d. Item should have BIS/CE/USFDA approved certificate.
- e. It should have the following dimensions:

Maximum Length	Approx. 200 cm
Minimum Length	Approx. 170 cm
Folded	Approx. 120 cm
Width	Approx. 45 cm
Depth Folded	Approx. 10 cm
Weight	Approx. 10 kg
Load Capacity	Approx. 150 kg

- f. Consumables: None

(4). Specification of Portable 3 Channel ECG Machine:

1. 3 channel ECG Machine with LCD display.
2. Automatic, Manual Recording Modes.
3. Soft touch key Board.
4. Paper size: 60 mm and more.
5. Mains and Rechargeable battery operated.
6. Inbuilt Rechargeable battery for at least 2 hours.
7. Portable, lightweight < 3 kg.
8. Measurement facility with interpretation.
9. Memory for 25 ECG or more.
10. Automatic Lead Marking, Thermal printing.
11. Recording Sensitivity: 2.5, 5, 10, 20 mm/mV.

Handwritten mark

12. Defibrillation Protection: Internal.
13. Frequency response: 0.05-150 Hz.
14. Filters: Mains and Muscle interference.
15. Safety standards : Class II, type CF.
16. CE (Europe) or USFDA approved.
17. Equipment should be supplied with compatible paper rolls (Quantity 10 Nos.)
18. Consumables: Paperroll, Chest Electrodes, Clamp Electrodes, ECG Jelly, Lead Set and Battery.

(5). Specification of Centrifuge Machine (16 Tubes):

- Centrifuge Machine 1/8 H.P. Motor 220V. AC/DC Regulator.
- Speed range 500 to 4500 rpm on load.
Which should be controlled by variable speed regulator.
- It should be fitted with digital Timer 0-59 minutes and digital speed indicator.
- The machine should be supplied with Angle rotor head having 16 tubes of 15ml capacity. It should be completed with S.S tube carrier, Rubber cushions, graduated glass tubes of 15ml cap. And should also be supplied with 16 graduated plastic tubes of 15ml. capacity.
- The lid should be double walled, made of steel sheet /ABS plastic injection moulding for extra safety having lid lock. It should also be fitted with electronic lid lock which should not open when machine is in running condition. It should off when machine is off after running the cycle.
- The Motor of machine should be fitted of anti vibration pads.
- Supplied completed with instruction manual, cord and plug, dust cover, 12 spare rubber cushions, 2 spare fuse and 3 sets of carbons of motor. Should be well packed in thermo cool box.
- Machine should be ISI/CE marked.
- Technical final approval will be after demonstration.
- Consumables: Carbon Brush only.

(6). Technical specification for supply of chassis & MMU body fabrication & fitment/installation of equipment:-

1. The Vehicle chassis model specification should be latest model.
2. Vehicle chassis model should be of standard chassis manufacturer & engine & gear box of reputed make & capacity & should be suitable for complete MMU & also confirm to BS III / IV specifications fitted with power steering. Vehicle engine's power should not less than 80 BHP & gear box should have synchromesh gears (5 forward gears minimum) & the GVM should not be less than 6000 kg. The vehicle should have aerodynamic design for better operation.
3. Vehicle should have suitable Split Air Conditioning System (with DG Set of at least 7.5 KVA) with inbuilt heating system & A.C. (Split type) should be of reputed manufacturer like Hitachi, carrier, Mitsubishi , O general, Daikin etc. Air Conditioning should maintain the temperature suitable for MMU & insulation material (thermocool) should be used of FR grade & good quality density as per ISI norms. Air Conditioner should be properly placed in MMU so that complete MMU maintains the uniform temperature i.e. $22^{\circ} \pm 3^{\circ}\text{C}$.
4. Vehicle base should be between 3800mm to 4400mm so that after fabrication work, the working space (excluding cabin) should be available in between 17' to 22' in length & height should not be less then 6'6".



5. MMU vehicle should have enough space for all equipments/gadgets installed in the vehicle & necessary platform to be provided for installation-fixing of equipments & movement of patient & staff. MMU should have capacity to accommodate at least 09 persons.
6. Lead lining as per AERB guidelines.
7. All structures to be fabricated with proper size of M.S. sheet, Angles, Channel etc. Outer paneling of the body should be of galvanized steel sheet with minimum joints. Suitable insulation to be provided between outer & inner panel & roof flooring should be done by marine waterproof plywood with vinyl flooring. Fabrication work should be of standard quality & with proper finishing. All equipments to be fixed properly & concealed when not in use. Body of the vehicle to be fabricated by tubular structure of 40X40 or 60X40mm & confirm to IS & floor's structure should be of minimum channel size 75X40mm & outer paneling should be done with galvanized steel sheet of 18 or 20 SWG or Imm thick & inner paneling to be M:S. cold rolled sheet or laminated aluminum sheet of 18/20 S.W.G. Vinyl flooring to be done (1.6 to 2.00mm size) on 15mm BWR/Marine grade plywood floor. Provide air exhaust system (vents) for proper air circulation & overhead shelves for proper storage.
8. Minimum 2 nos. doors should be provided, one at rear side & another at one side, having good quality heavy duty hinges. Foldable ramp (with inbuilt foldable steps) is to be provided for rear door & foldable steps for side door & door for D.G. Set with sliding mechanism.
9. Suitable size of windows are to be provided with toughened TATA-Green tinted glasses. Door sizes should be of approx 6' Length & 2'6" Approx. width. The Stairs and Handles should be Insulated. Front wide shield glass should be of 5.5 mm approx laminated (single piece) & straight & curved glass for windows of 5.00 mm size toughened. Single glass with aerodynamic design and ORVM Mirrors in front side should be provided. Fog lamps should be provided. Curtains & Curtain rods are to be provided. Tents & poles are to be supplied with hooks on top of body for waiting space. Flood Lights to be provided in 3 sides of vehicle.
10. Complete vehicle should be waterproof & there should be no leakage & anti corrosion treatment is to be provided & best quality paint is to be used.
11. Portable D.G. Set of 7.5 KVA capacity, with proper earthing ensuring electrical safety, to be supplied of standard manufacturers & fitted properly in vehicle with sliding mechanism for taking it out if required. Good quality of switch board, switches are to be provided. Additional wire loom (at least 30 mtrs) to be provided for use of external electricity. Vehicle should be capable to bear the load capacity of all equipment. Electrical system should have 12V/24V battery & alternator not less than 55 Amp. A control panel with MCCB, changeover switch is to be provided for electric system for D.G. Set & direct supply. Lights should provide better visibility & electrical fittings should confirm to CE standards. A suitable inverter system to be provided with Wire Diagram. One small fridge of 60-90 L capacity to be provided below the equipment.
12. Vehicle should be complete in all respect for registration purpose like lights, number plates etc.
13. Firm should provide wash basin, waste tank (of approx 100 L), suitable water tank 100 L approx. With foot operated Motor, ward robes for storage purpose, towel stand, mirror, soap stand, waste management system, fans 4-6 nos, bell , siren,

light/blue on top, roof lights as per requirement, public address system, fire extinguisher 02 nos(5 Kg each ABC type), first aid box, needle destroyer, Dr. Chair 02 nos, Revolving Stool 02 Nos, One wheel chair, 02 Oxygen Cylinders(B Type) with Regulator and Humidifier, Plastic Chair 08 nos. (not less than 02 mm thickness & weight bearing capacity- 120 kgs). The furniture should have good quality Epoxy Powder Coated not less than 75 micron. No wardrobes to be provided above patient table.

14. The roof top should have facility to install V-set antenna in future.
15. Fabrication work will be checked by a committee during the fabrication work thrice. Modification in arrangement of equipments installation will be allowed by the Technical Committee. Equipments to be installed properly so that no damage occur during the traveling.
16. Deptt. Name should be mentioned on both side of vehicle & also name of fabricator to be mentioned on body of vehicle. NRHM monogram/ Sticker to be pasted on vehicle.
17. Consumables: Oil, grease, coolant, all kind of packing, all rubber parts, electrical bulbs, gas, glass items and fuel.
18. Tyres, Battery & Chasis more than six months old will not be accepted (at the time of delivery).
19. All equipment should be properly fitted in vehicle to avoid damage during travel.
20. The Stapney/ Spare Tyre should be kept in easy access via sliding mechanism.
21. Mobile stairs (2 Steps) should be provided.

Terms & Conditions:-

1. Firm will submit the same literature/leaf lets brochures, of models of the manufacturer, which they have quote their offers.
2. Firm should submit the experience certificate of fabrication work of vehicle/MMU/ Ambulance etc. Firm/bidders should have experience of A.C. vehicles fabrication.
3. The firm should submit the list of clients to whom they have supplied such vehicle & also performance report for clients if received any.
4. ISO certificate to be provided for fabrication work of vehicle MMU.
5. Inspection : During fabrication, inspection will be done at 3 stages by a committee
 - (i) Fabrication
 - (ii) Paneling & Validation of Equipments
 - (iii) Final Inspection along with equipment.and at final stage shower test has to be conducted for any leakage.
6. Sample: Lowest bidder has to supply first MMU as sample for approval & if required by a committee, suitable changes may be allowed.
7. All welding joints should be of mig welded. Length of welding should be not less than 25mm at equal pitch.
8. Wherever painting is required is P U paint of good quality has to be used for example Asian paint, SD or equivalent.
9. Stick ring approximately 100sq. feet as per the requirement and direction of NRHM has to be done.
10. Proper Demonstration and Training (including END USER) is must.
11. User Manuals of all the equipments and MMU should be provided.
12. Fast Nuts used should be of high tension grade with Zinc phosphate or borderised.

(7). Technical Specification of Binocular Microscope:

- Binocular head sientop type 300 inclined; 3600 rotating
- Coaxial coarse and fine knobs; tension adjustment on the right side.
- Wide field eyepieces WF 10X/20mm; One with pointer (Optional)
- Reverse mounted quadruple revolving nose piece
- Objective achromatic EF-N plan (Antifungal) 4X,10X,40X,100X;ccis
- Focusable Condenser NA 1.25 abbe condenser with iris diaphragm slider slot. Focusable and lockable.
- Stage movement (XY direction) on rack and pinion.
- LED illumination 3W with intensity control >10,000hrs bulb lifespan with battery backup of 1 hrs.
- Attachable mirror set.
- Wooden box with lock for storage.
- Other essential accessories, oil, lenses, leaning solution, dust cover.
- Technical final approval after demonstration.
- The equipment should be ISI/ISO/CE marked.
- Consumable: Nil.

(8). TECHNICAL SPECIFICATION ON PORTABLE GENERATOR

Engine Parameters

Max. Output	7500 VA or more
Rated Output 230v/ 50Hz	7000 VA or more
Engine HP BS III / IV	13 HP or more
Choke	AUTO
Starting	Electric / Recoil start
Fuel Type	Diesel
Fuel Tank Capacity	25 ltr or more
Continuous Operating Hours	6 hrs or more
Oil alert system	Yes
AC circuit protector	Yes
Dimensions	1200 X 700 X 800 mm or less

- Consumables: Rubber parts, Oil, Coolant, fuel, all filters.

(9). BLOOD CELL COUNTER (THREE PART AUTOMATIC HEMATOLOGY ANALYZER)

1. It should be 3 part fully automatic hematology analyzer with 18 parameters (WBC, RBC, Hb, HCT, MCV, MCH, MCHC, RDW, PLT, MPV, PCT, PDW, Gr% Gr#, Ly%, Ly#, Mo%, Mo# with three histogram). Histogram interpretation booklet of the same company for model quoted should be provided.
2. Method – Principal of cell counting by impedance and selective lysing
– Hb by cyanide free liquid, photometry
3. Instrument should have dual chamber for RBC & Platelets, WBC & Hb.

3L

4. Sample volume range less than 100µl whole blood.
 5. Through put 60 samples/hrs. Use only 3 reagents diluents, lyse, cleaner with automated cleaning of sample probe and reagents should be in compact pack.
 6. It should have inbuilt printer. Facility for external printer should be provided.
 7. It should be US-FDA approved/CE98/79/CE directive or ISO 13485:2003.
 8. The firm should have their own quality control and calibrators and extensive QC features.
 9. Firm must have various zonal office at District based engineer in Rajasthan. Service should be provided within 24 hrs of breakdown call. List of engineers together with their contact numbers working in Rajasthan only should be given.
 10. Online UPS with 30 minutes backup should be supplied with equipment.
 11. Firm should submit list of user of quoted model in Rajasthan particularly from reputed Lab/Govt. Lab performance report can also be considered.
 12. It should have USB port/RS 232 port for data transmission.
 13. Equipment should be pest proof.
 14. Cost per Test should not be more than Rs 20.00 (calculated on 20 samples per day including startup & shutdown cost). Reagent Consumption Sheet on Manufacturer's Standard Document should be submitted and shall only be considered.
 15. Free reagents for start up of standard pack size should be provided, with a set of controls with the equipment at time of installation.
 16. Operation manual and service manual must be provided at the time of installation.
- Note – Each firm should provide original Brochure for the equipment with detail specification.
17. Consumable: Reagents & consumables.

(10). TECHNICAL SPECIFICATIONS OF BACTERIOLOGICAL INCUBATORS ISI

MARK IS:3118:1978

- Construction: - With double walled construction with completer inner chamber made of Highly Polished stainless steel, outer chamber is made of mild steel sheet. Finished with powder coated paint. Gap between the walls is filled with special grade glass wool for proper insulation and to avoid heat losses.
- Inner chamber fabricated with ribs for adjusting shelves to convenient height supplied with 2 removable shelves. Shelves are made of polished stainless steel sheet as per



chamber. Door is insulated & fitted with heavy hinges. Door has double glass window which facilitate inspection of samples without opening the door.

- Heating elements made of high grade Nichrome wire are put inside the porcelain beads and placed at the bottom and side ribs for uniform temperature all over the space.
- Temperature Control: - Digital thermometer type thermostat from ambient to 80⁰ C temperature along with Digital Indicator cum controller.
- Accuracy $\pm 05^{\circ}\text{C}$
- Ventilation :- Air ventilators are provided on both side at top to flue away any gas or fumes.
- Control Panel :- The equipment is digital provided with a panel having a Digital control knob ON/OFF switch and two pilot lamps.
- Power Requirements :- Supplied with cord and plug suitable to operate on 220 V single phase, 50Hz AC supply. Rating : 200 Watts
- Size of Inner Chamber :- (mm)
- W X H X D No. of Shelves
- 300 X 300 X 300 2
- Accessories: - Air circulating fan should be provided for uniform air circulation in the chamber.
- Consumable: Nil.

Note: Guarantee of the complete MMU (including vehicle & all Equipments) should be of three years.CMC will be given @ 3% (of net rate- inclusive of Excise Duty & exclusive of VAT/CST etc.) plus service tax (as applicable) and yearly escalation of maximum 5 % on last year's CMC price. The rates of CMC should be provided for minimum five years after guarantee period of three years.

Executive Director (EPM)
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