E-TENDER ENQUIRY DOCUMENT

For purchase of Medical equipments/Miscellaneous Items

EMPLOYEES' STATE INSURANCE CORPORATION
MEDICAL COLLEGE & HOSPITAL
SANATH NAGAR, HYDERABAD-38.
E-mail-ms-nacharam.ts@esic.in
Phone no.- 040-23701096, 23814852

Tender Enquiry No; 799-D/28/2018-19/MEETE-08 **Date: 12/07/2018**

Sub; Invitation of E-Tender for the supply of Medical equipments

E-TENDER NOTICE No.08/2018-19

E-Tenders in Double bid system are invited from manufacturers / authorized dealers / distributors for the supply of Medical equipments for ESIC Medical College & Hospital, Sanathnagar, Hyderabad – 38.

Detailed information regarding the items, application / tender forms, EMD details, specifications, terms and conditions can be downloaded from the following websites: **www.esic.nic.in**

The interested bidders shall submit their tender(s) through online mode at the e-procurement portal **https://esictenders.eproc.in and CPP portal.**

- **All the bidders are requested to participate the tenders online through the website** https://esictenders.eproc.in/**EMD should be submitted by the bidder in the form of DD and the same should reach this office before the closing time of the tender.**
- **No need of submitting the hard copy of the bid.**
- **Bidders can contact through medicalstores-mcsnr@esic.in for any clarifications.**

Any corrigendum to this tender will be notified through the aforesaid websites only.
The undersigned reserves the right to accept or reject any or all the bids without assigning any reason at any stage.

The schedule for different activities is as below:

S.No.	Description /Name of the Dept.	Schedule
I	E-Tender document available at ESIC website / e-procurement portal https://esictenders.eproc.in	10:30 AM ,12.07.18 onwards
II	Last date and time for submission of completed Tender forms through on-line& for the receipt of EMD	Up to 04:00PM on 01.08.18
III	Date of pre bid conference(Offline)	02:30PM on 19.07.18
IV	Date and Time for Opening of Technical Bids	10:30AM on 02.08.18
V	Estimated contact value(ECV)	Rs 6,50,00,000/-
VI	EMD	2% of quoted value
VII	Performance Security	10% of contract value

If the date of opening of tender happens to be a holiday, the tender will be opened on the next working day.

For Dean

List of the Items

S.No	Item	Quantity
01	Semi auto analyzer	02
02	Elisa Reader and washer	01
03	Binocular Microscope(Student)	75
04	Digital Thermometer	10
05	Colony Counter	01
06	Serum Inspissator	01
07	Vortex Mixer	01
08	Single Channel pipettes variable volume(2-20ul,10-100ul&100-1000ul)	01 Set
09	Multi Channel pipettes variable volume(2-20ul&20-200ul)or(5-50ul& 30-300ul)	01 Set
10	Single Channel pipettes Fixed volume 100ul & 500ul	01 Set
11	Centrifuge	01
12	Laboratory Refrigerator	03
13	Binocular Microscope(Faculty)	06
14	BOD Incubator	01
15	Microscope with Universal Condenser	01
16	Bio safety Cabinet Class 2A	02
17	Deep Freezer -80˚C	01
18	CO2 Incubator	01
19	Multi Purpose Venous arm (adult size Manikin)	10
20	Manikin with interchangeable genitalia	10
21	Critical Flicker Fusion Apparatus	10
22	Front Loading Autoclave(Table Top)	01
23	IOPA Machine –FLOOR MOUNT	01
24	RVG SENSOR	01
25	Bench top Centrifuge	01
26	Deep Freezer -80˚C	01
27	Blood bank Refrigerator	01
28	Fully Automated Elisa	01
29	Double pan weighing machine	01
30	Refrigerated Centrifuge(Table Top)	01
31	Suitable Refrigerated Centrifuge for Blood bags	01
32	Blood Collection Monitor	01
33	Tube Sealer	01
34	Sample Storage Refrigerator	01
35	60 mA X-ray machine	01
36	100 mA X-ray machine	01
37	300 mA X-ray machine	01
38	500 mA X-ray machine	01
39	CR System	01
40	Mammography machine	01
41	Air Oxygen blender	10
42	Infusion pump	52
43	Open care system	23
44	LED Phototherapy unit	10
45	Syringe pump	70
46	Oxygen hoods	40
47	ECG Machine	03
48	Baby weighing scale with Infantometer	10
49	Multi Para monitor	32
50	Infantometer	10
51	Transport Incubator	02

52	Portable ultra sound	03
53	ABG analyzer	03
54	Oxygen(Fio2)Analyzer	03
55	Ventilator	05
56	Bubble C-pap system	06
57	T-piece resuscitator	08
58	Crash cart	12
59	OAE & ABR screening device	02
60	Micro centrifuge	03
61	Bilirubinometer	01
62	Laminar flow	03
63	Baby and Adult weighing scale	05
64	Defibrillator	04
65	Audiometry with cable	01
66	Height measuring stand	03
67	Sling psychrometer	03
68	Spirometer	03
69	Clinical thermometer	10
70	Solar Radiation Thermometer	03
71	Mosquito catching kit	03
72	Otoscope	01
73	ophthalmoscope	01
74	Triple layer mask	01
75	Safety Boots	05 Pairs
76	Safety Helmet	03
77	Iodine Testing Kit	10
78	Chloroscope	10
79	MUAC Tapes(Colored)	10
80	Harrocks Apparatus	02
81	Needle Cutter	03
82	Salter’s weighing machine	02
83	Sound level meter	03
84	Digital Anemometer	03
85	Soil testing kit	01
86	Harpenden Skinfold calipers	02
87	Vaccine carrier	05
88	Balance for weighing food stuff	01
89	Digital BP Apparatus	10
90	Sahlis Hemoglobin meter	05
91	Kata Thermometer	03
92	Globe Thermometer	03
93	Water sampling bottle from any depth	01
94	Craft water testing kit	01
95	Personal protective Equipment	03
96	Ear muffs	05
97	Ear plugs	10
98	Goggles	10
99	High efficiency mask	10
100	Long sleeved cuffed Gown	10
101	Protective Eye wear	10
102	Pulse oximeter	40

TENDER DOCUMENT

The Dean, ESIC Medical College, Hospital, Sanathnagar, Hyderabad, invites e- tenders from eligible and qualified Bidders for the supply of Medical equipments proposed to use for ESIC Medical College & Hospital, Sanathnagar, Hyderabad.

EMD

Bidder has to submit the Earnest Money Deposit (EMD) in the form of demand draft drawn in favor of "**ESI Fund Account No. I" payable at Hyderabad.**

The EMD should reach this office through register post/courier/Speed post before the closing time of the tender

Please mention the tender enquiry number on the envelope and equipment name on the back side of the Demand draft.

EMD is exempted for the bidders who produce the NSIC registration certificate

All Tenders must be accompanied by EMD as 2% of quoted value. Bids without EMD shall be rejected.

For DEAN.

ANNEXURE – I

COMPULSORY DOCUMENTS (OR) CHECK LIST

A- Compulsory documents for Technical Bid :

S.No.	Title	Status (Fill Yes or No)	Page No.(all documents to be serially

			numbered by the bidder)
1	Have you submitted EMD ? Please mention value of EMD & Date of issue from Bank.		
2	Have you Submitted tender document downloaded from ESIC website and signed in all pages?		
	Have you submitted the certificate stating the name of the equipment, make and model that you have quoted?		
3	Have you submitted Equipment Specific manufacturer's authorization?&Authorization of the name of the person(Firm)on which the the tender is participated in E-Procurement portal.		
4	Have you submitted certificate of incorporation/Firm Registration/Valid trade license .		
5	PAN Card of the Company/firm/Proprietor		
6	GST Registration certificate.		
7	Have you furnished IT Return, Balance Sheet and Profit & Loss Account for last three years prior to the date of Tender opening i.e. Financial Years 2016-17, 2015-16,2014-15		
8	Have you accepted all terms and conditions of TE document?(Annexure-V)		
9	Have you submitted the declaration certificate of pending vigilance(Annexure-VI)		
10	Purchase Order copies in the bidder's name for having supplied the quoted equipment to Government Hospitals/reputed institutions for last three years(2015-16,16-17&17-18)		
11	Satisfactory Performance Certificate from the users for the quoted equipment for last three years(2015-16,16-17&17-18)		
12	Certificate that the quoted items have not been supplied to any other organization/institution at a rate, lower than quoted here in last 3 months		
13	Certificate for at least 2 years warranty(Annexure-VII)		
14	Certificate for at least 5 years CMC after warranty		

B Compulsory documents for Price Bid : (Fill Yes or No)

1	Price for the quoting equipment along with CAMC(Annexure-VII)	
2	Price Catalogue for all spares/consumables/reagents of the equipment (if any) for five years after warranty period(Annexure-VIII)	

ANNEXURE - II

Important Instructions for Bidders regarding Online Payment
All bidders/contractors are required to procure Class-IIIB
Digital Signature Certificate
(DSC) with Both DSC Components i.e. Signing & Encryption
to participate in the ETenders.
Bidders should get Registered at https://esictenders.eproc.in.
Bidders should add the below mentioned sites under Internet Explorer
Tools
Internet Options Security Trusted Sites Sites of Internet Explorer :
https://esictenders.eproc.in
https://www.tpsl-india.in
https://www4.ipg-online.com
Also, Bidders need to select "Use TLS 1.1 and Use TLS 1.2" under
Internet Explorer
Tools Internet Options Advanced Tab Security.
Bidder needs to submit Bid Processing Fee charges of Rs. 2495/- (nonrefundable)
in
favour of M/s. C1 India Pvt. Ltd., payable at New Delhi via
Online Payment Modes such as
Debit Card, Credit Card or Net Banking for participating in the
Tender. Bidders can contact our Helpdesk at
https://esictenders.eproc.in/html/Support.asp

ANNEXURE – III

TENDER TERMS AND CONDITIONS

1. Tenders will be opened in the M.S Office at ESICMedical College & Hospital, Sanathnagar, Hyderabad-38, on the stipulated date and time in the presence of the Bidders / representatives who choose to be present.
2. The two parts of the bids i.e. Techno - commercial (Unpriced Bid) and Price bid prepared by the Bidder shall comprise of the following:
(A) Technical Bid
Bidders should submit the documents as per the checklist A mentioned in Annexure-I
(B) Price Bid
Bidders should submit the documents as per the checklist B mentioned in Annexure-I
3). The quoted price should be all inclusive lump sum price offered for each item including cost of the equipment, freight, Insurance, transit insurance, packing forwarding etc., and including charges for installation and commissioning with all men and material required for the same and including charges for the quoted warranty period. Rates and GST must be quoted separately.
4). The rates quoted should be F.O.R ESIC Medical college Hospital, Sanathnagar, Hyderabad. No other charges in addition will be payable on any account over and above the lump sum price quoted in the price bid. The rates quoted in ambiguous terms such as "Freight on actual basis" or " Taxes as applicable extra" or "Packing forwarding extra" will render the bid liable for rejection.
5). Only Techno - commercial bid (un-priced bid) will be opened first on the date mentioned in the presence of bidders who chose to be present. The price bid of the firm whose equipment is technically viable fulfilling the specifications and all other conditions alone, will be considered for evaluation.
6). For imported goods, the price quoted shall not be higher than the lowest price charges by the Bidder for the goods of the same nature, class or description to a purchaser, domestic or foreign or to any organization or department of Govt. of India.
7). If it is found at any stage that the goods as stated have been supplied at a lower price,then that price, with due allowance for elapsed time will be applicable to the present case and the difference in cost would be refunded by the supplier to the purchaser, if the contract has already been concluded.
Tender currencies:
The Bidder supplying indigenous goods shall quote only in Indian Rupees.
13. Bid Security (EMD) : Each tender must be send the EMD as mentioned against the equipment in the form of Demand Draft only drawn in favour of ESI"Fund Account No.I" payable at Hyderabad. The tenders not accompanied by EMD are liable for rejection.. The EMD of unsuccessful Bidders shall be refunded after the award of tender to the successful renderer.
14. Only the manufacturers or their authorized distributor/stockist would be considered for the tender.15. The contract should not be sublet without the prior written permission of the Dean.
16. Either the authorized Indian agent on behalf of the principal/OEM or principal/OEM himself can bid but both cannot bid simultaneously for the same item/product in the same tender.
17. If an agent submits bid on behalf of the principal/OEM, the same agent shall not submit a bid on behalf of another principal/OEM in the same tender for same item/product.
18. Successful bidder shall not be entitled to any rate revision of price for any reason except that allowed by Government of India.
19. The rates quoted should be valid for one year from the date of approval of the Tender and the quantity mentioned is on the basis of present requirement which are to be supplied within the period mentioned in the tender. During the currency of Tender, orders are to be executed by the successful Bidder at the tender rate as per future requirements, therefore the quantity

in the tender is indicative only and likely to increase.

20. For the equipment where reagents, cartridge, other consumables, etc. are required the price bid must include: A) The rate list indicating the prices of the consumables prevalent on the date of tendering B) List should indicate the cost and life of consumables C) The rate for reagents, consumables etc. should remain constant for five years.
21. The equipments should be Guaranteed/ Warranted (Comprehensive) for a minimum period of two years from the date of satisfactory installation and inspection.
No need of submitting the quotation of AMC/CAMC for the items costing below Rs 20,000/-
22. Firm should undertake to enter into Comprehensive Maintenance Contract (CAMC) for equipment (mandatory for all equipments in double bid system) for a minimum period of five years after completion of warranty period and accordingly quote the rates of CMC for five years. The rates for CAMC (Comprehensive) should not exceed 10% per annum, of the unit cost of the equipment on the date of purchase. Firm should undertake to keep the equipment in running order throughout the year and in case of equipment going out of order during warranty CAMC the fault should be attended within 24 hours and rectified within 7 days of lodging the complaint.
23. If the equipment needs calibration, the firm shall be responsible for calibration as part of CAMC.

24. Bidder should be able to demonstrate (dry Demo and wet Demo) the product quoted by them, to the Technical evaluation Committee in Hyderabad or nearby within the due date after the check list evaluation of the Bidder.

25. The company will get only one chance for demonstration. In case, the company fails to arrange the demonstration; the tender shall be liable for cancellation.

26. The date for demonstration shall be fixed with mutual consent on telephone/e-mail and the same shall be confirmed in writing or by fax. In any case, not more than two weeks time shall be given to arrange for demonstration.

27. The successful bidder should furnish Performance Security Deposit @ 10% of the value of the contract.

28. The Dean ESIC Medical College & Hospital, Sanathnagar, Hyderabad will be at liberty to terminate the tender proceedings without assigning any reasons thereof. The bidder will not be entitled for any compensation whatsoever in respect of such termination.

29. No articles shall be supplied to the hospital except on requisition in writing signed by the Dean or by an officer authorized by him/her in writing to do so.

30. The successful bidder should strictly adhere to the mentioned delivery schedule. Supply, installation and commissioning should be done with in the prescribed period on the supply order that is 45 days for Indian make items and 60 days for foreign make items. If the successful bidder fails to execute the supply with in prescribed period. penalty of 2% of the value of the order calculated at the contacted rate per week or a part of the week will be recovered subject to maximum of 10%. The Medical Superintendent has right to recover the damages for breach of contract/order to forfeit the Earnest Money.

Performance security: In case of Equipments the successful bidder has to deposit the 10% of total amount of the total cost as the performance security with Medical Superintendent in the form of Banker's Cheque/Demand Draft, in favour of "E.S.I Saving Fund Account No.1 payable at Hyderabad" which will be released after completion of warranty period and on receiving the satisfactory performance certificate from the user department.

31. Penalty clause. In the event of equipment going out of order the fault shall have to be attended within 24 hours of lodging the complaint. During the Warranty/Guarantee period in the event of equipment remaining out of order beyond a period of 7days of lodging the complaint a penalty to extent of 0.25% of purchase value of the equipment shall be levied for each day of the equipment remaining non functional.

During AMC/CMC period In case the equipment is not restored in functional order within a week, a penalty of 0.5% of total cost of AMC/CMC of the equipment per day for the period of equipment remaining out of order will be levied. The contract includes …….. No's preventive maintenance visits, "n" number of break down calls. Break down calls have to be attended within 24hrs.

All the repairs/calibrations have to be taken up within the hospital as far as possible. The equipments will be allowed to be taken out with the permission of competent authority only.

If the equipment needs calibration, the firm shall be responsible for calibration as a part of AMC/CMC.

All other terms and conditions will be followed as per the tender document.

DEAN reserves the right to reject/accept any or all points/modifications in the terms and conditions without assigning any reason thereof. No Correspondence will be entertained in this regard.

32. Tender selection will be made on the basis of total cost (Technically qualified bids) mentioned in the price bid column M of the Annexure –VII

33.If no tender with purchase order in the name of bidder is received, then those tenders with purchase orders in the name of manufacturer or for same product(Make &Model) to the GOVT Hospitals/Institutions or reputed institutions will be considered in respect of S.No.09 of the checklist. The same clause will be applicable with respect to S.No.10 of the checklist.

ANNEXURE – IV

COMPANY PROFILE

1 Name of the firm

2. Full Address:

3Telegraphic Address/E-mail Id:

4. Telephone No.

5. Telex/Fax No.

6. Date of Establishment of firm:

7. Is Your Firm registered under

a. The Factories Act
b. Companies Act
c. Any other Act

8. Name & address of your Bankers.
Stating the name in which the
Account stands
(Please give Account details)

11. Are you on the list of approved?
Contractors of any other authority
(if so please give details)

12. Give details of any Govt. contract
Executed during the last 12 months
13. Are you a Manufacturer? If so
Please furnish the items you
Manufacture

14. Are you a small scale industry?
Registered with the appropriate
Authority. If so furnish details

15. Are your products certified by ISI?
If so furnish details

16. Any other information which you
Consider necessary to furnish

DATE SIGNATURE:

NAME & ADDRESS:

ANNEXURE – V

DECLARATION FORM (Terms & Conditions)

We …….having our office at……do declare that we have carefully read all the conditions of Tender for the supply of ..... and abide by all the conditions set forth therein by the **Dean,** ESIC Medical College & Hospital, Sanathnagar , Hyderabad-38 .

DATE: SIGNATURE:

SEAL: NAME & ADDRESS:

ANNEXURE – VI

DECLARATION FORM (Vigilance)

We declare that no central vigilance case is pending or existing on our firm name.

DATE: SIGNATURE:

SEAL: NAME & ADDRESS:

Annexure-VII

WARRANTY CERTIFICATE FOR THE SUPPLY OF MEDICAL EQUIPMENT

I / we _____ do hereby undertake to provide warranty for the equipment_____ for a period of two years from the date of satisfactory installation of the said equipment in your Hospital premises.

Signature of Bidder with date and seal

Annexure-VIII

PRICE BID SCHEDULE

S.No	Description of the item (Make & Model)	Quantity A	Unit Cost(Rupees) B	GST(%) on the Value of Item C	GST(Rs) D	Unit Cost Including GST E=B+D	Total Cost(Rupees) F= AxE	1st yearCMC charges(Rs)(Incl.Tax) G	2nd yearCMC charges(Rs)(Inclu.tax) H	3rd yearCMC charges(Rs)(Inclu.Tax I	4th year CMC Charges(Rs)(Incl.Tax) J	5th Year CMC charges(Rs)(inclu.Tax) K	Total CMC Charges L=G+H+I+J+K	Total Cost of the Equipment including CMC M=F+L
		01												

Name_____
Business Address_____
Place: _____ Signature of Bidder_____
Date: _____ Seal of the Bidder_____

ANNEXURE –IX

PRICE LIST FOR SPARES / CONSUMABLES / REAGENTS

The following is the list of spares / consumables / reagents and their rates for use of the equipment _____

S.No	Name of the Spare/Consumable/Reagent.	Unit	Rate per unit (in Rs.)	Tax (if Any)	Total (in Rs.)

Signature of Bidder with date and seal

***The bidder need to upload the scanned copy of above particulars at the time of submission of tender along with the price bid proforma.**

Technical specifications of the Items

1. Semi Auto Analyzer

1. Equipment Name: Semi Auto Analyser, bench top model
2. Should be microprocessor controlled general purpose bi-chromatic photometer system with at least 8 filters ranging from 340 to 700nm. (preferably : 340 nm, 405 nm, 505 nm, 546 nm, 578 nm, 600 nm, 630 nm, 680/700 nm)
3. Temperature: self monitoring built-in incubation systems for temperature controlled absorbance reading.
4. Light source: Tungsten/ halogen or higher grade with one additional bulb.
5. Should have ability to measure end point, fixed time, kinetic, two point kinetic, turbidimetric measuring modes.
6. Should have following calibration types: linear, two point, k factor, log - logit
7. Should have ability to use external cuvettes and integrated flow cell.
8. Minimum absorption volume should be less than 200 µl.
9. Should have inbuilt printer.
10. Should have a measurement range from 0.001 to 3.00Abs
11. Should have resolution of 0.0001 abs
12. Should have facility for reading results on LCD display, System should have online graphic display of reaction second to second.
13. Should have quality control – two control/test QC survey of at least 30 points, Levy Jenny plot.
14. Should have a filter half bandwidth of 10nm or lesser.
15. Should have a test programme memory of 50 or more.
16. Should be provided with sample carry over prevention facility.
17. Aspiration should be based on Bellow/Peristaltic Pump/ Vacuum pump.
18. Should be supplied with on line pure sine wave UPS of sufficient capacity for a minimum back of 30 minutes.
19. Should be provided with calibration certificate issued by the manufacturer at the time of installation and calibration certificate should be issued for the equipment by the supplier during preventive maintenance visit free of cost in the warranty/AMC period if demanded by the end user.
20. Should have safety certificate from a competent authority CE / FDA / ISO/ ISE/STQC CB certificate / STQC S/ICMED9000/ICMED13485 certificate or valid detailed electrical and functional safety test report from ERTL. Copy of the certificate / test report shall be produced along with the technical bid.
21. Should have RS 232 port.
22. Warranty two years. AMC / CMC rates for 3rd, 4th and 5th yr should be quoted.
23. Demonstration and installation should be done free of cost.
24. User/ technical/ maintenance manual should be provided in English.
25. Service engineer and application specialist should be available in Hyderabad city.

2. Elisa Reader with washer

1. **Description of Function**
1.1 ELISA Reader is required to Read the Colour Density known as OD(Optical Density) in ELISA (Enzyme Linked Immuno-Sorbent Assay.)Plates.
2 Operational Requirements
3.1 **Technical Specifications**
Digital light control-precise,accurate,repeatable units to read a 96 well microplate. Should measure end point, curves and kinetic.
Single and dual wavelength measurement with facility for kinetic measurement
8 s maximum measurement time for single and dual wavelength and 5s(+/_1Sec.) for kinetic
Measurement Range 340 -750nm
Indication Range 0-3 abs
Accuracy:1% Plus/Minus 2% 0.001 or 1% abs
Should have atleast the following filters :– 340, 405, 450, 490(+/_2nm), 630, 690 (+/-10nm)
3.2 **SOFTWARE:**
Storage of immediately preceding measurement At least 15 user programmabletests permanently stored
Time programmable between each measurement. Agitation programmablebefore each reading
RS:232:C serial interface ;parallel printer interface
3.2 a : upgradable and compatible Analysis software for faster data collection, calculation, exporting and reporting needs to be quoted seperately
3.**3 MEASUREMENT MODES**
Plate shaking mode for sample mixing selectable speed and time/If no inbuilt shaker is present separate shaker may be quoted.
Flexible blank mode setting
Curve fit Modes: LIN/LIN.LIN/LOG.LOG/LOG or auto curve transformation
with ability to add the standard curve; 8 to 12 way string orientation or kineticmodes
Table of optical densities, Delta DD, Graphic, Reaction rate/V-Max
3.4 Adjustable for different micro plate geometrics
3.5 Halogen Lamp 12V/20 W.
3.6 16 digit alphanumeric Membrane keyboard/LCD display
3 .7Technical Specifications for washer
3.7a.Auto strip washer for 96 well plates / strips
3.7b.Dispensable wash volume 50 – 300 µl.
3.7c.Residual wash Volume -<5µl
3.7d. Aerosol Shield for user safety.
3.7e. design should eliminate overfilling and contamination
3.7 f 8 channel washer is required
3.7 g design should facilitate easy cleaning preferablyautoclavable at 121ºC
4 System Configuration Accessories, spares and consumables
4.1 8-12 channel manifold, all tubing sets, wash, rinse and waste bottles
Maintenance kit to be provided.
4.2 Halogen Lamps : 2
4.3 Printer external black and white laser printer with speed of atleast 12 ppm to be supplied
4.4 Dust cover.
5Environmental factors
5.1 The unit shall be capable of being stored /operating continuously in ambient temperature of 0 -50deg C and relative humidity of 15-90%
6 Power Supply
6.1 Power input to be 220-240VAC, 50Hz fitted with Indian plug
6.2 Resettable over current breaker shall be fitted for protection
7 Standards and Safety
7.1 Comprehensive training for lab staff and support services till familiarity with the system.
7.2 Should be FDA or CE or ISI or ISO approved product
8 Documentation
8.1 User/Technical/Maintenance manuals to be supplied
8.2 Certificate of calibration and inspection from factory.
8.3 List of Equipments available for providing calibration and routine maintenance support as per manufacturer documentation in service / technical manual.
8.4 List of important spare parts and accessories with their part number and costing.

8.5 Log book with instruction for daily, weekly, monthly and quarterly maintenance checklist.
9. AMC/CAMC to be provided after the warranty.
10. Warranty to be provided for 2 years.

3. Binocular Microscope(Student)

1. Stand: Ergonomic design for long hours of fatigue free work.
2. Binocular head, 45degrees inclined, 360degrees rotatable
3. Observation Tube: 30-45° inclined design binocular observation tube with multi layer coated beam splitter prisms to ensure maximum transmittance/reflectance of light & uniform illumination in both the eyepieces.
4. Optical System: Universal Infinity & colour Corrected Optical System
5. Anti Fungus Optics: The interior of objectives & eyepiece should be anti fungus treated there by ensuring the image clarity and long operating life.
6. Transmitted Illumination: Built in LED illumination with constantvoltage output 100 – 240 V having universal power supply to cover voltage fluctuations.
7. Focusing System: Co-axial coarse & Fine Focusing control with focusing on both sides.
8. Quadruple revolving nosepiece
9. Objectives:Semi Plan Achromatic objectives (anti-fungus): 4 X N.A.: 0.10, 10 X N.A.: 0.25, 40 X N.A.: 0.65, 100 X Oil immersed N.A.: 1.25
10. Eyepiece: 10 X anti-fungus / 20 mm Field of View (F.O.V.) with 30 mm tube size.
11. Stage uniformly horizontal, Mechanical stage should have coaxial X and Y movement with the size 140 to 200 mm x 130 to 160 mm
    Traveling range: approx 75mm (X) x 60mm (Y) with good quality ball-bearing specimen holder
12. Condenser: Abbe Condenser (NA of 1.25) with aperture iris diaphragm with snap-in blue filter& light relay system should have aspheric lenses, ensuring uniform illumination throughout the field.
13. Finish-A durable textured acid resistant finish.
14. Power supply: Voltage 220-240 V AC, 50Hz. CE approved. Should have one on-off power switch. .
15. The system should have an inbuilt protective/safety device to withstand fluctuations of voltagefrom 140 V to 280 V.
16. Illuminator-Built-in LED light source with white light with intensity control and LED life of more than 100, 000 Hrs.
17. Working manual should be provided with each microscope.

The Microscope should have the following:

1. Safety measure so as to avoid the accidental contact of the objective and slide to prevent the damage to the sample and objective both
2. Should be FDA or CE or ISO OR EQUIVALENT approved product
3. There should be a provision for demonstration before final approval of microscope.
4. A bottle of at least 25 ml immersion oil, a roll of lens cleaning paper, tissue paper and lens cleaning solution (100 ml) should be provided with each microscope along with a dust cover.
5. One anti static cleaning brush should be provided with each Microscope for cleaning purpose.
6. All consumables required for installation and standardization of system and microscope cover to be given free of cost.
7. The unit shall be capable of being stored continuously in room temperature.
8. Should be FDA or CE or ISO approved product.
9. Two years warranty, .
10. User/Technical/Maintenance manuals to be supplied.(original copies)
11. Certificate of calibration and inspection from factory.
12. List of important spare parts and accessories with their part number and costing.

Maintenance: CMC/ AMC maintenance for the instrument by factory trained engineers.

4. Technical Specification for Digital Thermometer

1. For measuring temperature and displaying it with LCD / LED
2. Portable battery operated system.
3. Temperature measurement range – 20 deg Celsius (Minus) to 200 Deg Celsius
4. Accuracy: +/- 0.1 deg Celsius
5. Certificate of calibration as per NABL standards or equivalent.
6. Optional Surface and internal probe.
7. Demonstration of instrument prior to purchase of instrument.
8. ISO 9001 / ISO 1345 certified.
9. Warranty of at least 2 years

5. Technical Specification of colony Counter

1. Use: for microbiology culture applications
2. Type: digital
3. Lighting: White LED array or glare free ring illuminator.
4. Electrical requirements: 220- 240 V , 50/60 Hz
5. Plate formats: 90 mm petridish (at least)
6. Built in average count facility
7. Digital read out
8. Pressure sensitive count system
9. Demonstration of instrument prior to purchase of instrument. .
10. Warranty of atleast 2 years.
11. Maintenance: CMC/ AMC of instrument by company trained engineer.

6.Technical Specification of Serum Inspissator

1. Inspissator Tank –made of rust-proof stainless steel sheet. Tank capacity – 50 -70 liters.
2. Tray made of stainless steel.
3. It should have a leakproof construction, full view cover for easy viewing.
4. Trays should have an option to set of slopes to provide an angle to the media containers.
5. The total heat up time approx 2- 2.5 hours.
6. Digital controller, with an LED/LCD display to indicate set and actual temperature.
7. Resolution - 0.1degC, uniformity - 0.5-1 deg C and standard working temperature upto 90 deg Celsius.
8. Uniform temperature distribution should be assured over whole of the area.
9. FDA or CE approved or ISO marked / equivalent standard product.
10. Should be compliant to ISO 13485:/ ISO 9001 Quality systems or equivalent.
11. Demonstration of item before purchase
12. Operating and detailed service manual should be supplied.
13. Two years warranty,
14. Maintenance: CMC / AMC for the instrument by company trained engineers.

7. Technical Specification of Vortex Mixer

- Variable Speed mixer
- Speed regulator controls the degree of vibration.
- Suitable for touch/continuous operation
- Supplied with interchangeable adaptors for different applications with tubes of different even volumes.
- It should have warranty of at least 2 years.
- Should be compliant to ISO 13485:/ ISO 9001 Quality systems or equivalent.
- At least 0-2500rpm approx.
- Demonstration of instrument before purchase of instrument.
- Warranty : 2 years

8.Technical Specification of Single channel variable volume pipette

- A set of three Single channel variable volume micropipette with following volume :2-20 µl , 10-100 µl and 100-1000 µl
- Systematic error for each pipette should not be more than 3-5% at minimum volume and 1% at maximum volume
- Tightness and Precise reproducibility for long hours
- Tip ejection without touching tip.
- Three or four digit display.
- Suitable for single handed operation.
- Spring loaded universal tip cone for connecting tips tightly of all brands.
- It is preferable to have ISO8655 certification.
- Should be complaint to ISO 9001 and ISO13485 quality systems or equivalent.
- Easy volume setting
- Minimum resolution of volume 0.01 µl (2-20 µl) and 0.1 µl (10-100 µl and 100-1000 µl).
- Warranty of at least 2 years.
- Two Tip boxes for micropipette tips of 200 µl and 1000 µl should be supplied with the set.
- Should be supplied with compatible stand for micropipette
- Should have letter of calibration from recognised national or international authority like NABL.
- Demonstration of item before purchase.
- Warranty of atleast 2 years

9.Technical Specification of Multichannel pipette

- Set of two 8 channel micropipette with following volume:2-20 µl and 20-200 µl or 5-50 µl and 30-300 µl.
- Minimum resolution of volume 0.01 µl (2-20 µl or 5-50 µl) and 0.1 µl (20-200 µl and and 30-300 µl)
- Should have letter of calibration / accreditation from recognised national or international authority.
- Should be complaint with ISO 9001 / ISO 13485 quality system standards.
- ISO8655 certification is preferred. .
- Three or four digit display.
- Universal tip cone compatible with tips of various brands or make.
- Should also require very low operating force for tip.
- Should be supplied with 10000 compatible tips for each pipette.
- Should be supplied with compatible stand for the pipette.
- Demonstration of item before purchase.
- Warranty of 2 years.

10.Technical Specification of Single Channel Fixed Volume

- A set of Single channel fixed volume micropipette of 500 µl , and100 µl capacity.
- Systematic error for each pipette should not be more than 3-5% at minimum volume and 1% at maximum volume
- Tightness and Precise reproducibility for long hours
- Tip ejection without touching tip
- Universal nose cone compatible to tips of various brands and make.
- Should be supplied with compatible pipette stand.
- Two Tip boxes for micropippete tips of 200 µl capacity (Yellow tips) and two tips boxes for tips of 1000 µl capacity should be supplied with the set.
- Should be complaint to ISO 9001/ ISO 13485 certification.
- Preferable to have ISO 8655 certification.

- Demonstration of equipment before purchase is necessary.
- Certificate of calibration from recognised National or international body must be attached.
- Should be supplied with operating manual.
- Easy digital volume setting
- Minimum resolution of volume 0.1 µl (100 µl and 500 µl).
- Product should have warranty of at least 2 years.

11.Technical Specification of Centrifuge

1. Aerodynamic compact construction for vibration free performance .
2. Table top version
3. Angle Rotor Head-45 deg angle type
4. Tube capacity size 5-15 ml with appropriate tube adaptors
5. Rust proof stainless steel inner chamber.
6. No of tubes 16-24 or more
7. Microprocessor control with digital display
8. Presetting of speed & time and 0-60 minutes digital timer.
9. Safety lid interlock
10. Dynamic brake for quick deacceleration
11. Hinges to prevent door falling
12. Should have a digital display
13. Control panel – for start/stop switch, dynamic brakes, step less speed regulator with zero start switch & speed indicator with timer and protective fuses.
14. Door interlock safety lock mechanism at high speed.
15. Maintenance-free brushless drive motor with exact speed pre selection and display.
16. Speed range 100 to 6000 rpm and above,.
17. System Configuration Accessories, spares and consumables
    a. Centrifuge complete with Swig and basic rotors and four buckets- 01 set.
    b. Tube Holders as appropriate
18. Power Supply Power input to be 220-240VAC, 50Hz as appropriate fitted with Indian plug
19. Standards, Safety and Training
20. Should preferably be FDA/ CE or BIS or other equivalent standards approved product.
21. Should be compatible with ICMED 13485 or ISO 13485 or other equivalent standards.
22. Should be calibrated by recognised national or international accreditation body.
23. Certificate of calibration and inspection should be attached.
24. Demonstration of item along with certificates before the purchase.
25. Warranty 2 years

12.Technical Specification of Laboratory Refrigerator

1. Capacity 400-500 Litres.
2. Temperature 1-10 deg Celsius
3. Preferably roller mounted
4. Adjustable shelves
5. Durable rust free exterior
6. Durable unbreakable interior
7. Control panel with temperature alarm, on/off switch and digital thermometer,
8. Interior lighting, Frost free.
9. Uniform cooling inside.
10. Door with lock. Inside of door provided with racks.
11. Clear product visibility with dual glass.
12. Digital controller is provided for display of internal temperature along with alarm systems.
13. Operable at 220 V, 50 Hz.
14. Compressor unit to be hermetically sealed with guarantee for at least five years.
15. Certificate of calibration from international or national accreditations body.
16. Two years warranty,
17. Should have all the accessories required for the functioning of the equipment.
18. CE / ISI mark or other equivalent quality certification.
19. Should be compatible to ICMED 13485 / ICMED 9000 standards or equivalent quality standards.
20. All electrical peripherals required for smooth functioning e.g. voltage stabilizer provided with the equipment
21. There should be provision for demonstration before final approval of equipment.
22. All the certifications to be attached with working manual of the instrument.
23. Maintenance: CMC/ AMC for the instrument by company trained engineer.

13.Technical Specification of Faculty Microscope

- Ergonomic design
- Optical System: Infinity optical system
- Illumination System : Built-in transmitted illumination system having Köhler illumination by LED Lamp Focusing mechanism either via nosepiece or stage.
- Stage: Travelling range atleast (X × Y): 76 mm × 52 mm ·and with specimen/ slide holder .The specimen position scale should be present.
- Observation Tube Inclined trinocular tube (anti-fungal)
- Eyepieces: Anti-fungal
- There should be provision of adjusting interpupillary distance.
- Condenser: Abbe condenser NA 1.25 with oil immersion. Built-in aperture iris diaphragm
- Observation Methods Brightfield.
- Objectives Plan achromat, anti-fungal 4X, 10X, 40X,100X
- Voltage/Electric Current AC 100–240 V 50/60 Hz 0.4
- It should be compatible with ISO9001 / ISO13845 standards.
- Provision of training of staff at time of installation
- Must be provided with 100ml cedar wood oil ml for use with microscope.
- Compatible cover of microscope should be supplied with each microscope.
- A bottle of at least 25 ml immersion oil, a roll of lens cleaning paper / cloth, tissue paper and lens cleaning solution (100 ml) should be provided with microscope.
- One anti static cleaning brush should be provided with each Microscope for cleaning purpose.
- Demonstration of instrument prior to purchase is necessary.
- Warranty of atleast 2 years.
- Maintenance: CMC / AMC for the instrument by company trained engineers

14.Technical Specification of BOD Incubator

- Capacity: 300 - 450 Liters
- Double walled door with inner unbreakable Acrylic glass door
- Inner chamber of stainless steel 304 grade.
- Outer chamber made up of M.S Powder coated
- 3-4 Stainless steel Trays. Adjustable Tray Height adjustment. With illumination
- Air circulating fans for maintaining temperature uniformity
- Proper insulation should be provided between the outer and inner wall should be fitted with special grade glass wool to prevent thermal losses
- Stainless steel tubular heating element for uniform heating of the equipment
- Refrigeration unit should have ISI mark compressor with suitable capacity to provide uniform and durable cooling
- Operating Temp. Range: 5-60°C.
- Accuracy +/- 0.5 °C. Uniformity +/- 1.0 °C
- Temperature Display : Digital LED
- Microprocessor based PID temp. controller with auto tune facility for precise control of temperature.
- Temp. Sensor: PT- 100 .
- Unit Mounted on castor wheels with front lock arrangement
- Power Supply:210-240V/50-60 Hz
- Should be compatible with ISO 13485 or ICMED 13485 or other equivalent standards.
- Supplied with appropriate voltage stabilizer
- Demonstration of item before purchase
- User/Technical/Maintenance manuals to be supplied
- 2 years warranty. .
- Maintenance: CMC / AMC maintenance of instrument by company trained engineer.

15.Technical Specification for Microscope with Universal condenser

- Microscope frame for transmitted microscopy with Köhler LED illumination
- Focusing stopper Torque adjustment for coarse adjustment knob,
- Inward tilt quintuple revolving nosepiece,
- Rackless mechanism XY mechanical stage right-handle low position stage,
- Traveling range (X × Y): 76 mm × 52 mm,
- Stage: Single specimen/ Slide holder.
- Universal abbe condenser NA 1.25 with oil immersion •
- Universal condenser with turret positions for BF (4–100X), DF, phase contrast.
- AC adapter, fixing belt for transportation to be provided.

- Objective lens:
    - Plan achromat objective 4X/0.1
    - Plan achromatobjective 10X/0.25, Plan achromatobjective 40X/0.65,
    - Plan achromatobjective 100X/1.25,(spring, oil)
- Compatible cover of microscope should be supplied with the microscope.
- A bottle of at least 25 ml immersion oil, a roll of lens cleaning paper / cloth, tissue paper and lens cleaning solution (100 ml) should be provided with microscope.
- One anti static cleaning brush should be provided with each Microscope for cleaning purpose.
- Warranty of atleast 2 years.
- Maintenance: CMC/ AMC maintenance for the instrument by company trained engineers.

16.Technical Specification of Biosafety Cabinet Class II A2

1. The system should be microprocessor based.
2. The microprocessor must display the inflow and down flow air velocities in real time on an LED display to ensure the user knows whether or not the cabinet is working under safe operating conditions.
3. Motor must automatically adjust the air flow speed to ensure continuous safe working condition.
4. Air flow shall be as per requirements of Biosafety regulations in respect of at least BSC II A2 level cabinet.
5. The cabinet noise level must be less than 60 decibel.
6. The Biosafety cabinet should conform to EN12469 standards or equivalent.
7. Desirable Dimensions (Cabinet Size): 4 to 6 feet.
8. The interior of the cabinet shall be of stainless steel grade 304 or equivalent material and must be smooth to ensure no risk of cuts to the users.
9. Efficiency of HEPA filter should be 99.99%.ULPA filter will be preferred.
10. The cabinet must use a pressure sensor (rather than anemometer) to detect pressure drop across the supply filter,
11. Pressure sensor should be adequately protected
12. Fluorescent lamps for lighting of the interior of the cabinet.
13. Front of the cabinet preferably be angled to help minimize glair.
14. A provision for UV light to disinfect the interior of the cabinet.
15. The front window should be made of laminated safety glass to protect against leakage of UV rays and to ensure containment of potential hazardous material and adequately counter balanced.
16. Safety alarm / safety display for: Low air velocity Faulty exhaust fan etc.
17. Power input to be 220-240 Volt AC, 50 Hz fitted with Indian plug.
18. Should be FDA or CE or BIS approved product.
19. Should be compliant to ICMED 13845 or ISO 9001or ISO 13845 other equivalent quality standards.
20. There should be provision of LPG gas inlet in the working chamber.
21. Bunsen burner of good quality to be supplied and installed at time of installation.
22. There should be atleast one electrical outlet within the cabinet.
23. Main body should be MS powder coated.
24. Two Compatible rotating stool (Stainless steel top) should be supplied with each biosafety cabinet.
25. Calibration certificate shall be provided at the time of installation in respect of all the parameters that require calibration.
26. Demonstration of item before purchase is desirable.
27. Warranty of atleast 2 year

Maintenance: CMC / AMC maintenance of instrument by company trained engineer

17.Technical specification for Vertical deep freezer (- 80 deg celsius)

1. Upright (vertical) model of international standard (ISO 9001 or equivalent).

2. Capacity 400-500 litres(Gross) & Frost free model.

3. Minimum Temperature up to – 70deg C. Temperature control should be guaranteed at a min. ambient (surrounding) temperature of 30 deg C.

4. Temperature alarm (both visible and audible).

5. Minimum of 4 compartments with proper insulation 6. Temperature stability for each shelf should be +/- 0.5□C of the set temperature.

7. Temperature homogeneity between the top shelf and bottom shelf should be +/- 3deg Cel of the set temperature.

9. Digital display of set and actual temperature.

10. Average power consumption should be less than 1000W.

11. Should work on 230V / 50Hz electricity point.

12. Voltage stabilizer should be provided with the equipment (either inbuilt or add-on).

13. While the freezer is functioning, audible noise levels produced by it should not be more than 55 db.

14. Demonstration of instrument prior to purchase of instrument.

15. Should be FDA or CE or BIS approved product.

16. Should be compatible with ICMED 13845 or ISO 13485 or other equivalent standards.

17. Two years warranty
16. Maintenance: CMC / AMC of instrument by company trained engineer

18.Technical Specifications of Carbon Dioxide incubator

1. It should be a microprocessor controlled CO2 incubator with approx. 100-170 litres capacity.
2. It should come with minimum 3 adjustable perforated shelves
3. Interior lighting facility, insulated door fitted with heavy hinges handles locking, mechanical door lock. Low water alarm
4. Stainless steel 304 interior, Internal glass door.
5. Stable temperature control, excellent uniformity, and rapid recovery with no overshoot. Fan less convection circulation to provide chamber homogeneity, eliminate vibration & reduce sample evaporation.
6. Temperature range: From 4-5°C above ambient to at least 50°C. Temp Accuracy +/-0.5deg C of required temp, with inbuilt Temperature Sensor.
7. It should have CO2 control range from about 0.5 to 20 %.
8. Audiovisual Alarm to Indicate when temperature deviates more than 0.5°C from set point, and when program or time has finished. Alarm may be muted.
9. It should have comprehensive alarm system (preferably both audio & screen) for displaying CO2 & temp set points.
10. Gas supply should come through HEPA filters (99.98%).
11. It should have LCD display screen for easy visualization of digital and real time data.
12. It should come with CO2 cylinders 2 nos. (capacity at least 30 kg) compatible to machine part with two/ multistage regulators, connecting tubing and wall clamps for the cylinders.
13. It should be supplied with a compatible wall mountable stabilizer.
14. It should have ISO9001 and CE / USFDA certification.
15. Demonstration of item before purchase
16. It should come with free installation
17. Attach original manufacturer's product catalogue and specification sheet. Photocopy/ computer print will not be accepted. All technical data to be supported with original product data sheet.
18. Comprehensive onsite training for lab staff and support services till familiarity with the system.
19. Documentation: Certificate of calibration and inspection from factory.
20. List of Equipments available for providing calibration and routine maintenance support as per manufacturer documentation in service / technical manual.
21. User/Technical/Maintenance manuals to be supplied
22. Warranty of at least 2 years.
23. Maintenance: AMC/ CMC for the instruments by company trained Engineers.

19.Multi-Venous Intra venous / Intramuscular Training Arms: adult size: 10pcs

- It should have replaceable skins and multi-vein that actually roll when palpated and system should ensure longevity of model
- Venipuncture should be possible in the antecubital fossa or dorsum of the hand
- Accessible veins include median, basilic and cephalic
- Palpable veins should enable site selection and preparation
- Infusible veins allow peripheral therapy with IV bolus or push injection method
- Peripheral IV line maintenance should include assessment and rotation of site, dressing, solution and tubing change
- Facilitate Intramuscular injection on deltoid muscle and intradermal injection and subcutaneous injection around upper arm
- The arm should be soft with flexible fingers and wrist to help students to develop manipulating skills.
    - Kit should include: Arm Reproduction

- Replacement Skin & Multi-Vein System
- Bottle of Red Simulated Blood
- Can of Manikin Lubricant
- Blood Bag with Tubing and Connector
- Clamp and Hook
- Carry Case and Directions for Use

20. Interchangeable genitalia designed for practicing urologic and rectal access (catheterization and enema procedures):

- Realistic articulation should enable proper positioning for procedures
- Interchangeable male and female genitalia
- Genitalia, when used with urinary connectors and reservoir, facilitate urologic care procedures such as perineal care, insertion of vaginal medications and indwelling catheter insertion, care, irrigation and removal.
- Genitalia, when used with anal connectors and colon reservoir, should facilitate enema administration using fluid for realistic return
- Single plug with valve in abdominal plate to pressurize the reservoir during urinary catheterization procedures
- Bilateral thigh, dorsal gluteal, and ventral gluteal Intra Muscular injections and subcutaneous injection.
- Kit should include:
  - Interchangeable Catheterization and Enema Trainer
  - Male genitalia assembly
  - Female genitalia assembly
  - Enema reservoir assembly
  - Urinary valve assemblies
  - Anal valve assemblies
  - Thigh Pads
  - Ventro-Gluteal Pad
  - Dorsal-Gluteal Pad
  - Carry Case & Manual for directions of use

21. Critical Flicker Fusion Apparatus:

- Power Supply: 12 VDC @ .5A, 2.1mm center positive DC plug
- Fuse: 0.5A, 5x20mm fast blow
- Frequency: 1.0 - 100.0Hz in 0.1Hz increments with an error of .05%
- Slide Holder: 2" x 2" (5.08x5.08 cm) 35mm holder for optional Model 12100 neutral density filters with 0.1% to 50% light transmission
- Auto Mode Ramp Rates: options of 0.5, 1, 2, and 4Hz per second
- Analog Input: 3.5mm mono phone plug with voltage range from 0.1 - 10 V for 1.0 -

100.0Hz flicker rate

- Absolute Maximum Input: 14V
- External Initiate: SPST normally open hand-held switch with RCA input
- External Response: Dual SPST normally open hand-held switch with 3.5mm stereo plug
- RS-232C Port Settings: 9600 baud, no parity, 8 data bits, 1 stop bit
- Typical Luminance: 58Cd/m2
- Viewing Angle: 1.9°
- Light/Dark Ratio: 1:1
- Stimulus Color: White
- Viewing Chamber Mask: Hypo-allergenic black silicone Mask may be cleaned with an alcohol wipe.
- Manufacturer should have ISO certification
- Product should be US FDA/European CE/BIS approved
- User/Technical/Service manual should be provided

22. TABLE TOP AUTOCLAVE

1. Sterilizer Type: Table Top Sterilizer.
2. Capacity: 21 litres
3. Chamber Size: The sterilizer should have Rectangular/Cylindrical chamber with suiting the volume.
4. Maximum processing capacity per charge.
5. Quality System Compliance: Sterilizer should comply the quality systems as per ISO 9001:2000, EN ISO.
6. Quality Assurance: Sterilizer should be CE or FDA or BIS Certified
7. Types of Cycles Process : should be equipped with B -process as per latest International standards

Chamber:

8. Should be made of S.S.316 & should comply the Pressure Equipment Directive (PED) & EN 13445 norms or equivalent.
9. Chamber should have minimum 5 years warranty or should confirm 44-50,000 process minimum life.
10. Chamber should have working pressure 2.2 bar & design pressure upto 3.8 bar.

11. Chamber should have Stress & Fatigue analysis reports for material & construction of the pressure vessel.
12. Chamber should be equipped with electrically heated jacket for preheating on standby mode

Design:

13. Should have horizontal sliding/Hinged door with silicon elastomeric rubber gasket to withstand temperature upto 140°C.

Air Filter

14. A disposable air filter should be provided for filtering the atmospheric air before entering inside the chamber. The filter separation efficiency should be higher than 99.998% for particle size less than 0.3µm.

Cycle programs:

15. 134°C Wrapped & Unwrapped
16. 121°C Wrapped & Unwrapped
17. 134°C Flash/Rapid open instrument cycle.
18. 134°C Textile.
19. 134°C Prion.
20. Test programs: Bowie & Dick, Leak Test, Helix Test

Water Storage Tank

21. Sterilizer should have inbuilt water reservoir with storage capacity up to 5 Litres. The water reservoir should have easy access for cleaning & to avoid bio film.

Steam Generator

22. Sterilizer should have inbuilt steam generator with warranty of 5 years on heating elements.
23. The steam generator design should be with integrated energy storing system for building up power for sterilization loads in short time.

Control Panel:

24. The control system should be microprocessor based PLC system specially designed for sterilization applications.
25. The control system should have CPU processor with battery back -up, Digital input/output controls, analog measuring inputs & COM ports for printer & PC connectivity.

Alarms

26. Automatic process checking & failure correction should be possible by the control system. The range of alarm should include Temperature & pressure sensor failure, phase time -out, doors not properly closed, power failure (less than 10 sec should be ignored), continuous self checking of all the safety devices, low water level etc. All the alarms should be audio-visual.

Accessories

27. The sterilizer unit should included Rack with 3 levels & suitable size instrument trays should be the part of the supply for every sterilizer. The Sterilizer should have water circulation system so that no drain point & fixed water inlets required.

Standards & Norms

28. The sterilizer must comply the following standards, ISO 9001:2000 (Quality Systems), ISO 13485:2003 (Quality Systems for Medical Devices), ISO 14001 (Environment Management System).
29. The product should be US FDA and European CE Certified, BIS/ISI approved
30. Demonstration of the Quoted item is must at the predetermined place by the purchase.

23. Dental X-ray unit- IOPA machine

1. Should be based on DC current
2. Tube voltage, selection: 60-70 kVp,
3. Tube current 2-8 mA,
4. Focal spot 0.8 x 0.8 mm
5. Total filtration > 1.5 mm Al
6. Minimum range of exposure time range 0.01 to 3.2 secs.
7. Manufactured with international Safety standards for radiation leakage.
8. IOPA film & RVG sensor compatible.
9. Handy, comfortable easy to use. Grip tie to be use it when shooting or moving (with adjustable length)
10. Tube head weight 2 – 3 kg
11. Electronic selection of exposure time/radiation according to tooth and patient type.
12. It should be possible to select exposure time manually
13. High definition LCD graphics to show various parameters.
14. Lithium-Polymer battery

15. 50-70 X-ray shots on film or 80 to 100 X-Ray shots on RVG-Sensor once battery is fully charged

System Configuration Accessories, spares and consumables

16. Power Supply : Power input to be 220 -240VAC, 50Hz fitted with Indian plug
17. Standards, Safety and Training: The product should be US FDA and European CE Certified.
18. Should Be AERB Type Approved. Valid approval certificate to be enclosed.
19. Manufacturer/ Supplier should have ISO certification for quality standards.Documentation
20. User/Technical/Maintenance manuals to be supplied in English with complete data sheet.
21. List of important spare parts and accessories with their part number and costing.
22. Log book with instructions for daily, weekly, monthly and quarterly maintenance checklist.
23. The job description of the hospital technician and company service engineer should be clearly spelt out.

Prerequisite

24. Demonstration of the Quoted item is must at the predetermined place by the purchase.

24. RVG (Radiovisiograph)

RVG is a Digital dental imaging system, which allow quick or immediate viewing of images without using dental x-ray film, consist of an intraoral sensor or imaging plate, an x-ray system, computer hardware and software for image processing, and a hard-copy printer

Operational requirements

RVG Sensor and the Computer system along with imaging software is required.

Technical specifications

RVG sensor system

- Should be based on CMOS / APS
- 10-30 lp/mm true image resolution
- Exclusive sensor with complete software package including optical fiber

technology

• Plastic pack design to allow easy periapical and bitewing radiograph.

• USB cable.

• Available in three (Small, Medium & Large) sizes to help meet the unique imaging needs of practice and patients.

• Thickness of the sensor should be 2-5 mm.

• Sensor life should be more than 350000 Exposures.

• Sensor active area should range from 450-1000 Square mm for different sizes of sensors.

RVG system software

1. Should be licensed.
2. Should have facility for RVG as well as intra oral Camera.
3. Should have automatic acquisition and save facility.
4. Should have sharpening, cleaning and improving features.
5. Should have search facility by patient ID name or any other criteria.
6. Should be Internet compatible.
7. Should be capable of generating Reports.
8. Should be capable of Avoiding Accidental Deletion.

B• Radiation protection accessories: lead apron, thyroid collar, gonadal sheath.

C• Computer Hardware:

1.Should be Intel Core 2 duo Pentium PC with 160 GB Hard disk, Min.512 RAM, DVD writer, 17 inches LCD/TFT Monitor.

Power supply

Power input to be 220-240VAC, 50Hz fitted with Indian plug

Suitable UPS with maintenance free batteries for minimum one-hour back-up should be supplied with the system.

Standards, Safety and Training

Should be FDA ,AERB, CE,UL or BIS approved product

Manufacturer should have ISO certification for quality standards.

Electrical safety conforms to standards for electrical safety IEC 60601-1 General Requirements (OR EQUIVALENT BIS Standard

Documentation

User/Technical/Maintenance manuals to be supplied in English.

Certificate of calibration and inspection.

List of important spare parts and accessories with their part number and costing.

25. Bench Top Centrifuge

1. Automatic rotor detection, check of presence of accessories and compatibility with maximum speed.
2. Safety speed limiter function
3. Controlled by microprocessor
4. Backlit color LCD display with contemporary visualization of all parameters
5. Digital adjustment of acceleration and deceleration levels
6. Compact sizes to optimize the space in laboratory
7. Stainless steel internal bowel with optimal height for loading and unloading of samples
8. Imbalance detection system with automatic functioning stops to avoid accidents
9. Automatic locking system of the lid.
10. Safety opening of the lid in case of power failure.
11. Brushless motor maintenance free and no carbon deposits.
12. Maximum capacity 4x175 ml (swing out) – 6x 100 ml(fixed angle)
13. Maximum speed 4500rpm to 6000rpm.
14. Equipment should be CE/FDA certified.
15. Standard warranty-2 years from the date of installation.
16. CMC/AMC is required for 5 YEARS after completion of warranty period.
17. List of installation should be attached with performance certificate of the customer.
18. User (operating) manual in English.
19. Certificate of calibration and inspection from factory.
20. Must provide user training to all technical staff (including how to use and maintain the equipment).

26. Deep Freezer - 80^0c

1. Purpose of Equipment: To freeze and store plasma

2. Type of Equipment: Compression freezer with CFC –free refrigerant

3. Capacity: As required by the blood bank (e.g.200/400/600/900 plasma bags of 200ml. each)

4. Construction

a) Internal: Stainless steel (min.22g) (s.s.V2A-1.4301)
b) External: Solid Outer Cabinet Corrosion Resistant (at least 1mm thickness)
c) CFC-free insulation
d) Design: Upright type
e) Door: Solid door , Automatic closing of the front door below opening angle of 90^0 and Opening angle limited to 110^0.
f) Insulation and gasket should be silicone.
g) Separate inner doors to prevent cold loss.
h) Drawers: Roll out type
i) Heating device on frame to avoid condensation.

5. Electrical Characteristics:

a) Input voltage: 220/240V 50HZ
b) A line voltage corrector of appropriate rating should form part of configuration.

6. Minimum Compressor Stating Voltage: 22% below nominal Voltage

7. Internal Temperature Control:

a) Electronic temperature control
b) Operating temperature reachable lowest up to -86 ^{0}c with setting accuracy of $\pm$1 ^{0}c whatever the load.
c) Fan air cooling.
d) Automatic defrost within safe temperature range.
e) Casing & door should have insulation panel with polyurethane form > 80mm thickness.

8. Refrigeration:

a) Heavy duty hermetically sealed compressor air cooled cascade refrigeration system, maintains
b) Inner temperature below-80 ^{0}c
c) Refrigerant CFC free/green gas
d) Optional: Access port for CO2 backup system for refrigeration.
e) Option for duct from equipment to connect to common main duct to throw hot air out of the room.

9. External Ambient Temperature: Performs in an ambient temperature of +10 ^{0}C to +40 ^{0}C

10. Hold over time: 2hrs at ambient temperatures.

11. Cooling Down Time:

- A full load of plasma packs +25 ^{0}C takes maximum of 5 hrs for all the packs to reach below -5 ^{0}C
- A full load of plasma packs at +25 ^{0}C takes a maximum of 30 hrs for all the packs to reach below -20 ^{0}c

12. Temperature Monitoring:

a) Digital temperature (LED) display with 0.1^{0}C graduation
b) Temperature recording device
c) Microprocessor control for operation with integrated audio visual temperature alarm function
d) with digital monitoring display. There should be a method to check alarm system.
e) Seven days inkless graphic temperature recorder with range 0*C to -50^{0}C with data logger, with
f) supply of free charts for a period of warranty.
g) Battery backup for alarm and temperature recording device.
h) Provision to connect with central (temperature) monitoring system
i) Mounted on Lockable Castor wheels
j) Alarm history: Temperature maximum and minimum, average temperature during alarm period, time
k) Of duration of alarm.
l) Desirable:
   Noise factor should not exceed 60 decibels.
   Should have compressor running time <60 to 70 %

13. Compatible UPS, to complete the ongoing procedure with a back up supply for at least 60 minutes, should be supplied with the equipment.

14. Equipment should be CE/FDA certified.

15. Standard warranty-2 years from the date of installation.

16. CMC/AMC is required for 5 YEARS after completion of warranty period.

17. List of installation should be attached with performance certificate of the customer.

18. User (operating) manual in English.

19. Certificate of calibration and inspection from factory.

20. Must provide user training to all technical staff(including how to use and maintain the equipment).

27.Blood Bank Refrigerator

1. **Storage Capacity**- 250 to 300 Bags of 450ml capacity each.
2. **Upright Blood Storage Refrigerator**:
3. **Body-**

- CFC free Polyurethane foam insulation (minimum of 80 mm) to ensure temperature integrity.
- Heavy duty castors (Front castors with lock and brake).
- Door lock with stainless steel handle for proper security
- Unbreakable heated glass door with proper frame to eliminate condensation and fogging. Should have separate inner acrylic door with magnetic latch ensures minimal loss of cooling
- Should have perforated sliding Stainless steel tray which allows bags to be placed upright with sufficient airspace.
- Full height fluorescent interior light.
- Arrangement for forced air circulation for uniform cooling inside the cabinet. It should switch off automatically whenever the door is opened.

- Stainless steel materials for interior walls and shelves, perforated on the bottom for perfect and homogeneous distribution of cold air with bacteria resistant coating.
- Safety glass fronts which allow easy viewing of content and act as protection against loss of cold air.
- Automatic front door closing below a door opening angle of 90^0

4. Solid state electronic controls for

a. Digital display of temperature.

b. Microprocessor based audio visual alarm system for low and high temperatures and door ajar with remote alarm facility.

c. Independent safety thermostat to avoid negative temperatures.

d. Auto defrosting should be provided.

5. Internal temperature control: Electronic temperature control with a range of $+2^0$ to $+6^0$C with setting accuracy of $\pm1^0$C; temperature recording system for weekly temperature record

6. External Ambient Temperature: It should perform efficiently in an ambient temperature range of $+10^0$C to $+43^0$C

7. Hold over time should be at least 30 minutes, for a full load of blood packs at $+4^0$C to rise above $+6^0$C

8. Cooling down time: A full load of blood packs at $+25^0$C should take a maximum of 13 hours for all the packs to reach below $+6^0$C

9. Electronic chart with battery backup for constant operation (The quantity of consumable items like thermograph paper, Matic Marker Pens shall be supplied to last 2 years without any extra charges).

28. Fully Automated Elisa Processor

1. System should be fully automated four plates ELISA processor.

2. System control unit should be windows based operating system and laser printer.

3. Equipment should be an open system.

4. System interface Should be Bi directional and compatible with hospital online reporting system.

5. Data storage: minimum 75,000 to 1.0 lakh samples.

6. System should have ROBOTIC arm, moves the micro plate and pipettes all samples and reagents.

7. System can perform minimum 12 different assays simultaneously.

8. System can single probe or double probe for dispensing samples/reagents/controls and standard

Controls.

9. System should have clot detector and fluid level sensing and sample aspiration and dispensing monitoring.

10. System should be minimum four racks of 108 plates.

11. Equipment number of reagents position should not be less than 24 and number of controls and Std controls should not be less than 33.

12. Should have minimum processing capacity of up to 4 micro plates at a time.

13. System should not take more than 15 minutes to complete the sample pipetting for a single micro

plate and estimated cycle time is not more than 8 Secs

14. Sample pipetting precision should be less than 3%cv at any operating volume above 10 microlitres.

15. Sample pipetting accuracy should be less than +/- 2% of target volume at any operating volume above 10 micro liters.

16. System should have minimum of 4 independent incubators can maintain temp. from23 to 40 degree with the incrase of 1 degree . with shaking options and temperature options range +7degrees to 50 degrees, temperature accuracy+/- 1 degree Centigrade.

17. System should have Bar code reader, tracks sample and plates in process.

18. System should have 8 channel or 12 channel washer manifold and 4 wash bottles 2 liters capacity, waste container should be not less than 8 liters.

19. Filter should be in the range of 405 to 690 nm.

20.Should be Auto errors recovery option at the time of process.

21. should be Critical fluids can be programmed.

22. Spectro Photometric Range should be not more than 0.000 -3.500 OD ,Linearity ;+/- at 0.000 to 2.500 OD. Accuracy should be +/- 0.01 or 2.5%.

23. Reading time should be less than 10 seconds for single wave length and less than 20 seconds for dual wave length.

24. Should be colour monitoring well with fill verification system.

25. Disposable tips to ensure zero carry power.

26. System should have electronic signature pipetting.

27. System should have low level buffer, waste full and low vacuum alarm .

28. Should be washer module with 4 point aspiration.

29. Electrical requirement : 220 to 240 VAC,

Frequency-50/60 HZ.

Power consumption - < 900 VA.

30. Compatible UPS ,to complete the ongoing procedure with a back up supply for at least 60 minutes, should be supplied with the equipment.

31. Equipment should be CE/FDA certified.

32. Standard warranty-2 years from the date of installation.

33. CMC/AMC is required for 5 YEARS after completion of warranty period.

34. List of installation should be attached with performance certificate of the customer.

35. User (operating) manual in English.

36. Certificate of calibration and inspection from factory.

37. Must provide user training to all technical staff(including how to use and maintain the equipment).

29. Double Pan Weighing Scale

1. Nomenclature: Electronic Centrifuge Counter Balance
2. It should measure two weights simultaneously and display weight difference instantaneously.
3. Should have two independent weight sensors, which displays individual weight of each bucket
4. Should weigh up to 2500 gm. Measurement range 0-2500 gm.
5. Should have accuracy ± 1 gm.
6. Should Indicate the weight of each pan separately
7. Should have LED / digital display
8. Should have visual or audible alarm when both the weights on the pans are balanced and for Overweight
9. Should be supplied within built battery back up
10. Should be lightweight and portable
11. All standard accessories, consumables and parts required to operate the equipment, including all standard tools, weights, cleaning and lubrication materials, to be included in the offer.
12. Power supply: 220 – 240 V AC, 50Hz fitted with appropriate plug. The power cable must be at least 3m in length.
13. Should submit ISO13485:2003/AC:2007 for Medical Devices and CE or USFDA approved product certificate covering safety requirements for electrical equipment for measurement control and laboratory use
14. Should provide user training (including how to use and maintain the equipment).
15. Should have Comprehensive warranty for 2 years from acceptance.
16. Should have AMC/CMC for 5 years after expiry of warranty.
17. Should provide User (Operating) manual in English
18. Should provide Service (Technical / Maintenance) manual in English
19. Should provide Certificate of calibration and inspection.

30. Refrigerated Centrifuge (Table Top)

1) The refrigerated centrifuge must offer swinging bucket, fixed angle and microplate rotors to meet current and future sample processing needs of the lab.

2) CE marked, IVD compliant, UL listed- for safety containment.

3) The centrifuge must be capable of running both swing out & fixed angle rotors with 4 Standard or 2 deep well micro plate, PCR tubes / strips and hematocrit capillaries.

4) Rotor shall be installed and removed with no tools in less than 5 seconds.

5) The buckets and rotor sealing lids must be certified for bio-containment by a 3rd party lab of worldwide recognition.

6) Bucket lids must operate in a safe manner without spring clips or metal components.

7) Rotors to be provided along with certified bio containment lids -

A) Swing out rotor to run 100ml (4 no.s) 50ml (4 nos.) & 5 / 7ml blood collection tube (24 nos.) with a minimum range of RPM (4200 – 4600) & RCF (3200 – 3400 x g).

B) The centrifuge must have a low profile (not to exceed 12.2”/31cm) for easy access by

end- user and small foot print 32cm H x 46Wx 67D.

8) Temp range -10°C to 40°C for refrigerated unit.

9) The centrifuge must have a minimum of 4 “direct recall” program keys.

10) One-touch operation with pre-saved protocols.

11) 99-program memory.

12) User (Operating) manual in English.

13) Certificate of calibration and inspection from factory.

14) Must provide user training(including how to use and maintain the equipment).

31. Refrigerated Centrifuge for Blood Bags

1. For separation of blood components like packed cells, platelet rich plasma, platelet concentrate, plasma.
2. Microprocessor controlled system to make operation automatic.
3. Programmable memory: Memory with tamper proof facility.
4. Stainless steel chamber, Easy to clean, corrosion resistant with provision of both drain and condensed water collection container.
5. CFC free refrigerant.
6. Wind Shield Swinging bucket blood bank rotor: Oval metal buckets with middle partition, Total Capacity- 6 X2000ml, for 12 Quintuple blood bag systems of 450 ml with filters, with SGAM bag and empty satellite bags. Should have swinging bucket rotor available for future up gradation.

7. Removable plastic cups to hold single/double/triple/quadruple blood bags with partition in every bucket.
8. Insert with hook adapter to spin buffy coat or small volume of blood and balancing weights for inserts.
9. Equipped with automatic lid lock.
10. Centrifugal force: 5000-6000g.
11. Speed variation: Microprocessor controlled rotor speed to within 10 rpm of set value. Acceleration and deceleration profiles shall be available.
12. Temperature range: - 10 degrees C to + 40 degrees C
13. Microprocessor controlled rotor temperature within 1 C of set temperature regardless of the centrifuge speed.
14. Programmable time: 0-99 minutes with minimum resolution of 1minute.
15. Digital display of temperature, speed and time, Minimum no. of 3 digit resolution.
16. Motor imbalance detection: Automatic shut down of centrifuge if rotor load is out of balance with appropriate indicator. Should incorporate alarms for imbalance detection lid interlock, over temperature, rotor over speed.
17. Power requirement 220/240 volts, 50 Hz. Single phases AC supply.
18. The equipment shall be suitable for operation from 0 degrees to 40degrees C at 90% Relative humidity. Electronic circuitry shall be tropicalized for this ambient condition.
19. Noise levels within in 60decibels.
20. The equipment shall have lockable castors.
21. Protection of data: In event of power interruption or complete failure data should remain stored.

22. Should have a provision for external connectivity.
23. It shall have a security lock to prevent unintentional switch off and also unauthorized opening of the equipment.
24. Automatic Line voltage corrector/Voltage Stabilizer. A line voltage corrector of appropriate rating should form part of standard configuration. Copper wound single phase automatic line voltage corrector conforming to IS; 9815(Pt. I) 94 with latest amendments or equivalent international standards fitted with a voltmeter and switch to indicate output/input voltage as under:
    a. Capacity/rating: 10 KVA: As per the requirement of the equipment.
    b. Input voltage: 140 to 280 volts, 50cycles.

    c. Output voltage: 220 volts + volts. Input-out voltmeter and ampere meter. Protection; high-low voltage cut-off, overload and short circuit protection.
    d. The equipment should be supplied with 2 meter cord at input and fitted with plugs of appropriate rating (15Amp.).
    e. Make of the line voltage corrector shall be indicated.

f. Energy Efficient Performance , Power Consumption : not higher than 5.5 KW

25. Certifications:
    a. Product certification: The centrifuge must have UL, US FDA AND CE-MDD class IIa certified.
    b. Quality Certification: ISO certified
    c. Electrical Safety: Equipment meets electrical safety specifications such as that of ICE(Class1)
26. Standard warranty-2 years from the date of installation.
27. AMC/CMC required for 5years.
28. Detailed manual should be accompanied with the centrifuge.
29. Should have service back up at the territory.
30. Certificate of calibration and inspection from factory.
31. Must provide user training (including how to use and maintain the equipment)

32. Blood Collection Monitor

1. Design to meet all international safety requirements. Ensure safety against electrical shock hazards, fire hazards, mechanical hazards, electromagnetic interference etc.
2. Should be suitable for all types of blood bags available.
3. Should properly mix the blood with anti-coagulant and ensure that actual amount of blood is collected.
4. Volume setting: Pre-selection of volume to be collected. Tarring of bag volume before collection. Tarring range: 0 – 600 g.
5. Automatic storage and recall of set volume.
6. Should Measure volume with best accuracy + 2% of the programmed volume
7. Volume can be set in 5 ml increments. Provision for switching over to standard volumes 100ml to 350ml and to 450ml by single press
8. Must have a 16 x 2 LCD screen for clear display of programmed volume, collected volume, flow rate, main battery, collection enhancement, manual clamping, and pause function
9. Should have LED Indications & alarms for commencement of collection.
10. LED indication and audible alarm at the end of collection, power failure and when battery low.
11. Indication of time taken for collection.
12. Indication of blood flow with audio alarm when blood flow is higher above 180ml/min or lower than desired below 20ml/min.
13. Automatic release of clamp when the bag is lifted at the end of collection
14. Continuous agitation of blood bags during collection: 12 – 16 rpm.
15. Provision for pausing collection and to change programmed volume during pause.
16. Manual clamping, in case of emergency
17. Audio visual alarms to alert any abnormal conditions.
18. Battery back-up minimum 8 hrs, with in-built battery charger.
19. Automatic clamping on reaching the programmed volume and when rate flow is less than 20ml per min.
20. Must have easily detachable tray for cleaning and disinfection.
21. Power Supply: 230 V ± 10; 50 Hz
22. Battery: 12V, 2.3 Ah rechargeable sealed maintenance free lithium iron battery.
23. Should comply IEC safety /EMI/EMC standards, ISO 9001 ,ISO 13485 certified and CE marked
24. Warranty: Two years rom date of installation
25. AMC/CMC: for Five years
26. User (Operating) manual in English.
27. Certificate of calibration and inspection from factory.
28. Must provide user training (including how to use and maintain the equipment).

33. DIELECTRIC TUBE SEALER

1. Blood Bag Tube Sealer is a compact equipment to seal the Blood Bag pilot tubing.

2. The system should be heavy duty and be able to seal the blood bag etc. quickly and effectively.
3. Should be simple to handle.
4. System should gently seal the tubing with no hemolysis using radio frequency.
5. Should be capable of making wide seal 2 mm thickness.
6. Should be for bench –top use.
7. Tube sealing time should not be more than 2 seconds.
8. Sealing trigger should be automatic.
9. Should also have extended portable hand unit sealing hand should be with coaxial cable of 1.5-2.0
Meter.
10. Should have indication lamp for ´´Sealing Process´´ on handle as well as main unit.
11. No warm –up time should be required.
12. Should ensure easy separation of tube segments after the sealing.
13. System should run on both mains and battery (more than 10hrs. back up and charger)
14. Back up battery should seal more than 500 seals on PVC. tubes in continuous mode.
15. The unit shall be capable of operating continuously in ambient temperature of -40°C and relative
Humidity o f 15-90%.
16. Power input : 220-240 V/ 50 Hz AC Single phase or 380-400 V AC 50 Hz Three phase fitted with
Appropriate Indian plugs and sockets.
17. Suitable Auto voltage corrector with spike protector should be available.
18. Electrodes should be well protected by a cover.
19. Certifications.

* Product certification: CE class II A or US FDA certified.
* Quality certification : ISO certified .
* Electrical safety : Equipment meets electrical safety specifications such as that of IEC (class) or
Class II type-B device to protect against electric shock.
* Shall meet IEC-60601-1-2: 2001(or Equivalent BIS) General Requirements of Safety for Electromagnetic
Compatibility.

34. SAMPLE STORAGE REFRIGERATOR

Conformity to Indian Standrad	IS:15750(2006) for Frost Free
ISI marked	false
CML No.	0

Capacity and Design features

Storage Volume(NET CAPACITY) (Litres)	300
Type of Door	Single
Insulation	others
Built in Voltage Stabilizer	Yes
Method of Defrosting	Frost Free

Performance

BEE Star Rating as on date	2
Eco-friendly	yes

refrigerant	
Compressor	Power saver Compressor
Voltage Range at 43 degree Centigrade (Volts)	230 (tolerance 10%)

Material

Coil Material	Copper (Cu)

35. 60mA X-RAY MACHINE

- X-Ray Generator:
  - Power: 2.5 KW or more
  - Max KV : 100
  - Max mA: 60
  - Max Range: upto 200 mAS
  - Exposure time: 20 msec to 5 sec or less

- X-Ray Tube: Stationary with focus spot </= 1.8 mm. Lesser will be preferred.
- Tube Stand: The tube stand should be either spring/counter balanced
- Light beam diaphragm collimator
- Integrated Cassette box
- Integrated Battery pack is preferable in case of electricity failure at site.
- AERB approved

36. 100 mA HIGH FREQUENCY X-RAY MACHINE

- High frequency X-Ray Generator:
  - Power: 4 KW or more

  - kV range: 40 kv to 100kV or more
  - mA range: 100mA or more
  - mAS selection: upto 250 mAS or more
  - Exposure time: 20 msec to 5 sec or less
- Control Panel: Digital Display of kV and mA/mAs parameter, system ON-OFF, X-ray ON-OFF
- X-Ray Tube: Stationary or Rotating Anode with focus spot less than 2 mm. Lesser will be preferred.
- Tube Stand: The tube stand should be fully spring/counter balanced
- Collimator rotation should be +/- 90^0
- Integrated Cassette box
- Effective breaking system for parking and transport
- The unit should operate on single phase power supply and should have plugin facility to any standard wall outlet with automatic adaptation
- AERB approved

37. 300 mA X-RAY MACHINE

High-Frequency (40 KHz or more) 300mA X-Ray Machine for various radiographic examinations.

1. **X-Ray Generator:** high frequency X-Ray generator for general radiography.

Frequency of Generator: 40 KHz or more

Power Output: 30 KW or more

KV Range: 40 to 110 KVP or more

mA: 300 mA or more

MAs Range: upto 200 mAs or more

2. **Control:**

Attractive and ergonomically designed control panel with total soft feather touch switches for various operation having following functions & indications.

Machine ON/OFF switch, LCD display of parameters like KV, mAs, APR value etc.

KV, mA & mAs increase and decrease switches.

Tube focal spot selection switch

Ready and Exposure switch with indicators.

Bucky selection switch, Line voltage indicator.

Should display error for Earth fault error, KV error, filament error, Tube's Thermal overload error

Anatomical programming with pre-programmed functions in which automatic selection of factors is done according to the body part selection.

Dual action hand switch with retractable cord for operator

3. **X-Ray Tube:** A rotating anode X-Ray tube with dual focal spot

(small: 1.0mm^2 or better, large 2.0mm^2 or better)

Good anode Heat Storage Capacity of 100 KHU or better

4.**H.V. Tank**: A very compact H.V. tank filled with high dielectric transformer oil. The H.V. tank contains H.V. transformer, filament transformer, H.V. rectifiers and H.V. cable receptacles.

5. **H.V. Cable:** One pair of H.V. cable compatible with the X-Ray tube.

6. **Collimator:** Double slot collimator for full field illumination and adjustment of exposure area.

7. **Tube Stand:** Floor to ceiling stand and with counter balanced tube head (rotatable=180^0) 360^0 rotatable: mounted on floor ceiling rails for convenient movements. It should have all necessary locks. The column should be light in weight.

8. **Table:** Multiposition (5 Position), Hand Operated including Trendelenberg position. Sectional rail to accept accessories, accepts cones. Motorized reciprocating bucky with grid ratio of 8:1, ~100 lines/inch

9. **Voltage Stabilizer:** Suitable servo stabilizer is provided with the system to compensate the voltage fluctuations on line.

10. **Power Supply:** 3 phase 440 volts AC 50 Hz with line resistance <0.4 ohm line regulation ±10% with independent earthing.

11. **Approvals and Certifications:** The system must have valid AERB Type approval, AERB certificate must enclosed with Bid.

38. 500 mA RADIOGRAPHIC X-RAY MACHINE

X-ray tube and X-ray generator should be from the reputed manufacturers, preferably may be from the same manufacturer

1. X-ray Generator

Type- High frequency inverter system
Rating -50kW or more
Radiography Tube voltage: 40-125 kV or better
Tube current: 500mA

Exposure time- 1ms to 5 secs.
Power Source 3 Phase 440V 50Hz AC power supply
Tube overload protection present
High Tension cables 1 pair OF ATLEAST 8m in length

2. Control: Attractive and ergonomically designed control panel with total soft feather touch switches for various operation having following functions & indications:
Machine ON/OFF switch, LCD display of parameters like KV, mAs, APR value etc.
KV, mA /mAs increase and decrease switches.
Ready and Exposure switch with indicators.
Bucky selection switch, Line voltage indicator.
Should Display error for Earth fault error, kV error, filament error, Tube's Thermal overload error

Anatomical programming up to 100 or more pre-programmed functions in which automatic selection of factors is done according to the body part selection.
A two-step hand switch with dual action for exposure release with retractable cord should be provided for taking images from a safer distance.

3. X-ray Tube Assembly
Anode- Rapid anode type
Heat storage capacity: 200,000 HU or higher
Dual focus for radiography 0.6 / 1.5 mm or better
Total filtration Minimum of 2.5 mm Al equivalent
Inherent of permanent filtration of minimum 0.9 mm Al equivalent (better will be preferred)

Collimation system- Double slot collimator for full field illumination and adjustment of exposure area.

4. H.V. Tank: A very compact H.V. tank filled with high dielectric transformer oil. The H.V. tank contains H.V. transformer, filament transformer, H.V. rectifiers and H.V. cable receptacles.

5. X-ray Tube Support Assembly
Mounting -Floor to ceiling / ceiling free type
Locking device -Electromagnetic
Movements - Lateral, horizontal and vertical; Lateral movements should be sufficient to radiograph patient on adjacent patient trolley
Swiveling out of tube assembly- 180º

6. X-ray Table
Sliding / Floating tabletop 4 way sliding table top longitudinal and transverse movement
Tredlenberg postion compliant
Max weight of patient hold 150-200kg.

Locking system - Electromagnetic
Cassette tray- Should accommodate cassettes of all standard sizes.
Grid- Stationary/Reciprocating
Ratio: 10:1
Lines/in - at least 100
Tube protection- All necessary mechanisms for X-ray Tube protection
Accessories- Foot steps to climb on table. Immobilizing Device – pediatric and adult Hand Grip

7. Vertical Cassette Stand
Grid- Stationary / Reciprocating
Ratio: 10:1
Lines / in: at least 100
Travel : Manual with locking in all positions
Should accommodate all standard cassette sizes

8. Approvals and Certifications:
The system must have valid AERB Type approval, AERB certificate must enclosed with Bid.

9. Accessories
Three pc lead apron with minimum lead equivalence of 0.25 mm lead
1pc lead glass, 80 cm x 60 cm, with lead equivalence of at least 1.5 mm lead, to be installed into concrete barrier.

10. Lead Lining of 1 door 7 x 4 feet, 4 walls each 18 x 11 feet

39. COMPUTED RADIOGRAPHY UNIT.

Computed Radiology must be a state of the art system manufactured by a reputed brand or manufacturer adhering to following specifications.

CR system should broadly comprise of following modules/ components:

a) Image recording system (cassettes & reading plates)
b) Image reading system (reader/ digitizer)
c) Identification & CR processing workstation.
d) Dry imager.

1. Image recording system (cassettes & imaging plates):

The following sizes of radiography cassettes along with image plates should be supported by the unit.

a. 14” X 17” : 2 nos.
b. 10” X 12”: 2 nos.
c. 8” X 10”: 2 nos.

2. Image reader (CR reader/ digitizer)

a) The CR reader / digitizer should be able to process 65 image plates/hr or more of the largest size cassette
b) CR reader / digitizer must be able to handle phosphor image plates.
c) It should have a resolution of 6 pixels/mm (minimum) for standard resolution cassettes & 10 pixel / mm (minimum) for high resolution cassette reading.

d) Digitiser must have a resolution of 20 pixel / mm (minimum) for screening mammography.
e) Gray scale resolution: CR reader / digitizer should have a minimum resolution of 12bits/ pixel for images sent to CR processing station.

3. Identification Station & processing server:

a) The processing station must have 4GB RAM, at least 1 TB HDD and at least 17 inch clinical grade monitor. The PC hardware and monitors must be from reputed brands. The monitor should have a wide viewing angle and it should be clinical grade monitor with at least 1.3 MP resolution.
b) Processing server capable of identification of patient demographics to the acquired images will be preferred, else a separate identification station must be provided.
c) The server and /or ID station must be DMWL (DICOM modality worklist) compliant to access patient and study data from HIS or RIS. d) It should provide display of acquired images with greater details of demographics viz. patient/ study listing for easy access
e) The server must provide full amount of post processing features viz. geometric corrections, window level algorithms, annotation like markers, predefined text, drawing lines and geometrical shapes, multi-scale image processing, measuring distance and angles, shuttering, histograms, zoom, grey scale reversal, edge

enhancement, noise reduction, indication of gray scale saturation level, latitude reduction etc.
f) It should facilitate full fledged DICOM printing and should be able to print multiple formats of patient study.
g) Should be able to send DICOM images to DICOM workstation or PACS without loss of information
h) Should be equipped with DICOM DVD writer for transferring image
i) Should be able to store image on external device viz. CD/DVD or pen drive etc.
j) The system should have a facility to indicate over /under exposure in the preview screen. Kindly specify the image preview time.
k) The software must have dedicated paediatric and mammography

4. Dry imager

a) The system must have a dry imager without need of any wet chemistry
b) It must be DICOM 3.0 compatible allowing multiple modalities to be connected at a time
c) The system must be able to print at least 60 films/ hr of the largest size
d) The system must deliver its first film within 80 seconds from the request sent
e) The imager must have spatial resolution of 500 ppi minimum
f) The system must have contrast resolution of 14 bits/ pixel or more. The system must have at least three online film sizes and should be capable of printing any of the 8” X 10”, 10” X 12” or 14” X 17” films.
g) The imager should support daylight loading of films.

5. **Suitable UPS back up** must be provided for 15 minutes backup for the whole system

40. MAMMOGRAPHY MACHINE

- **X-RAY GENERATOR**

Generator Type	:	High Frequency 40 KHz.
KV. Scope	:	20 KV - 39 KV
MAS Scope	:	400 MAS or more

- **X-RAY TUBE**

Tube Type	:	Rotating Anode (9700 rpm)
Focal Spot	:	0.1 - 0.3 mm
Filtration	:	Inherent - 1 mm Be 0.03 mm MO

- **U - ARM MODULE**

Rotation	:	+/- 90 degree
Up / Down Movement	:	75 - 135 cm (+/- 20 cm)
Oppress Pressure	:	200 N or more
Casettee compatibility	:	180 x 240mm (choose optional sizes)

- **CONTROL**

Digital LCD Display	:	Tube Voltage (KV), mA/mAs, Focal Spot, Pressure numeral.
KV Selection	:	20 KV - 39 KV
MAS Selection	:	Up to 400 MAS
Exposure process	:	Operator controlled KV & MAS.
Power Requirement	:	5KV, 220 VAC, 50 Hz.

41. AIR-OXYGEN BLENDER

	High Flow	**Low Flow**	
Primary Outlet Flow Range	15 - 120 L/min	3 - 30 L/min	
	With both supply pressures at 50 psi (3.4 bar) with **BLEED**closed		
Auxiliary Outlet Flow Range	2 - 100 L/min	0 - 30 L/min	
	With both supply pressures at 50 psi (3.4 bar) with **BLEED**closed		
Bleed Flow	13 L/min or less at 50 psi (3.4 bar)	3 L/min or less at 50 psi (3.4)	
Maximum Combined Flow (All Outlets)	≥120 L/min	≥30 L/min	
Bypass Flow (Loss of Air or Oxygen Supply)	≥85 L/min	≥45 L/min	
Bypass Alarm Activation	**50 psi**(3.45 bar) 13 - 25 psi 0.9 - 1.7 bar	1.65 bar	**50 psi**(3.45 bar) 18 - 22 psi 1.2 - 1.5 bar	**psi**(4.14 bar) 16 -24 psi 1.1 - 1.65 bar
Alarm Reset:	When pressure differential is 6 psi (0.4 bar) or less		
Alarm Sound Level:	≥to 80 db at 1 ft (0.3 m)		
Oxygen Concentration Adjustment Range:	21 - 100%		

Gas Supply Pressure:	30 - 75 psi (2.1 - 5.2 bar) Air and Oxygen within 10 psi (0.69 bar) of each other
Mixed Gas Stability:	± 1% Oxygen
Connection Types:	DISS Type - Air &Oxygen Inlets &Outlets and / or NIST Type - Air &Oxygen Inlets
Dimensions:(without fittings)	**Depth:**4.9 in (12.5 cm) **Width:**2.3 in (5.7 cm) **Height:**4.1 in (10.4 cm)
Weight:	**Unit Weight:**2.29 lbs (1.04 kg) **Shipping Weight:**2.95 lbs (1.34 kg)
Operating Temperature Range:	59°F to 104°F (15°C to 40°C)
Transport / Storage Requirements:	**Temperature Range:**-10°F to 140°F (-23°C to 60°C) **Humidity:**Max 95% Non-condensing
FI0² Accuracy:	± 3% of full scale
Pressure Drop:	**Low Flow:**≤ 2 psi (0.14 bar) at inlet pressure from 30 - 90 psi (2.1 - 6.2 bar) and at 10 L/min flow rate at 60% FI0² **High Flow:**≤ 3 psi (0.21 bar) at inlet pressure from 30 - 90 psi (2.1 - 6.2 bar) and at 30 L/min flow rate at 60% FI0²
	The Air-Oxygen Blender has been cleaned for Oxygen Service prior to delivery. The Air-Oxygen Blender reverse gas flow complies with clause 6 of ISO 11195. The Oxygen Analyzer should comply with ISO 21647.
Dryness and Composition for inlet gases:	**Air:**Medical Air supply should meet the requirements of ANSI Z86.1 - 1973 commodity specification for Air, type 1 grade D or better. **Oxygen:**Oxygen supply must meet all requirements of USP Medical Grade Oxygen. **Dew Point**(ONLY for CE requirements**:**Both inlets should remain 10°F (5.55°C) or more below the lowest temperature to which the air distribution system equipment is exposed. At a temperature of 25°F (-3.9°C) and a pressure of 90 psi (6.33 kg/cm²) this equates to 2000 mg/m³.

42. INFUSION PUMP

Should have:

- Bolus rate of 600ml/h
- Flow rate range of 1-600ml/h
- Volume limit should be between 1-9999 ml
- Accuracy of ±5**%**
- KVO flow rate: 1ml/h, keep vein open KVO rate
- Power supply: AC100-240V, 50/60 Hz, 25VA
- Be water proof.
- Battery: Rechargeable lithium polymer battery, 7.4 V, 1650mAh
- Electrical safety: compliance with the requirements of IEC 60601-1.
- Maximumpower consummation: 25W
- Battery recharge: When the pump is connected to the AC power, the battery should be able to automatically recharge about 8-14 hours to recharge fully and can run for more than 5 hours continuously after fully recharged.
- Fuse Type: 220V 2A*2, 12V 2A*2
- Should display the following information: Flow rate, volume limit, accumulated volume, power indicator light, bed No., air, occlusion, empty.
- Should have alarm function: Infusion completion, occlusion, air bubble, low battery, control abnormal, no AC power supply, installation error.
- Max. size of outer shell should not be more than: 120*140*190 mm-length* width* height

- Max. Weightshould be less than 2.5 kg
- Outer shell material should be made of ABS plastic.
- operating condition: Environment temperature:+5℃- +40℃, atmosphere
- pressure 50-106kPa, related humidity 30%-90%
- Storage and transport condition: Environment temperature -15℃- +50℃, atmosphere
- pressure 50-106kPa, relative humidity 30%-90%.
    - Should have infusion pipewhich uses double dove to test
- EMC: Complies with IEC/EN60601-1-2 and IEC/EN60601-2-24.

43. OPEN CARE SYSTEM： RADIANT WARMER, FIXED HEIGHT, WITH TROLLEY, DRAWERS, O2－BOTTLES

- Mobile newborn resuscitation table with fixed－height radiant warmer
- Antistatic castors, 2 with breaks
- Table surface with mattress with infant head／shoulder support
- Mattress－padding： foam density approx． 21 － 25 kg／m3
- Mattress cover： removable with zipper, waterproof, washable, resistant to cleaning with chlorine based solution and flame retardant
- Side boards transparent acryl, drop down and lockable
- Under table 2 storage drawers
- Side rails allow for mounting of accessories
- Hood suspended above the table integrates heating element and overhead light
- Overhead light： 2 x 50W halogen spot, with dimming function
- Integrated support for two 10 L oxygen bottles
- Control unit has flow meter and displays pressure
- Heating element： emitter with parabolic reflector and protected by metal grid
- Control unit allows air and skin temperature preset ）LED indicator （ and drives radiant heater output ）servo and manual （
- Integrated timer： 1 to 59 min, with count－up and count－down feature
- Temperature range, skin： 34 to 380C ）user pre－settable （
- Monitoring of skin temperature by means of sensor, range： 30 to 420C
- Heater output： 0 to 100％ in increments of 5％
- Control unit： audiovisual alarms according to timer and temperature presets avoiding overheating
- Display reports systems errors, sensor failure
- Power requirement： 220 V／50 Hz
- Power consumption： 800 W
- Device is produced by ISO 9001 certified manufacturer ）Certificate to be submitted, further details see "Technical Provisions" （
- Device is safety certified according CE 93／42, FDA 510k or equivalent

Supplied with:

- 1 x mattress
- 1 x skin temperature probe ）including connection cable （
- 1 x spare skin temperature probe ）including connection cable （
- 1 x spare heating element
- 2 x empty 10 L oxygen cylinders
- Technical manual with maintenance and first line technical intervention instructions, in English
- List of priced accessories
- List of priced spare parts
- List with name and address of technical service providers in India
- Training and installation at end－user site

Proposal for full service AMC, year 1 to 5, covering) i (2 preventive maintenances per year,) ii (on−call technical interventions, spare parts and travel .

44. LED PHOTOTHERAPY UNIT

- Light unit should be made of easily cleanable plastic material
- Life time of the LED's should be more than 50000hours
- Spectral Irradiance of minimum 35 – 45μW·cm⁻²·nm⁻¹ at 45 cm distance between bed and light unit.
- Wavelength: between 445 – 470 nm, and should be free from UV and IR radiation.
- Effective surface area should be at least 250 *500 mm within a irradiance ratio of 0.4 (min/max irradiance)

- Digital Timer for monitoring therapy hours (resettable) &lamp usage hours (non resettable)
- Smooth Height adjustment mechanism with adjustable height
- Smooth light unit tilting mechanism
- Minimum height should be approximately 1100 mm from the floor to use near the mother bed
- Maximum height should be approximately 1600 mm from the floor to use with the incubator
- Electric supply: Universal Power supply 100V – 240V AC, 50Hz to 60Hz with a power rating of 42W (Max)
- Coating: Epoxy/powder coated body for scratch and rust prevention and PU (Poly Urethane) coating for plastic
- Mobility: Three castors; two rear castors provided with brakes
- The base of the unit should be such that it will go beneath any Incubator/bed/trolley, with minimum of 100 mm floor clearance
- Should have smart tilt technology (i.e. Light intensity should remain same even in the tilted position of the light unit)
- Should be equipped with white light for the observation purpose
- Should be optionally provided with inbuilt Irradiance measurement meter
- Device should be EMC certified as per IEC 60601-1-2 standard
- The system should have international CE approval
- The manufacturer should be ISO 9001:2008 and ISO 13485:2003 certified

45. SYRINGE PUMP, 10, 20, 50 ML, SINGLE PHASE

Should have the following features:

- Digital and self-regulating volume controlled portable syringe pump
- Should be mounted on bed/wall rail or mobile pole/stand (supplied with fixation)
- Should be suitable for all intravenous and intra-arterial infusions
- Continuous volumetric delivery with syringes 10, 20 and 50 ml
- Open system, suitable for different brands of syringes
- Programmable, user entry: infusion volume and time or flow rate
- Rate, adjustable: 1 to 999 ml/h, steps of 1 ml/h
- Accuracy: ca 1% of total volume delivered
- With occlusion detection and alarm
- Display reports systems errors, end of infusion and built-in battery status
- Audio visual alarm with silencing feature for audio alarm
- Automatic switch from mains to batteries in case of power failure
- Power requirements: 220 V/50 Hz or internal re-chargeable battery (autonomy approx 6 hrs, automatic recharge)
- Power consumption: 50 W
- Device is produced by ISO 9001 certified manufacturer
- Device is safety certified according CE 93/42, FDA 510k or equivalent

Should be supplied with:

- 1 x spare battery
- 1 x spare set of fuses
- User manual with trouble shooting guidance, in English
- Technical manual with maintenance and first line technical intervention instructions, in English
- List of priced accessories
- List of priced spare parts
- List with name and address of technical service providers in India
- Training and installation at end-user site

Should be supplied with:

- 1 x spare set of tubing
- 1 x spare set of internal and external filters (bacterial)
- 1 x spare set of fuses
- User manual with trouble shooting guidance, in English
- Technical manual with maintenance and first line technical intervention instructions, in English
- List of priced accessories
- List of priced spare parts
- List with name and address of technical service providers in India
- Training and installation at end-user site

46. OXYGEN HOOD, S, M & L SET OF 3 EACH, INCLUDING CONNECTING TUBES

- Round shape
- 1 x size small, approx： height 18 cm, diam 20 cm
- 1 x size medium, approx： height 22 cm, diam 25 cm
- 1x size large approx height 30cm , diam 30cm
- Made of autoclavable polycarbonate
- Trauma free silicone neck, with adjustment flap
- With bilateral oxygen nozzle
- Oxygen tube of 2 m length must be provided with
- Device is produced by ISO 9001 certified manufacturer
- Device is safety certified according CE 93／42/FDA 510k or equivalent

Supplied with：

- 1 x spare set of tubing
- User manual with trouble shooting guidance, in English
- Technical manual with maintenance and first line technical intervention instructions, in English
- List of priced accessories
- List of priced spare parts

List with name and address of technical service providers in India

47. ECG Machine

- Multi channel ECG recorder/analyzer system features
- Should have simulations 12 lead acquisition
- Should be capable of giving more than 300ECG’s on single charge battery
- Should have in-built rechargeable lead battery
- Should be able to deliver channel printouts on high resolution thermal printer 70mm
- Multiple report formats
- Should have interpretation software for reading ECG’s & detailed measurement for all 12 leads

- Should give print of cardiac axis
- Must have user selectable Myogram filters(25Hz or 35Hz)
- Should be portable & light weight
- Should have standardization by IEC 60601
- Should be CE/US FDA/ICMED approved

Supplied with following minimum accessories :

- 10 Lead patient cable-01
- Resting ECG accessories-01 set
- Operation manual-01
- Recording paper-01 pkt
- Power cable-01
- Appropriate trolley-01

48. Digital Weighing Machine with Infantometer (1-5 Gms accuracy)

• Capacity: 44 lbs / 20 kg
• Graduation: 0.5 oz / 5 g < 10 kg > 10 g
• Dimensions (WxHxD): 25.1 x 4.1 x 11.8" / 638 x 105 x 300 mm
• Dimensions/weighing platform (WxHxD): 23.4 x 2 x 10" / 595 x 50 x 255 mm • Weight: 6.2 lbs / 2.8 kg
• Power supply: batteries / power adapter optional
• Functions: TARE, BMIF, auto-HOLD, lbs/kg switch-over, automatic switch-off
• Should have measuring rod , head and foot positioner , switch mode power adapter and carrying case

49. MULTIPARA MONITORS NIBP HR SPO2 ECG RR AND TEMP WITH WALL MOUNTING FACILITY

- Compact portable, suitable for all patient categories, i.e. neonates and infants
- Parameters monitored: ECG, HR, Respiration rate, SpO2, NIBP and temperature
- Display: colour TFT, approx 7 inch, 4-channel
- Soft touch keys, durable and easy to clean
- Measurements, ranges:
  - ECG: I, II, III
  - HR: approx 30 to 250 bpm <3 bpm>
  - NIBP: approx 20 to 290 mmHg)systolic(<1 mmHg>
  - SpO2: approx 40 to 100 % <1%>
  - ECG div. respiration: approx 6 to 180 bpm <1 bpm>
  - Temperature: approx 10 to 45 degree Celsius < 0.1 degree Celsius>
  - NIBP oscillometric step deflation, manual/automatic, initial inflation pressure user selectable
- Sweep, adjustable: 12.5, 25 or 50 mm/s
- Sensitivity) amplitude (of all signals user adjustable
- Voltage marker, 1 mV
- User preset of high/low alarms on all monitored parameters
- Audio visual alarm in case measurements are outside preset range
- Silencing feature for audio alarms
- Trend display from 2 to 24 hours
- RS232 serial data output provision)peripheral printer or network(, analogue output for ECG
- Defibrillator sync and protection
- Pacemaker detection/rejection
- Display reports system errors, leads and sensors failure and built-in battery status
- Unit can be mounted on bed/wall rail or mobile pole/stand
- Automatic switch from mains to batteries in case of power failure
- Monitor: constructed of durable shock proof plastic

- Power requirements: 220 V / 50 Hz)with adapter(or internal re-chargeable batteries)autonomy approx 3 hrs, automatic recharge(
- Power consumption: 350 W
- Device is produced by ISO 9001 certified manufacturer)Certificate to be submitted, further details see "Technical Provisions"(
- Device is safety certified according CE 93/42, FDA 510k or equivalent)Certificate to be submitted, further details see "Technical Provisions"(

Supplied with:

- 3 x cuff hose infant
- 2 x sets of 5 neonate BP cuffs)No 1)3.1-5.7 cm(, No 2)4.3-8 cm(, No 3)5.8-10.9(, No 4)7.1-13.1cm(, No 5)9.6-14.3 cm(
- 1 x patient cable
- 1 x box neonatal ECG-electrodes)200 sets of 3 electrodes, chest and/or extremities, diameter approx 22mm, ultra soft gel, self adhesive(
- 2 x skin temperature transducers
- 2 x reusable SpO2 sensors neonate, clip-on type)including connection cable(

50. INFANTOMETER, PLEXI, 3½FT/105CM

- Portable baby/infant length–height measuring system
- Measures laying length of neonates and babies
- No need for calibration as all parts have prefixed position
- Reads in centimeters and inches
- Minimum graduation: 1 mm
- Long–lasting hard–wearing ruler/graduation is fully integrated with device
- Measuring slide/wedge glides smoothly and close via ruler, avoiding reading parallax
- Measuring slide/wedge wobbles max 2 mm, over full length
- No sharp edges or corners
- Low stable board, width: ca 30 cm
- Length, measurement range, approx.: 100 cm
- Head/footplate, board and slide/wedge made of quality laminated wood or plastic
- Wood parts should be treated and finished/protected with varnish to prevent chipping of edges and allow easy cleaning; all connections should screwed/nailed plus glued
- Device is produced by ISO 9001 certified manufacturer

Supplied with:

- User manual with trouble shooting guidance, in English
- List of priced accessories
- List of priced spare parts

List with name and address of technical service

51. TRANSPORT INCUBATOR, BASIC, WITH BATTERY AND O2, W/O VENTILATOR

- Double wall transparent canopy with mattress, mount on stretcher
- Front and head access door, slide–out mattress tray
- With baby restraining straps
- Warm air circulation system
- Bacterial filter to remove air born particles

- Incubator air temperature monitoring– servo control: 25 to 38 C, increments 0.1C
- Digital displays outside shows air temperature
- Two 10 L integrated oxygen cylinders, regulator and flow meter
- Audiovisual alarms: high/low air temperature, temperature sensor failure, power failure and low battery
- Construction dismantleable allows frequent washing and disinfection of the incubator
- Battery and AC supported
- Power requirements: 220 V/50 Hz and internal re-chargeable batteries) autonomy approx 3 hrs, automatic recharge (
- Power consumption: 200 W
- Device is produced by ISO 9001 certified manufacturer
- Device is safety certified according CE 93/42, FDA 510k or equivalent

Supplied with:

- 1 x spare air temperature probe
- 1 x spare rechargeable battery
- 2 x empty 10 L oxygen cylinders
- 1 x spare set of fuses
- User manual with trouble shooting guidance, in English
- Technical manual with maintenance and first line technical intervention instructions, in English
- List of priced accessories
- List of priced spare parts
- List with name and address of technical service providers in India

Training and installation at end-user site

53. Portable Ultrasound and Colour Doppler unit:

- Fully digital portable ultrasound machine with provision for Doppler examinations.
- The unit should have a laptop type console design. The unit should be compact, lightweight and portable. Weight should not exceed 7kg including battery (excluding cart and accessories).
- It should be suitable for abdominal, small parts and vascular applications in adults and paediatric patients. Multiple preloaded as well as user configurable application presets should be available.
- Minimum grey scale resolution to be 256 with 1024 or more digital processing channels.
- Maximum scanning depth to be 30 cm or more.
- The system to have a dynamic range of 165 decibels or more.
- The system should support Convex and Linear probes.
- Transducers (one each): (1) Convex electronic phased array transducer: 2- 6 MHz for abdominal imaging. (2) Linear transducer: 5-12MHz MHz for vascular and small part imaging.

- All transducers should be lightweight digital phased array broadband type transducers with at least 1024 elements.
- The system should have a frame rate of at least 600 frames per second (fps) in B mode and more than 300 fps in /Colour mode.
- The system should have an ergonomic full alphanumeric soft keys keyboard with easy access scans controls and trackball. Provision for attaching an external keyboard and mouse should be present.
- The System must have integrated high – resolution TFT/LCD/Single monitor of 15 Inches or more.
- The system should have cine loop review facility of not less than 60 sec/1000 frames.
- System should have 120 GB or higher capacity internal HDD.

- The system should have the facility of digital storage and retrieval of B/W and colour image data on built-in CD/DVD Drive. Provision for USB port and LAN transfer of data should also be present.
- Imaging modes of Real time 2D, Colour Doppler, Pulsed wave Doppler and Power (energy) Doppler should be available.
- Controls for 2D mode: Total gain, depth, TCG, dynamic range, acoustic power output.
- Controls for Colour Doppler: PRF, colour gain, position and size of ROI, steering of ROI, colour maps and colour invert.
- Controls for pulsed Doppler: variable sample volume size from 1 to 5mm or more, steer, PRF, baseline, gain angle correction, spectral invert, duplex on/off.
- Measurements for 2D mode: Multiple distances, area and volume.
- Measurements for Doppler modes: Stenosis quantification in area percentage, diameter, PSV, EDV, mean, PI, RI, acceleration time and index. Automatic and manual measurements and display of pulsed Doppler calculations should be possible.
- Facility for storage on CDR should be available.
- Unit should function with 200-240 V, 50 Hz AC, 5 amp power out let. Power requirement to be specified.
- In built battery backup should be at least one hour or more.
- Essential accessories: Black & White Thermal printer and color laser printer, UPS, mobile cart with transducer holder, jelly bottle holder and space for printer.
- Paper and cartridges for 1000 image printouts should be provided with the unit.

- The unit offered must be sturdy and should be able to withstand accidental hits and falls during transportation.
- The unit offered in the tender will require technical demonstration.
- The bidder should enclose the original product data sheet, brochure and compliance sheet, without which Tender-Portable Ultrasound Scanner with Doppler Function
- The unit should be United States Food and Drug Administration (FDA) /Conformité Européenne (CE)/ICMED approved.

53. **ABG Machine**

- Fully automatic, upgradeable, fast electrolyte & Blood gas analyzer.
- Essential Measured parameters; pH, pCO2, pO2, SaO2 with co-oximetry, tHb, Hematocrit Lactates, Na+, K+, Ca++, Cl-. All these parameters should be measured simultaneously
- Calculated parameters should include BE, BE ecf, HCO3, Anion Gap etc.
- Sample volume-less than 100 micro litre.
- Fast analysis time – less than 60 sec.
- Maintenance free electrodes with individual electrodes ON/OFF facility.
- Fully automatic liquid calibration of all parameters at user-defined intervals without the use of Gas calibrated reagents, external gases, tanks or regulators.
- Continuous reagent level monitoring with graphic display.
- Data display on well-illuminated, adequate size screen display.
- Data print out on built in graphic printer.
- Built in auto Quality control facility.
- Suitable UPS with at least 30 min backup.
- Cost of reagents to be quoted for comparative evaluation.
- Stand by blood gas cum electrolyte analyzer in case of breakdown.
- Should have local service facility
- Guarantee to supply spares for minimum 10 years
- It must be UF-FDA /CE (Conformité Européenne) /ICMED certified &approved.
- Must submit User list and Performance report
- Compliance Report to be submitted in a tabulated and point wise manner clearly mentioning the page/para number of original catalogue/data sheet

54. FIO2 Monitor

- Measuring range： 0−100％ oxygen
- Display accuracy： 0．1％ oxygen
- Accuracy： < 1％ vol． O2, if calibrated with 100％ vol． O2
- Offset： < 1％ vol． O2 in 100％ N2
- Response time： 90％ of final value in < 12 sec．
- Linearity error： < 3％ relative
- Drift： < 1％ vol． O2 over 8 hours
- Cross sensitivity： in compliance with DIN EN ISO 21647
- Operating humidity： 0 − 99％ relative humidity ）non−condensing（
- Effect of humidity： 0．03％ relative per ％ RH
- Ambient pressure： 750 to 1250 hPa
- Effect of pressure： proportional to change in oxygen partial pressure
- Sensitivity to impact： < 1％ relative after drop from 1m
- Operating temperature： 0°C − 50°C
- Temperature compensation： integrated NTC compensation in the sensor
- Storage temperature： −20°C − 70°C ）device（, −20°C − 50°C ）sensor（
- Recommended storage ）sensor（： 5°C − 15°C
- Sensor type： OOM 111 ）galvanic oxygen sensor（
- Sensor life： > 1．000．000 ％ O2 h
- Battery： Li−ion 3．6 V 2900 mAh
- Operating time per charge： > 24 hours ）at standard settings（
- Charger： USB, Protection Class II, Input： AC 110V − 230V／
- 50 − 60 Hz／125mA, Output ： DC 5V ／ 1,5 A
- Charge time： approx． 4 hours
- Display： 2．8″ multicolor TFT ）240 x 320 dots（
- Dimensions ）device（： 160 x 72 x 39 mm ）H x W x D（
- Cable length： coiled cable 0．5 m ）max． 2．5 m（
- Protection class： IP 54
- Impact resistance： IK 05
- Weight： 330g ）with sensor（
- Interface： USB 2．0
- Alarm functions： monitoring of alarm limits and device functions ）optical and acoustic（
- Alarm limits： adjustable between
- Upper limit： 20％ − 103％
- Lower limit： 18％ − 101％
- Data storage： max． 96 hours ）measurement series（ reading date, time, alarm limits, events
- Personalization： device and data set ）e．g． name, stationpatient ID（
- Protection Class： II, Type BF
- Standards： The device complies with the requirements of
- MDD 93／42／EEC for medical devices and the applicable standards． Also in compliance with：
- DIN EN 1789 Medical vehicles and their equipment
    - Road ambulances
- Class： IIa

Conformity： CE 0123

55. Ventilator

- Should be a high-performance Neonatal / Pediatric ventilator with integrated trolley for easy movement within the hospital

- The Ventilator should be microprocessor controlled one, and the software should perform a complete self-test and calibration including the compliance of the system. The system should be amenable for future up gradation or addition to newer modes of ventilation any time at site.
- The Ventilator should be working on centralized compressed Air pipeline or standalone compressor.
- The Ventilator should be suitable for use on new born and Pediatric patients and should be able to deliver tidal volume ranging from 2 ml to 350 ml.
- Should provide the following modes of ventilation.

    - Control / Assist control: Pressure Controlled

    - SIMV +Pressure Control with Pressure Support

    - Inverse ratio ventilation &Apnoea back-up ventilation in all modes.

    - PEEP ranging from 0 to 40 cm of H2O.

- Ventilator should have special software package (not the modes of ventilation or safety limits) to improve lung protection and promote spontaneous breathing by providing timely assistance. The software package should have minimum five functions such as Late Inspiratory. Recruitment, Breath Initiation, Flow Adapted Volume Control, Early Expiratory flow, Patient Adjusted Inspiratory Flow & Inspiratory Cycle off or equivalent.
- The Ventilator should have facility to upgrade in-built EtCo2 monitoring and EtCo2 wave form and patient derived parameters in the same ventilator main display.
- Should have facility to monitor complete Lung mechanics includes Platu Pressure, Time constant, Auto PEEP, P0.1, Shallow Breathing Index, Work of Breathing Ventilator &Patient, Static compliance, Inspiratory& Expiratory resistance.
- Should provide pressure- and flow-triggering options, bias flow not more than 0.5 lpm.
- Should be able to deliver user-specified inspired oxygen concentrations ranging from 21% to 100%. The oxygen concentration monitoring technique should be Ultrasonic based or any other advanced technique which avoids consumables for lifetime.

- The ventilator flow sensor should be reusable type, easily removable and to be sterilized after every patient use.
- Ventilator with non-consumable oxygen sensor and flow sensor will be preferred. For ventilators with flow sensors require periodic replacement, the cost of the sensors for 10 years should also be included in the price quote.
- Ventilator display – Minimum 12” Colour TFT with touch screen facility and also should have direct control for setting vital parameters.
- Should provide a real-time display of ventilatory parameters such as respiratory rate, tidal volume (inspiratory and expiratory), minute volume (expiratory), peak airway pressure, and I:E ratio.

- Should provide single view of real-time breath to breath graphical display of pressure-time, volume-time, and flow-time scalars. Also provide breath to breath display of pressure-volume and flow-volume loops.
- Should have the facility for display of 24 hour trend and zoom in, also recall for alarm & event.
- Should have the facility for 'inspiratory-hold' and 'expiratory-hold' manoeuvres to measure respiratory dynamics.
- Should provide a visual indication of machine-triggered, patient-triggered, and assisted breaths.
- Should have pre-programmed facility to ventilate with 100% oxygen for 3 min and manual breaths during airway suctioning.
- Should have the following audio-visual alarms: mains failure, ventilator failure, high/low airway pressure, low minute volume, apnoea, high respiratory rate, etc. Default alarm settings should be amenable for change by user.
- Ventilator requires periodic replacement of Oxygen / Flow sensor, should supply 5 sets along with each ventilator.
- Should run on 220 V AC power supply, and should have an in-built battery back-up of at least 60 min with 3 years replacement warranty.
- The Ventilator should be FDA 510(K) Class II approved product
- Should conform to standards for electrical safety IEC- 60601-1 General Requirements
- Manufacturer should be ISO/ICMED certified for quality standards.
- Should have 2 year on-site comprehensive warranty for all components. The supplier also should supply the consumables during warranty period.

Accessories for High-performance Neonatal / Pediatric ventilator

- Detailed specifications:
- Additional advanced modes to be incorporated for High-performance Neonatal / Pediatric ventilator.

  - Pressure Regulated Volume Control
  - SIMV+ Pressure Regulated Volume Control with Pressure Support.
  - Nasal CPAP, CPAP & Pressure Support.

- Heated humidifier unit with servo-control of temperature to be supplied. Two (2) Infant chambers to be supplied along with the unit.
- Two (2) complete sets of reusable breathing circuits, 100 Nos. Inspiratory air filters should be supplied with each ventilator.
- Nasal prongs kit suitable for neonatal patients.
- To supply suitable Trolley, patient support arm, Air & O2 Hoses with Moisture filter for the ventilator.

56. Bubble CPAP machine

	CPAP
	Clinical Purpose: Non invasive resp. Support (CPAP) for Newborn infant
1	**Technical Characteristics must have the following:**
1.1	Device should able to deliver CPAP of 1 to 10 cmH2O increments of 1cm, using a underwater bubble system.
1.2	The device should have an in-built air oxygen blender to deliver FiO2 21% to 100% (+/- 2%) with an adjustable flow in the range of 0-15 L/min (+/- 0.5 L/min);
1.3	Should have a heated wire servo controlled humidifier with display temp. Near patient end of the circuit; to be supplied with 2 reusable infant water chamber;
1.4	Should be supplied with 2 reusable heated wire silicon tubing circuit for infant/newborn;
1.5	Should be able to deliver CPAP using available patient interfaces nasal prongs/nasopharyngeal prongs;
1.6	For devices based on underwater bubble systems the water chamber should be reusable; to be supplied with 2 reusable water chamber;
1.7	Should providepressure release valve at 15cmH2O to 17cmH2O;
1.8	User's interface: For a flow driving system a pressure display is required Audio visual alarm for low pressure, high pressure, power failure, low O2
2	**Physical Characteristics**
2.1	Weight (lbs, kg) : should be <8Kgs
2.2	Noise (in dBA) : should be <60dB; and Alarm should be >65dB
2.3	Should have heat dissipation
2.4	Should beportable
3	**Energy Source (electricity, UPS, solar, gas, water, CO2 ....)**
3.1	Should have Voltage (value, AC or DC, monophase or triphase) : 220VAC, 50 Hz.
3.2	Should be battery operated with at-least 6 hours battery backup
3.3	Should be tolerable (to variations, shutdowns): ± 10% of input
3.4	Should have protection : OVP, earth leakage protection
3.5	Power consumption should have less than 140Watt
3.6	Should be electric/battery driven
4	**Accessories, Spare Parts, Consumables**
	Accessories (mandatory, standard, optional);spare parts (main ones); consumables/reagents (open, closed system) 1) Each device should be provided with 30 nasal prongs (Atleast three sizes suitable for neonates weighing<1000grms, 1000-1500grms &>1500grms) 2) Air and O2 hose of 3m length each along with the appropriate socket;
5	**Environmental And Departmental Considerations**
	Atmosphere / Ambiance conditioning, humidity, dust ...) Operating condition: Should be capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90% in ideal circumstances . Storage condition: Should be capable of being stored continuously in ambient temperature of 0 to 51 deg C and relative humidity of 15 to 90%
	User's care, Cleaning, Disinfection & Sterility issues: Disinfection: Parts of the device that are designed to come into contact with the patient or the operator should either be capable of easy disinfection or be protected by a single use/disposable cover.
6	**Standards And Safety**
	Certificates: CE(EU) and BIS/ISO 13485:2003
7	**Training And Installation**
7.1	Pre-installation requirements nature, values, quality, tolerance: Electrical sockets; oxygen supply
7.2	Requirements for sign-off: Supplier should perform installation, safety and operation checks before handover Local clinicals staff should affirm completion of installation

7.3	**Training of staff (medical, paramedical, technicians)** Training of users on operation and basic maintenance should be provided. Advanced maintenance tasks required should be documented.

57. T -Piece Resuscitator

- Neopuff T−Piece Resuscitator is designed to provide controlled inflation pressures. T−Piece Resuscitation is a standard of care that is recommended by all major resuscitation guidelines, including ILCOR and AHA's Neonatal resuscitation program.
  Neopuff is designed to provide:
- Accurate Pressure control
- Ease of Use and Versatility
- Family of T−piece circuits
- Cost benefits
  Specifications:
- **Medical Grade Manometer:**
- Superior manometer accuracy up to 80 cmH2O)+/− 1.6 cm H2O(
- Each manometer is individually calibrated during manufacturing, ensuring pressure are accurately measured and displayed and consistently delivered.
- Fast−acting needle and easy−to−read dial.
- **PIP Control:** Easy to grip knob for adjustment of exact Peak Inspiratory Pressure)PIP(.
- **Convenient Mounting Options:** A range of mounting options is available for bed and pole set ups in L&D and the NICU. Also ideal on transports and in other departments.
  Complete Accessory Range:
- Availability of complete range of accessories including gas supply line and full range of infant resuscitation masks.
- A new and first−of−its−kind Ergonomic T−Piece circuit with a Duckbill port.
- Neopuff is the only T−Piece device to provide a Humidified T−Piece circuit option that provides Optimal Humidity during resuscitation.
- All accessories are Latex and DEHP free.
- Family of T−Piece circuits all allow for easy viewing of infant's face
- **Value:** Neopuff remains very affordable for any hospital regardless of the continuous enhancements made to the Neopuff.

58. CRASH CART

- Crash Trolley, mobile model for Casualty and Emergency rooms to have provisions to place all the emergency drugs including IV fluid bottles of different sizes and small oxygen cylinder and trays to hold dressings and instruments, and a focusing light and IV stand.
- The framework shall be made of CRCA Mild Steel tubular pipes mounted on Castors. The unit shall be supplied complete with the optional accessories as well as with the following features:
- Overall size)Typically(: 940)L(X 490)W(X 1535)H(mm

- Six removable bins and two polystyrene storage units with three drawers each
- The unit shall be provided with 125 mm dia castors and Corner buffers
- Oxygen cylinder holder, electric lamp, IV pole, cardiac massage board and 3 laminated shelves
- Construction :
- I. Material: The trolley shall have a framework of single continuous length mild steel tubes and the thickness of M.S. tubes used and their corresponding outside diameters are 1.22 mm thickness and 25.4 mm diameter respectively. The shelves shall be made of prime quality tested CRCA steel) MS (sheet of at least 1.2mm thickness. The bonding of the steel components shall be strong and neat for providing a smooth and elegant look.

ii. Finish: The finish shall be scratch resistant. All Mild Steel components) Inside and out-side (shall thoroughly pre-treated in an eight stage pre-treatment system, as per Indian Standards for longer life and durability. On completion of pre-treatment of the articles, they should be dried in hot air oven and then painted with epoxy powder of white shade and given a paint film of 50 microns

59. OTOACOUSTIC EMISSIONS EQUIPMENT

- Measurement Types
- Screening and Diagnostic Testing
    - DPOAE: 1.5 to 12 kHz, 40 to 70 dB SPL
    - TEOAE: 0.7 to 4 kHz, 83 dB pe SPL
- Handheld Unit Display: Color OLED display
- User Input: 4-button operation
- Connecters:
    - Micro-USB for charging and communication
    - HDMI for probe
- Communication to PC: Micro-USB
- Languages: English, German, Spanish, French, Polish, Russian, Italian, Turkish, Portuguese, Chinese
- Probe Connector: HDMI
- Probe design:
- Integrated microphone and receivers in probe head
- Calibration data stored on probe
- Cable length: Minimum 40"
- Microphone Noise: -13 dB SPL @ 1kHz) 1 Hz bandwidth (
- Ear tips: Single use disposable ear tips
- Tubes: Re-useable probe tubes
- Cradle) Optional (Operation: Provides PC Database communication and charging
- Data Test memory: 250 tests on unit
- Patient names: Patient names on unit) optional (
- Graphic Display: Bar graph, value graph
- Results: Pass, Refer, Noisy, No Seal, Fit Err

- Data Manager Display： Patient records, graphic and tabular results
- Name Transfer： Patient names or ID transfer to Corti unit
- Results Transfer： From Corti to Data Manager
- Reporting： Full page color reports with history, notes, graphic display
- Report Export： PDF, RTF, Image File Formats
- NHS Export： OZ eSP, HiTrack
- Archive／Backup： All patient records
- Printer ）Optional（ Type： Thermal Dot Matrix
- Power： 7．4 V lithium battery 100 －240V, 50／60 Hz
- Paper width： 2．25"
- Communication： Bluetooth
- Power Battery： 3．6 V rechargeable lithium ion
- Battery Life： 15 hours on time
- Charge Time： 4 hours to 100%
- Accessories Standard： Hand－held unit, Probe, Micro USB cables for charger and database, Database software, Disposable ear tip kit and tubes, User Manual, Quick Guide, Calibration Certificate
- Optional： Cradle, Printer, Carry Case, Ear Tips, Replacement Cables, Replacement Probe
- General Standards IEC／EN 60601－1 Medical electrical equipment － Part 1： General requirements for basic safety and essential performance － 3rd Edition
- IEC／EN 60601－1－2 Medical electrical equipment － Part 1－2： General requirements for basic safety and essential performance － Collateral standard： Electromagnetic compatibility
- UL 60601－1 Medical Electrical Equipment, Part 1： General Requirements for Safety
- CSA C22．2 # 601－1－M90 Medical Electrical Equipment, Part 1： General Requirements for Safety
- IEC 60645－6 Electroacoustics－Audiometric equipment － Part 6： Instruments for the measurement of otoacoustic emissions

60. CENTRIFUGE, HEMATOCRITE, BENCH TOP, UP TO 12000 RPM, INCLUDING ROTOR

- Bench top centrifuge for quick assessment of hematocrit
- Rotation up to 12000 rpm, adjustable in increments of 100
- Timer settable in minutes, maximum preset 99 minute
- Safety lid－lock feature and emergency lid release
- Motor overheating protection and imbalance shut－off
- Digital display shows rpm and time
- Angle rotor, 24 positions, maximum approx 16000 rcf
- Power requirements： 220 V／50 Hz
- Power consumption： 200 W
- Device is produced by ISO 9001 certified manufacturer
- Device is safety certified according CE 93／42, FDA 510k or equivalent

Supplied with:

- 1 x box of micro capillary tubes, inner diam 1mm, length 7mm, heparinzed,
- 1 x pack of sealing compound for micro capillary tubes

- 1 x spare set of fuses
- User manual with trouble shooting guidance, in English
- Technical manual with maintenance and first line technical intervention instructions, in English
- List of priced accessories
- List of priced spare parts
- List with name and address of technical service providers in India
- Training and installation at end-user site

61. BILIRUBINOMETER, TOTAL BILIRUBIN, CAPILLARY BASED

- Bench top point-of-care bilirubino meter
- Direct reading photometry determining Total Bilirubine in serum/plasma
- On switch and auto-off
- Automatic calibration setting between measurements
- Dual wavelength measurement: 460nm and 550nm
- Correcting for Hb at 550 nm
- Sample size: 1 capillary tube with serum/plasma
- Main light source, 5 W tungsten lamp
- Measuring range: 0 to 700 µmol/or 0 to 40 mg/100 ml
- Accuracy equivalent to laboratory spectrophotometer) approx. ±5%(
- Read-out switchable between mg/100 ml of µ mol/l
- Fast analysis time <5 sec
- Large LED display readable in low light working situations, display cover durable plastic with integrated printer
- Power requirements: 220 V/50 Hz) with adapter(
- Power consumption: 350 W
- Device is produced by ISO 9001 certified manufacturer
- Device is safety certified according CE 93/42, FDA 510k or equivalent

Supplied with:

- 2 x reference solution packages
- 1 x box of micro capillary tubes, inner diam 1mm, length 7mm, heparinzed
- 1 x box of micro capillary tubes, inner diam 1mm, length 7mm, plain
- 1 x pack of sealing compound for micro capillary tubes
- 1 x spare lamp
- 1 x dust cover
- 1 x spare set of fuses
- User manual with trouble shooting guidance, in English
- Technical manual with maintenance and first line technical intervention instructions, in English
- List of priced accessories
- List of priced spare parts
- List with name and address of technical service providers in India
- Training and installation at end-user site

62. LAMINAR FLOW MACHINE

Should have the following specifications:

- Type of air flow: Horizontal or vertical.
- Size of working area: should be less than 4X2X2 feet.
- Work surface should be finely polished stainless steel.
- Body: Preferably stainless steel construction.
- Foldable / sliding front sash, preferably of transparent plastic.
- Blower assembly should produce little noise / vibration.
- HEPA filters should be of international standards.
- Microprocessor based monitoring system with LCD display of airflow velocity, residual lifetime of HEPA filters & total time of cabinet operation.
- Alarms for clogged filters, out of range airflow velocity & other malfunctions.
- Should have fluroescent tubes for lighting.
- UV light for additional sterilization of the work chamber.
- Should have transparent UV tempered glass side walls.
- Should have white non reflective powder coated back wall.
- Horizontal Laminar Airflow system should allow operation in sterile and particle free conditions with the following parameters.

• Cleanliness	ISO Class 5 as per ISO 14644-1
• Direction of Flow	Horizontal
• Particle Retention	0.3 Micron & Above
• Noise Level	65 decibel on "A" scale ± 5
• Velocity	90 Feet / Minute ± 20
• Worktable	By IS 304 Grade Stainless Steel surface
• Front door	by 4 mm thick Polycarbonate – Foldable Type
• Side Panel	by 4 mm thick Polycarbonate Sheet panel
• U V lamp	Should have Hour meter for UV light: Approx 40Watts /sq.cm over the entire work surface
• Illumination	LED Tube Fittings
• Pressure (ΔP)	Inclined Manometer 0 –25 mm range.
• Other accessories	5 /15 Amp power point, Gas inlet, Castor Wheels & Power chord
• Power Supply	230V, Single phase, 50 Hz.

- **HEPA Filter**: Media : Ultra clean glass fiber paper – imported
- Type : Mini-Pleat HEPA Filter, Separator less
- Retention: 0.3 Micron
- Efficiency: 99.997%
- Grade : H14 rating

- **PRE Filter**: Media Synthetic, non-woven polyester fibers
- Casing GI with PU coated frame
- Retention 5 Micron & above
- Efficiency 95 %

- **<u>Material of Construction:</u>**

- **Option: 1** The Cabinet made from Galvanized Iron 18 SWG sheet metal with polyurethane paint
- coated finish and bottom will be supported with MS with PU coated stand.

- **Option: 2** The Complete Cabinet in IS 304 grade SS construction with stain finish.

- **Blower Assembly**: Outer rotor type blower system, which consists of dynamically & statically balanced
- aluminum centrifugal impeller driven by a single phase motor, enclosed in an PU
- coated GI casing & directly connected to the filter chamber.

•**Laminar Air Flow Work benches**

•Direction of Flow	•**Horizontal**			
•Model No	• CAH0600	•CAH0900	•CAH1200	•CAH1800
•Working Size – in Ft (w x d x h)	•2x2x2	•3 x 2 x 2	•4 x 2 x 2	•6x2x2
•In GI with PU coating	•**Price In rs**	•**Price In rs**	•**Price In rs**	•**Price In rs**
•In IS 304 grade SS	•**Price In rs**	•**Price In rs**	•**Price In rs**	•**Price In rs**

•Our company is ISO 9001:2015 certified & our products are CE certified

•

•**Documentation:**

- •Working Manual& Warranty certificate will be provided
- •Test certificate for HEPA Filter will be provided
- •

•**The following Tests should be carried-out at our factory before dispatch:**

- •Laser Particle Count test to confirm the cleanliness level as per ISO 14644-1
- • Velocity profile for HEPA filter as per IES-RP-CC-002
- •(▲P) Differential pressure measurement to confirm the HEPA filter condition
- •

•**VERTICAL Laminar Airflow Bench:**

•Vertical Laminar Airflow system allows operation in sterile and particle free conditions because the continuous flushing of the working area by a unidirectional and Vertical and ultra filtered airflow, it assures a full product protection.

•Cleanliness ISO Class 5 as per ISO 14644-1
•Direction of Flow vertical
•Particle Retention 0.3 Micron & Above
•Noise Level 65 decibel on "A" scale ± 5
•Velocity 90 Feet / Minute ± 20
•Worktable By IS 304 Grade Stainless Steel surface
•Front door by 5 mm thick Polycarbonate – Foldable Type
•U V lamp Should have Hour meter for UV light:
Approx 30Watts 36 inch length

•Illumination Fluorescent tubes with diffusers
•Pressure (ΔP) Inclined Manometer 0 –25 mm range.
•Other accessories 5 /15 Amp power point, Gas inlet, Castor Wheels & Power chord
•Power Supply 230V, Single phase, 50 Hz.
•

•**HEPA Filter**: Media : Ultra clean glass fiber paper – imported
• Type : Mini-Pleat HEPA Filter, Separator less
• Retention: 0.3 Micron
• Efficiency: 99.997%
• Grade : H13 rating
•

•**PRE Filter**: Media Synthetic, non-woven polyester fibers
• Casing GI with PU coated frame
• Retention 5 Micron & above
• Efficiency 95 %
•

•**Material of Construction:**

•

•**Option: 1** The Cabinet made from Galvanized Iron 18 SWG sheet metal with polyurethane paint
• coated finish and bottom will be supported with MS with PU coated stand.
•

•**Option: 2** The Complete Cabinet in IS 304 grade SS construction with stain finish.

•**Blower Assembly:** Outer rotor type blower system, which consists of dynamically & statically balanced aluminum centrifugal impeller driven by a single phase motor, enclosed in an PU coated GI casing & directly connected to the filter chamber.

•**Laminar Air Flow Work benches**

•Direction of Flow	•**VERTICAL**

•Model No	• CAV0600	•CAV0900	•CAV1200	•CAV1800
•Working Size – in Ft (w x d x h)	•2x2x2	•3 x 2 x 2	•4 x 2 x 2	•6x2x2
•In GI with PU coating	•**Price In rs**	•**Price In rs**	•**Price In rs**	•**Price In rs**
•In IS 304 grade SS	•**Price In rs**	•**Price In rs**	•**Price In rs**	•**Price In rs**

•Our company is ISO 9001:2015 certified & our products are CE certified

•**Documentation:**

- •Working Manual& Warranty certificate will be provided
- •Test certificate for HEPA Filter will be provided
- •

•**The following Tests should be carried-out at our factory before dispatch:**

- •Laser Particle Count test to confirm the cleanliness level as per ISO 14644-1
- • Velocity profile for HEPA filter as per IES-RP-CC-002
- •(▲P) Differential pressure measurement to confirm the HEPA filter condition

63. Scale, baby, electronic, 10 kg <5g>

- Electronic scale for weighing babies
- Measuring range 0 to approx 10 kg
- Minimum graduation : 5 g
- With tare function
- On switch and auto−off
- Auto−calibration with each switch−on
- Large LED display readable in low light working situations, display cover durable plastic
- Display in kg and lbs, easy switch between kg and lbs
- Reading time max 5 seconds
- Zero weighing adjustment
- Freeze reading feature
- Smooth surface/finishing allows for easy cleaning/disinfection.
- All vital parts made of rust proof materials
- Horizontal leveling with height adjustable feet
- Splash proof and shock resistant light−weight body
- Power requirements : 220 V/50 Hz
- Power consumption : 150 W
- Device is produced by ISO 9001 certified manufacturer
- Device is safety certified according CE 93/42, FDA 510k or equivalent

Supplied with :

- 1 x spare set of fuses
- User manual with trouble shooting guidance, in English
- Technical manual with maintenance and first line technical intervention instructions, in English
- List of priced accessories
- List of priced spare parts
- List with name and address of technical service providers in India

Training and installation at end−user site

64. Defibrillator with Paediatric and Neonatal Paddle

Should have the following specifications:
TYPE: Semi-automatic external
defibrillator
WAVEFORM: Biphasic Truncated Exponential
(Impedance compensated)
ENERGY: Adult: 150 Joules, Pediatric: 50 Joules (nominal into 50 ohm load)
CHARGE TIME: Less than 6 seconds with new battery at 25º C
VOICE PROMPTS: Extensive voice prompts guide user through operation of the unit and CPR

CPR PACING: Metronome
CONTROLS: Lighted On/Off button, Lighted Shock button
INDICATORS: check pads, do not touch patient, analyzing, AED status LED
Self Tests
AUTOMATIC: Automatic daily, weekly and monthly and quarterly circuitry tests
BATTERY INSERTION: System integrity test on battery insertion
PAD PRESENCE: Pads preconnected tested daily
USER-INITIATED: Unit and battery pack system test may also be initiated by the user
STATUS INDICATION: Visual and audible indication of unit status
Patient Analysis System
PATIENT ANALYSIS
Automatically evaluates patient impedance for proper pad contact. Monitors signal quality and analyzes patient ECG for shockable/non-shockable rhythms
SENSITIVITY/SPECIFICITY
Should meet AAMI-DF-39 specifications and AHA recommendations

Defibrillation / Monitoring Pads
TYPE
Both Adult and Child/Infant:
Pre-connected, single-use, non-polarized, disposable, self-adhesive electrodes with cable and connector
SURFACE AREA:
103 cm2 (nominal, each pad)
50 cm2 (nominal, each pad)
PAD PLACEMENT:
Adult – Anterior/Anterior
Child/Infant – Anterior/Posterior
CABLE LENGTH (typical):
48 in (122 cm)
Environmental
TEMPERATURE
Operating: 0 to 50°C (32 to 122°F)
Standby: 0 to 50°C (32 to 122°F)
(with battery installed)
RELATIVE HUMIDITY
Operating / Standby: 5% – 95%
(non-condensing)
ALTITUDE
-500 to 15,000 ft (-150 to 4500 m) per MIL-STD-810F 500.4 Procedure II
VIBRATION
Ground (MIL-STD-810F 514.5 Category 20)

Helicopter (RTCA/DO-160D, Section 8.8.2, Cat R, Zone 2, Curve G)

Jet Aircraft (RTCA/DO-160D, Section 8, Cat H, Zone 2, Curves B & R)
SHOCK / DROP ABUSE TOLERANCE

MIL-STD-810F 516.5 Procedure IV (1 meter, any edge, corner, or surface, in standby mode)

SEALING / WATER RESISTANCE

IEC60529 class IP54; Splash Proof, Dust Protected (Battery Pack installed)

ESD

EN61000-4-2:2009 (open air up to 15kV or direct contact up to 8kV)

EMC (Emission)

EN60601-1-2:2001 +A1:2006, limits EN55011:1998 +A1:1999 +A2:2002 Group 1 Level B, method

EMC (Immunity)

EN60601-2-4:2003, limits EN 61000-4-3:2002 Level 3 (10V/m), method

Battery Pack

TYPE: Lithium/Manganese Dioxide, Disposable, recyclable, non rechargeable

LOW BATTERY INDICATORS: Visible, Audible

POWER: 15V, 2800 mAh

CAPACITY : 300 shocks or 16 hours continuous operation

STANDBY-LIFE: 7 years

MODEL DBP-1400

POWER:15V, 1400 mAh

CAPACITY: 125 shocks or 8 hours continuous operation

STANDBY-LIFE: 5 years

**Typical, with new battery at 25º C

Event Documentation

INTERNAL EVENT RECORD: Critical ECG segments and rescue event parameters are recorded and can be downloaded to a removable data card

PC-BASED EVENT REVIEW: ECG with event tag display, and audio playback when available

REMOVABLE STORAGE:

(optional) Up to 12 hours of ECG and event data storage (no audio option) or up to 2 hours of audio, ECG and event storage (audio option) on a removable data card. Actual length of storage is dependent on card capacity.

65. AUDIOMETERY

The audiometer should have the following specifications:

- It should be a Clinical PC-based audiometer.
- The manufacturer should provide instructions and provision for calibrating the instrument.
- The following tests should be able to be performed by the audiometer: Pure tone audiometry, Speech audiometry (Including Speech reception threshold and speech discrimination score), SISI, ABLB, AUTO THRESHOLD , TONE DECAY
- It should have the following provisions:
- SMPS Switch Mode Power Supply capable of withstanding extreme voltage fluctuations (115V to 270 V)
- INPUT: Tone, Speech, Tape, Pulse Tone.
- OUTPUT: Left, Right, Bone, L + R. F/F Left, F/F Right, F/F L+R.
- HEADPHONES: TDH-39/TDH-49. □
- BONE: B-71 BONE CONDUCTOR.
- Air : 120 dB Max, 125 Hz to 12 kHz., -20 dB Min.
- Bone : 80 dB Max, 250 Hz to 6 kHz., -20dB Min.
- Noise : Wide Band, Narrow Band, Speech Band.
- Built-in Mike, Ext. Mike, Mike Sensitivity Control.
- Interrupt Lock.
- Printer Facility-Sequential Merged Graphs.
- Memory Review.
- Computer Interface.
- Storage of the patient data in the hard disc for future reference.

Connectivity to an external USB Printer to print the reports

66. Height Measuring Stand

- Frame work with metal material. Fully folding stand with light weight.
- 100% accuracy with inches, millimeter and in centimeters measuring.

- Maximum height measuring capacity is 210cm.

Suitable for research purpose

67. Sling Psychrometer

•Approx. 7.5"long×1" diameter Duel range (high &low temperature) scales for better resolution.
•Slide rule construction should quickly convert temperature to relative humidity, with either red spirit-filled thermometers or mercury-filled thermometers. Thermometers telescope into handle for protection when not in use.
Built-in water reservoir to hold sufficient water for several hours of testing

68. Spirometer

1. It should be PC based and should operate on operating system version windows XP or more and should have minimal dead-space with pre-calibrated sensor.
2. System should be able to generate values for MVV, VC, Peak flow rate and other respiratory parameters of obstructive as well as restrictive lung diseases.
3. The system must be simple to operate, preferably on plug and play system.
4. Facility to have pre &post medication values as well as printing of reports.
5. It should preferably be able to consider and adjust values according to ethnic origin of patients.
6. Automatic device connection facility, integrated pdf generator facility preferably should be there
7. Its flow range should be between 0.03 to 20L/sec and volume range around 8L.
8. It should be equipped with compatible laptop/ desktop and printer

69. Clinical Thermometer

Digital thermometer resolution 0,1degree centigrade
Range 50-150 degree centigrade supplied with a temperature probe with cable for digital thermometer support to 150degree centigrade

70. Solar Radiation Thermometer

- Detector High-stability silicon photovoltaic detector (blue enhanced).
- Output 4-20 mA
- Range 0 to 1500W/ m2
- Spectral Response 400 to 1100 nm
- Accuracy 1% of full scale Operating Voltage 10-36 VDC Current Draw Same as sensor output
- Warm Up Time 3 seconds minimum
- Operating Temperature -40° to +131°F (-40° to +55°C)
- Sensor Size 3inch diameter x 1-1/2 inch (7.6 cm dia. x 3.8 cm long)

Weight 1/4 lb. (114 g)

71. Mosquito catching kit

- Machine Weight: 1.200kg
- Wire Length: 257cm
- UV Lamp - 10 Watts
- Tio2 Organic Coating
- 4 Core Coil Suction Fan -
- 15 WattsCollection Box
- UV treated plastic body
- 3 pixel wire guard

· Odorless · Smokeless · Chemical Free · Acts as a night lamp · Purifies Air

Triple Action1. Black light Blue (UV) : attracted by compound eyes of mosquitoes 2. TiO2 Organic coating: attracts mosquitoes by the smell and the coating increases itsattracting by 75% 3. Trapped mosquitoes'ultrasonic sound attracts other mosquitoes.

72. OTOSCOPE

Inst. Head matt – black inside to eliminate reflexes.
• XHL Xenon Halogen Technology.
• 2- piece handle &head
• View 3x – window swiveling type.
• Attachment clip – ON – OFF Model
• "AA" Battery handle.
• 20,000 switch cycle guaranteed for handle.
• 1 set of normal speculum Should comply with ISO 13485 &CE mark quality standards. 1) DIN EN ISO 13485 : 2003 2) 93/42/EEC – CE certificate.

73. OPHTHALMOSCOPE

- Halogen HPX tm lamps provides light
- Coaxial optics
- Detect corneal aberrations with cobalt blue filter
- Polarizing filter virtually eliminates corneal reflection Sealed optics to keep out dust and dirt
- 18 unique aperture / filter combinations
- Red free filter may be used with any aperture
- 28 focusing lenses with a range of minus 25 to plus 40 D.

Battery / Rechargeable battery (standard size).

74. Triple layer mask

Top-of-the-line face mask with a three-layer design, including an outer layer, a microfiber middle layer, and a soft, absorbent inner layer. Available in 2 sizes: regular and petite.

75. Safety boots:

Gum boot black upper assorted color soul is 12254 - without steel toe - Size 8

76. Safety helmet:

A **hard hat** is a type of helmet predominantly used in workplace environments such as industrial or construction sites to protect the head from injury due to falling objects, impact with other objects, debris, rain, and electric shock. Suspension bands inside the helmet spread the helmet's weight and the force of any impact over the top of the head. A suspension also provides space of approximately 30 mm (1.2 inch) between the helmet's shell and the wearer's head, so that if an object strikes the shell, the impact is less likely to be transmitted directly to the skull. Some helmet shells have a mid-line reinforcement ridge to improve impact resistance.

Specifications

 ANSI Type II / CSA Type 2 hard hats meet both vertical and lateral impact and penetration requirements and have a foam inner liner made of expanded polystyrene (EPS). and

 Class G (General) provides dielectric protection up to 2,200 volts.

77. IODINE TESTING KIT SPECIFICATIONS

- Compact, Mobile, User-Friendly and Fast.
- Reliable, Cost Effective and Lightweight to carry.
- No Formal training required, Any Layman can use.
- No dependence on sophisticated instruments or electricity.
- One kit contains sufficient chemicals to perform 100 tests.

This kit can differentiate:

- Salt with presence of no iodine in it
- Salt with low iodine in it, and
- Salt with adequate level of iodine in it.

Contents:

- The test solution in black bottle - 10ml
- The test solution in white bottle - 10 ml
- The reagents are sufficient to perform at least 100 tests

78. CHLOROSCOPE

- Colorimetric sensitivity: 0.1ppm,0.2ppm,0.5ppm
- Range : 0-1ppm, 0-2.0ppm&0-5.0ppm respectively
- No of tests/pack: 200 nos

CONTENTS:

- Reagent bottle, colour comparator, Test jar
- Compact PVC corrugated pack with lock and handle

Conveniently mounted waterproof testing procedure

79. MUAC TAPES(COLOURED):

- Predominantly used to measure the upper arm circumference of children but also that of pregnant women, helping identifying malnutrition.
- The colour codes and gradations vary depending on the tape type.

SIZE:

Red : 0-11.5cm

Yellow: 11.5cm-12.5cm

Green: from 12.5cm(Available till 45cm)

80. HORROCKS APPARATUS

Use for estimating the dose of bleaching powder needed to disinfect 455ltrs of water. It is used mostly while disinfecting the water in a well

CONTENTS:
6 white cups, each of 200ml capacity
1 black cup with a circular mark on the inside
2 metal spoons(each holds 2g of bleaching powder when filled up to the brim)
7 glass stirring rods
1 special pipette
2 droppers
Starch-iodide indicator solution
Instruction folder

81. NEEDLE cutter

Should be light weight, portable and compact
Housing should be moulded type, shock proof and made of ABS plastic/stainless steel 304 grade.
Should provide a removable discharge tray made for easy disposal of syringe hubs
Should have the provision to burn the needle &to cut the syringe tips.
Should have a High Carbon steel Cutter to cut the syringes
Should be able to destroy needles of type up to 18G
Should be able to destroy minimum of 5 injection needles on continuous operation
Should have heavy duty transformer and works on 220-240 vac/50 Hz electric supply
Should have a power on/off switch and indication for power
Should be properly insulated for the protection from electrical hazard
Should provide with 5 Nos fuse of adequate rating.

82. SALTERS WEIGHING MACHINE

Accurate
Corrosion protected springs
Large dial of 15.24cm
Protected by an acrylic cover
Light weight and portable
Reliable
Tough steel casing powder coated in a hammer tone finish
Accuracy: 20 gm

83. Sound level meter specifications :

ET-933 Sound Level Meter
Applied standard: IEC61672-1 CLASS2
Accuracy: ±1.4dB
Frequency range: 31.5Hz~8kHz
Dynamic range: 50dB
Measuring level range: Lo: 30dB~80dB Med: 50dB~100dB
Hi: 80dB~130dB Auto: 30dB~130dB
Frequency weighting: A and C
Time weighting: FAST 125ms; SLOW (1s)
Microphone: 1/2 inch electret condenser microphone
Resolution: 0.1dB
Sampling time: 2 times/second
MAX hold: MAX
MIN hold: MIN
DATA hold: HOLD
Overragne indication: “OVER” or “UNDER”
Backlight display: √
Analog measurement: fast analog bar-graph indication
Operating conditions: -20℃~ 60℃: 10RH~90RH
Storage conditions: -20℃~ 60℃: 10RH~75RH
Auto power off: the meter will be automatically shut off in activity of 15 minutes

84. Digital Anemometer

Application :

Installation, debug and repair for refrigeration industry, ventilation duct, environment monitor Navigation measurement, weather forecastCollection of the

weather datum for outdoor busywork and fire department.

Technical Details :

Measuring	wind speed 0.4-30.0m/s 1.4-108.0km/h 80-5910ft/min 0.8-59.3 knots
Accuracy	±2%n+2d
Resolution	0.1/1
Display	LCD display
Power supply	4x1.5V AA (UM-3) battery
Battery indicator	low battery indicator
Dimensions	141x72x31mm
Weight (not including probe)	248g
Packing	Plastic Box
Guarantee	6 Months
Calibration	Optional

85. SOIL TESTING KIT

Compact Portable
Simple User Friendly
Tests for primary and secondary nutrients
Specifications:
12 thick walled test tubes with rubber bungs
1 tube cleaning brush
1 bottle of barium sulphate (100gm)
1 bottle of soil indicator (100gm)
1 bottle of distilled water (500gm) 1 Spatula
1 color chart, range 4.0 to 8.0 pH in 0.5 pH steps
Item Code: VSLIC-3001

86. HARPENDEN SKINFOLD CALIPERS

for measurement of body composition is designed for use in the performance of skinfold thickness measurements(from which estimates of body fat are derived).The use of this instrument has been well established and documented over the past 40 years. It is used all over the world in applications including diagnostics &research, nutrition, obesity, eating disorder assessment(especially in sports)and juvenile growth disorders. It is CE marked in compliance with the Medical Devices Directive 94/42/EEC for a class 1Device with measuring function. It is calibrated using masters tracable to the UK National standards.It is also supplied with Body Assessment Software (OPTIONAL).
Dial Graduation: 0.20 mm, Measuring Range:0 mm to 80 mm, Measuring Pressure:10 gms/mm2,Accuracy:99.00%,Repeatability:0.20 mm

87. VACCINE CARRIER

Vaccine Storage Capacity	1.6 Litres
Weight Fully Loaded	4.2 Kgs
Weight Empty (with empty ice pack)	2.2 Kgs
External surface material	HDPE (High Density Polyethylene)
Internal lining material	HIPS (High Impact Polysterene)
Insulation material	CFC-free Polyurethane
Insulation thickness	35mm.
Approx.External dimensions (WxDxH)*	25.0x25.0x30.0 cms.
Approx.Internal dimensions (WxDxH)*	16.5x16.5x22.0 cms.
Vaccine Storage dimensions	10.0x10.0x16.0 cms.
Lid Type and Fixings	Removable
Number of Ice Packs required	4
Number of Ice Packs supplied	4
Ice Pack Type (PIS Code)	E5/IP.2
Volume of Ice Pack	0.40 Litres
Cold Life Requirement as per WHO at 43 C + 1C without opening	Minimum 24 hrs.

102. PULSE OXIMETER

Requirements	Specifications
1.Operational Requirements	Should be suitable for all types of Patients: Adult, Pediatric, Infant, and /or Neonate
2.Display Requirements	Should have: LCD Colour Display with Adjustable Brightness Touch Screen Parameters-Numerical Display of Spo2, Pulse Rate & Perfusion Index Variable Pleth Waveform Trend display up to 96 hours at 2 seconds sampling rate Access to Menu and user settings for configuring and managing alarms
3. Display Range	Oxygen Saturation (SpO2)- 0-100% Pulse Rate (PR) – 25-240bpm Perfusion Index(PI) – 0.02-20%
4. Saturation Accuracy	Saturation Range: 60% to 80% (Accuracy when there is no Motion) Adults/Infants/Pediatrics : 3% Saturation Range: 70% to 100% (Accuracy when there is no Motion) Adults/Infants/Pediatrics : 2% Neonates: 3% (Accuracy when there is Motion) Adults/Infants/Pediatrics/Neonates : 3% (Accuracy when there is Low Perfusion) Adults/Infants/Pediatrics/Neonates : 2%
5. Pulse Rate Accuracy	Pulse Rate Range : 25 – 240 bpm Accuracy when there is no Motion Adults/Infants/Pediatrics/Neonates : 3 bpm Accuracy when there is Motion Adults/Infants/Pediatrics/Neonates : 5 bpm Accuracy when there is Low Perfusion Adults/Infants/Pediatrics/Neonates : 3 bpm
6.SpO2 Modes & Sensitivity	Averaging Modes : 2,4,8,10,12,14 or 16 seconds Sensitivity : APOD, Normal and Max
7.Technical Requirements	Should have Signal Extraction Technology Start-up time should be Less than 60 Seconds * - Resuscitation Should generate audible pulse tone during motion and low perfusion Should display SpO2, Pulse Rate and perfusion Index readings during motion and low perfusion Should have provision for Desaturation Index and 3D alarms
8. Alarms	There should be Audible and visual alarms for High /Low SpO2, High/Low Pulse Rate, Probe off, cable disconnects and low battery
9. Battery Requirements	Should have Rechargeable Batteries with a Capacity of~ 7 hours
10.Physical Characteristics	Should be less than 2 Kg
11.Environmental Requirements	Operating Temperature should be between 0-400C Storage Temperature between 20-600C Operating Humidity between 10-95% Atmosphere Pressure between540-1,060 mBar
12.Regulatory Requirements	Should be FDA/CE approved product Manufacturer/Supplier should have ISO certification for quality standards
13.Compliance Requirements	Safety Standards: ANSI/AAMI ES 60601-1, CAN/CSA C22.2 No. 60601-1, IEC/EN 60601-13rd ED. Pulse Oximeter Standards: IEC 60601-1-8 Alarm Standards: IEC 60601-1-8 EMC Standards: EN 60601-1, Class B