B I D D I N G D O C U M E N T S
F O R
Procurement and Rate Contracting of Medical Equipments for Government Medical Colleges in Bihar

Bid Reference: BMSICL/2012-13 / MC-002

Bihar Medical Services And Infrastructure Corporation Limited
5th Floor, Biscomaun Bhavan,
Gandhi Maidan, Patna (Bihar) India

Bihar Medical Services and Infrastructure Corporation, Limited, Patna.
5th Floor Biscomaun Bhavan
Gandhi Maidan, Patna (Bihar) India

Telephones:0612-2219634 Fax: ———— e-mail:

INVITATION FOR BIDS
FOR
PROCUREMENT OF MEDICAL EQUIPMENTS
[Modify
as appropriate to indicate general description of items under procurement]

BID REFERENCE	:BMSICL/2012-13/MC-002
DATE OF COMMENCEMENT OF SALE OF BIDDING DOCUMENT	: 23rd May 2012
LAST DATE FOR SALE OF BIDDING DOCUMENT	: 12th Jun 2012
LAST DATE AND TIME FOR RECEIPT OF BIDS	: 27th Jun 2012 till 11.00 AM
TIME AND DATE OF OPENING OF BIDS	: 27th Jun 2012 at 1.00 PM
PLACE OF OPENING OF BIDS	: Bihar Medical Services & Infrastructure Corporation Limited, 5th Floor, Bisomaun Bhavan, Gandhi Maidan, Patna 800001. Bihar
ADDRESS FOR COMMUNICATION	: Bihar Medical Services & Infrastructure Corporation Limited, 5th Floor, Bisomaun Bhavan, Gandhi Maidan, Patna 800001. Bihar

CONTENTS
OF BIDDING DOCUMENT

INVITATION FOR BIDS
(IFB)

INVITATION FOR BIDS (IFB)

FOR

SUPPLY, TESTING, DEMONSTRATION, INSTALLATION & COMMISSIONING OF MEDICAL EQUIPMENT AT GOVT. MEDICAL COLLEGES IN BIHAR

Managing Director,
Bihar Medical Services And Infrastructure Corporation Limited
5th Floor, Biscomaun Bhavan, Gandhi Maidan,
Patna-800001 (Bihar)

Bid Reference No.: BMSICL/2012-13/MC-002 Date: 21st May 2012

1. The Bihar Medical Services and Infrastructure Corporation Limited, Patna (name of purchaser) on behalf of Governor of Bihar, invites sealed bids from manufacturers or their authorized dealer / distributor / sole selling agent (having authorization in the format (Form-6) given in the bidding document) for Supply, testing, Demonstration, Installation and Commissioning of Medical Equipment and related services as listed below:-

Schedule No.	Brief Description of Goods and Services	Qty./No.	Delivery Schedule	Earnest Money Deposit (EMD) in Indian Rupees
1	Mortuary Chamber	2	30 days	24,000/-
2	Band Saw	1	30 days	3,000/-
3	Embalming machine	2	30 days	10,000/-
4	Odour Control System	4	30 days	40,000/-
5	Glucosemeter Analyser	5	30 days	5,000/-
6	Anesthesia Workstation	14	60 days	9,80,000/-
7	Nerve Stimulator/ Neuromuscular Monitor	4	30 days	16,000/-
8	Video laryngoscope	35	30 days	3,50,000/-
9	Pulse Oxymeter	27	30 days	32,400/-
10	Blood Infusion warming system	5	30 days	20,000/-
11	Anesthesia Gas Monitor	2	30 days	16,000/-
12	Vein Viewer	13	30 days	3,12,000/-
13	Haemoglobinometer	9	30 days	9,000/-
14	Albuminmeter	7	30 days	7,000/-
15	WBC Analyser	7	30 days	11,900/-
16	Patient Controlled Analgesic system	10	30 days	35,000/-
17	Multichannel Vital Sign Monitor	3	30 days	30,000/-
18	Ventillator (Adult)	16	60 days	4,80,000/-
19	Infusion Pump (Volumetric)	60	30 days	72,000/-
20	Blood Collection Monitor	3	30 days	9,000/-

21	Blood Donor Couch	2	30 days	10,000/-
22	Gel Technique Cross Matching	2	30 days	20,000/-
23	Blood Bank Refrigerator	1	30 days	10,000/-
24	12 Channel ECG machine	18	30 days	54,000/-
25	Multiparameter Monitor	117	60 days	7,02,000/-
26	Syringe Pump	50	30 days	50,000/-
27	Defibrillator	15	30 days	90,000/-
28	Automatic Chest Compressor	1	30 days	12,000/-
29	Central monitoring Station	1	30 days	6,000/-
30	TMT machine	2	30 days	40,000/-
31	Holter Monitor	2	30 days	28,000/-
32	Holter Recorder	5	30 days	40,000/-
33	Sternal Saw	1	30 days	12,000/-
34	IABP	1	30 days	60,000/-
35	External Pacemaker	2	30 days	4,000/-
36	Dental chair High end	1	30 days	16,000/-
37	FESS set with Endoscope	1	30 days	20,000/-
38	Fibreoptic Head Light with cold Light Source	3	30 days	18,000/-
39	ENT Unit Set	1	60 days	60,000/-
40	Micromotor Head piece and burr	1	30 days	10,000/-
41	BERA	1	30 days	30,000/-
42	ENT Operating Microscope	1	30 days	60,000/-
43	Laryngophasyngoscope	1	30 days	60,000/-
44	Upper GI Endoscope	2	30 days	1,20,000/-
45	Sigmoidoscope	2	30 days	80,000/-
46	Digital Video Colposcope	1	30 days	12,000/-
47	CTG machine	4	30 days	20,000/-
48	BOD Incubator	1	30 days	2,000/-
49	QBC for Malaria	2	60 days	24,000/-
50	Chemiluminiscence	1	30 days	60,000/-
51	Pentahead Microscope with camera	2	30 days	72,000/-
52	Projection Microscope	2	30 days	12,000/-
53	Dark Ground Microscope	1	30 days	10,000/-
54	Fluorescent Microscope	1	30 days	20,000/-
55	Biosafety Cabinet level II	4	30 days	28,000/-
56	Bacterial Digital Colony Counter	2	30 days	4,000/-
57	Vortex Mixer	4	30 days	8,000/-
58	Anaerobic Culture Instrument	1	30 days	20,000/-
59	CO_2 Incubator	2	30 days	20,000/-
60	Cold Centrifuge (-20ºC)	1	30 days	6,000/-

61	Cold Centrifuge (-4ºC)	1	30 days	5,000/-
62	Inverted Compound Microscope	2	30 days	24,000/-
63	Deionised water Purification System	1	30 days	8,000/-
64	Haemodialysis	2	30 days	36,000/-
65	CRRT	2	30 days	48,000/-
66	Evoked Potential Machine	1	30 days	10,000/-
67	EEG machine	1	30 days	10,000/-
68	EMG	2	30 days	20,000/-
69	Slit Lamp	1	30 days	2,000/-
70	Perimeter (Computerised)	2	30 days	36,000/-
71	Arthroscope	3	60 days	1,20,000/-
72	Orthopedic OT Table	3	30 days	12,000/-
73	THR Set	1	30 days	12,000/-
74	Total Knee Replacement Set	1	30 days	8,000/-
75	BMD machine	1	60 days	60,000/-
76	Transcutaneous Bilirubinometer	1	30 days	5,000/-
77	Neonatal resuscitation kit	3	30 days	15,000/-
78	Neonatal Ventillator	8	30 days	2,40,000/-
79	Baby Incubator	2	30 days	20,000/-
80	Phototherapy	2	30 days	2,000/-
81	Radiant Warmer	10	30 days	50,000/-
82	Phototherapy machine double Surface	2	30 days	3,000/-
83	Ventillator Paediatric	10	60 days	3,00,000/-
84	Echocardiography with Paediatric and Neonatal probes	2	30 days	72,000/-
85	Compound Microscope	5	30 days	10,000/-
86	Hot Air Oven	2	30 days	2,400/-
87	ESR Analyser	2	60 days	16,000/-
88	Automated Blood Cell Counter	9	60 days	5,40,000/-
89	Fully Auto Clinical Chemistry Analyser	4	60 days	1,60,000/-
90	Arterial Blood Gas Analyser	4	30 days	48,000/-
91	Semi-automated Coagulation analyser	2	30 days	20,000/-
92	ELISA Reader with washer	3	30 days	24,000/-
93	Semi auto Analyser	6	30 days	42,000/-
94	Automatic Tissue Processor	1	30 days	24,000/-
95	Cytospin	1	30 days	6,000/-
96	Automated Electrophoresis	1	30 days	30,000/-

97	Spectrophotometer	2	30 days	80,000/-
98	ABG with Electrolyte	1	30 days	14,000/-
99	Handheld BPOC	1	30 days	14,000/-
100	Shortwave Diathermy	2	30 days	12,000/-
101	Ultrasound Therapy unit Physiotherapy	2	30 days	60,000/-
102	Q Switched LASER	2	30 days	1,60,000/-
103	Radiofrequency Cautery	2	30 days	60,000/-
104	Whole body PUVA	1	30 days	6,000/-
105	Electrical Dermabrader	1	30 days	10.000/-
106	Skin Mesher	2	30 days	40,000/-
107	Electric Dermatome	2	30 days	48,000/-
108	Fractional CO_2 LASER	2	30 days	1,52,000/-
109	Intense Pulse Light	2	30 days	64,000/-
110	Vascular Doppler	1	30 days	10,000/-
111	Nd-Yag LASER	1	30 days	60,000/-
112	Ultrasound with paediatric probes	1	30 days	36,000/-
113	Digital Radiography	4	60 days	10,00,000/-
114	Digital Mammography	2	60 days	8,00,000
115	C Arm Image Intensifier	2	60 days	60,000/-
116	Portable x ray	2	30 days	20,000
117	Portable Digital Dental X ray	1	30 days	10,000/-
118	Ultrasound with color Doppler	4	30 days	1,60,000/-
119	Portable Ultrasound machine (6-13 MHZ Linear Array probe)	1	30 days	20,000/-
120	Handheld ultrasound	1	30 days	16,000/-
121	Portable USG with color Doppler	1	30 days	40,000/-
122	Ultrasound Machine	1	30 days	14,000/-
123	Digital OPG	1	60 days	60,000/-
124	Lung Function Test	3	30 days	30,000/-
125	Spirometer (Computerised)	5	30 days	15,000/-
126	Fibreoptic Bronchoscope	4	30 days	3,60,000/-
127	Under water Cautery	9	30 days	54,000/-
128	High Pressure Steam Steriliser	1	30 days	20,000/-
129	Suction Machine	20	30 days	5,000/-
130	Hydraulic OT Table	2	30 days	10,000/-

2. Interested bidders may obtain further information from and inspect the bidding documents at the office of the Managing Director, Bihar Medical Services and Infrastructure Corporation Limited, 5th Floor, Biscomaun Bhavan, Gandhi Maidan, Patna-800001, Bihar.
3. The Bidding Document may be purchased from the office of the Managing Director, Bihar Medical Services and Infrastructure Corporation Limited, 5th Floor, Biscomaun Bhavan, Gandhi Maidan, Patna-800001, Bihar (Name and address of Purchaser), from 21st May 2012 to 12th Jun 2012 during office hours, from 10:00 hrs to 17:00 hrs on all working days either in person or by post.
4. A complete set of bidding documents may be purchased by interested bidders upon submission of a written application to the address given in para 2 and upon payment of a nonrefundable fee of Rs. 10,000/- in the form of a cash or Demand Draft or banker's Cheque in favor of Managing Director, Bihar Medical Services and Infrastructure Corporation Limited. The tender document can also be downloaded from the website: www.statehealthsocietybihar.org. Such bidders are required to submit non-refundable tender document cost in the form of Demand draft in favour of Managing Director, Bihar Medical Services and Infrastructure Corporation Limited.
5. The biding documents requested by mail will be dispatched by registered post / speed post / courier service on payment of an extra amount of Rs. 500/-. The Purchaser will not be responsible for postal delay, if any, in the delivery of the bidding documents or of the non-receipt of the same
6. Bidders are free to quote for any or all of the items listed in the schedule of requirements and the evaluation of bids will be conducted on per – item basis. The bidder must quote at least for the full quantity of one schedule.
7. The bids must be submitted/delivered at the address given in para 2 on or before 11.00 hrs. on 27th Jun 2012. All bids must be accompanied by an Earnest Money Deposit (EMD) as specified in the bidding document. Late bids will be rejected.
8. The Pre-bid meeting shall be organized at the purchaser's office given at para 2 on 4th June 2012 at 13.00 hrs. for **Schedule no 1 to 43**,on 5th June at 11.00 hrs for **Schedule no 44 to 84**, and on 6th June at 11.00 hrs for **Schedule no 85 to 130**. In the Pre-bid meeting, the prospective bidders may clarify any issues related to the terms, conditions and technical specifications given in the bidding documents.
9. Bids will be opened in the presence of bidder's representatives who chose to attend at Bihar Medical Services & Infrastructure Corporation Ltd., 5th Floor Biscomaun Bhavan on 27th Jun 2012 at 13.00 Hrs.
10. The Purchaser reserves the right to cancel / annul the bidding process without assigning any reason thereof.
11. In the event of the date specified for the bid receipt and opening being declared as a closed holiday for purchaser's office, the due date for submission of bids and opening of bids will be the following working day at the appointed time.

(Managing Director)
Bihar Medical Services and Infrastructure Corporation

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INSTRUCTION TO BIDDERS (ITB)

TABLE OF CLAUSES

INSTRUCTIONS TO BIDDERS

A INTRODUCTION

1. SCOPE OF BID

Bihar Medical Services and Infrastructure Corporation Limited [name of purchaser] on behalf of Governor of Bihar (hereinafter referred to as 'Purchaser'), invites bids for the supply/testing/installation /commissioning of Medical Equipments as specified in the Schedule of Requirements.

2. FRAUD AND CORRUPTION

2.1 It is required that the Purchasers as well as Bidders/Suppliers/Contractors observe the highest standard of ethics during the procurement and execution of Contracts. In pursuance of this policy, the Purchaser:

(a) defines, for the purposes of this provision, the terms set forth below as follows:

(i) "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value to influence the action of a public official in the procurement process or in Contract execution; and

(ii) "fraudulent practice" means a misrepresentation of facts and / or concealment of fact in order to influence a procurement process or the execution of a Contract to the detriment of the Purchaser; it includes collusive practices among bidders (prior to or after bid submission) designed to establish bid prices at artificial, noncompetitive levels and to deprive the Purchaser of the benefits of free and open competition.

(b) will declare a firm ineligible and debar the firm, either indefinitely or for a stated period of time, to be awarded a Contract if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, a contract. In such cases, appropriate legal action as per court of law shall be initiated for which the concerned bidder shall be solely responsible.

2.2 Furthermore, bidders shall be aware of the provision stated in Sub-Clauses 19.4 and 22.1 d. of the General Conditions of Contract

3 ELIGIBLE BIDDERS

3.1 The eligible bidder should be registered with appropriate authorities in India to manufacture / supply the tendered item, against Technical Specifications given in the bid document and should have successfully executed orders of similar nature in past. In case of imported goods, the Indian agent / bidder should be duly authorized by the manufacturer of Goods in the format given in the bidding document.

3.2 A firm declared ineligible by the Purchaser in accordance with ITB Sub-Clause 2.1 (b) and GCC Sub-Clause 19.4 shall be ineligible to bid for a contract during the period of time determined by the Purchaser.

3.3 Pursuant to ITB Sub-Clause 11, the Bidder shall furnish, as part of its bid, documents establishing, to the Purchaser's satisfaction, the Bidder's eligibility to bid.

4. ONE BID PER BIDDER

A firm shall submit only one bid either individually or as a partner of a joint venture. A firm that submits either individually or, as a member of a joint venture, more than one bid will cause all the proposals with the firm's participation to be disqualified.

5. COST OF BIDDING

The bidder shall bear all costs associated with the preparation and submission of the bid. The Purchaser will, in no case, be responsible or liable for these costs, regardless of the conduct or outcome of the biding process.

B. THE BIDDING DOCUMENTS

6. CONTENTS OF BIDDING DOCUMENTS

6.1 The goods required to be supplied; bidding procedures and contract terms and conditions are prescribed in the Bidding Documents. The Bidding Document include, the following :

Section I	Instructions to Bidders (ITB)
Section II	General Conditions of Contract (GCC)
Section III	Special Conditions of Contract (SCC)
Section IV	Schedule of Requirements (SOR)
Section V	Technical Specifications
Section VI	Sample Forms

6.2 The "Invitation for Bids" does not form part of the Bidding Documents and is included as a reference only. In case of discrepancies between the Invitation for Bid and the Bidding Documents listed in 6.1 above, said Bidding Documents will take precedence.

6.3 The Bidder is expected to examine all instructions, forms, terms and specifications in the Bid Documents. Failure to furnish all information required as per the Bid Documents or submission of the bids not substantially responsive to the Bid Documents in every respect will be at the bidder's risk and may result in rejection of the bid.

7. CLARIFICATION OF BID DOCUMENTS

7.1 A prospective bidder, requiring any clarification on the Bid Documents shall notify the Purchaser in writing or by FAX/e-mail at the Purchaser's mailing address indicated in the invitation of Bid. The Purchaser shall respond in writing to any request for the clarification of the Bid Documents, which it receives not later than 10 days prior to the date of opening of the Tenders. Copies of the query (without identifying the source) and clarifications by the Purchaser shall be sent to all the prospective bidders who have received the bid documents.

7.2 Any clarification issued by the Purchaser in response to query raised by prospective bidders shall form an integral part of bid documents and it may amount to an amendment of relevant clauses of the bid documents.

8. Pre-bid Meeting

8.1 The bidder or his representative is invited to attend a pre-bid meeting, which will take place in the office on 4th June 2012 at 13.00 hrs. for **Schedule no 1 to 43**,on 5th June at 11.00 hrs for **Schedule no 44 to 84**, and on 6th June at 11.00 hrs for **Schedule no 85 to 130**.

8.2 The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.

8.3 The bidder may submit any question in writing or by FAX/ e-mail to reach the purchaser not later than one week before the pre-bid meeting.

8.4 The Minutes of the pre-bid meeting, including the text of the questions raised and the responses given will be transmitted without delay to all purchasers of the bidding documents. Any modification of the bidding document listed in ITB Clause 6.1 which may become necessary as a result of the pre-bid meeting shall be made exclusively through the issue of an Addendum pursuant to ITB Clause 9 and not through the minutes of the pre-bid meeting.

8.5 Non-attendance at the pre-bid meeting will not be a cause for disqualification of a bidder.

9. AMENDMENT OF BIDDING DOCUMENTS

9.1 At any time, prior to the date of submission of Bids, the Purchaser may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder, or pursuant to ITB Clause 8, modify bid documents by amendments.

9.2 The amendments shall be notified in writing or by FAX to all prospective bidders on the address intimated at the time of purchase of the bid document from the purchaser and these amendments will be binding on them.

9.3 In order to afford prospective bidders a reasonable time to take the amendment into account in preparing their bids, the purchaser may, at its discretion, extend the deadline for the submission of bids suitably.

C. PREPARATION OF BIDS

10. LANGUAGE OF BID

The bid, as well as all correspondence and documents relating to the bid exchanged by the Bidder and the Purchaser, shall be written in English language. However, the purchaser as well as bidder may correspond in Hindi language also.

11. DOCUMENTS CONSTITUTING THE BID

The bid prepared by the bidder shall comprise the following components:

(a) a Bid Form and a Price Schedule completed in accordance with ITB Clauses 12 and 13;

(b) documentary evidence established in accordance with ITB Clause 14 and 15 that the Bidder is eligible and qualified to perform the contract if its bid is accepted;

(c) documentary evidence established in accordance with ITB Clause 16 that the goods and ancillary services to be supplied by the Bidder conform to the bidding documents; and

(d) Earnest Money Deposit (EMD) furnished in accordance with ITB Clause 17.

(e) Tender Document fee in the form of Demand Draft in favour of Managing Director, Bihar Medical services and Infrastructure Corporation Ltd. Payable at Patna or Money receipt of Tender Document cost if purchased by hand.

12. BID FORM

The bidder shall complete the Bid Form and appropriate Price Schedule furnished in the Bidding Documents, indicating the goods to be supplied, brief description of the goods, quantity and prices as per section VI.

13. BID PRICES

The bidder shall give the total composite price inclusive of all Levies & Taxes i.e. Sales / Trade Tax & Excise, packing, forwarding, freight, octroi/entry tax and insurance etc. The basic unit price and all other components of the price need to be individually indicated against the goods it proposes to supply under the contract as per the price schedule given in Section VI. Prices of incidental services should also be quoted. The offer shall be quoted in Indian Rupees. No Foreign exchange will be made available by the purchaser.

13.2 Break-up of the prices indicated in the Price Schedule shall be entered in the following manner:

(i) The Basic Unit price (Ex-Factory Price) of the goods, Excise duty, Sales Tax, Freight, octroi/entry tax Forwarding, Packing, Insurance and any other Levies/Charges already paid or payable by the supplier shall be quoted separately item wise.

(ii) The supplier shall quote as per price schedule given in section VI for all the items given in schedule of requirement.

13.3 The price quoted by the bidder shall remain fixed during the entire period of contract and shall not be subject to variation on any account. A bid submitted with an adjustable price quotation will be treated as non - responsive and rejected.

13.4 The prices quoted by the bidder shall be in sufficient detail to enable the Purchaser to arrive at the price of equipment/system offered.

13.5 "DISCOUNT, if any, offered by the bidders shall not be considered unless specifically indicated in the price schedule. Bidders desiring to offer discount shall therefore modify their offers suitably while quoting and shall quote clearly net price taking all such factors like Discount, free supply, etc, into account".

13.6 The price approved by the Purchaser for procurement will be FOR destination which will be inclusive of all Taxes, Levies, packing, forwarding, freight and insurance as mentioned in Para 13.1 above. Breakup in various heads like excise duty, sales / trade tax, insurance, freight and other taxes paid/payable as per clause 13.2 (i) is for the information of the purchaser and any change in these shall have no effect on price during the scheduled delivery period.

14. DOCUMENTS REQUIRED TO BE SUBMITTED

14.1 The bidder shall furnish, as part of the bid documents, the following documents or whichever is applicable as per terms and conditions of Bidding Documents.

(i) Certificate of incorporation / registration.

(ii) Article or Memorandum of Association or partnership deed as the case may be.

(iii) Registration certificate from State Director of Industries.

(iv) Registration certificate from central excise and trade/sales tax department.

(v) Approval from Reserve Bank of India in case of foreign collaboration.

(vi) In case of bidder, other than manufacturer, the manufacturer's authorization certificate in the format given in the bidding document.

(vii) Non-conviction certificate / an affidavit duly notarized.

14.2 (i) The bidder shall furnish Balance Sheet for last 3 financial years as evidence that he has financial capability to perform the contract.

(ii) The bidder shall furnish documentary evidence about technical and production capability necessary to perform the contract.

14.3 In order to enable the Purchaser to assess the proven ness of the system offered, the bidder shall provide documentary evidence regarding the system being offered by him.

14.4 The offered product may be required to be type approved / demonstrated at the Purchaser's office as a part of technical evaluation of bids. For this purpose, the supplier shall submit a sample for type evaluation. The sample would be evaluated for its ability to meet the technical specifications, manufacturability, reliability, testability, ease of installation, maintainability etc. Necessary documents to substantiate these attributes will have to be submitted at the time of application for approval by the supplier for obtaining type approval.

Or

In case, it is not possible to get / accord type approval, the bidder has to make necessary arrangements for inspection at the place where the equipment is installed and functioning or at the manufacturer's premises.

Or

In case goods offered have already been type approved/ validated by the Purchaser, documentary evidence to this effect shall be submitted by the bidder.

15. DOCUMENTS ESTABLISHING BIDDER'S QUALIFICATION

15.1 Pursuant to ITB Clause 11, the bidder shall furnish, as part of its bid, documents establishing the Bidder's qualification to perform the Contract if its bid is accepted.

15.2 The documentary evidence of the Bidder's qualifications to perform the Contract shall establish to the Purchaser's satisfaction that:

a) The bidder should be a manufacturer who must have manufactured, tested and supplied the equipment(s) similar to the type specified in the 'Schedule of Requirements' up to at least 80% of the quantity required in any one of the last 3 years and should be in satisfactory operation for 6 months as on date of bid opening.

b) Bids of bidders quoting as authorized representative of a manufacturer, meeting with the above requirement in full, can also be considered provided:

(i) The manufacturer furnishes authorization
(ii) in the prescribed format given at Section VI, assuring full guarantee and warranty obligations as per GCC Clause 14 for the equipment offered; and

(iii) The bidder, as authorized agent has supplied/installed/commissioned and provided after sales services satisfactorily at least 80% of the quantity specified in the

Schedule of Requirements in any one of the last 3 years which must be in satisfactory operation for at least 6 months on the date of bid opening.

c) The bidder should furnish the information on past supplies and satisfactory performance for both 15.2 (a) and (b) above, in the proforma given under Section VI, Form No. 7.

d) Bidders shall invariably furnish documentary evidence in support of the satisfactory operation of the equipment (issued from the end user) as specified above.

e) The bidder should clearly confirm that all the facilities exist in his factory for inspection and testing and these will be made available to the Purchaser or his representative for inspection.

f) The Bidder shall furnish data to support that he has the financial and production capacity to perform the contract and complete the supplies within the stipulated delivery period.

g) The bidder should furnish profit and loss statement, balance sheets and auditor's report for the past three years, banker's certificates, etc. in support of its financial standing.

15.3 If an agent submits bid in behalf of more than one manufacturer unless each such bid is accompanied by a separate bid form for each bid and bid securities, when required for each bid and authorization from the respective Manufacturer, all such bids will be rejected as non responsive

16. DOCUMENTS ESTABLISHING GOODS CONFORMITY TO BIDDING DOCUMENTS

16.1 Pursuant to ITB Clause 11, the Bidder shall furnish, as part of its bid, documents establishing the conformity to the bidding documents of all goods and services which the Bidder proposes to supply under the contract.

16.2 The documentary evidence of conformity of the goods and services to the bidding documents may be in the form of literature, drawings and data, and shall consist of :

(a) a detailed description of the essential technical and performance characteristics of the goods ;

(b) a list giving full particulars, including available sources and current prices, of spare parts, special tools, etc., necessary for the proper and continuing functioning of the goods for a period of three years, following commencement of the use of the goods by the Purchaser; and

(c) an item-by-item commentary on the Purchaser's Technical Specifications demonstrating substantial responsiveness of the goods and services to those specifications or a statement of deviations and exceptions to the provisions of the Technical Specifications.

16.3 For purposes of the commentary to be furnished pursuant to ITB Clause 16.2 (c) above, the Bidder shall note that standards for workmanship, material and equipment, and references to brand names or catalogue numbers designated by the Purchaser in its Technical Specifications are intended to be descriptive only and not restrictive. The Bidder may substitute alternative standards, brand names and/or catalogue numbers in its bid, provided that it demonstrates to the Purchaser's satisfaction that the substitutions ensure substantial equivalence to those designated in the Technical Specifications.

17. EARNEST MONEY DEPOSIT (EMD)

17.1 Pursuant to ITB Clause 11, the bidder shall furnish, as part of his bid, a Earnest Money Deposit (EMD) for an amount of mentioned in Section IV – Schedule of Requirements in the form of Demand Draft or Bank Guarantee.

17.2 The Earnest Money Deposit (EMD) is required to protect the purchaser against the risk of bidder's conduct, which would warrant the forfeiture of Earnest Money Deposit (EMD) pursuant to ITB Clause 17.7. No exemption from payment of EMD is permitted except those who are registered with the Central Purchase Organistaion/State Purchase Organistaion, National Small Scale Industries Corporation (NSIC) or the concerned Department. The small scale units located in Bihar shall not be liable to deposit earnest money.

17.3 The Earnest Money Deposit (EMD) shall be in the form of a Bank Draft drawn in favor of Purchaser or FDR or Bank Guarantee issued by a scheduled bank in favour of the purchaser, valid for a period of 45 days beyond the validity of Bid.

(i) The bank guarantee for Earnest Money Deposit (EMD) or NSIC certificate for claiming exemption from submission of bank guarantee against Earnest Money Deposit (EMD), as prescribed in ITB Clause 17.1 of Section I of the bid document shall be submitted along with the bids in a separate cover. The bank guarantee so submitted shall be as per the format given in Section VI on prescribed judicial paper with stamps of proper value and should contain full address of the issuing branch of the bank with its telephone number and FAX number. This cover should be superscribed as **"EARNEST MONEY DEPOSIT (EMD) FOR TENDER No BMSICL/2012-13/MC- 002 issued on 21st May 2012.**

(ii) In case where the document of Earnest Money Deposit (EMD) is not submitted in the manner prescribed under clause 2 (i) above, cover containing the commercial, technical and financial offers SHALL NOT BE OPENED AND THE BID SHALL BE REJECTED AND RETURNED TO THE BIDDER UNOPENED.

17.4 A bid not secured in accordance with para 17.1, and 17.3 shall be rejected by the Purchaser being non-responsive at the bid opening stage and returned to the bidder unopened.

17.5 The Earnest Money Deposit (EMD) of the unsuccessful bidder will be discharged/returned as promptly as possible, but not later than 30 days after the expiry of the period of the bid validity prescribed by the purchaser pursuant to ITB Clause 18.

17.6 The successful bidder's Earnest Money Deposit (EMD) will be discharged upon the bidder's acceptance of the advance purchase order satisfactorily in accordance with GCC Clause 5 and furnishing the performance security.

17.7 The Earnest Money Deposit (EMD) may be forfeited :

(a) If the bidder withdraws his bid during the period of bid validity specified by the bidder in the Bid form or

(b) In the case of successful bidder , if the bidder fails :

(i) to sign the contract in accordance with ITB Clause 29 or

(ii) to furnish performance security in accordance with ITB Clause 30.

18. PERIOD OF VALIDITY OF BIDS

18.1 Bid shall remain valid for **150 days** from the date of opening of bids prescribed by the purchaser pursuant to ITB Clause 24.1. A bid valid for a shorter period shall be rejected by the purchaser being non-responsive.

18.2 In exceptional circumstances, the purchaser may request the consent of the bidder for an extension to the period of bid validity. The request and the response thereto shall be made in writing. The Earnest Money Deposit (EMD) provided under ITB Clause 17 shall also be suitably extended. The bidder may refuse the request without forfeiting his Earnest Money Deposit (EMD). A bidder accepting the request and granting extension will not be permitted to modify his bid.

19. FORMAT AND SIGNING OF BID

19.1 (i) The bidder shall prepare single stage two part bids, i.e. (a) Technical bid (un-priced) in duplicate and (b) Price Bid in duplicate clearly marking them as 'ORIGINAL' and 'COPY' and in addition shall enclose Earnest Money Deposit (EMD) in a single separate envelope. In the event of any discrepancy between the copy bid, the original shall govern.

(ii) The copy of quality manual and Article or Memorandum of Association may be provided in the original bid only.

19.2 The original and copy of Bid shall be typed or printed and all the pages numbered consecutively and shall be signed by the bidder or a person or persons duly authorized to bind the bidder to the contract. The letter of authorization shall be indicated by written power-of-attorney accompanying the bid. All pages of the original bid, except for un-amended printed literatures, shall be signed by the person or persons signing the bid. The bids submitted shall be sealed properly.

19.3 The bid shall contain no interlineations, erasures or overwriting except as necessary to correct errors made by the bidder in which case such corrections shall be signed by the person or persons signing the bid.

D. SUBMISSION OF BIDS

20. SEALING AND MARKING OF BIDS

20.1 The bidder shall seal the original and copy bids in separate envelopes duly marking the envelopes, separately as

Cover 'A'
- i. Technical Bid (original)
- ii. Technical Bid (copy)
- iii. Earnest Money Deposit (EMD)

Cover 'B'
- i. Price Bid (original)
- ii. Price Bid (copy)

All the envelopes mentioned above should be enclosed in another sealed outer envelope duly marked by the personal seal of the bidder.

20.2 (a) The envelopes shall be addressed to the purchaser at the following address :

Bihar Medical Services And Infrastructure Corporation Limited
5th Floor Biscomaun Bhavan, Gandhi Maidan,
Patna- 800001. Bihar.

(b) The envelope shall bear (the name and address of the Purchaser), the tender number and the words 'DO NOT OPEN BEFORE' (due date & time).

(c) The inner and outer envelopes shall indicate the name and address of the bidders to enable the bid to be return unopened in case it is declared 'late' or rejected.

(d) Bids may be sent by registered post or delivered in person on above mentioned address (address is given in Clause 20.2 (a) above). The responsibility for ensuring that the bids are delivered in time would vest with the bidder.

(e) Bids delivered in person on the day of bid opening shall be delivered up to 27th Jun 2012 by 11.00 Hrs to Bihar Medical Services & Infrastructure Corporation Ltd., 5th Floor, Biscomaun Bhavan, Gandhi Maidan, Patna. The purchaser shall not be responsible if the bids are delivered elsewhere.

(f) Venue of bid opening: Bids will be opened at BMSICL, Patna, at 13.000 Hrs. on the due date. If due to administrative reason, the venue of Bid opening is changed, it will be displayed prominently on the notice board of the Purchaser's office.

20.2 If both the envelopes are not sealed and marked as required at ITB Clause 20.1 and 20.2 , the bid shall be rejected.

21. DEADLINE FOR SUBMISSION OF BIDS

21.1 Bids must be received by the Purchaser at the address and up to the due date and time specified under ITB Clause 20.2.

21.2 The Purchaser may, at its discretion, extend this deadline for the submission of bids by amending the Bid Documents in accordance with clause 6 in which case all rights and obligations of the purchaser and bidders previously subject to the deadline will thereafter be subjected to the deadline as extended.

22. LATE BIDS

Any bid received by the purchaser after the deadline for submission of bids prescribed by the purchaser pursuant to clause 21, shall be rejected and returned unopened to the bidder.

23. MODIFICATION AND WITHDRAWAL OF BIDS

23.1 No bid may be modified subsequent to the deadline for submission of bids. The bidder may modify or withdraw its bid after submission, provided that written notice of the modification or withdrawal is received by the purchaser prior to the deadline prescribed for submission of bids along with a written power of attorney authorizing the signatory of the withdrawal.

23.2 The bidder's modification or withdrawal notice shall be prepared, sealed, marked and dispatched as required in the case of bid submission in accordance with the provision of ITB Clause 20. A withdrawal notice may also be sent by FAX/ e-mail but followed by a signed confirmation copy by post not later than the deadline for submission of bids.

23.3 Bids requested to be withdrawn in accordance with ITB Clause 23.1 above, shall be returned unopened to the Bidders.

23.4 No bid may be withdrawn in the interval between the bid submission deadline and the expiration of the bid validity period specified in ITB Clause 18. Withdrawal of a bid during this interval may result in the forfeiture of the Bidder's Earnest Money Deposit (EMD), pursuant to ITB Clause 17.7

E. BID OPENING AND EVALUATION

24. OPENING OF BIDS BY PURCHASER

24.1 The purchaser shall open the technical bids in the presence of bidders or their authorized representatives who chose to attend, at the due date and time of bid opening. The bidder's representatives, who are present, shall sign in an attendance register. Authority letter to this effect shall be submitted by the bidders before they are allowed to participate in bid opening (A Format is given in Section VI).

24.2 A maximum of two representatives of any bidder shall be authorized and permitted to attend the bid opening.

24.3 The bidder's names, modifications, bid withdrawals, requisite Earnest Money Deposit (EMD) and such other details as the purchaser, at its discretion, may consider appropriate will be announced at the time of opening. No bid shall be rejected at the time if bid opening, except for late bids which shall be returned unopened to the bidder pursuant to ITB clause 22.

24.4 The price bids of bidders whose Technical bids are found technically responsive and comply with the bid documents will only be opened at a later date. The date of opening of financial bids shall be communicated to such bidders, whose Technical bids are found technically responsive. The bidder's representative may be present at the time of opening of price bid at the pre-appointed time, date and venue.

24.5 The date fixed for opening of bids, if subsequently declared as holiday by the Government, the revised date of schedule will be notified. However, in absence of such notification, the bids will be opened on next working day, time and venue remaining unaltered.

25. CLARIFICATION OF BIDS

To assist in the examination, evaluation and comparison of bids, the purchaser may, at its discretion ask the bidder for the clarification of its bid. The request for the clarification and the response shall be in writing. Unless the purchaser asks for change in price due to clarifications sought, the bidder is not permitted to alter the price furnished in Price Bid "**Cover B**". The change in price shall be submitted in a separately sealed covers with marking in the cover "**Supplemental Price Bid"** before opening of the "**Original Price Bid**"

26. PRELIMINARY EVALUATION

26.1 Purchaser shall evaluate the bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed and whether the bids are generally in order. Bids from representatives, without proper Authorization from the manufacturer as per Section VI, shall be treated as non-responsive

26.2 Arithmetical errors shall be rectified on the following basis. If there is a discrepancy between the unit price and total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected by the purchaser. If there is a discrepancy between words and figures, the amount in words shall prevail. If the supplier does not accept the correction of the errors, his bid shall be rejected.

26.3 Prior to the detailed evaluation pursuant to ITB Clause 27, the Purchaser will determine the substantial responsiveness of each bid to the Bid Document. For purposes of these clauses, a substantially responsive bid is one which confirms to all the terms and conditions of the Bid

Documents without material deviations. Deviations from or objections or reservations to critical provisions such as those concerning Performance Security (GCC clause 5) , Warranty (GCC clause 14), Force Majeure (GCC clause 21), Applicable Law (GCC clause 28) and Taxes and duties (GCC clause 30) along with deviation in Technical Specifications will be deemed as material deviation. The purchaser's determination of bid's responsiveness shall be based on the contents of the bid itself without recourse to extrinsic evidence.

26.4 A bid, determined as substantially non-responsive will be rejected by the purchaser and shall not subsequent to the bid opening be made responsive by the bidder by correction of the non-conformity.

26.5 The Purchaser may waive any minor infirmity or non-conformity or irregularity in a bid which doesn't constitute a material deviation, provided such waiver doesn't prejudice or affect the relative ranking of any bidder.

27. EVALUATION AND COMPARISON OF SUBSTANTIALLY RESPONSIVE BIDS

27.1 The Purchaser shall evaluate in detail and compare the bids previously determined to be substantially responsive pursuant to ITB Clause 26.

27.2 The purchasers evaluation of bid will take into account, in addition to the bid price (ex-factory/ex-warehouse/off-the-shelf price of goods offered from India, such price to include all costs as well as duties and taxes paid or payable on components and raw materials incorporated or to be incorporated in the goods, and excise duty on finished goods if payable) and price of incidental services, the following factors, in the manner and to the extent indicated in ITB clause 27.3 and in the Technical Specifications:

(a) i) cost of inland transportation, insurance and other costs within India incidental to the delivery of goods to their final destination;
ii) the Comprehensive Annual Maintenance Charges for a period of 7 years subsequent to free guarantee maintenance period of 3 years
(b) delivery schedule offered in the bid;
(c) deviations in payment schedule from that specified in the Special Conditions of Contract.
(d) The availability in India of spare parts and after sales services for the equipment offered in the bid.

27.3 Pursuant to ITB clause 27.2 the following evaluation methods will be applied:

(a) Inland transportation, ex-factory/ from port-of-entry, insurance and incidentals.
(i) Inland transportation, insurance and other incidentals, for delivery of goods to the Project site as stated in ITB clause 13.2. These costs will be added to bid price.

(b) Delivery schedule:
The ***Purchaser*** desires to have delivery of the goods covered under the invitation, at the time specified in the schedule of requirements. The estimated time of the arrival of the goods at the project site should be calculated for each bid after allowing for reasonable transportation time. Treating the bid offering the scheduled time of arrival as the base, a delivery "adjustment" will be calculated for other bids at 2% of the exfactory price for each month of delay beyond the base and this will be added to the bid price for evaluation. No credit will be given to earlier deliveries and bids offering delivery beyond 2 months of stipulated delivery will be treated as unresponsive.

(c) Deviation in Payment Schedule:
The General Conditions of Contract clause 15 indicate the payment schedule offered by the ***Purchaser***. If a bid deviates from the schedule and if such deviation is considered acceptable to the ***Purchaser***, the bid will be evaluated by calculating interest earned for any earlier

payments involved in the terms outlined in the bid as compared to those stipulated in this invitation at a rate of 12% per annum.

(d) Spare parts and after sales service facilities in India:

The cost of the ***Purchaser*** of establishing the minimum service facilities and parts inventories, as outlined elsewhere in the bid invitation, if quoted separately, shall be added to the bid price.

(e) Annual Maintenance Contract (AMC):

(i) .The Purchaser desires to have **separately** comprehensive maintenance charges for a period of 7 years after the expiry of free maintenance period, clearly indicating year wise comprehensive maintenance charges, which shall be added to the bid price at a discount rate of 8% per annum. **Bids without this charge will be considered as non responsive.**

(ii) Any major repair pointed out by the ***Purchaser*** shall be rectified by the Supplier from the date of intimation within a period of 3 calendar days and commission the equipment to the satisfaction of the Purchaser, failing which the purchaser has write to levy a penalty on the Supplier a sum of Rs._2,500/- per day or part thereof for each equipment until the equipments are repaired and commission to the satisfaction of the Purchaser.

(f) **Spares:**

(i) The supplier shall be required to provide a list and rates of spare parts recommended for maintenance for three years after the end of Guarantee period of three years. The purchaser may elect to purchase the recommended spares from the supplier at any time including at the end of warranty/ AMC, provided that such purchase shall not relieve the supplier from any warranty/ AMC obligations under the contract.

(ii) The cost of spares shall be discounted @ 15% over warranty/ AMC period (if there is a provision for AMC in the contract) to arrive at the final price of the equipment for the purpose of tender evaluation.

(iii) Over a period of three years starting from the date of final acceptance of the equipment or after the procurement of spares, supplier shall supply at his own cost, spare parts needed which have not been included in the offer. These spares should be supplied within a maximum period of thirty days from the notification by the purchaser of his need, without demur.

(iv) In the event of termination of production of the equipment/ spare parts, the supplier shall notify the purchaser at least two years in advance of the impending termination to enable the purchaser to procure life time spares. The supplier shall also provide at his own cost to the purchaser, the blue print drawings and specifications of spare parts if and when

(g) Repair of faulty equipment and setting up of Repair Facilities:

:

(i) The supplier shall establish adequate repair facilities for repair of faulty equipment in India within a period six months from the date of purchase order. The number and location of repair facilities should be such as to meet the requirement of repairs and turn around time provided in the special conditions in Section IV. The performance bank guarantee shall not be released until the purchaser is satisfied that sufficient repair facilities have been established in addition to the fulfillment of other conditions of the contract. The purchaser reserves the right to blacklist a supplier who does not meet the repair obligation as per the conditions of contract.

28. CONTACTING THE PURCHASER

28.1 Subject to ITB Clause 25, no bidder shall try to influence the Purchaser on any matter relating to its bid, from the time of the bid opening till the time the contract is awarded.

28.2 Any effort by a bidder to modify his bid or influence the purchaser in the purchaser's bid evaluation, bid comparison or contract award decision shall result in the rejection of the bid.

F AWARD OF CONTRACT

29. POST-QUALIFICATION

29.1 The Purchaser will determine to its satisfaction whether the Bidder that is selected as having submitted the lowest evaluated responsive bid is qualified to perform the Contract satisfactorily, in accordance with the criteria listed in ITB Sub-Clause 15 & 16.

29.2 The determination will evaluate the Bidder's financial, technical, and production capabilities. It will be based on an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to ITB Sub-Clause 15 & 16, and the information submitted by the Bidder in the 'Proforma For Performance Statement' for the period of last 5 years given in Section VI as well as other information the Purchaser deems necessary and appropriate.

29.3 An affirmative post-qualification determination will be a prerequisite for award of the contract to the lowest evaluated Bidder. A negative determination will result in rejection of the Bidder's bid, in which event the Purchaser will proceed to the next-lowest evaluated Bidder to make a similar determination of that Bidder's capabilities to perform satisfactorily.

30. AWARD CRITERIA

Subject to ITB Clause 32, the Purchaser shall award the Contract to the Bidder whose bid has been determined to be substantially responsive and has been determined to be the lowest evaluated bid and whose goods have been type approved/validated by the purchaser.

31. PURCHASER'S RIGHT TO VARY QUANTITIES

The Purchaser reserves the right at the time of Contract award or within the stipulated last date of delivery, to increase or decrease, by 25%, the quantity of goods and services beyond that originally specified in the Schedule of Requirements without any change in unit price or other terms and conditions.

32. PURCHASER'S RIGHT TO ACCEPT ANY BID AND TO REJECT ANY OR ALL BIDS

The Purchaser reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids, at any time prior to award of contract without assigning any reason whatsoever and without thereby incurring any liability to the affected bidder or bidders on the grounds of purchaser's action.

33. ISSUE OF NOTIFICATION OF AWARD

33.1 The issue of Notification of Award shall constitute the intention of the Purchaser to enter into contract with the bidder.

33.2 Prior to the expiration of the period of bid validity, the Purchaser will notify the successful Bidder in writing by registered letter or by cable, to be subsequently confirmed in writing by registered letter, that its bid has been accepted

33.3 The bidder shall within 7 days of issue of the Notification of Award, give his acceptance along with performance security in conformity with Section VI provided with the bid document.

34. SIGNING OF CONTRACT

34.1 The issue of Notification of Award shall constitute the award of contract on the bidder.

34.2 Promptly after the Purchaser notifies the successful Bidder that its bid has been accepted, the Purchaser will send the Bidder the Contract Form provided in the Bidding Documents, incorporating all agreements between the parties.

34.3 Within seven (7) days of receipt of the Contract Form, the successful Bidder shall sign and date the Contract Form and return it to the Purchaser

35. PERFORMANCE SECURITY

35.1 Within seven (7) days of the receipt of notification of award from the Purchaser, the successful Bidder shall furnish the performance security in accordance with the Conditions of Contract, using the Performance Security Form provided in the Bidding Documents, or in another form acceptable to the Purchaser.

35.2 Failure of the successful Bidder to comply with the requirement of ITB Clause 34 and ITB Clause 35.1 shall constitute sufficient grounds for the annulment of the award and forfeiture of the Earnest Money Deposit (EMD), in which event the Purchaser may make the award to the next-lowest evaluated bid submitted by a qualified Bidder or call for new bids.

SECTION II- GENERAL CONDITIONS OF CONTRACT

Table of Clauses

SECTION III

GENERAL CONDITIONS OF CONTRACT

1. DEFINITIONS

In this Contract, the following terms shall be interpreted as indicated:

(a) **"The Purchaser"** means the Bihar Medical Services and Infrastructure Corporation Limited (BMSICL), the organization purchasing the Goods.

(b) **"The Bidder"** means the individual or firm who participates in the tender and submits its bid.

(c) **"Days"** means calendar days.

(d) **"GCC"** means Conditions of Contract.

(e) **"The Supplier"** means the individual or firm supplying the goods and Services under the contract.

(f) **"The Goods"** means all equipment, machinery, and/or other materials which the Supplier is required to supply to the Purchaser under the contract.

(g) **"Services"** means services ancillary to the supply of the Goods, such as transportation and insurance, and any other incidental services, such as installation, commissioning, provision of technical assistance, training and other obligations of the Supplier covered under the Contract.

(h) **"End User"** means the consignees stated in the Schedule of Requirements.

(i) **"The Notification of Award"** means the intention of the Purchaser to place the Purchase order on the bidder or to enter in to contract with the bidder.

(j) **"The Contract"** means the agreement entered into between the Purchaser and the Supplier, as recorded in the Contract Form signed by the parties, including all the attachments and the appendices thereto and all documents incorporated by reference therein.

(k) **"The Contract Price"** means the price payable to the Supplier under the contract for the full and proper performance of its contractual obligations.

(l) **"Validation"** is a process of testing the equipment as per the specifications including requirements for use in hospital is carried out in simulated field environment.

1.1 **Application:** The General Conditions shall apply to the extent that they are not superseded by provisions in other parts of the contract.

2. STANDARDS

The goods supplied under this contract shall conform to the standards prescribed in the Technical Specifications mentioned in section VI and when no applicable standard is mentioned, to the authoritative standard appropriate to the Goods Country or origin and such standards shall be latest issued by concerned Institution.

3. USE OF CONTRACT DOCUMENTS AND INFORMATION; INSPECTION AND AUDIT BY THE PURCHASER

3.1 The Supplier shall not, without the Purchaser's prior written consent, disclose the Contract, or any provision thereof, or any specification, plan, drawing, pattern, sample, or information furnished by or on behalf of the Purchaser in connection therewith, to any person other than a person employed by the Supplier in the performance of the Contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far as may be necessary for purposes of such performance.

3.2 The Supplier shall not, without the Purchaser's prior written consent, make use of any document except for purposes of performing the Contract.

3.3 Any document, other than the Contract itself, enumerated in GCC Sub-Clause 3.1 shall remain the property of the Purchaser and shall be returned (all copies) to the Purchaser on completion of the Supplier's performance under the Contract if so required by the Purchaser.

3.4 The Supplier shall permit the Purchaser to inspect the Supplier's accounts and records relating to the performance of the Contract and to have them audited by auditors appointed by the Purchaser, if so required.

4. PATENT RIGHTS

The supplier shall indemnify the purchaser against all third-party claims of infringement of patent, trademark or industrial design rights arising from use of the goods or any part thereof in India.

5. PERFORMANCE SECURITY

5.1 The supplier shall furnish performance security to the purchaser for an amount equal to 5% of the value of purchase order within 7 **days** from the date of issue of Notification of Award by the Purchaser.

5.2 The proceeds of the performance security shall be payable to the Purchaser as compensation for any loss resulting from the supplier's failure to complete its obligations under the contract.

5.3 The performance security denominate in Indian Rupees shall be in the form of Bank Guarantee issued by a Scheduled / Nationalized Bank and in the form provided in 'Section VI' of this Bid Document or in the form of cashiers cheque, certified cheque or demand draft.. The performance security should be valid for the period beyond sixty (60) days following the date of completion of the Supplier's performance obligations under the Contract, including any warranty obligations

5.4 The performance security will be discharged by the Purchaser and returned to the Supplier not later than thirty (30) days following the date of completion of the Supplier's performance obligations under the Contract, including any warranty obligations.

6. INSPECTION AND TESTS

6.1 The Purchaser or his representative shall have the right to inspect and test the goods as per prescribed test schedules for their conformity to the specifications. Where the Purchaser decides to conduct such tests on the premises of the supplier or its subcontractor(s), all reasonable facilities and assistance like Testing instruments and other test gadgets including access to drawings and production data shall be furnished to the inspectors at no charge to the purchaser. The supply will

be accepted only after quality assurance tests are carried out by the Purchaser as per prescribed schedule and material passing the test successfully.

6.2 Should any inspected or tested goods fail to conform to the specifications the purchaser may reject them and the supplier shall either replace the rejected goods or make all alterations necessary to meet Specification requirements free of cost to the purchaser.

6.3 Notwithstanding the pre-supply tests and inspections prescribed in GCC Clause 6.1 & 6.2 above, the equipment and accessories on receipt in the Purchaser's premises will also be tested during and after installation before "take over" and if any equipment or part thereof is found defective, the same shall be replaced free of all cost to the purchaser as laid down in GCC Clause 6.4 below.

6.4 If any equipment or any part thereof, before it is taken over under GCC Clause 6.5, is found defective or fails to fulfill the requirements of the contract, the inspector shall give the Supplier notice setting forth details of such defects or failure and the supplier shall make the defective equipment good, or alter the same to make it comply with the requirements of the contract forthwith and in any case within a period not exceeding three months of the initial report. These replacements shall be made by the supplier free of all charges at site. Should it fail to do so within this time, the purchaser reserves the discretion to reject and replace at the cost of the supplier the whole or any portion of equipment as the case may be, which is defective or fails to fulfill the requirements of the contract? The cost of any such replacement made by the purchaser shall be deducted from the amount payable to the supplier.

6.5 When the performance tests called for have been successfully carried out, the inspector / ultimate consignee will forthwith issue a Taking Over Certificate. The inspector /ultimate consignee shall not delay the issue of any "taking Over Certificate" contemplated by this clause on account of minor defects in the equipment which do not materially affect the commercial use thereof provided that the supplier shall undertake to make good the same in a time period not exceeding two months. The Taking Over Certificate shall be issued by the ultimate consignee within six weeks of successful completion of tests. In this case, a Consignee Receipt Certificate issued by the consignee as per the Format given in Section VI shall be equivalent to "Taking Over Certificate", issuance of which shall certify receipt of goods in safe and sound condition. However, they shall not discharge the supplier of their warranty obligation. The Consignee Receipt Certificate in respect of last consignment against the Contract will be equivalent to "Taking Over Certificate".

6.6 Nothing in GCC Clause 6 shall in any way release the Supplier from any warranty or other obligations under this contract.

7. 1 **PACKING**

The Supplier shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in the Contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt, and precipitation during transit and open storage. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the Goods' final destination and the absence of heavy handling facilities at all points in transit.

7.2 The packing, marking and documentation within and outside the packages shall comply strictly with such special requirements as shall be provided for in the Contract including additional requirements, if any, specified in SCC and in any subsequent instructions ordered by the purchaser.

7.3 Packing Instruction: The supplier will be required to mark separate packages for each consignee. Each package will be marked on three sides with proper paint/indelible ink, the following:

i. Purchaser:
ii. Contract No.

iii. Supplier Name
iv. Packing List reference Number

8. DELIVERY AND DOCUMENTS

8.1 Upon or before delivery of the Goods, the Supplier shall notify the Purchaser in writing and deliver the following documents to the Purchaser:

(i) two originals and two copies of the Supplier's invoice, showing Purchaser, the Contract number, Goods' description, quantity, unit price, and total amount. Invoices must be signed in original and stamped or sealed with the company stamp/seal;

(ii) two copies of delivery note, railway consignment note, road consignment note, truck or air waybill, or multi-modal transport document showing Purchaser as Bihar Medical Services and Infrastructure Corporation Limited *[enter correct name of Purchaser for excise purposes]* and delivery through to final destination as stated in the Contract;

(iii) copy of the Insurance Certificate, showing the Purchaser as the beneficiary;

(iv) three copies of the packing list identifying contents of each package;

(v) one original of the manufacturer's or Supplier's Warranty certificate covering all items supplied;

(vi) original copy of the Certificate of Inspection furnished to Supplier by the nominated inspection agency;

(vii) other procurement-specific documents required for delivery/payment purposes.

The above documents shall be received by the Purchaser before arrival of the Goods (except where it is handed over to the Consignee with all documents) if not received, the Supplier will be responsible for any consequent expenses.

Note: *In the event that the documents presented by the Supplier are not in accordance with the Contract, then payment will be made against issue of the 'Consignee Receipt Certificate', to be issued in accordance with GCC Clause 6 above*

8.2 The delivery of the goods and documents shall be completed within 3 months from the date of issue of Notification of Award. First month is for lead period and evenly distributed supplies are expected in remaining two months. The actual delivery schedule will be given in Notification of Award.

8.3 All Technical assistance for installation, commissioning and monitoring of the equipment shall be provided by the Supplier at no extra cost during laboratory evaluation, validation/ type approval and field trial, if any.

*[**Hint**: Generally three months delivery time is envisaged. The delivery period will be decided on case-to-case basis considering specific requirement. The delivery period for procurement will be two months for store items where no trial run and installation & commissioning is required.]*

9. TRAINING

9.1 The bidder shall demonstrate and provide training on use and maintenance of the Equipments to the consignee's personnel the purchaser free of cost where required.

9.2 The bidder shall specify in his bid the number of trainees, quantum of proposed training, pre-training qualifications required of the trainees and duration of the proposed training.

9.3 The bidder shall provide all training material and documents.

9.4 Conduct of training of the purchaser's personnel may be at the supplier's plant and/or on-site in assembly start-up operation, maintenance and/or repair of the supplied goods.

10. INCIDENTAL SERVICES

10.1 The supplier may be required to provide any or all of the following services:

(a) Performance or supervision of on-site assembly and/or start-up of the supplied Goods;
(b) Furnishing of tools required for assembly and/or maintenance of supplied Goods;
(c) Performance of supervision or maintenance and/or repair of the supplied Goods, for a period of time agreed by the parties provided that this service shall not relieve the supplier of any warranty obligations under this contract.
(d) Furnish detailed operations and maintenance manual for each appropriate unit of supplied goods.

11. SPARES

11.1 The supplier shall be required to provide a list of the following material and notifications pertaining to spare parts manufactured or distributed by the supplier of spares including cost and quantity considered for arriving at the price of spares in ITB Clause 9.

(a) Such spare parts as the purchaser may elect to purchase from the supplier provided that such purchase shall not relieve the supplier of any warranty obligation under the contract.

(b) In the event of termination of production of the spare parts, the supplier shall :

i) give advance notification to the purchaser pending termination (not less than 2 years), in sufficient time to enable the purchaser to procure life time spare; and

ii) following such advance intimation of termination, furnish at no cost to the purchaser, the blue prints, drawings and specifications of spare parts, if and when requested.

11.2 Over a period of three years starting from the date of final acceptance, the supplier shall supply, at his own cost, all necessary spares which have not been included in the offer as part of the requirement. These spares should be supplied within a maximum period of 30 days from the notification by the purchaser of his need.

12. INSURANCE

12.1 The Goods supplied under the Contract shall be insured in an amount equal to 110% of the EXW value of the Goods from "warehouse to warehouse" on "all risks" basis including war risks and strikes.

13. TRANSPORTATION

Where the Supplier is required under the Contact to transport the Goods to a specified place of destination, defined in Consignee list, transport to such place of destination, including insurance

and storage, as shall be specified in the Contract, shall be arranged by the Supplier, and related costs shall be included in the Contract Price.

14. WARRANTY

14.1 The supplier shall warrant that the goods to be supplied shall be new and free from all defects and faults in materials used, workmanship and manufacture and shall be of the highest grade and consistent with the established and generally accepted standards for materials of the type ordered and shall perform in full conformity with the specifications and drawings. The supplier shall be responsible for any defect that may develop under the conditions provided by the contract and under proper use, arising from faulty material, design or workmanship such as corrosion of the equipment, inadequate quantity of material to meet equipment requirements, inadequate contact protection, deficiencies in circuit design and/or otherwise and shall remedy such defects at his own cost when called upon to do so by the Purchaser who shall state in writing in what respect the stores are faulty. This warranty shall survive inspection or payment for / and acceptance of goods, but shall expire (except in respect of complaints notified prior to such date) three years after the goods have been taken over under GCC Clause 6.5 above.

14.2 This warranty shall remain valid for three years after the goods or any portion thereof as the case may be, have been delivered to and accepted at the final destination indicated in the contract.

14.3 If it becomes necessary for the Supplier to replace or renew any defective portion(s) of the equipment under this clause, the provisions of the GCC Clause 14.1 shall apply to the portion(s) of the equipment so replaced or renewed or until the end of the above mentioned period of three years, whichever may be later. If any defect is not remedied by the supplier within a reasonable time, the Purchaser may proceed to get the defects remedied from other supplier etc., at the supplier's risk and expenses, but without prejudice to any other rights which the purchaser may have against the supplier in respect of such defects.

14.4 Replacement under warranty clause shall be made by the supplier free of all charges at site including freight, insurance and other incidental charges.

15. PAYMENT TERMS

15.1 The method and conditions of payment to be made to the supplier under the contract shall be specified in the Special Conditions of Contract.

15.2 The Supplier's request(s) for payment shall be made to the Purchaser in writing, accompanied by an invoice describing, as appropriate, the Goods delivered and Services performed, and by documents submitted pursuant to GCC Clause 8, and upon fulfillment of other obligations stipulated in the Contract.

15.3 Payments shall be made promptly by the Purchaser, but in no case later than sixty (60) days after submission of an invoice or claim by the Supplier.

*[**Hint**: The actual payment conditions for new products or procurements having installation and AMC services may be decided on case to case basis and incorporated in special conditions of the contract]*

15.4 (i) Form C and also a certificate stating that the tendered item (stores) are meant for the use of Govt. Hospital shall be provided by the purchaser on the request of the bidder as and when asked for.

(ii) No payment will be made for goods rejected at the site on testing.

15.5 Payment for goods shall be made in Indian Rupees as follows:

a) No advance payment is payable.
b) 100% payment will be made against supply and Installation of equipments at the respective sites against certification from the consignee in the format provided in schedule VI .

16. PRICES

16.1 (i) (a) Prices charged by the supplier for goods delivered and services performed under the contract shall not be higher than the prices quoted by the Supplier in his Bid.

(b) In the case of revision of Statutory Levies/Taxes during the finalization period of tender, the Purchaser reserves the right to ask for reduction in the prices.

(ii) (a) Prices once fixed will remain valid during the schedule delivery period. Increase and decrease of Taxes and other statutory duties will not affect the price during this period.

(b) Any increase in taxes and other statutory duties/levies after the expiry of the delivery date shall be to the supplier's account. However benefit of any decrease in these taxes/duties shall be passed on to the Purchaser by the supplier.

17. CHANGES ORDERS

17.1 The purchaser may, at any time, by a written order given to a supplier, make changes within the general scope of the contract in any one or more of the following:

(a) drawings, designs or specifications, where Goods to be supplied under the contract are to be specifically manufactured for the Purchaser;

(b) the method of transportation or packing;

(c) the place of delivery; or

(d) the services to be provided by the supplier.

17.2 If any such change causes an increase or decrease in the cost of, or the time required for the execution of the contract an equitable adjustment shall be made in the contract price or delivery schedule, or both, and the contract shall accordingly be amended. Any proposal by the supplier for adjustment under this clause must be made within thirty days from the date of the receipt of the change in order.

18. SUBCONTRACTS

The Supplier shall notify the Purchaser in writing of all subcontracts awarded under this contract if not already specified in his bid. Such notification, in his original bid or later shall not relieve the supplier from any liability or obligation under the Contract.

19. DELAYS IN THE SUPPLIER'S PERFORMANCE

19.1 Delivery of the Goods and performance of the services shall be made by the Supplier in accordance with the time schedule specified by the purchaser in its purchase order. In case the supply is not completed in the stipulated delivery period, as indicated in the Purchase Order,

purchaser reserves the right either to short close/cancel this purchase order and/or recover liquidated damage charges. The cancellation/short closing of the order shall be at the risk and responsibility of the supplier and purchaser reserves the right to purchase balance unsupplied item at the risk and cost of the defaulting vendors.

19.2 Delay by the Supplier in the performance of its delivery obligations shall render the Supplier liable to any or all of the following sanctions: forfeiture of its performance security, imposition of liquidated damages and/or termination of the contract for default.

19.3 If at any time during the performance of the contract, the supplier encounters condition impending timely delivery of the goods and performance of service, the Supplier shall promptly notify to the Purchaser in writing the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the supplier's notice, the Purchaser shall evaluate the situation and may at its discretion extend the period for performance of the contract (by not more than 20 weeks) subject to furnishing of additional performance security by the supplier @ 5% of the total value of the Purchase Order.

*[**Hint:** Each case of delivery extension shall have to be examined a fresh vis-à-vis the prevailing market prices]*

19.4 If supplier fails to perform its contractual obligations, pursuant to GCC Clause 19.3 above, the purchaser may consider debarring the firm for the period of 1-5 years for participation in future invitation of bids. The period of debar, as stated above, shall be at the sole discretion of the Purchaser

20 LIQUIDATED DAMAGES

20.1 The date of delivery of the goods stipulated in the acceptance of the tender should be deemed to be the essence of the contract and delivery must be completed not later than the dates specified therein. Extension will not be given except in exceptional circumstances. Should, however, deliveries be made after expiry of the contracted delivery period, without prior concurrence of the purchaser and be accepted by the consignee, such delivery will not deprive the purchaser of his right to recover liquidated damage under GCC Clause 20.2 below.

20.2 Should the supplier fails to deliver the store or any consignment thereof within the period prescribed for delivery, the purchaser shall be entitled to recover 0.5 % of the value of the delayed supply for each week of delay or part thereof for a period up to 20 (Twenty) weeks. In the case of package supply where the delayed portion of the supply materially hampers installation and commissioning of the systems, L/D charges shall be levied as above on the total value of the concerned package of the Purchase Order. Quantum of liquidated damages assessed and levied by the purchaser shall be final and not challengeable by the supplier. However, when supply is made within 21 days of QA clearance in the extended delivery period, the consignee may accept the stores and in such cases the LD shall be levied upto the date of QA clearance.

21. FORCE MAJEURE

21.1 If, at any time, during the continuance of this contract, the performance in whole or in part by either party of any obligation under this contract is prevented or delayed by reasons of any war or hostility, acts of the public enemy, civil commotion, sabotage , fires, floods, explosions, epidemics, quarantine restrictions, strikes, lockouts or act of God (hereinafter referred to as events) provided notice of happenings of any such eventuality is given by either party to the other within 21 days from the date of occurrence thereof, neither party shall by reason of such event be entitled to terminate this contract nor shall either party have any claim for damages against other in respect of such non-performance or delay in performance, and deliveries under the contract shall be

resumed as soon as practicable after such an event come to an end or cease to exist, and the decision of the Purchaser as to whether the deliveries have been so resumed or not shall be final and conclusive. Further that if the performance in whole or part of any obligation under this contract is prevented or delayed by reasons of any such event for a period exceeding 60 days, either party may, at its option, terminate the contract.

21.2 Provided, also that if the contract is terminated under this clause, the Purchaser shall be at liberty to take over from the Supplier at a price to be fixed by the purchaser, which shall be final, all unused, undamaged and acceptable materials, bought out components and stores in course of manufacture which may be in possession of the Supplier at the time of such termination or such portion thereof as the purchaser may deem fit, except such materials, bought out components and stores as the Supplier may with the concurrence of the purchaser elect to retain.

22. TERMINATION FOR DEFAULT

22.1 The Purchaser may, without prejudice to any other remedy for breach of contract, by written notice of default, sent to the supplier, terminate this contract in whole or in part

a) if the supplier fails to deliver any or all of the goods within the time period(s) specified in the contract, or any extension thereof granted by the purchaser pursuant to GCC Clause19;

b) if the supplier fails to perform any other obligation(s) under the Contract; and

c) if the supplier, in either of the above circumstances, does not remedy his failure within a period of 15 days (or such longer period as the purchaser may authorize in writing) after receipt of the default notice from the purchaser.

d) If the Supplier, in the judgment of the Purchaser, has engaged in corrupt and fraudulent practices in competing for executing the Contract, pursuant to ITB Clause 2.

22.2 In the event the purchaser terminates the contract in whole or in part pursuant to GCC Clause 22.1 the purchaser may procure, upon such terms and in such manner as it deems appropriate, goods similar to those undelivered and the supplier shall be liable to the Purchaser for any excess cost for such similar goods. However the supplier shall continue the performance of the contract to the extent not terminated.

22.3 In the event, any sums found due to the Purchaser / Government under or by virtue of the fulfillment of contractual obligations, these shall be recoverable from the Supplier and his / its properties, movable and immovable, under the provisions of the Revenue Recovery Act, for the time being in force as tough as they are arrears of land revenue or in any manner and within such time as the Purchaser / Government may deem fit. Any sum of money due and payable to the Supplier from Government / Purchaser may be adjusted against sum of money due to the Supplier under any other contract.

23. TERMINATION FOR INSOLVENCY

The Purchaser may at any time terminate the Contract by giving written notice to the Supplier, without compensation to the supplier. If the supplier becomes bankrupt or otherwise insolvent as declared by the competent court provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the purchaser.

24. TERMINATION FOR CONVENIENCE

24.1 The Purchaser, by written notice sent to the Supplier, may terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for the Purchaser's convenience, the extent to which performance of the Supplier under the Contract is terminated, and the date upon which such termination becomes effective.

24.2 The Goods that are complete and ready for shipment within thirty (30) days after the Supplier's receipt of notice of termination shall be accepted by the Purchaser at the Contract terms and prices. For the remaining Goods, the Purchaser may elect:

(a) to have any portion completed and delivered at the Contract terms and prices; and/or

(b) to cancel the remainder and pay to the Supplier an agreed amount for partially completed Goods and Services and for materials and parts previously procured by the Supplier.

25. SETTLEMENT OF DISPUTES

25.1 If any dispute or difference of any kind whatsoever shall arise between the Purchaser and the Supplier in connection with or arising out of the Contract, the parties shall make every effort to resolve amicably such dispute or difference by mutual consultation.

25.2 If, after thirty (30) days, the parties have failed to resolve their dispute or difference by such mutual consultation, then either the Purchaser or the Supplier may give notice to the other party of its intention to commence arbitration, as hereinafter provided, as to the matter in dispute, and no arbitration in respect of this matter may be commenced unless such notice is given.

25.2.1 Any dispute or difference in respect of which a notice of intention to commence arbitration has been given in accordance with this Clause shall be finally settled by arbitration. Arbitration may be commenced prior to or after delivery of the Goods under the Contract.

25.2.2 The dispute resolution mechanism to be applied shall be as follows:

(a) In case of Dispute or difference arising between the Purchaser and a domestic supplier relating to any matter arising out of or connected with this agreement, such disputes or difference shall be settled in accordance with the Arbitration and Conciliation Act, 1996. The arbitral tribunal shall consist of 3 arbitrators one each to be appointed by the Purchaser and the Supplier. The third Arbitrator shall be chosen by the two Arbitrators so appointed by the Parties and shall act as Presiding arbitrator. In case of failure of the two arbitrators appointed by the parties to reach upon a consensus within a period of 30 days from the appointment of the arbitrator appointed subsequently, the Presiding Arbitrator shall be appointed by the Medical Council of India.

(b) Where the value of the contract is Rs.1 crore and below, the disputes or differences arising shall be referred to the Sole Arbitrator. The Sole Arbitrator should be appointed by agreement between the parties; failing such agreement, by the Medical Council of India.

(c) In case of Dispute with a foreign supplier, the dispute shall be settled in accordance with provision of UNCITRAL (United Nations Commission on International Trade Law) Arbitration Rules. The Arbitral Tribunal shall consist of 3 Arbitrators one each to be appointed by the Purchaser and the Supplier. The third Arbitrator shall be chosen by the two Arbitrators so appointed by the Parties and shall act as presiding arbitrator. In case of failure of the two arbitrators appointed by the parties to reach upon a consensus within a period of 30 days from the appointment of the arbitrator appointed subsequently, the Presiding Arbitrator shall be appointed by the Medical Council of India.

(d) If one of the parties fails to appoint its arbitrator in pursuance of sub-clause (a) and (c) above, within 30 days after receipt of the notice of the appointment of its arbitrator by the other party, then the Medical Council of India, both in cases of the Foreign supplier as well as Indian supplier, shall appoint the arbitrator. A certified copy of the order of the Medical Council of India making such an appointment shall be furnished to each of the parties.

(e) The venue of Arbitration shall be the place from where the contract is issued i.e Patna, and the language of the arbitration proceedings and that of all councils and communications between the parties shall be English.

(f) The decision of the majority of arbitrators shall be final and binding upon parties. The cost and expenses of Arbitration proceedings will be paid as determined by the arbitral tribunal. However, the expenses incurred by each party in connection with the preparation, presentation, etc. of its proceedings as also the fees and expenses paid to the arbitrator appointed by such party or on its behalf shall be borne by each party itself.

(g) The Arbitration and Conciliation Act of 1996 the rules herewith and any statutory modification or reenactment thereof shall apply to arbitration proceedings.

25.3 Notwithstanding any reference to arbitration herein,

(a) the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree; and
(b) the Purchaser shall pay the Supplier any monies due the Supplier.

25.4 The contract shall be governed by and interpreted in accordance with the laws of India from the time being in force. All disputes arising out of this tender will be subject to jurisdiction of courts of law in Patna

26. LIMITATION OF LIABILITY

26.1 Except in cases of criminal negligence or willful misconduct, and in the case of infringement pursuant to GCC Clause 4,

(a) the Supplier shall not be liable to the Purchaser, whether in contract, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the Supplier to pay liquidated damages to the Purchaser and

(b) the aggregate liability of the Supplier to the Purchaser, whether under the Contract, in tort or otherwise, shall not exceed the total Contract Price, provided that this limitation shall not apply to the cost of repairing or replacing defective equipment.

27. GOVERNING LANGUAGE

27.1 The Contract shall be written in English language. All correspondence and other documents pertaining to the Contract that are exchanged by the parties shall be written in the Hindi / English language.

28. APPLICABLE LAW

28.1 The Contract shall be interpreted in accordance with the laws of Union of India.

29. NOTICES

29.1 Any notice given by one party to the other pursuant to this Contract shall be sent to the other party in writing or by cable, telex, or facsimile and confirmed in writing to the other party's address.

29.2 A notice shall be effective when delivered or on the notice's effective date, whichever is later.

30. Taxes and Duties

30.1 The Supplier shall be entirely responsible for all taxes, duties, octroi, road permits, license fees, etc., incurred until delivery of the contracted Goods to the Purchaser.

SECTION III- SPECIAL CONDITIONS OF CONTRACT

SPECIAL CONDITIONS OF CONTRACT

1. The special conditions of contract shall supplement the '**Instructions to the Bidders**' as contained in Section I & "**General Conditions of the Contract**" as contained in Section II and wherever there is a conflict, the provisions herein shall prevail over those in Section I and Section II. .

2. The small scale industries registered with National Small Scale Industries Corporation(NSIC) for the tendered item under single point registration scheme and desirous of claiming concessions available to such units inclusive of Earnest Money Deposit (EMD) should submit their latest NSIC certificates and documents in respect of their monetary limit and financial capability duly certified by NSIC.

3. **Rate Contract:** The tender is also a 'Rate Contract'. The bidders are expected to quote their best rates for the equipments. The rates quoted by the bidder shall remain valid for one year from the date of signing of contract and the bidder will have the option to extend the period of price firmness for a further period of upto six months, during which BMSICL or any of the user Institutions under the Government of Bihar, may place order for the supply and installation of same equipments procured under this tender. If the tender inviting authority/user institutions choose to place the orders for supply, installation and commissioning, the successful bidder is bound to supply the same make/model of the equipment at the same rate and same terms and conditions of this tender to such agencies/institutions, placing the repeat order. The rate contractors can withdraw at any point of time, after the minimum price firmness period of six months, but not after accepting the Letter of Intent or entering into Agreement with BMSICL or any other user Institution under the Government for the Quantity for which it has entered into Agreement with BMSICL/User Institutions during the minimum price firmness period. BMSICL/User Institutions can also withdraw from rate at any point of time after minimum price firmness periods of six months, but not after entering into Agreement with the rate contractor for the Quantity for which the Contract is already signed by both parties.

SECTION IV- SCHEDULE OF REQUIREMENTS

SCHEDULE OF REQUIREMENTS

Note: Delivery Schedule expressed below is the number of days required to deliver the Equipment at Consignee Location from the date of receipt of Purchase order.

Schedule No.	Brief Description of Goods and Services	Qty./No.	Delivery Schedule	Earnest Money Deposit (EMD) in Indian Rupees
1	Mortuary Chamber	2	30 days	24,000/-
2	Band Saw	1	30 days	3,000/-
3	Embalming machine	2	30 days	10,000/-
4	Odour Control System	4	30 days	40,000/-
5	Glucosemeter Analyser	5	30 days	5,000/-
6	Anesthesia Workstation	14	60 days	9,80,000/-
7	Nerve Stimulator/ Neuromuscular Monitor	4	30 days	16,000/-
8	Video laryngoscope	35	30 days	3,50,000/-
9	Pulse Oxymeter	27	30 days	32,400/-
10	Blood Infusion warming system	5	30 days	20,000/-
11	Anesthesia Gas Monitor	2	30 days	16,000/-
12	Vein Viewer	13	30 days	3,12,000/-
13	Haemoglobinometer	9	30 days	9,000/-
14	Albuminmeter	7	30 days	7,000/-
15	WBC Analyser	7	30 days	11,900/-
16	Patient Controlled Analgesic system	10	30 days	35,000/-
17	Multichannel Vital Sign Monitor	3	30 days	30,000/-
18	Ventillator (Adult)	16	60 days	4,80,000/-
19	Infusion Pump (Volumetric)	60	30 days	72,000/-
20	Blood Collection Monitor	3	30 days	9,000/-
21	Blood Donor Couch	2	30 days	10,000/-
22	Gel Technique Cross Matching	2	30 days	20,000/-
23	Blood Bank Refrigerator	1	30 days	10,000/-
24	12 Channel ECG machine	18	30 days	54,000/-
25	Multiparameter Monitor	117	60 days	7,02,000/-
26	Syringe Pump	50	30 days	50,000/-
27	Defibrillator	15	30 days	90,000/-
28	Automatic Chest Compressor	1	30 days	12,000/-
29	Central monitoring Station	1	30 days	6,000/-
30	TMT machine	2	30 days	40,000/-
31	Holter Monitor	2	30 days	28,000/-

32	Holter Recorder	5	30 days	40,000/-
33	Sternal Saw	1	30 days	12,000/-
34	IABP	1	30 days	60,000/-
35	External Pacemaker	2	30 days	4,000/-
36	Dental chair High end	1	30 days	16,000/-
37	FESS set with Endoscope	1	30 days	20,000/-
38	Fibreoptic Head Light with cold Light Source	3	30 days	18,000/-
39	ENT Unit Set	1	60 days	60,000/-
40	Micromotor Head piece and burr	1	30 days	10,000/-
41	BERA	1	30 days	30,000/-
42	ENT Operating Microscope	1	30 days	60,000/-
43	Laryngophasyngoscope	1	30 days	60,000/-
44	Upper GI Endoscope	2	30 days	1,20,000/-
45	Sigmoidoscope	2	30 days	80,000/-
46	Digital Video Colposcope	1	30 days	12,000/-
47	CTG machine	4	30 days	20,000/-
48	BOD Incubator	1	30 days	2,000/-
49	QBC for Malaria	2	60 days	24,000/-
50	Chemiluminiscence	1	30 days	60,000/-
51	Pentahead Microscope with camera	2	30 days	72,000/-
52	Projection Microscope	2	30 days	12,000/-
53	Dark Ground Microscope	1	30 days	10,000/-
54	Fluorescent Microscope	1	30 days	20,000/-
55	Biosafety Cabinet level II	4	30 days	28,000/-
56	Bacterial Digital Colony Counter	2	30 days	4,000/-
57	Vortex Mixer	4	30 days	8,000/-
58	Anaerobic Culture Instrument	1	30 days	20,000/-
59	CO_2 Incubator	2	30 days	20,000/-
60	Cold Centrifuge (-20ºC)	1	30 days	6,000/-
61	Cold Centrifuge (-4ºC)	1	30 days	5,000/-
62	Inverted Compound Microscope	2	30 days	24,000/-
63	Deionised water Purification System	1	30 days	8,000/-
64	Haemodialysis	2	30 days	36,000/-
65	CRRT	2	30 days	48,000/-
66	Evoked Potential Machine	1	30 days	10,000/-
67	EEG machine	1	30 days	10,000/-
68	EMG	2	30 days	20,000/-
69	Slit Lamp	1	30 days	2,000/-

70	Perimeter (Computerised)	2	30 days	36,000/-
71	Arthroscope	3	60 days	1,20,000/-
72	Orthopedic OT Table	3	30 days	12,000/-
73	THR Set	1	30 days	12,000/-
74	Total Knee Replacement Set	1	30 days	8,000/-
75	BMD machine	1	60 days	60,000/-
76	Transcutaneous Bilirubinometer	1	30 days	5,000/-
77	Neonatal resuscitation kit	3	30 days	15,000/-
78	Neonatal Ventillator	8	30 days	2,40,000/-
79	Baby Incubator	2	30 days	20,000/-
80	Phototherapy	2	30 days	2,000/-
81	Radiant Warmer	10	30 days	50,000/-
82	Phototherapy machine double Surface	2	30 days	3,000/-
83	Ventillator Paediatric	10	60 days	3,00,000/-
84	Echocardiography with Paediatric and Neonatal probes	2	30 days	72,000/-
85	Compound Microscope	5	30 days	10,000/-
86	Hot Air Oven	2	30 days	2,400/-
87	ESR Analyser	2	60 days	16,000/-
88	Automated Blood Cell Counter	9	60 days	5,40,000/-
89	Fully Auto Clinical Chemistry Analyser	4	60 days	1,60,000/-
90	Arterial Blood Gas Analyser	4	30 days	48,000/-
91	Semi-automated Coagulation analyser	2	30 days	20,000/-
92	ELISA Reader with washer	3	30 days	24,000/-
93	Semi auto Analyser	6	30 days	42,000/-
94	Automatic Tissue Processor	1	30 days	24,000/-
95	Cytospin	1	30 days	6,000/-
96	Automated Electrophoresis	1	30 days	30,000/-
97	Spectrophotometer	2	30 days	80,000/-
98	ABG with Electrolyte	1	30 days	14,000/-
99	Handheld BPOC	1	30 days	14,000/-
100	Shortwave Diathermy	2	30 days	12,000/-
101	Ultrasound Therapy unit Physiotherapy	2	30 days	60,000/-
102	Q Switched LASER	2	30 days	1,60,000/-
103	Radiofrequency Cautery	2	30 days	60,000/-
104	Whole body PUVA	1	30 days	6,000/-
105	Electrical Dermabrader	1	30 days	10.000/-
106	Skin Mesher	2	30 days	40,000/-

107	Electric Dermatome	2	30 days	48,000/-
108	Fractional CO_2 LASER	2	30 days	1,52,000/-
109	Intense Pulse Light	2	30 days	64,000/-
110	Vascular Doppler	1	30 days	10,000/-
111	Nd-Yag LASER	1	30 days	60,000/-
112	Ultrasound with paediatric probes	1	30 days	36,000/-
113	Digital Radiography	4	60 days	10,00,000/-
114	Digital Mammography	2	60 days	8,00,000
115	C Arm Image Intensifier	2	60 days	60,000/-
116	Portable x ray	2	30 days	20,000
117	Portable Digital Dental X ray	1	30 days	10,000/-
118	Ultrasound with color Doppler	4	30 days	1,60,000/-
119	Portable Ultrasound machine (6-13 MHZ Linear Array probe)	1	30 days	20,000/-
120	Handheld ultrasound	1	30 days	16,000/-
121	Portable USG with color Doppler	1	30 days	40,000/-
122	Ultrasound Machine	1	30 days	14,000/-
123	Digital OPG	1	60 days	60,000/-
124	Lung Function Test	3	30 days	30,000/-
125	Spirometer (Computerised)	5	30 days	15,000/-
126	Fibreoptic Bronchoscope	4	30 days	3,60,000/-
127	Under water Cautery	9	30 days	54,000/-
128	High Pressure Steam Steriliser	1	30 days	20,000/-
129	Suction Machine	20	30 days	5,000/-
130	Hydraulic OT Table	2	30 days	10,000/-

Consignee list

[Table of consignee list to be inserted in the bidding document by the Purchaser to indicate the quantity of each Goods to be delivered at every consignee location.]

Sr. no.	Equipment Name	Consignee wise Qty.					Total Qty.
		PMCH Patna	SKMCH Muzaffarpur	JLNMCH Bhagalpur	ANMMCH Gaya	IGIC Patna	
1	Mortuary Chamber			2			2
2	Band Saw			1			1
3	Embalming machine	2					2
4	Odour Control System			4			4
5	Anesthesia Workstation	5	4	5			14
6	Nerve Stimulator/ Neuromuscular Monitor		3	1			4
7	Video laryngoscope	30	2	3			35
8	Pulse Oxymeter	10	3	14			27
9	Blood Infusion warming system			3		2	5
10	Anesthesia Gas Monitor			2			2
11	Vein Viewer	11		2			13
12	Haemoglobinometer	5		4			9
13	Albuminmeter	5		2			7
14	WBC Analyser	5		2			7
15	Patient Controlled Analgesic system			10			10
16	Multichannel Vital Sign Monitor			3			3
17	Glucosemeter Analyser	5					5
18	Ventillator (Adult)	12	1	1		2	16
19	Infusion Pump (Volumetric)	40	14	6			60
20	Blood Collection Monitor	1	2				3
21	Blood Donor Couch	1	1				2
22	Gel Technique Cross Matching	1	1				2
23	Blood Bank Refrigerator				1		1
24	12 Channel ECG machine	1	1	6		10	18
25	Multiparameter Monitor	50	28	19		20	117
26	Syringe Pump					50	50
27	Defibrillator		1	4		10	15
28	Automatic Chest Compressor			1			1
29	Central monitoring Station			1			1
30	TMT machine			1		1	2

31	Holter Monitor					2	2
32	Holter Recorder					5	5
33	Sternal Saw					1	1
34	IABP					1	1
35	External Pacemaker					2	2
36	Dental chair High end			1			1
37	FESS set with Endoscope				1		1
38	Fibreoptic Head Light with cold Light Source				2	1	3
39	ENT Unit Set				1		1
40	Micromotor Head piece and burr				1		1
41	BERA			1			1
42	ENT Operating Microscope			1			1
43	Laryngophasyngoscope			1			1
44	Upper GI Endoscope			2			2
45	Sigmoidoscope			2			2
46	Digital Video Colposcope	1					1
47	CTG machine	4					4
48	BOD Incubator		1				1
49	QBC for Malaria	1	1				2
50	Chemiluminiscence	1					1
51	Pentahead Microscope with camera	2					2
52	Projection Microscope	2					2
53	Dark Ground Microscope	1					1
54	Fluorescent Microscope	1					1
55	Biosafety Cabinet level II	4					4
56	Bacterial Digital Colony Counter	2					2
57	Vortex Mixer	4					4
58	Anaerobic Culture Instrument	1					1
59	CO_2 Incubator	2					2
60	Cold Centrifuge (-20ºC)	1					1
61	Cold Centrifuge (-4ºC)	1					1
62	Inverted Compound Microscope	2					2
63	Deionised water Purification System	1					1
64	Haemodialysis			2			2
65	CRRT			2			2
66	Evoked Potential Machine			1			1
67	EEG machine			1			1

68	EMG			2			2
69	Slit Lamp				1		1
70	Perimeter (Computerised)			2			2
71	Arthroscope		1	1	1		3
72	Orthopedic OT Table		1	2			3
73	THR Set		1				1
74	Total Knee Replacement Set		1				1
75	BMD machine		1				1
76	Transcutaneous Bilirubinometer			1			1
77	Neonatal resuscitation kit			3			3
78	Neonatal Ventillator	8					8
79	Baby Incubator		2				2
80	Phototherapy		2				2
81	Radiant Warmer		2	8			10
82	Phototherapy machine double surface			2			2
83	Ventillator Paediatric	5	2	3			10
84	Echocardiography with Paediatric and Neonatal probes	2					2
85	Compound Microscope	2		2	1		5
86	Hot Air Oven	1			1		2
87	ESR Analyser		1	1			2
88	Automated Blood Cell Counter	5	1	2		1	9
89	Fully Auto Clinical Chemistry Analyser		1	2		1	4
90	Arterial Blood Gas Analyser		1	3			4
91	Semi-automated Coagulation analyser			1		1	2
92	ELISA Reader with washer	1		2			3
93	Semi auto Analyser	6					6
94	Automatic Tissue Processor	1					1
95	Cytospin	1					1
96	Automated Electrophoresis	1					1
97	Spectrophotometer	2					2
98	ABG with Electrolyte					1	1
99	Handheld BPOC			1			1
100	Shortwave Diathermy			2			2
101	Ultrasound Therapy unit Physiotherapy			2			2

102	Q Switched LASER	1			1		2
103	Radiofrequency Cautery	1			1		2
104	Whole body PUVA				1		1
105	Electrical Dermabrader				1		1
106	Skin Mesher	1		1			2
107	Electric Dermatome			1			1
108	Fractional CO_2 LASER	2					2
109	Intense Pulse Light	2					2
110	Vascular Doppler	1					1
111	Nd-Yag LASER	1					1
112	Ultrasound with paediatric probes			1			1
113	Digital Radiography		1	1	1	1	4
114	Digital Mammography		1		1		2
115	C Arm Image Intensifier		1		1		2
116	Portable x ray	1			1		2
117	Portable Digital Dental X ray				1		1
118	Ultrasound with color Doppler		2	2			4
119	Portable Ultrasound machine (6-13 MHZ Linear Array probe)			1			1
120	Handheld ultrasound			1			1
121	Portable USG with color Doppler	1					1
122	Ultrasound Machine	1					1
123	Digital OPG		1				1
124	Lung Function Test			3			3
125	Spirometer (Computerised)			5			5
126	Fibreoptic Bronchoscope			4			4
127	Under water Cautery	2	2	3	2		9
128	High Pressure Steam Steriliser			1			1
129	Suction Machine					20	20
130	Hydraulic OT Table					2	2

SECTION V : TECHNICAL SPECIFICATIONS

Mortuary Chamber

- Capacity :Six Bodies
- Temperature Range :-2 degree to 5 degree C
- Controller :Microprocessor Based
- Interior Panel :Made of Stainless Steel
- Outer Panel :Made of Stainless Steel
- Door :Hinged Insulated Doors with magnetic gaskets
- Insulation :Polyurethane form with thickness of 80-100mm
- Body Trays :Stainless Steel with Telescopic Mechanism
- Compressor :Heavy Duty low noise & minimal vibration
- Condenser :Efficient with Auto-condensate evaporating system
- Air Circulation :Forced Air Circulation
- Alarms :Audio-Visual Alarms to warn high or low Power temperatures.
- supplies :220 V/50 Hz
- Accessories :Temperature recorder, data logger, voltage safety system, alarm system for various parameters battery backup rechargeable.
- Should be CE/BIS approved product

Manual Band Sawing Machine

Technical Specifications:

Max. Job Height in mm 200

Max. Throat in mm 200

Table Size (L x W in mm) 600 x 600 □ Blade Speed in mtr /min. 20 - 100

Blade Size (L x W x T in mm) 3505 x 27 x 0.9

Saw Motor Capacity - 3HP □ Coolant Motor Capacity 0.16HP

Overall Size (L x W x H in mm) 900 x 700 x 2100

Approx Weight in Kg 400

Embalming workstation with embalming machine or cadavers Injector

Complete workstation containing embalming trolley and embalming machine.
Suited to equip embalming machine.
Trolley made of complete SS manufactured without rivets or bolts on the surface
Manual ratchet system provided for trendelenburg position.
Embalming machine mounted on the underlying frame for complete system transportation.
Embalming machine can be dismounted and used separately.
Provided with heavy castors for easy movement with or without embalming machine.
Embalming trolley approx 60" lengthX28"widthX34"height Embalming machine uses specialized noiseless pump for suction and delivery at preset optimum pressure.
Fluid delivery rate 101ltrs./hr.
SS inner tank with fluid capacity provided.
Complete SS Outer body mounted provided
Complete SS outer body mounted on castors
Approx Size of the EM – 05, 24" lengthX19" width X 14.5" height
Embalming machine with its specialized noise less pump, provide suction and delivery at optimum pressure with a fluid delivery rate of 10Litres/hr with salient features such as
SS Inner tank to store fluid capacity 10-15 liters
Mounted on castors for easy movement and grips provided for lifting
IV stand fixed for mounting cannula tubing and mains cable
Mains-on and in use indication provided
Complete stainless steel outer body/ and / or

Cadaverous injector
For injecting formaldehyde solution in Cadaverous at much higher speed than normal gravity process. Unit is fully covered and mounted on a portable trolley having four castor wheels for easy movement. Unit consists of one air compressor fitted with 1/2hp motor which is connected with a stainless steel tank of 10 liters capacity meant for storing and injecting the solution. Tank is fitted with a safety valve, pressure gauge and rubber tubing having provision for injection and supplied complete with electric cord, plug and suitable to work on 220V, 1ph 50hz, AC supply.

ODOUR CONTROL SYSTEM

1.Should be noiseless while running
2. Spraying solution should be environmental friendly, non toxic , ozone safe and biodegradable
3.Spraying solution should be able to breakdown and neutralize odor causing bacteria and molecules.
4.System should have at least four spraying units
5.Spraying solution should be readily available on a recurring basis

6. Should work on electric supply of 220-230 V 50 Hz AC

Glucose meter Analyser

1. Work on dual wavelength- 660nm and 840nm.
2. Data storage upto 600 results with date and time.
3. Results displayed within 40-240 seconds.
4. Measuring range 0-400 mg/dL. Can be extended upto 800 mg/dL.
5. Should have a self test function.
6. Works on 4AA batteries and also adapter.
7. Works on capillary venous or arterial blood.
8. PC connectivity for data transfer.
9. Serial port for printer connectivity.
10. Should have an optional audio signal when result is displayed.
11. Factory calibrated.
12. Should have a QC function.
13. On site live demonstration of machine is must.
14. Tender would be rejected if compliance statement is not attached.

Standards:

CE/FDA approved.

Anaesthesia Workstation

Description of function:
Anaethesia machine is used for delivering anesthesia agents to the patients during surgery and monitors the vital signs and ventilates the patient.

Technical specifications:
Frame:
Anesthesia system should be high end three gas system with three gas Oxygen, Nitrous Oxide and Medical Air double scale flowmeter with high and low flow and minimal flow provisions.
System should be designed such that all components are integrated to minimise dead space.
Should have an independent Oxygen flow meter for Oxygen delivery and an integrated variable flow suction unit.
Anaesthesia machine should have high grade reinforced fibre frame free from oxidation. It should have three drawers, one retractable writing table, and rigid top tray.
System should have at least two drawers and an additional writing surface that can be easily accessed.
Drawers shall all have the ability to lock , and shall be easily removed for the purposes of cleaning and sterilisation.
Pipeline, cylinder and Airway pressures should all be displayed on colour coded gauges and be visible at all times during operation.
Should have provision to attach 2 cylinders 1 each for O2 and N2O.
Should have facility of delivering basal flow of oxygen on switching on the machine.
System should have a second user accessible port for extraction of Anesthetic gas when using a non re-breathing patient circuit. System should also provide the option of returning sample gas to the scavenging system with a dedicated port.
A single pneumatic/electric on/off switch should activate the gas flow and vaporization.
The unit should have a battery back up facility for the ventilator in the event of power loss and should operate for a minimum of one hour.
In the event of complete power loss and battery failure it shall still be possible to manually ventilate and deliver anaesthetic agent.
System should have easily accessible common gas outlet in the event of an emergency and for use of alternate breathing circuits.
Should have unlockable Oxygen flush to deliver oxygen flow of approximately 40 l/min.
Should have built in safety features like O2 failure alarm, N2O cutoff, Low O2 pressure etc.,
Should have motion sensitive back lighting for vaporizer dial adjustment. Should also have mandatory illumination of the writing table.
The frame should have integrated power outlets to supply a minimum of four external devices.
Should have locking of the front castors by a single central brake mechanism.

Gas Flow
The unit shall have a mechanical hypoxic guard system to control the ratio of Oxygen and Nitrous oxide to ensure a minimum of 25% of oxygen delivery at all times to avoid delivery of hypoxic mixture.
It shall be possible to deliver Air with only basal flow oxygen independent of the above mentioned hypoxic control.
Gas flow shall be controlled mechanically to avoid errors during power failure and electronic malfunction.
Visual display of the gas flow shall be by physical means independent of electrical power.

Cascade or dual flow tubes should be available for all gases to allow suitable resolution and accurate control at low total fresh gas flows.
Flow meters should have backlight and antiglare illumination.
The unit should have an independent measurement and display of fresh gas flow offering safety for low and minimal flow anaesthesia.
A bag arm with height and positional adjustment shall be available as an option.

Vaporizers
The unit should accommodate two vaporizers for anesthetic agent delivery to allow easy selection of agent to be used. A third vaporiser storage area shall be available as an option.
Vaporiser should be selectatec type, tool free installation and vaporiser of our choice can be mounted at will with interlocking facility to allow operation of only one vaporiser at one time.
Vaporizers supplied with the unit shall be routine maintenance free for the life of the product.
Should provide temperature, pressure and flow compensated Halothane, Isoflurane and Sevoflurane key filled or bottle filled vaporisers .

Breathing System
All parts of the breathing system that are in contact with patient gas should be latex free and autoclavable.
Should not require tools when dismantled for cleaning and sterilization.
Should accept large and small volume absorber canisters.
The ventilator bellows shall be clearly visible and should ascend on expiration to provide a quick visual indicator for system leaks.
Breathing system should have the option of C02 Absorber bypass control that will allow the absorber canisters to be removed without introducing system leaks. CO_2 absorber should have APL valve, and it should be suitable for low flow anesthesia.
Should have bag / vent selecting valve integrated onto the absorber and should automatically turn on the ventilator when positioned to vent mode.
Should have flow sensing capabilities at inhalation and exhalation ports. It should have adjustable pressure pressure limiting valve and should be flow and pressure compensated.

Ventilatior
Ventilator should be pneumatically driven, electronically controlled and should be ascending bellows type.
Ventilator should automatically change drive gas should there be a gas depletion.
Ventilator shall have a large color display with touch screen user interface.
Ventilator should have the following ventilation abilities, volume control, decelerating flow pressure control, SIMV with pressure support and pressure support.
Ventilator should be capable of ventilating diverse range of patient groups from neonates to patients with restrictive airways with tidal volume range between 20 ml to 1500 ml with single bellows system.
Assisted modes of breathing should be flow triggered.
Ventilator shall have an active proportional exhalation valve to prevent the potential of over delivery during pressure modes of ventilation.
Ventilator should have a leak and compliance test that can be done independently of the full system check.
On switching on, the ventilator system should be able to and shall give the user a choice of doing a unit test or bypassing in the case of an emergency.
Ventilator shall compensate for fresh gas flow and compliance of the entire circuit dynamically.

Measurement at the patient end of the circuit (sensor at the patient end) should be provided to compensate for small leakages and compressible volume variability that occur during ventilation.
User should also have the option of setting a pre set compliance correction where similar circuits are used constantly.
Should provide constant fresh gas flow into the breathing circuit during the inspiratory phase as mandatory.
Ventilator should have the ability to set and store a hospital default as well as individual user preferences for easy selection of ventilation parameters and include screen layout, alarm preferences and ventilation settings.
User should be able to set their own password.
Apnea alarms must be user adjustable to allow for all operating conditions and phases during Anesthesia.
Ventilator should have the ability to display and store Patient Spirometery loops including Flow-Volume and Pressure-Volume curves.
Ventilator should also display waveforms for flow and airway pressure.
Ventilator shall display measured fresh gas independent of the flow meters.
Ventilator shall display a dynamic compliance measurement.

Integrated Monitoring system:
Anesthesia Monitoring system should be of modular type and capable of monitoring adult, pediatric and neonatal patients. Should have invasive blood pressure measurement facility, spirometry, respiratory gas monitoring, and anesthetic agent monitoring facility.
Should be from the same manufacturer as of the anesthesia system.
Monitor should have minimum 19" independent flat panel display with multi color touch screen user interface to ensure all parameters are visible simultaneously.
Module rack / housing should be independent and shall be able to be placed near to the patient.
Should be capable of 8 traces display. Should have facility to monitor: ECG, NIBP, SpO2, Respiration, Invasive pressures (3), temperatures (2), Capnography and Bispectral index. Should have Cardiac output port enabled.
Should have automatic identification and measurement of anesthetic agents, EtCo2, O2 and N2O and MAC value.
Should have depth of anesthesia monitoring using Bispectral index.
Cardiac output monitoring facility using thermo dilution technology with all accessories.
ECG should have capability for 3, 5 and / or 10 lead monitoring and should have built in arrhythmia monitoring on all 12 leads
Inbuilt ST segment analysis and arrhythmia detection for all the leads should be available.
Should have haemodynamic, oxygenation and drug dose calculations.
EtCO2 should have both mainstream and side stream in one module.
Respiration should be available with Cardio Vascular Artifact filter.
OCRG(oxy cardio respiro gram) should be available for monitoring neonates.
Alarm parameter should flash red in the presence of high priority alarms (e.g. ventricular fibrillation and asystole) and flash yellow in the presence of medium or low priority alarms (e.g. noisy signal, etc.)
24 hours trend data should be displayed.
All monitors including central station should have similar user interface for easy usage among all clinicians.
Modules should be compatible with transport monitors if required.
Monitor shall provide capability to remote view of real time waveforms via the internet. Should be able to upgrade to softwares for electronic flow sheet and full dislcosure of all waveforms.
On-screen keyboard for entering this data is preferable.

Should have USB ports to connect mouse, key board, bar code scanner.
Alarm limit status (ON/OFF) must be indicated on-screen for each parameter and actual parameter alarm settings must be displayed on-screen when alarms are on.
Position of the displayed waveforms and color of the waveform must be user configurable.
Monitor shall permit the optional ability to receive and display information from other patient devices such as ventilators, infusion pumps and other standalone devices.
All modules should be compatible with all monitors quoted.
Should be supplied with necessary accessories for adult , pediatric and neonatal accessories.

Should be US FDA Approved
Should be compatible with HIS and Should be HL7 compliant

Accessories and spares
ECG / respiration: 5 lead ECG cable and lead wire set and 10 lead ECG cable and lead wire set per monitor
NIBP: Adult: 2 sizes and Pediatric 2 sizes and neonatal, 1 size per monitor
SPo2 Sensor: Adult sensor with cable, pediatric sensor with cable and neonatal sensor with cable per monitor
IBP: Include 10 nos of disposable pressure transducer with bracket and interface cable per monitor
Temperature: Skin and nasopharyngeal probes per monitor
BIS: 25 nos of disposable sensors per monitor

Environmental factors:
Safe disposal system : AGSS – Anesthetic Gas Scavenging System, should be in place
The unit shall be capable of operating continuously in ambient temperature of 10C to 40C and relative humidity of 15-90%.
Shall meet IEC 60601-1-2:2001 (Or equivalent) general requirements of safety for electromagnetic compatibility.

Nerve Stimulator/ Neuromuscular Monitor

1. One knob operation for current setting and measuring at the same time
2. Impulse amplitude 0.2 to 5 mA constant current infinitely adjustable.
3. Vertical display of impulse amplitude.
4. Impulse frequency 1Hz or 2 Hz switchable with pulse width 0.1 msec.
5. Battery : inbuilt 9V
6. Accessories:
    - Insulated needles
    - For single shot technique
    - Electric cable and injection tube connected to the needles.
    - Gauge and size of needles: 22G x 2 inches-5nos
      : 24G x 4 inches-5nos
      : 20G x 6 inches-5nos
7. Continuous plexus blockade:
    - Plexus catheter : 45 x 0.85mm 40cms- needle 1.3 x 55mm(18gx2.1 /8 inches 15/30 bevel) – 2 nos.
    - Plexus catheter : 45 x 0.85mm 10cms- needle 1.3 x 55mm(18gx4.3 /8 inches 15x bevel) – 2 nos.
8. Shall be FDA/CE approved

LARYNGOSCOPE-VIDEO
TECHNICAL SPECIFICATIONS

1. Should be a video laryngoscope convenient for tracheal intubation.
2. Should have a camera for live Image capturing
3. Should have LED light illumination
4. Should have color Image display facility LCD/TFT display
5. Should have provision to insert all sizes of endotracheal tube
6. Should have a provision to introduce all sizes of suction catheters
7. Should have water proof protection
8. Should be supplied with rechargeable battery and provision for re-charge.
9. Should have a battery backup facility of minimum 1 hr .
10. Should have all blade sizes/adjustable for adult and paediatric laryngoscopy. If the blades are disposable, should supply 50nos. of blades compatible for both adult and paediatric along with each unit.
11. Should have safety certificate from a competent authority CE / FDA (US) / STQC

    CB certificate / STQC S 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.

PULSE OXIMETER

1. Should have plethysmographic wave form with numeric display for SPO2 and Heart rate on LCD/TFT display.
2. Should have a SPO2 range of 0 to 100%.
3. Should have SPO2 accuracy of ±2%.
4. Should provide bar graph for pulse strength.
5. Audio and visual alarm for both upper and lower SPO2, Heart rate.
6. Should provide with adult reusable finger probe with technology from standard reputed companies..
7. Beep sound and alarm sound should have separate volume control
8. Should have a minimum of 2 hours back-up time.
9. Should be a portable, light weight and desktop model.
10. Should work with input 200 to 240Vac 50 Hz supply.
11. Should have 120 hr. trend display.
11. Should have safety certificate from a competent authority CE / FDA (US) / STQC CB certificate / STQC S 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

Blood warmer

- Can be used in Adult & Paed. Patient

- Can delivers 35-40 fluids/blood with flow rates of 75 to 5,000 ml/hr.

- Should have digital temperature display for water.

- Alarms for disposable disconnections, less water & over temp.

- Should have over temp. alarm test system.

- Disposable Tubing set for Fluid /Blood.

Anesthesia Gas Monitor

1.Should have TFT/LCD display with at least 15 inches with atleast 8 wave forms and numeric display simultaneously.
2. The waveforms should be user selectable.
3. Monitor should have in built Lithium-ion type battery for 1 Hour continuous operation or supplied with a pure sine wave UPS for 1 Hour backup in case of mains failure.
4. Should have keys for quick access to main functions.
5. Should be able to monitor ECG, SPO2, NIBP, 2 IBP, Respiration Rate, 2 temp, ETCO2, for adult, pediatric and neonatal patients as standard and Anaesthesia gas monitoring.
6. Monitor must have facility for at least 2 IBP/IPM/IPM measurements simultaneously.
7. 3 or 5 Lead ECG monitoring with lethal arrhythmia recognition capability and ST analysis
8. Respiration & Apnea alarm
9. Manual, Auto and STAT mode for NIBP monitoring and ranges should be 20 to 230 mmHg.
10. Pulse Oxymeter (SPO2) with Plethysmogragh &Pulse strength indicator With Variable pitch with change in SpO2.
11. Side-stream Capnography with display of CO2 wave form & digital values (ETCO2, FiCO2, RR).
12. Monitor should have Advanced Airway modules for complete respiratory monitoring for use in OT, ICU, and PACU etc.
13. Monitor should have provisions for automatic identification and measurement of anesthesia agents, CO2, O2, N2O and facility to measure MAC.
14. Should have separate volume control for beep sound for QRS and alarm sound.
15. It should have provision for automatic identification and measurement and anesthetic agents, Co2, O2, N2O and facility to measure MAC.
16 The display setting should have at least 10 user defined setups variable as per applications for flexible use of the monitor in various clinical environments as in OT, PICU, ICU, ER,NICU.
17 Monitor should have networking options
18 Should provide following accessories
   - ·Side stream / Microstream ETCO2 disposable kit for adult, pediatric / Neonatal -25 nos
   - · 20 Nos of Disposable IBP transducers with all standard accessories & 6 nos of reusable adapter cable
   - ·Accessories for Anesthesia Gas monitoring -25 No (disposable)
   - · Reusable adult 3 or 5 lead ECG cable set – 2 nos.
   - · Reusable adult and pediatric SPO2 finger probes – 1 each
   - · Disposable SPO2 probes for neonatal use 2 No.
   - ·NIBP cuffs for standard Adult, Obese Adult, Child and infant – all 1 each.
   - ·Temperature Probe 2No

19 Equipment performance should not be affected by electromagnetic radiated or conducted through power lines from another device.
20 Should work on 200-240V AC/50Hz with inbuilt rechargeable battery.
21 Should have safety certificate from a competent authority CE / FDA (US) / STQC CB certificate / STQC S 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.

VEIN VIEWER

- Portable fast set up device should be movable and allow total set up time form time placed by patient and powered on to ready to image area of interest within 1 minute.
- Penetration Depth should provide ability to visualise vessels on average of 6-8 mm deep with 10 mm deep possible; requires clinical evidence to substantiate.
- Multiple imaging mode should provide different imaging modes suitable for adult patients , NICU/paediatric patients and ability to resize the projected window image.
- Should have minimum brightness of 5 lumens and substantiate with technical specifications evidence.
- Image quality and focus should provide a vivid green image appropriate across all skin tones and method of detecting when image is at the proper focal distance,
- Real time digital image of vascular structure should provide evidence of real time capability via specification of frame rate at 10 frames per second or greater, should demonstrate ability to visualise flushing of fluids through vein and infiltration detection capabilities as clinical evidence.
- Direct projection on surface of skin should not require secondary monitor to interfere with technique
- Utilisation of device in any orientation without degradation of performance should be able to be positioned in any appropriate orientation to the patient without degradation of image or creation of vascular artefacts to a significant degree.
- Should not be damaged even if dropped from a height of 1.5 metre/ 4 feet.
- Easy to use device and shall not require specialised training.
- Non contact device: Should not come in contact with patient.
- No additional consumables shall be required.
- Non heating or ionisation of skin: should not transmit heat or ionised radiation to skin.
- Allow for hands-free usage during veni-puncture procedure while adhering to 1 minute set up time from time of power on to ready position for region of use.
- Non LASER based system in order to avoid eye safety concerns.
- Should operate on rechargeable battery which has a single charge of 2.5 hours and should be rechargeable while device is in use.
- Clinical evidence: Minimum requirement should be from 3 supporting bodies of clinical evidence, one of which must be pre- reviewed journal in quality.

1. Machine should use harmless near infra red (NIR) Light.
2. It should be very similar to pulse oximetry, which is flooded down to the patients skin surface,
3. The machine must see approx. 10 mm deep for most patients.
4. Machine should be mobile and easily maneuverable, allowing the device to be aadjusted according to patient position, leaving clinician's hand free to perform procedure.
5. Machine should have LED bases projection system.
6. On site live demonstration of machine is must
7. Tender would be rejected if compliance statement is not attached.
8. Warranty of five years and CMC shall be quoted for another 5 years after warranty expiry.
9. CE/FDA approved.

Haemoglobinometer

1. Should have a direct read-out on LED display of hemoglobin in g/l or g/dl.
2. Work on dual wave length 570nm for haemoglobin measurement.
3. Should be ready for immediate use with no calibration required by the user. Display within 15-60 seconds
4. Should have auto zeroing and switch to standby mode.
5. Should work on capillary, venous and arterial blood.
6. Should have PC connectivity for data recording
7. Simply inserting the cuvette should activate the meter and initiates reading of a test sample.
8. Data storage- 600 result
9. Should work with input 200 to 240Vac 50 Hz supply.
10. Should supply 200 cuvettes free with each unit

Albuminmeter machine

1. Provide quantitative results
2. Work on spot urine**,** overnight collection or 24 hour collected urine samples without additives.
3. It should have measuring range 5-150 mg/L.
4. It should have measuring time within 90 seconds.
5. Should have serial port for one way data communication.
6. Should have a Quality Control function.
7. Should have photometry at 610 nm.
8. Factory calibrated analyser with traceability to CRM 470.
9. Should have self test function.
10. Data storage and review possibility.
11. Please Quote rate of its consumable and reagent required for the machine separately.
12. Please quote separately any other product required to run the machine.
13. On site live demonstration of machine is must.
14. Demonstration must be done as per given specification.
15. Tender would be rejected if compliance statement is not attached
16. Standards:
    1. CE.
    2. IEC 60601-1 certified
    3. UL 2601-1 classified.

WBC ANALYSER

1. Determines total WBC count.
2. Measuring range 0.3-30X10^9/L.
3. Works on capillary or venous blood.
4. Measuring time within 3 minutes.
5. Should have self test function.
6. QC is performed for each test.
7. Should have a port for printer connectivity.
8. Power supply- 6AA batteries or adapter.
9. Should have a built in microscope and camera.
10. Made of polystyrene in one piece.
11. Should hold 10µL of sample.
12. Should contain a lysing and staining agent.
13. Onsite live demonstration of machine is must.
14. Tender would be rejected if compliance statement is not attached.
15. Standards:
    1. CE/FDA approved.

PATIENT CONTROLLED ANALGESIC SYSTEM
TECHNICAL SPECIFICATIONS

1. Mass Units Infusion
2. Rate : 0.1 – 400 ml/hr, in 0.1 ml increments
3. Bolus infusion: 1.0 -1200 ml/hr, in 0.1 ml increments
4. Battery life: 6 – 8 hours
5. Volume infused Totaliser
6. Hands free Bolus
7. RS 232 Interface
8. Internally adjustable occlusion pressure
9. Numeric keypad
10. Menu driven display –LCD
11. Drive Accuracy: +/-2% measured over a completer syringe
12. Should have safety certificate from a competent authority CE / FDA (US) / STQC CB certificate / STQC S 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

Specification for Multichannel Vital Sign Monitor

- Should have the facility of monitoring ECG, RR, Sp02, NIBP, Dual Temp, with AGM (withautomatic gas identification for 02, C02, N20, Halothane, Desflurane, Isoflurane, Enfluraneand Sevoflurane and with facility to display primary and secondary Anesthetic Agentsimultaneously along with MAC value and four independent IBP's for Adult, Paediatric &Neonatal applications
- Should have integrated colour TFT display of atleast 12" or more
- Should have facility of viewing at least 8 waveforms simultaneously
- Must use Nellcor or Masimo pulse oximetry module with facility for display of plethysmograph, pulse strength & Sp02 values.
- Should have non-volatile Graphical & Tabular trend facility for at least 60 hrs.
- Should operate independently on both mains and battery. Battery backup for atleast 120 Minutes
- Should have alarm limits with alarm levels and alarm indication (visual as well as audio)
- 3/5 lead ECG measurement and simultaneous monitoring of two temperatures
- Should be upgradeable with 12 lead ECG module for viewing display of lead I, II, III, aVR, aVL, Avf & Lead V1-V6 with 10 lead ECG cable
- Monitor should be upgradeable with Cardiac Output module (Thermo-dilution method), at site.
- Monitor should be compatible with wireless Central Nurses station meant for connecting/ monitoring simultaneously 8 or 16 monitors
- Unit should be supplied with following accessories:
    a. 3 lead ECG cable with disposable electrodes – 10 no of disposable electrodes
    b. NIBP CUFF – Adult & Paediatric
    c. Temp probe Tape on skin (YSI 400 Series)
    d. Sp02 PROBE – One no. for adult use
- Monitor should have built in Electro Surgical Unit & Defibrillator protection
- Must be IS/CE MARKED and US FDA approved
- Should submit relevant evidence of compliance to IEC 60601 series Safety standards and US FDA approval

Please quote separately cost of Reusable Invasive Blood pressure Transducer with respective cables, Disposable Invasive Blood pressure Transducer with respective cables, 12 lead ECG upgrade kit. Also separately provide cost of consumables not covered under guarantee period.

Ventilator ICU

I. Ventilation modes

1. Paediatric mode.
2. Controlled mode.
3. Asst. Controlled mode.
4. Pressure Controlled Ventilation.
5. SIMV/V and SIMV/P.
6. Bipressure Ventilation.
7. CPAP and PEEP.
8. Facility for Non-Invasive ventilation
9. Plateau Facility

II. Ventilation parameters: -

1. Tidal volume - 200 – 2000 ML (Adult patient).
    a. 50 to 300 ML (Paediatric PC mode).
2. Respiratory rate - 5 – 100 BPH.
3. Pressure - 0 – 100 cm H2O.
4. Inspiratory Peak Flow - 4 – 100 1/min.
5. Minute volume - 1 – 30 1/min.
6. Oxygen Concentration - 21 –100 %
7. Inspiratory pause - 0.1 – 5.5 sec.
8. PEEP/CPAP - 30 cm H2O.

III. Standard Accessories (with each machine): -

1. Patient circuit(Adult reusable) - 2 complete set.
2. Patient circuit (Paediatric reusable) - 1 complete set.
3. Nebulizer Ultrasonic one - Complete set.
4. Humidifier - 1 No.
5. O2 Pressure Regulator with hose - 1 No.
6. 5 meters (conversion kit)
7. Hose for O2 connection with connector - 5 mts.

8. Hose for compressed air with connector - 5 mts.

9. Test lung - 1 No.

IV. Features: -

1. Back up mode for apnea.

2. Full alarm system for all ventilator settings and monitored values.

3. Monitor with LCD/TFT (10" or higher size) graphical display for real time simultaneous display of two waveforms. Should display minimum 3 graphs and 2 loops and may not simultaneously

4. Monitoring of both patient data and set values should be possible with trend facility.

5. Direct access to vital settings

6. Transducer should be sterilizable and reusable.

7. PEEP valve should be built in.

8. Patient circuit should have a separate inspiratory and expiratory limb.

9. Should have safety certificate from a competent authority CE / FDA (US) / STQC CB certificate / STQC S certificate or valid detailed electrical and functional safety test report from ERTL.

V. Pneumatic Gas Sources:

1. Gas delivery system by sound less in built compressor / external integrated compressor with the unit.

2. In case of compressor failure it should also be operable with compressed air / oxygen supply of 45 to 60 psi.

.

VI. Power Source: -

220/240 V Ac 50 Hz supply.

Internal battery (maintenance free) with 1 hour minimum operating time for the ventilator

Vii. Mounting

Trolley/Cast mounting for easy transportation

INFUSION PUMP
TECHNICAL SPECIFICATIONS

1. Should be operated on drip rate Peristaltic finger pump method.
2. Should compatible with most of the IV set (macro/micro drip sets).
3. Should have the following flow rates.

IV SET	ml/Hr	Drops/min
15 drops/ml	3-450ml/hr	1-100drops/min
20 drops/ml	3-450ml/hr	1-100drops/min
60 drops/ml	1-100ml/hr	1-100drops/min

4. Should have a flow rate accuracy of ±10% and drip rate accuracy of ±2%.
5. Should have a volume infused display from 0 to 999.9ml.
6. Should have a purge and KVO facility.
7. Should have a audible and visual alarm for occlusion pressure, air alarm, door open, empty, low battery.
8. Should have a LED/LCD display with backlight and graphical display of infusion
9. Should have a minimum 2hr battery back up at highest delivery rate.
10. Should work with input 200 to 240Vac 50 Hz supply.
11. Should have safety certificate from a competent authority CE / FDA (US) / STQC CB certificate / STQC S 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.

BLOOD COLLECTION MONITOR
TECHNICAL SPECIFICATIONS

1. Should have a facility for gentle and uniform mixing of blood and anticoagulant.
2. Should have facility to view the collection time
3. Should have detachable tray for easy cleaning
4. Should have motor activated clamping system and automatic clamping for low rate, <20 ml/mt for more than 2 mts
5. Should have protection against Electrical shock.
6. Oscillation details : 12+2 RPM, Motor driven
7. Should have volume setting ranges from 50ml to 500ml in steps of 5ml, Automatic storage and recall of set volume.
8. Should have a LCD display with backlight.
9. Accuracy : + 2% of programmed volume
10. Should have the following alarm indications
    a. LCD/LED indication and audible alarm for debit flow when flow rate goes below 20 ml/mt or high flow rate above 180 ml/mt.
    b. LCD / LED indications and audible alarm at the end of collection
    c. LCD /LED indications & audible alarm during power failure, LED blinking when battery low.
    d. LCD/LED indications and audible alarm during power failure
11. Should be operated on 200-240Vac, 50Hz supply and have an inbuilt maintenance free lead acid battery with charger and a battery having a minimum of 5 hours backup.

BLOOD DONOR COUCH
TECHNICAL SPECIFICATIONS

1. Should be an automatic enveloping variable tilt chair.

2. Should have movable arm rest (swinging up & down movements).

3. Should have soft upholstery of 2 ½ inch thickness.

4. Should have keys for initiating the movements.

5. Should have lockable fiber wheels.

6. Should have provision for blood collection monitor stand and IV stand.

7. Reclining and upright body positions should be possible.

8. Should be able to lower the back rest and raise the leg rest.

9. Should have a lifting capacity of 120 kg.

10. Height of the seat should be adjustable from ground.

11. Back rest, leg rest and seat should be separable.

12. Electrical actuators and mechanism should be housed inside the structure

13. Should work with input 200 to 240Vac 50 Hz supply.

14. Should work in ambient temperature of 10 to 400 C

Equipment Specifications for Micro Typing System for Blood Grouping/ Cross Matching/ Antibody Typing

1 Description of Function	
1.1	Required for pre-transfusion testing
2 Operational Requirements	
2.1	System shall have Incubator, Centrifuge and Reagent Packs Reader
3 Technical Specifications	
3.1	Technology – Column Agglutination
3.2	Reagent shall be in Cassette form, each cassette shall have 6 columns and column spacing shall be similar to micro plate for fast pipetting using multi channel pipette
3.3	Blood separation medium shall be Bead/ Gel.
3.4	Centrifuge with safety lock and timer facility to hold minimum 12 cassettes.
3.5	Incubator should have the capacity to hold 192 columns.
3.6	Test procedure including incubation and centrifugation should not be more than 15 minutes for coombs cross match.
3.7	Throughout should be minimum 280 Tests /Hr.
4 System Configuration Accessories, spares and consumables	
4.1	System as specified-
4.2	All media and consumables for setting up and standardization should be provided free of cost.
5 Environmental factors	
5.1	The unit shall be capable of being stored continuously in ambient temperature of 0 -50deg C and relative humidity of 15-90%
5.2	The unit shall be capable of operating continuously in ambient temperature of 10 -40deg 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	Voltage corrector/stabilizer of appropriate ratings meeting ISI Specifications.(Input 160-260 V and output 220-240 V and 50 Hz)
6.3	Suitable UPS with maintenance free batteries for minimum one-hour back-up should be supplied with the system.
7 Standards and Safety	
7.1	Electrical safety conforms to standards for electrical safety IEC-60601 / IS-13450
7.2	Comprehensive warranty for 3 years and 7 years AMC after warranty
7.3	Manufacturer/Supplier should have ISO certification for quality standards.
7.4	Should be FDA , CE,UL or BIS approved product
7.5	Comprehensive training for lab staff and support services till familiarity with the system.
8 Documentation	
8.1	User/Technical/Maintenance manuals to be supplied in English.
8.2	Certificate of calibration and inspection from factory.
8.3	List of Equipments available for providing calibration and routine Preventive 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. available in stock with the supplier.
8.5	Log book with instruction for daily , weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out

Blood Bank Refrigerator with alarm & Thermograph with Servo voltage Stabilizer

1. Temperature: Adjustable form 2˚C to 6˚C and Once its temp. Adjustment, the temp. is uniformly maintained in the interior cabinet with a accuracy. ± 0.5˚C.unique airflow system.
2. Built-in temperature recorder and control unit-Displays temperature inside the cabinet within set limits. It record & display the temperature on a 7 days chart.
3. Automatic digital temperature indicator cum controller.
4. Over & under temperature alarm system with better backup.
5. Condenser Evaporator: for automatic evaporation of the condensate, this collects in a tray, provident at the rear of the cabinet.
6. Sensor: Digital temperature sensor dipped in liquid medium to match the temp. of blood.
7. Heavy-Duty, air cooled refrigeration system.
8. Force air circulations maintain chamber uniformity of ± 1˚C & provide quick recovery.
9. Cabinet Material: External Galvanized Steel with bacteria-resistant, powder coated / thick gauge Stainless Steel: Internal body thick gauge Stainless Steel.
10. Door:
    (a) Outer double walled door with magnetic gasket & lock. Full view heated glass door.
    (b) Commercial grade dual pivot adjustable door hinges for airtight door closures.
11. Mounting: the unit is mounted on castor wheels.
12. Internal Light: Provide at the rear of the cabinet.
13. Voltage Stabilizer: A voltage stabilizer of suitable capacity is built-in.
14. Automatic defrosting.
15. Vibration Free.
16. Capacity: 300 to 400 (450 ml) bags
17. Trays: 5 to 7 Sliding trays (Stainless Steel)
18. Conforms to standard and specifications of ISO 9001, CE, WHO IDCA etc.
19. Power: 170-280 V, 50 Hz, single phase AC.
20. Stable Servo Voltage Stabilizers.
21. Graph should Voltage be supplied throughout the warranty period, without payment.

12 channel ECG Machine with Interpretation (Optional)

S.N.	Description of function
1.1	ECG Machine is primary equipment to record ECG Signal in various configuration. 12 channels with interpretation (optional) is required for recording and analyzing the waveforms with a special software.

S.N.	Operational requirements
2.1	The ECG Machine should be able to acquire all 12 Leads simultaneously and interpret them. (Interpretation optional)

S.N.	Technical Specifications
3.1	Should acquire simultaneous 12 lead ECG for both adult and pediatric patients
3.2	Should have Real time Colour display of ECG waveforms with signal quality indication for each lead
3.3	Should have Artifact, AC, and low and high pass frequency filters.
3.4	Should have a storage memory of at least 100 ECGs with easy transfer by optional modem and data card.
3.5	Should have full screen preview of ECG report for quality assessment checks prior to print.
3.6	Should have interpretation facility of the amplitudes, durations and morphologies of ECG waveforms and associated rhythm for adult and pediatric patients.
3.7	Should have alphanumeric Keyboard for patient data Entry. **(virtual or hard keys)**
3.8	Should have High resolution (200 dpix500dpi on 25 mm/sec speed) digital array A4 size printer using thermal sensitive paper.
3.9	Should have report formats of 3 x4; 6 x2, Rhythm for up to 12 selected leads; 12 Lead Extended measurements, 1 minute of continuous waveform data for 1 selected lead.
3.10	Should have battery capacity of at least 30 ECGs or 30 minutes of continuous rhythm recording on single charge.
3.11	Should be able to be connected to HIS /LAN/Wireless LAN(OPTIONAL)
3.12	Should display ECG on LCD/TFT Display of 640x480 pixel resolution.
3.13	USB Support (optional) for Storage on external portable memories.
3.14	Multimode of ECG Storage capability on Floppy(min 2), 150 ECG on Internal Flash Memory

S.N.	System Configuration Accessories, spares and consumables
4.1	ECG Machine 12 Leads with Interpretetion (Interpretation Optional) - 01
4.2	Patient Cable -02

4.3	Chest Electrodes Adult-(set of six) -02 sets.
4.4	Chest Electrodes Paediatric-(set of six) -02 sets.
4.5	Limb Electrodes(set of 4)- 02 sets
4.6	Thermal Paper A4 Size for 500 patients.
S.N.	**Environmental factors**
5.1	The unit shall be capable of operating continuously in ambient temperature of 10 -40^0 C and relative humidity of 15-90%
5.2	The unit shall be capable of being stored continuously in ambient temperature of 0 -50^0 C and relative humidity of 15-90%
5.3	Shall meet IEC-60601-1-2 :2001(Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility.

S.N.	**Power supply**
6.1	Power input to be 220-240VAC, 50Hz fitted with Indian plug
6.2	Resettable overcurrent breaker shall be fitted for protection

S.N.	**Standards and safety**
7.1	Should be FDA or CE approved product
7.2	Electrical safety conforms to standards for electrical safety IEC-60601-1 General Requirements and IEC-60601-2-25 Safety of Electrocardiograms . (OR EQUIVALENT BIS Standard)

S.N.	**Documentation**
8.1	User manual in English
8.2	Service manual in English
8.3	List of important spare parts and accessories with their part number and costing.
8.4	Certificate of calibration and inspection from factory.
8.5	Log book with instruction for daily , weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out
8.6	List of Equipments available for providing calibration and routine Preventive Maintenance Support. as per manufacturer documentation in service/technical manual.

Modular Multi Parameter Monitor

.Should have high resolution minimum 12 inch active matrix LCD (TFT) display.

• Should be capable of displaying up to 6 waveforms simultaneously.

• Capable of Monitoring ECG, NIBP, SPO2, 1 IBP, ETCO2

• Should use configured Modular expandable concept for both its hardware and software.

• Monitor should have built in selectable adult / pediatric / Neonatal mode or configuration modes.

• It is required for monitor to have single control knob-mouse type device or soft key touch screen operation for menu driven functional control with minimum hard keys for ease of operation.

• Each monitor to have onscreen, user help / support system to have single line prompt message to indicate function of the selected menu. An integral teaching program which provides systems operation via a paragraph oriented popup window format.

• The monitor should use variety of tones to indicate the severity of an alarm with user adjustable alarm levels. (At least 3 to 4 levels of user defined levels).

• Bright alarm light at the bedside helps to immediately locate the patient in critical situations.

• Monitor should be software upgradeable electronically.

• Should have trending of all parameters with in graphical and tabular presentation.

• ECG Monitoring capabilities on all the beds.

• Each monitor should have capability to show 7 lead display with five lead wire system.

.Each monitor to be equip with smart lead fail system and switchover to best lead available in case one monitored lead is disconnected.

• Should have arrhythmia detection capability.

• Integral multi lead ST segment measurement program with template display.

• ECG acquisition through cables.

• Should have built in respiration via impedance pneumography.

• NIBP measurement should have oscillometric method of measurement with manual, auto and stat mode of measurement.

• SPO2 with auto wave sizing, signal strength, artifact rejection Technology.
• ETCO2 measurement – Both mainstream and low–flow side stream CO2 measurement options for applications from neonatal to adult patients.
• Optional – BIS Module to Measure BIS values at Bedside– Please quote as options.

Networking to central station should be possible.
Patient monitoring network shall use standard TCP/IP protocol and be capable of residing on hospital's network infra-structure.
Should be compatible with HIS and Should be HL7 compliant.
Monitor should have capability to accommodate remote viewing of real time waveforms through internet.
Patient monitoring network shall be able to support up to 1,000 monitoring nodes.

Standards:
• CE / FDA Approved
• IEC 60601-1 Certified
• UL 2601-1 Classified

Equipment Specifications for Syringe Infusion Pump

1 Description of Function	
1.1	The Syringe Infusion Pump provides uniform flow of fluid by precisely driving the plunger of a syringe down its barrel. It provides accurate and continuous flow rate for precise delivery of I.V. medication in critical medical care.
2 Operational Requirements	
2.1	The syringe pump should be programmable, user friendly , safe to use and should have battery back up and comprehensive alarm system. This should be able to integrate in the HIS. Provision of Disposable battery (optional)
2.2	Demonstration of the equipment is essential.
3 Technical Specifications	
3.1	Flow rate programmable from 0.1 to 1000 ml/hr or more in steps of 0.1 ml/hr with user selectable flow set rate option. SAVE last infusion rate even when the AC power is switched OFF.
3.2	Bolus rate should be programmable to 40 – 500 ml/hr or more with infused volume display. Reminder audio after every 0.5 ml delivered bolus. SAVE last Bolus rate even when the AC power is switched OFF.
3.3	Display of Drug Name with a provision of memorizing 10~15 names by the operator
3.4	Keep Vein Open (KVO) must be available 1.0 ml/hr or set rate if lower than 1.0 ml. User should have choice to disable KVO whenever desired.
3.5	Selectable Occlusion pressure trigger levels selectable from 300/500/900 mmHg
3.6	Must Work on commonly available ISI/CE/FDA APPROVED/CERTIFIED 20, 50/60 ml Syringes with accuracy of minimum of +/-2% or better.
3.7	Automatic detection of syringe size & proper fixing. Must provide alarm for wrong loading of syringe such as flanges out of slot; disengaged plunger, unsecured barrel etc. Should have facility for single/double/triple syringes.
3.8	Anti bolus system to reduce pressure on sudden release of occlusion
3.9	Should have comprehensive alarm package including: Occlusion limit exceed alarm ,Near end of infusion pre-alarm & alarm, Volume limit pre-alarm & alarm, KVO rate flow, low battery pre-alarm and alarm, AC power failure, Drive disengaged and preventive maintenance.
3.10	Rechargeable Battery having at least 5~6 hour backup for about 5ml/hr flow rate with 50ml syringes. Larger battery life and indication of residual life will be preferred.

4	**System Configuration Accessories, spares and consumables**
4.1	Syringe Infusion Pump -01
4.2	Mounting device/ Docking Station for two or four pumps as per requirement so as to enable to power up to 2-4 pumps with one power cord when mounted on IV pole. -01
5	**Environmental factors**
5.1	Shall meet IEC-60601-1-2 :2001(Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility.
5.2	The unit shall be capable of operating continuously in ambient temperature of 10 -40deg C and relative humidity of 15-90%
5.3	The unit shall be capable of being stored continuously in ambient temperature of 0 -500 C and relative humidity of 15-90%
6	**Power Supply**
6.1	Power input to be 220-240VAC, 50Hz
7	**Standards, Safety and Training**
7.1	Should be FDA or CE approved product
7.2	Electrical safety conforms to standards for electrical safety IEC-60601-1 General Requirements
7.3	Manufacturer should be ISO certified for quality standards.
7.4	Certified for meting IEC60601-2-24:Particular requirements for the safety of infusion pumps and controllers
7.5	Should meet IEC 529 Level 3 (IP3X)(spraying water) for enclosure protection , water ingress.
7.6	Electrical Safety Classification Class I/II, Type CF and Internally powered equipment.
7.7	Certified for meeting IEC 60601-1-4 Medical electrical equipment - Part 1-4: General requirements for safety - Collateral Standard: Programmable electrical medical systems
7.9	Should have local service facility .The service provider should have the necessary equipments recommended by the manufacturer to carry out preventive maintenance test as per guidelines provided in the service/maintenance manual.
8	**Documentation**
8.1	Certificate of calibration and inspection from factory.
8.2	List of Equipments available for providing calibration and routine maintenance

	support as per manufacturer documentation in service / technical manual.
8.3	User Manual in English
8.4	Service manual in English
8.5	Log book with instructions for daily, weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out.
8.6	List of important spare parts and accessories with their part number and costing.
8.7	User list to be provided with performance certificate.
8.8	Performance report in the last 5 years from major hospitals should be enclosed.

SPECIFICATION FOR DEFIBRILLATOR WITH EXTERNAL PACEMAKER

1) Description of Function

- Defibrillator is required for reviving the heart functions by providing selected quantum of electrical shocks with facility for monitoring vital parameters.

2) Operational Requirements

- Should be compact, Light weight, easy to use, Bi-Phasic Defibrillator with Manual (with easy 1-2-3 operation)
- Should monitor ECG and display them
- Should be able to print the ECG on thermal papers
- Should be capable of doing synchronized cardio version
- Can be operated from mains as well as battery

3) Technical Specifications

- Should be a Low Energy Biphasic defibrillator monitor with Recorder, having capability to deliver shocks from 2 Joules to 200 Joules.
- Should monitor ECG through paddles, pads and monitoring electrodes and Defibrillate through pads and paddles.
- Should compensate for body impedance for a range of 25 to 150 ohms
- Should have a built in 50 mm strip printer
- Should have charging time of less than 5 seconds for maximum energy.
- Should have High resolution more than 8 inch Colour display for viewing monitoring parameters like ECG, SpO2, NIBP and etCO2 with 4 waveform capability of 4 seconds.
- Should have external & internal paddles with paddles contact indicator – for good paddle contact. Both Adult and pediatric paddles should be available.
- Should have event summary facility for recording and printing at least 55 events.
- Should have a battery capable of usage for at least 5 hours of monitoring.
- Should be capable of printing Reports on Event summary, configuration, self test, battery capacity etc.
- Should have facility for self test/check before usage and set up function.
- Should have facility to monitor parameters like SpO2, NIBP and etCO2 along with non invasive pacing (Demand & Fixed mode) facility.
- Should be able to upgrade the defibrillator for 12 lead ECG monitoring and ECG transmission.

4) System Configuration Accessories, spares and consumables

- Defibrillator with AED and External Pacemaker – 01
- Adult with Built in Paediatric External Paddles - 01
- Patient cables - 01
- ECG Rolls – 50
- Adult SpO2 reusable Sensor – 01
- Adult NIBP Cuff and Hose – 01

- etCO2 Tubing (box of 20) – 01 box
- AED Multifunction Pads for Adults - 10 pairs with Each unit

5) Environmental factors
- The unit shall be capable of operating continuously in ambient temperature of 5 – 45 deg C and relative humidity of up to 95%
- Shall meet IEC-60601-1-2:2001(Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility.

6) Power Supply
- Power input to be 120-240VAC, 50-60 Hz
- Should have a battery capable of usage for at least five hours.

Automated Chest Compression System

- Pneumatically/Battery driven Mechanical External Chest compressor for delivering effective, uninterrupted and consistent chest compression at a rate of 100 compression/min and a compression depth of 4-5cm (approx. 2in It should have a 50%-50% compression/decompression duty cycle.
- Should be capable of delivering chest compression at the scene of cardiac arrest, during patient transportation in hospital on the cath table and allow for simultaneous catheterization as well as PCI procedure.
- It should deliver hands free compressions during any situation.
- Should be able to use on adult patient with Sternum height 190-303mm & chest width up 440mm and should be fitted on patient weighing upto 150 kgs.
- Should be easily turned off and on the allow for 30/2 – compression/ventilation ratio if required.
- It should allow to defibrillate patient while chest compressor is in use.
- Should allow application of defibrillation pads during chest compressions.
- Deployment of devices should not take more than 30 sec.
- It Should follow ERC/AHA guidelines with regard to frequency and depth of compressions.
- Must provide low running cost.
- Any disposable required other energy source should be quoted separately it will be added in the cost of equipments.
- Proprietary certificate should be provided if proprietary item.
- Price justification.
- List of installation.
- At least 2 installations in India.
- US FDA/ CE mark (EUROPE) approved.
- Should provide training at best centre where procedure is performed on regular basis at free of cost.

Central Monitoring Station for multi-para monitor

System should have minimum 16 beds capability.

Central station should have 17" color display.

Should have drug dose and hemodynamic calculations.

It should have possible to view information such as vital signs, alarm status, arrhythmia analysis, trended parameters, patient data etc for any selected bed from the central station.

Should have separate computer keyboard and 4 channel thermal array recorder.

Should have default alarm limits and customizable parameter settings.

Central station should have full bed review capability.

Central station should be able to be configured as a bedside monitor if required.

Should have capability for HL7 interface. Should be capable of monitoring telemetry modules.

Should be supplied with a UPS

Should have 24 hours trends for ST/arrythmia.

All system should have FDA certifications.

TECHNICAL SPECIFICATIONS OF

Treadmill Stress Test System

S.N.	Description of function
1.2	In this system the patient exercises on a treadmill according to a standardized protocol and the cardiac abnormalities can be studied under stress conditions which we may miss under resting
S.N.	**Operational requirements**
2.2	The Treadmill Stress Test System should be complete with acquisition of resting and stress ECG, Treadmill Unit with interface with all the protocols and provision of printing the resting as well as Stress ECG and analyzing the same.
2.3	Should be able to be interfaced to Hospital Information System/ LAN/WLAN
S.N.	**Technical Specifications**
3.15	Should acquire and analyze 12/15 simultaneous ECG Leads
3.16	Should have facility for display of all 12/15 leads real time Rhythm ECG on screen
3.17	Should have facility of on line storage of patient ECG data. Storage of at least 500 patients on HDD. In addition the storage on floppy drive or CD should be possible
3.18	Updated medians with elimination of artifact ectopy and aberrancy in all leads
3.19	Filters with facility to eliminate artifact due to respiration muscle/noise, AC interference, baseline wandering without compromising/distortion in ST segment changes
3.20	Should have facility to do the reanalysis of stored ECG report with reanalysis of the current stress report by changing the measurement point i.e. E, J and post J points
3.21	The monitor should display auto comparison of resting versus current lead of maximum ST depression separately with color coded protocol, stage, clocks for elapsed time, total time, Target HR, Treadmill speed & grade, PVC counts/minute, warning messages & prompts, lead check torso.
3.22	The system should have user defined report generation in different formats including the ST/HR loops and ST/HR index up to 15 leads formats for close diagnosis.
3.23	Should have facility for 12 lead resting electrocardiogram with full interpretation
3.24	Should have provision of software driven, user programmable exercise protocols or standard protocols. Facility should be available for choice for both staged and ramp protocols
3.25	System should print comprehensive final report on a minute by minute record of ST segment changes ST segment trend plot and acceleration of ST segment
3.26	Display should have facility to amplify a normal gain along with a sample of resting ECG complex for close test.

3.27	System should have dynamic scan facility to display automatically the worst ECG lead
3.28	Signal acquisition from patient and analysis should be performed at the patient itself to eliminate the environmental noise
3.29	Automatic arrhythmia detection and documentation
3.30	Facility for display of processed ECG vectors after signal averaging allowing view of artifact free ECG complexes.
3.31	Should have beat to beat online storage and event review
3.32	System should be able to provide the real time printing by auto or manual mode in desired formats. Writer resolution should be thermal 1000 line/sec x 200 dpi for printing
3.33	System should have automatic noise free programmable treadmill FDA/CE/ISI approved/certified.
3.34	System should be able to be integrated with HIS/LAN/WLAN
3.35	Should be able to transfer data through modem card(optional)
3.36	The treadmill should always start from 0 mph and has load capacity of 450 lbs. And speed range of 0-13.5mph and elevation 0-25% and should have facility to run the self-calibration programme. Treadmill should have minimum 60" walking surface
3.37	Treadmill should have two stop modes with digital Microprocessor control, including one patient activated stop mode. The same should be interfaced to the main analysis system
S.N.	**System Configuration Accessories, spares and consumables**
4.7	Stress Test System -01
4.8	Treadmill -01
4.9	Interface cable -01
4.10	Printer -01
4.11	Patient cable -02
4.12	Body wear -01
4.13	Paper -1000 A4 Sheets/ standard ECG paper recording
4.14	Any standard accessories required for running the system
4.15	UPS of requisite strength with standby for 30 minutes.

The system should contains all the above accessories in Integrated or as separate accessories..

S.N.	Environmental factors
5.4	The unit shall be capable of operating continuously in ambient temperature of 10 -40^0 C and relative humidity of 15-90%
5.5	The unit shall be capable of being stored continuously in ambient temperature of 0 -50^0 C and relative humidity of 15-90%
5.6	Shall meet IEC-60601-1-2 :2001(Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility.
S.N.	**Power supply**
6.3	Power input to be 220-240VAC, 50Hz, appropriately fitted with Indian plug
6.4	Resettable over current breaker shall be fitted for protection
6.5	Suitable Servo controlled Stabilizer/CVT
6.6	UPS of suitable rating conforming to IS-302 shall be supplied for ECG/computer system
S.N.	**Standards and safety**
7.3	Should be FDA or CE approved product
7.4	Electrical safety conforms to standards for electrical safety IEC-60601-1 General Requirements and IEC-60601-2-25 Safety of Electrocardiograms . (OR EQUIVALENT BIS Standard)
7.5	Electrical safety conforms to standards for electrical safety IEC-60601 / IS-13450
7.6	Manufacturer should have ISO certification for quality standards.
S.N.	**Documentation**
8.7	User manual in English
8.8	Service manual in English
8.9	List of important spare parts and accessories with their part number and costing.
8.10	Certificate of calibration and inspection from factory.
8.11	Log book with instruction for daily , weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out
8.12	List of Equipments available for providing calibration and routine Preventive Maintenance Support. as per manufacturer documentation in service/technical manual.

TECHNICAL SPECIFICATIONS OF HOLTER SYSTEM

S.N.	Description of function
1.3	Holter system provides for 24/48 hours of continuous ECG recording and anlysing for detecting heart rate abnormalities which may otherwise go undetected.

S.N.	Operational requirements
2.4	Should be able to record 24/48 hours of ECG waveforms on small Holter Recorders
2.5	Should automatically detect and quantify different ventricular and supraventricular events , including atrial events (atrial fibrillation , isolated prematures , pairs , bigeminy , trigeminy , runs, shorts pauses, long pauses, bradycardia and tachycardia) and ventricular events (isolated ectopics, premature ectopics, interpolated ectopics late ectopics, R on T, bigeminy, trigeminy, couplets, triplets, and runs).

S.N.	Technical Specifications
3.38	**The system should be PC based with PC Specifications (HP/Compaq / Dell) (1 No Desk top ; 1 No Lap top PC) as following:** **Computer Processor**: Core 2 Duo or Higher; 733 MHz or higher. **Memory**: 51 2 MB RAM or Higher. **Hard Disk**: 80 GB or higher with at least 5 GB free space. **CD-ROM / WRITER**: 52x-speed drive or faster. **USB:** Universal Serial Bus port. **Monitor**: Color Super VGA 17" flat monitor capable of displaying 1280 x 1024 resolution. **Printer:** HP LaserJet 2300 or higher. **Slot**: Minimum one free PCI expansion for card reading. **Software**: Windows 2000 Operating System or Higher. Should be supplied with a desktop (1 No) and a lap top computer (1No).
3.39	Should provide continuous 12 Lead ECG capability that allows viewing and printing of a 12 Lead ECG from three channel ECG recording at any time during the 24\48 hour recording.
3.40	Should employ multiple analysis modes, including prospective, paging and superimposition, retrospective and a combination of retrospective and prospective modes that analyses normal ECG and isolated abnormals automatically but stops on complex arrhythmia;
3.41	Should analyse three leads of ST segments with ST episode reporting and Heart rate variability on time and frequency domain
3.42	Should provide unlimited normal, abnormal, and artifact templates with automatic classification, template matching and ability to merge \ unmerge on any template.
3.43	Should automatically detect and quantify different ventricular and supraventricular events , including atrial events (atrial fibrillation , isolated prematures , pairs , bigeminy , trigeminy , runs, shorts pauses, long pauses, bradycardia and tachycardia) and ventricular events (isolated ectopics, premature ectopics, interpolated ectopics late ectopics, R on T, bigeminy, trigeminy, couplets, triplets, and runs).
3.44	Should automatically stop on and display arrhythmia patterns , patient diary entries , and ST episodes.

3.45	Should provide a histogram to view all R to R intervals , all normal to normal intervals , all normal to ventricular intervals, all ventricular to normal intervals, and all ventricular to ventricular intervals.
3.46	Should provide QT and Pacemaker analysis
3.47	Should create custom reports templates with institution's logo
3.48	Trend Graphs -HR, RR interval, RR variance, 12-lead ST, SVPB, VPB
3.49	**(III) Recorder specifications :** 1.Should weigh no more than 100 grams with battery and flash memory installed. 2.Should acquire simultaneous three channel ECG with software to convert three channels to 12 lead ECGs in the scanning device. 3.Should come with pacemaker software that automatically removes pacing artifacts and annotates the recording with pacing pulses. 4.Should Store 24 or 48 hours of ECGS with no data compression. 5.Use AA alkaline battery to provide up to 48 hours of three channel recording. 6.Should have a LCD display of the patient's ECG during hook up to verify proper electrode application. 7.Should use only 5 / 7 electrodes to record a three channel ECG. 8.Should be water resistant. 9. Should be provided with patient cable. 10. Should be solid state recorder. No tape to be used. Should synchronize the recording start and end time with the recorder time clock

S.N.	System Configuration Accessories, spares and consumables
4.16	PC with with specified configuration - 01 (original operating system software on CD)
4.17	Printer (HP LaserJet) -01
4.18	Holter Analyser software -01
4.19	Holter Recorders -07
4.20	Patient cables -07

The system should contains all the above accessories in Integrated or as separate accessories..

S.N.	Environmental factors
5.7	The unit shall be capable of operating continuously in ambient temperature of 10 - 40^0 C and relative humidity of 15-90%
5.8	The unit shall be capable of being stored continuously in ambient temperature of 0 -50^0 C and relative humidity of 15-90%
5.9	Shall meet IEC-60601-1-2 :2001(Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility.

S.N.	Power supply
6.7	Power input to be 220-240VAC, 50Hz,/440 V 3 Phase as appropriate fitted with Indian plug
6.8	Resettable overcurrent breaker shall be fitted for protection
6.9	UPS of suitable rating conforming to IS-302 shall be supplied for computer system with backup for 30 minutes.

S.N.	Standards and safety
7.7	Should be FDA or CE approaved product
7.8	Electrical safety conforms to standards for electrical safety IEC-60601-1 General Requirements and IEC-60601-2-25 Safety of Electrocardiograms .

	(OR EQUIVALENT BIS Standard)

S.N.	Documentation
8.13	User manual in English
8.14	Service manual in English
8.15	List of important spare parts and accessories with their part number and costing.
8.16	Certificate of calibration and inspection from factory.
8.17	Log book with instruction for daily, weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out
8.18	List of calibration and Preventive maintenance equipments as specified in the Service/Technical Manual. Preventive maintenance has to be provided as per the manufacturer guidelines.

SPECIFICATION OF STERNAL SAW

1. The sternal saw is light weight and provide clear line of sight.
2. The sternal saw operates through a flexible drive cable by an electric motor.
3. It is able to be ETO Sterilized/autoclaved.
4. The blade holding mechanism is chuck type assembly for quickly replacing the blades.
5. The reciprocating blade has a 5mm stroke length.
6. The saw should have a blade protector on it and blade protector should be easily replaceable.
7. Foot switch permits variable saw speeds.
8. The system operates on be 220V/250Hz. Single phase.
9. Three years warranty.
10. Should be CE/FDA(US)/UL or BIS approved product

FOR INTRA AORTIC BALLOON PUMP (IABP)

1. Transportable, Compact IABP system.

2. Fast pneumatics to provide accurate &reliable ventricular support enhancing augmentation & improved after-load reduction. Preferably compressor based system for better drive-gas shuttle speed.

3. Should have three modes of operation.

   a. Automatic

   b. Semiautomatic

   c. Manual.

4. System should be capable of automatically selecting appropriate trigger i.e. ECG or pressure and also accurately select the inflation and deflation points, in automatic mode.

5. In automatic and semiautomatic mode, single ECG trigger should be able to track various ventricular and atrial arrhythmia including VE's, Bigeminy, Trigeminy, Couplets etc. and atrial fibrillation, without any user intervention and still give optimal performance.

6. Should be able to trigger on 3mmHg of pulse pressure when used in pressure trigger mode.

7. Single key start-up with auto zeroing on start-up, to make it fast user friendly and easy to use.

8. Should be able to display at least 03 waveform as ECG, invasive pressure and balloon pressure waveform.

9. Large detachable display for brighter & very good visibility from a distance in any lighting conditions.

10. On screen indication for Helium level in the cylinder & battery level for timely intervention and correction.

11. On screen indication of standby time and should give alarm after 20 mins, to draw user's attention on the system being on standby.

12. System be approved for use on pediatric patients and pediatric should be supplied with the system.

13. Optical blood back detect for early for early indication of blood coming into the balloon lumen due to IABC leak.

14. Should be battery backup of atleast 3 hours.

15. Should have peripheral vascular Doppler for checking limb ischemia, which is tethered to the main equipment. (optional)

16. PC-IABP software which allows to monitor the IABP from any remote location via a modem.

17. Should have capability to connect on the hospital network.

18. System should be supplied with the following.

    a. ECG cable with lead wires: 1 set.

    b. Reusable invasive blood pressure transducer 4 nos.

    c. Refillable helium cylinder compatible with the IABP system Qty- 3 nos.

    d. Intra aortic balloon catheter for pediatrics, size: 12 cc qty : 1 no.

    e. Intra aortic balloon catheter for pediatrics, size: 10cc Qty : 1no.

    f. Intra aortic balloon catheter for adults : 2 in nos with transducer kit.

    g. 7Fr. Sensor catheter.

19. UPS of adequate backup time of 30 minutes.

20. Performance certificate from User Hospital in last 3 years.

21. US FDA/CE approved.

EXTERNAL PACEMAKER

1. A dual chamber light/compact pacemaker
2. Should have fixed and Demand mode.
3. Should have facility for overdrive pacing.
4. Should have backup facility (time) to give adequate time for change of battery.
5. Should be operable on easily available battery.
6. Should have facility for easy change of battery.
7. US FDA approved.
8. Output- 0.5 to 20 mA.

Specifications of Dental Chair High End

1. Dental Chair

The chair should be designed to provide good ergonomics, hygiene and aesthetics. The design also enables the operator to be close to the patient so as to provide optimum vision of the operating field and safe control of all component devices.

1.1 Fully motorized, which give smooth start when switch is activated.

1.2 With 8 button footswitch for user friendly.

1.3 The backrest should be thin. Choice of Back rest

- a. Contoured back rest.
- b. Slim back rest or
- c. Slim back rest with arms slings

1.4 Fixed small arm rest, for easy slide in/out for patient to provide support to get up from the chair. Should have the facility for Pivotal Arm rest.

1.5 Height range should be from 14" to 29".

1.6 Base plate should be Cast Aluminum. Plus a tough urethane coating that enhances corrosion resistance and protects treatment room floors

1.7 Upholstery can be cleaned with disinfectant Solution.

1.8 Chair should have safety brake system while going down for patient exit position.

1.9 Chair should have multipurpose double articulating head rest for ease of adjustment for pediatric patients & should be reversible for wheel Chair patient.

1.10 Chair should have minimum 4 programs. Two patient entry programs, one rinse program & one patient exit program.

1.11 Should have integrated 80 Watt power supply for Fibre optic Handpieces two in number Should be compatable with Cental compressor machine. electric motor etc.

1.12 five years warranty on motor be provided.

2. Dental Unit

2.1 Should be side delivery system. Should rotate to 270 degree.

2.2. Handpiece control block should be flow-through water design to eliminate stagnant water.

2.3 Built-in anti-retraction valves and flush valve system for infection control.

2.4 Autoclavable Quick Disconnect 3 in 1 water syringe.

2.5 2 nos 3 hole tubing for Air Turbine and Air/Micro motor with straight & Contra Handpieces.

2.6.Ultrasonic Piezo scaler

2.7 Should be CE/FDA approved.

NASAL ENDOSCOPE WTH LIGHT SOURCE AND CAMERA with FESS Instruments

1. DIGITAL ENDOSCOPIC CAMERA SYSTEM

1. Should be a single chip camera technology.
2. Should have one composite video outputs and one S-video output.
3. Should have anti-moister filter for fiber scopes.
4. Should have fully automatic exposure control.
5. Should have automatic white balance with memory function.
6. Should have horizontal resolution of more than 450 lines
7. Should be supplied with suitable coupler.
8. Should be supplied with 15" LCD/TFT monitor.
9. Should work with input 200 to 240Vac 50 Hz supply.

2. TELESCOPE

A. 4mm II Autoclavable:

1. 0° wide angle - 2 Nos
2. 45° wide angle – 2 Nos
3. 70° wide angle - 2 Nos
4. 90° wide angle - 2 Nos

B. 2.7 mm II Autoclavable:

1. 0° wide angle - 2 Nos
2. 45° wide angle – 2 Nos
3. 70° wide angle - 2 Nos
4. 90° wide angle- 2nos

All the scopes should have scratch resistant tip.

All the scopes should have incorporated fiber optic light transmission

3. LIGHT SOURCE AND FIBER OPTIC LIGHT CABLE

1. Should be a halogen light source with minimum 250W light output.
2. Should have manual light intensity control.
3. Should have thermal safety cut-off
4. Should have two lamps of 250W and should have provision to change over in the event of failure from one lamp to another.

5. Should be supplied with flexible fiber optic light cable with minimum diameter of3.5mm and minimum working length of 180cm.
6. Should work with input 200 to 240Vac 50 Hz supply.

4. INSTRUMENTS

1. Rhinoforce Antrum punch upside backward cutting with minimum working length of 10 cm.
2. Rhinoforce Blakesly wide nasal forceps straight, with minimum working length of13 cm.
3. Rhinoforce Blakesly wide nasal forceps 45º upside, with minimum working lengthof 13 cm.
4. Rhinoforce Blakesly wide nasal forceps 90º upside, with minimum working lengthof 13 cm.
5. Scissors straight and 45º curved up, with minimum working length of 13 cm.
6. Sickle knife, pointed, with minimum working length of 19 cm.
7. Antrum curette oblong small size, with minimum length of 19 cm.
8. Frontal Sinus curette small oblong forward cutting with minimum length of 19 cm.
9. Frazier suction tube with calibration markings from at least 5 to 9 cm and minimum working length of 10 cm.

5. OTHERS

1. Should be supplied with suitable trolley
2. Trolley should have at least 5 power sockets to connect the camera, light source, monitor etc.
3. Should have safety certificate from a competent authority CE / FDA (US) / STQC CB certificate / STQC S 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.

HEAD LIGHT WITH COLD LIGHT SOURCE

TECHNICAL SPECIFICATIONS

1. Should be a cold headlight system suitable for ENT Operating Theater.
2. The reflector should be a multiple coated.
3. Should have head light adjustment side to side and up and down.
4. Should be a coaxial fiber optic light headlight with a variable light spot.
5. Should have focusing sleeves for uniform quality illumination.
6. Should have an adjustable and light weight head band with lock.
7. Should use a Xenon light source 180W/300W with spare lamp and should have provision to change over in the event failure of the primary bulb.
8. Should have provision to adjust light intensity.
9. Should work with input 200 to 240Vac 50 Hz supply.

ENT Examination Unit

· Hose connection for irrigation of maxillary duct, lure core.

· Splash protector Plexiglas

· Water warmer, 37 deg with electric temperature control.

· Compressed air device, complete with 2 medicament sprays, one powder blower, apolitzer adapter and spray holder

· Jet connection for water irrigation handle, short, medium, and angles.

· Connection box for automatic switching on/off water supply by master switch.

· Mains supply unit, with connection box, and installation kit.

· Head light with exit source light.

· Cotton swabs dispenser.

· Tongue patches dispenser.

· Holder for ear funnels

· Water filter, complete for warm water equipment.

· Cold light source, with additional rear light outlet, for operating microscope.

· Operating microscope mounted on unit, with double pantograph arm, straight binocular head.

· Endoscope holder and warmer.

· Air flow for cold light, to prevent misting

· Mirror pre warmer.

Instrument cabinet all steel casing comprising of:

· Suturing complete set

· 4 large instrument trays

· Aluminium trays

· Shallow drawer

· Deep drawer

· Used instrument deposit

Swivel chair adjustable high with back rest

Should be supplied complete with treatment couch and compressed air & vacuum.

Cold light source should be double- one for head light other for nasal endoscopy/ flexible nasolaryngoscopy.

Motorised patient chair that can be converted into table in emergency.

Revolving doctor chair with back support.

Micromotor Hand piece and burr

ENT MicroDrilling System

Specification :
1. High speed of 80000 rpm autoclavable
2. Dual speed control from control box as well as foot pedal.
3. Both modes forward and reverse cutting.
4. Inbuilt pump for Irrigation.

MICROMOTOR HAND PIECES

Specification :
1. rated for minimum 80000 rpm.
2. Ball bearing type so as to generate minimum heat & vibration.
3. With attached Irrigation pipes.
4. Standard Coupling for Micromotor.
5. Straight hand pieces-2 nos.
6. Angled hand pieces –2 nos.

BURRS
1. Tungsten Carbide burrs cutting set of 12 varying from 0.7mm to 7mm standard length of 70mm, round
2. Diamond burrs complete set of six varying from 2.3mm to 7mm length 70mm, round.
3. Oil Spray for Hand pieces with Nozzle

Equipment Specifications for BERA with ECHOG

1 Description of Function	
1.1	Brain Evoked Response Audiometry(BERA) and Electrocochleography(ECoG) are important evoke response audiometry clinical assessment tools for evaluating specific part of audiometry system.
2 Operational Requirements	
2.1	Complete system with software and hardware is required.
3 Technical Specifications	
3.1	2 Channels 3rd virtual
3.2	Pre-programmed auto tests
3.3	Auto Jewett mark suggestion.
3.4	Soft attenuator for baby screeing.
3.5	Very low noise amplifier
3.6	16 bit resolution
3.7	Bone conduction ABR
3.8	EchoG (Non-invasive)
3.9	Middle Latencies
3.10	Late Latencies (p300,MMN etc.
3.11	Computer with Accessories with windows XP
3.12	Upgradable with OAE and VNG
3.13	With standard accessories (to be quoted separately)
3.14	International medical safety certification of equipment.
4 System Configuration Accessories, spares and consumables	
	None
5 Environmental factors	
5.1	Shall meet IEC-60601-1-2 :2001(Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility. or should comply with 89/366/EEC; EMC-directive.
5.2	The unit shall be capable of being stored continuously in ambient temperature of 0 -50

	deg C and relative humidity of 15-90%
5.3	The unit shall be capable of operating continuously in ambient temperature of 20-30 deg 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	UPS of suitable rating with voltasge regulation and spike protection for 60 minutes back up.

7 Standards, Safety and Training

7.1	Should be FDA, CE, UL or BIS approved product
7.2	Manufacturer should have ISO certification for quality standards.
7.3	Comprehensive training for lab staff and support services till familiarity with the system on site.
7.5	Electrical safety conforms to standards for electrical safety IEC 60601-1 (OR EQUIVALENT international/national standard)General requirement for Electrical safety of Medical Equipment.

8 Documentation

8.1	User/Technical/Maintenance manuals to be supplied in English.
8.2	Certificate of calibration and inspection.
8.3	List of Equipments available for providing calibration and routine Preventive 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 instructions for daily, weekly, monthly and quarterly maintenance checklist. The job descriptin of the hospital technician and company service engineer should be clearly spelt out.
8.6	Compliance Report to be submitted in a tabulated and point wise manner clearly mentioning the page/para number of original catalogue/data sheet. Any point ,if not substantiated with authenticated catalogue/manual, will not be considered.

OPERATING MICROSCOPE ENT
TECHNICAL SPECIFICATIONS

1. Should have apochromatic optics
2. Should have continuous motorized zoom and magnification via hand grip
3. Variable integrated objective lens ranging from 250-450
4. Eye piece should be minimum 10x or 12.5x wide with eye guards.
5. Should have universal coupling
6. Should have 90 degree binocular with converging optics.
7. Should have total magnification from at least 0.6x to 1.6x
8. Should have 180 W Xenon coaxial light source illumination by fibre light guide
9. Should have tools free design for stand-by bulb change over and for failed bulb replacement.
10. Should have heat absorbing and UV filters.
11. Should have in-built green and cobalt blue filters.
12. Should be floor standing type with fiber wheels with brake
13. Should have counter balanced arm mechanism.
14. Should have a minimum vertical stroke of 400mm
15. Should have rust free design.
16. Should be operated in 200-240 Vac 50/60 Hz input supply.
17. Should have binocular observation tube.
18. Should have 3 CCD camera/HD camera/HD monitor for recording and videography.
19. Should have recording facility.
20. Should have safety certificate from a competent authority CE / FDA (US) / STQC
    CB certificate / STQC S 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.

FLEXIBLE NASO-PHASYNGO LARYNGOSCOPE
TECHNICAL SPECIFICATIONS

1. Should have a field of view of at least 75º.
2. Should have a depth of field from 5 to 50 mm
3. The insertion tube should have maximum 3.5mm diameter or less.
4. Should have at least 130º upwards and 130º downwards angulations.
5. Should have a working length of at least 300 mm.
6. Should have a light guide illuminating system.
7. Should provide suitable light source.
8. Should be supplied with all standard accessories including storage box and list of standard accessories should be specified in the technical bid.

LIGHT SOURCE :

1. Should be a halogen light source with minimum 150W light output with 5 spares.
2. Should have manual light intensity control.
3. Should have cooling system.
4. Should work with input 200 to 240Vac 50 Hz supply.
5. Should have safety certificate from a competent authority CE / FDA (US) / STQC CB certificate / STQC S 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.

UPPER GI VIDEO ENDOSCOPE AND RELATED ACCESSORIES

Video Gastroscope
Slim, light weight, fully immersible in disinfectant solution
Field of view: 120° to 150°
Depth of field: 3 - 100 mm
Tip Deflection: Up/Down 210°/90°
Left/Right 100°/100°
Rigid distal diameter: Less than 9.8 mm
Insertion tube diameter: Not more than 9.8 mm
Instrument channel: 2.8 to 3.2 mm
Working length: 1050 to 1100 mm
Total length: 1350 to 1400 mm
Xenon light source cum video processor
Integrated or separate units with Xenon lamp
Color System : three CCD Color
Lamp: 300 W Xenon
Appropriate connectors
Image display size: Full and small screen display on monitor
Video outputs: RGB, Y/C & composite output
Light control system: Automatic and manual control
Cooling system: Forced air cooling
Voltage: 220V to 240V (PAL)
Frequency: 50Hz
Video Processing System: (common for all videoscope)
The Video Processor Should have facility of compact flash memory card. Processor should have Facility to connect balloon enteroscope and endoscopy ultra sound.
LCD Digital Monitor 21", (Colour medical grade)
Endoscopy trolley (should be from OEM): 1
Software for image capturing. DVD recorder, color printer, Archiving memory, report generator.
PC – core i-5 or higher with HDD 250 GB, RAM 2GB, TFT 21 inch, DVD R/W Drive

Other Accessories:
Biopsy forceps
Bite block
Leakage tester
Cleaning brush
Aspiration needle
EB Forceps

SPECIFICATIONS FOR SIGMOIDOSCOPE (Flexible)

1. Standard flexible fibreoptic Sigmoidoscope
2. Fibreoptic cold light source: 1 no.
3. 300 Watt Xenon Bulb of 500 hrs minimum life.
4. Automatic standby bulb.
5. Fibreoptic cable.
6. Long crocodile biopsy forceps: 2 nos.
7. Videosystem Standard Set.
8. Camera Head with all accessories.
9. Medical Grade Monitor.
10. CE/FDA approved.

Digital Video COLPOSCOPE

Features:

- Image processor -should have color digital CCD and high speed DSP,
- Pixels 680000 or more
- Resolution -> 825lines
- Gamma processor
- Automatic electronic shutter
- Cold LED Light Source, Super bright shadowless light
- Average LED lamplife of >15,000hrs
- Color temp > 7000K
- Electronic Green Filter,
- Test Timer for acetic acid test
- Observation of Cervical Examinations on a Video Monitor, Image Freeze, Dynamic Timing Control, Image Software and Workstation System
- Optical continuous zooming 1-40x
- Focal distance 150-350mm
  Field of view 10-150mm
- Depth of view -5-200mm
- Working distance: 200-300mm ,
  Advanced and Fast Auto-focusing Technology
- Focusing, zooming, light source, image freeze, and electronic green filter all in a hand – held unit.
- Internal image acquisition control,
- Integrated management of image capture, observation, processing, saving and printout
- Should have printing of multiformat diagnosis report
- Image output: s-video, pal, ntsc
- Should have vertical stand (900mm-1300mm) and swing arm
- Power supply: 110-240v

- should be ISO certified and FDA approved.
- Should be supplied with high definition, automatic CCD camera with long lifecycle led light source fitted on vertical height adjustable floor stand and complete data management systems with original software.
- The equipment must be supplied with original workstation with built in computer, built in key board and mouse with. Monitor, printer, insulated endocervical speculum and lateral vaginal wall retractor.
- Tv colour monitor: 19" LCD monitor, resolution 1,280 x 1,024 lines, Power supply= 100-240 v~, 50/60 hz

CTG Machine

Cardiotocograph machine with twin monitoring capability should meet the following specification and capabilities:

- FHR twin monitoring using external ultrasound </MHz
- Direct ECG and maternal ECG measurements.
- Uterine activity using an external toco transducer and a frequency response of DC=0.5Hz or IUP catheter.
- Fetal movement profile parameter to record accurately the fetal movements using the ultrasound channel without additional procedures or transducers and statistics for advance information on fetal well-being.
- Low ultrasound energy to the fetus.
- Audible alert indication of fetal bradycardia and tachycardia
- Audible indications of paper out and NST time complete.
- Should have a feature to provide more accurate and continuous fetal heart rate (FHR) thereby reducing the need for repositioning the ultrasound transducer.
- Should have the facility of cross channel verification when two channels are picking up the same signal.
- Should have signal quality indicators guiding to obtain the strongest and most continuous ultrasound HR signal.
- Built-in multi channel high resolution thermal array recorder with visual and audible paper end detection and should annotate time of day, date and paper.

Should be supplied with the following accessories:

- Mobile cart with two drawers and integrated mounting rail. Additionally wall mounting facility should be there.
- 2* ultrasound transducers
- 1* external toco transducer
- 1* ECG module with leads and ECG adapter cable
- 20* 250 g bottle of gel.
- 100 numbers of disposable signal spiral fetal scalp electrodes, quick connect type
- 80 packs of recording paper. (to be supplied as per the usage; i.e. in a manner that they should not get faded without being used.)

> Should have built in thermal printer with auto print facility 10,20,30,40,50,60 axis.
> Should have paper feeding function.
> Display should have 3 channel waveform for FHR1, FHR2, and uterine contractions
> Should have minimum 7" color TFT screen
> Screen should rotate at 360o for viewing from different angles
> Size of machine should not be more then 80* 330* 280mm.
> Should be FDA approved.
> Should have central monitoring facility
> Should be rechargeable battery
> Should have minimum data storage for 450 hours (3 hrs/person).

BOD INCUBATOR

Technical Specifications:-

- Double walled construction, inner chamber stain less steel, inner glass/ transparent door
- Facility for adjustable shelves to convenient heights, 10 removable shelves of stainless steel/ anodized aluminum to be supplied.
- Interior lighting facility, insulated door fitted with heavy hinges handles locking, mechanical door lock.
- Temperature range 0^{o} to 80^{o}C with accuracy 0.5^{o}C high quality, environment friendly refrigerant.
- Independent temperature measuring through PT 100 sensor with indicator LCD display
- Recovery time short, precise regulation of temperature and acoustic alarm.
- Digital safety thermostat (class 3)
- Adjustable ventilation rate 10 – 100% thin form air circulation.
- Size of inner chamber approximately 50x60x50 cm. (or as per user requirement).

System Configuration Accessories, spares and consumables:

- System as specified.
- All consumables required for installation and standardization of system to be given free of cost.

Environmental factors

- The unit shall be capable of operating continuously ambient temperature of 10 -45^{o}C and relative humidity of 15-95%.

Power Supply:-

- Power input to be 220-240VAC, 50Hz fitted with plug compatible with local electrical socket.
- Resettable over current breaker shall be fitted for protection
- Suitable Stabilizer/CVT
- Suitable UPS with maintenance free batteries for minimum one-hour back-up should be supplied with the system.

Standards and Safety:-

- Comprehensive onsite training for lab staff and support services till familiarity with the system.
- Should be FDA or CE approved or ISI marked / equivalent standard product.
- Should be compliant to ISO 13485:/ ISO 9001Quality systems or equivalent.

Documentation

- Certificate of calibration and inspection from factory.
- User/Technical/Maintenance manuals to be supplied
- Log book with instruction for daily, weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out
- List of important spare parts and accessories with their part number and costing.
- List of Equipments available for providing calibration and routine maintenance support as per manufacturer documentation in service / technical manual.
- 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. Please quote page number on compliance sheet as well as on technical bid corresponding to technical specifications.

Specifications for Q.B.C. Malaria detection system

Essential Features :

1. System to convert normal bright light microscope into epi fluorescence microscope. It should come with all accessories like capillary centrifuge, tube holder, etc.
2. System should have long life LED based light source.
3. Excitation filter should have wavelength range between 385 – 490 nm.
4. Emission filter should be in the range of 510 – 520 nm.
5. System should come with high quality 60X oil immersion objective. attachment should also have an option of future addition of 40X & 100X objectives for doing autoimmunity parameters.
6. The attachment should have standard RMS threading to adapt standard light microscope.
7. The Numerical aperture of 60 X oil immersion objective should be 1.0 or more for better resolution.
8. Capillary centrifuge should meet following criteria;
   - Should have capacity to hold upto 20 capillaries.
   - The speed should be up to 12000 RPM.
   - Electromechanical safety interlock.
   - Shock absorbance mechanism for minimized vibration.
   - Automatic timer control.
   - Protective metal cover.
   - Should use brushless D.C. motor.
9. Attachment should necessarily be compatible with following Flourochromes;
   - FITC
   - Acridine orange
   - Acridine yellow
   - Auramine O
   - Phycoerythrine
10. System should be able to read Malaria capillary as well as other fluorochrome stained slides as mentioned above.
11. System should provide MP sensitivity as high as 3-5 parasite / µl of blood.
12. Analysis & processing time for each MP capillary should be less than 10 minutes.

13. System should also be able to read AFB slides stained with Auramine O. The staining time for AFB slide with Auramine O should be as low as 3-4 min to increase the efficiency.
14. The complete system should be US FDA certified & consumable like capillary Hematocrit Tube / Malaria Hematocrit Tube should be compliant with internationally accepted in Vitro Diagnostic Norms of European standard.
15. Manufacturer authorization for both complete equipment & consumables of the same manufacturer should be attached.
16. Each malaria tube should have coating of Acridine orange stain with 5.5µg or more and Potassium oxalate 0.3 mg or more.
17. Engineer and application persons should be stationed in the state.
18. System should have installations in reputed Medical colleges / government / public sector healthcare institutes. Performance certificates from at least 10 – 15 institutes, using the system for last at least 4 – 5 years to be enclosed in the technical bid. .
19. A firm assurance of manufacturer to be given regarding the supply of spares / accessories for 7 years after the warranty period.
20. Installation on turn key basis.

Chemiluminiscence Immunoassay Analyser

- Fully, automated, bench top analyzer to perform the qualitative and quantitative analysis of infectious disease markers and other special immunoassays from serum samples.
- System should be Discrete, fully selective random access with a provision to test STAT samples.
- System should be based on chemiluminiscence / ELFA (Enzyme linked fluorescent based assay) / E CLIA technology for measuring the assays with very high sensitivity, specificity and linearity.
- System should have facility for on-board programs for at least 50 different test parameters.
- Onboard sample size should be at least 25-30 or more at one time with a procedure for continuous loading.
- System should have a routine throughput of about 60-80 tests/hour.
- Incubation time for the assays should not be more than 15 minutes.
- System should have reagent slots for a minimum of 15-20 assays.
- System should have on-board cooling facility to maintain the temperature of the reagents.
- Flexibility to use different sample containers like primary tube with different sizes; sample cups etc for easy processing.
- Sample volume should be 5-50µl per tests.
- User defined onboard sample dilution is must (1-400 times).
- System must use disposable cups and tips for pipetting sample and reagent for all immunoassay to prevent any carryover contamination to have reliable patient results.
- System to use latest mixing probe technology to mix the samples and reagents .It shall have clot detection facility.
- Systems shall have the facility to test immunoassays like anti-CCP, Hepatitis markers, TORCH Panel etc.
- Rates of consumables would not be increased for at least 5 years.
- On board reagent stability be up to two months. Calibration frequency should be as per quality control requirements.
- Patient samples and Reagents should be scanned with on-board barcode scanner for easy operation.
- Should be ISO / ISI / CE or equivalent standard certified.

- System should have on-board windows based data control work station with 15” TFT LCD color touch screen monitor for programming the tests and entering the patient data.
- System should have the facility to store minimum of 2000 tests.
- Should have comprehensive software with calibration management, management of internal control, management of external control and customized patient data management.
- System must have extensive quality control like – west –guard rules, Levy – Jennings graphical presentation.
- External Printer to take printout of patient results and QC reports.
- Track record of the firm should be final deciding factor, if other qualifications are the same.
- System should have 2×RS 232 bidirectional interface.
- Power supply -220V/50 Hz.
- Suitable voltage stabilizer.
- UPS with maintenance free batteries with at least one and half hour backup.
- Laboratory staff would be comprehensively trained on all the operational function of equipments.
- Calibration certificate shall be provided after installation
- Original manufacturer’s catalogue would be submitted by the company and all the technical specification would be traceable to the original catalogue point wise Photocopies or computer printouts would not be accepted.

FIVE- HEAD RESEARCH MICROSCOPE
(Penta Head)

The instrument should be sturdy, fitted with plan achromatic objectives 2/2.5x, 4x; 10x, 20x, 40x (spring loaded) and 100x (spring loaded) on a reversed sextuple nosepiece with click stops.
The optical system should be color corrected for infinity with ant fungus property built in transmitted Koehler illumination.
The microscope stand should have co-axial focusing knobs for coarse and fine adjustment with upper limit stopper
Preset button for automatic light intensity level for photomicrography

Wide field high point eye piece 10x, 22 mm with diopter adjustment (+2 to -8) and rubber eye shield (pair) with inter pupillary distance of 48 to 75 mm.
Trinocular eye piece inclined at 30 – 45° with 360° rotation.
Rectangular scratch resistant stage with right hand control with double slide holder and vernier calipers on X Y axis.
Plan achromatic universal type swing-out condenser (Dry Type) with numerical aperture 0.9- 1.2.
Transmitted light filters for day light, green and neutral light with density filters built-in the basic stand.
Illumination – 12 V, 100 W quartz halogen lamp with long life.
Power – 220 + 10 V, 50 Hz
Vinyl dust cover
Multihead ergonomic 1 Trinocular set (with three way light path selector, 100:0; 80:20;0:)+ 4 Binocular heads (2 on each side) with complete two color pointer unit (1 pc), ac adapter (1 pc), power cord (1 pc)
All the necessary adaptor and power card should be provided for functioning of microscope.
One additional halogen lamp should be provided.
Instruction and operational manual
Computer: Window 7, core i5 processor, 4.0 GB RAM, 500 GB Hard Disc, DVD Writer, 19" TFT Screen, Color Monitor, with appropriate UPS for computer, DVD Writer and Laser Printer.

Cooled CCD camera with 12.5 mega pixels. The cooling temperature of the
CCD should be minimum 10° C irrespective of room temperature
Image analysis software for Microbiology application

Projection Microscope

A round screen, diameter 150 mm screen,(removable to take image on screen with magnification upto 400X), equipped with triple revolving nose piece, coarse and fine motion knobs . Built–in base transformer with solid state variable light control arrangements. Bulbs Halogen 6V-20W. Complete in card board carrying case and vinyl cover.

Ach. Objectives: 10X & 45 X

Huy.Eyepieces: 10X & 15x

DARK GROUND MICROSCOPE

Should be equipped with imported dark field condenser and 100X oil immersion, with built-in Iris diaphragm

- having ball bearing quadruple nosepiece, built-in co-axial stage, both sides gradulated for slide manipulation, coarsemotion with universal locking device and highly sensitive fine focusing reading to 0.002 mm

-also supplied with interchangeable bright field condenser and all imported specially coated optics for fungus protection

-Eye piece 10X (wide field)

-objectives 4X, 10X, 40X and 100X oil immersion, springmounted with built-in Iris diaphragm

- complete with 6V, 20 W halogen lamp with controlled power system, solid state intensity control - All accessories

Advance Fluorescence Research Microscope with Accessories

Microscope should have reversed sextuple revolving nosepiece to accommodate six objective at a time

- 40x-1000x for magnification with Infinity optical system
- Mech. Tube Length of 200 MM with parafocal distance of 60 MM
- Siedentopf design super wide filed Trinocular eyepiece tube which should be inclined at 25 degree angle with field of vision (F.O.V.) 25 MM or better. Should be anti-fungus type
- 10X (2pcs) eyepiece lens with both sides Diopter adjustment (F.O.V. 25MM) should be Anti Fungus type

-High numerical aperture (N A) Achromatic objective (Japanese/ German type)

Objective	N.A	W.D.
4X	0.10MM	30MM
10X	0.30MM	16.0MM
40X	0.75MM	0.72MM
100x OIL	1.30MM	0.2MM

- Fine- 0.1MM/ rotation
- Coarse-14MM/ rotation
- Coarse motion torque adjustable refocusing stopper should be incorporated.
- Rectangular mechanical stage with double slide holding capacity
- Achromatic swing out condenser N.A.0.90/0.22

-12V-100W Halogen Lamp

- Built-in auto photo preset switch

-130W precentered mercury light illuminator with long lamp lifetime for Fluorescence

- Six fluorescence filter blocks in rotating turret which should prevent stray light from the reflector from entering the optical path.

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- Filter block for blue
- Filter block for green
- Filter block for UV

- Cooled CCD camera with 12.5 mega pixels. The cooling temperature of the CCD should be minimum 10° C irrespective of room temperature
  Image analysis software for histological application
- 3 yrs warranty & 7 year CMC

Computer: Window 7, core i5 processor, 4.0 GB RAM, 500 GB Hard Disc, DVD Writer, 19" TFT Screen, Color Monitor, with appropriate UPS for computer, DVD Writer and Laser Printer.

BIOSAFETY CABINET

1. The system should be microprocessor based. 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.

2. Motor must automatically adjust the air flow speed to ensure continuous safe working condition. Air flow shall be as per requirements of Biosafety regulations in respect of at least BSC II A level cabinet.

3. The cabinet noise level must be less than 30 decibel.

4. Dimensions (Cabinet Size): 4 to 6 feet. The interior of the cabinet shall be of stainless steel or equivalent material and must be smooth to ensure no risk of cuts to the users.

5. Efficiency of HEPA filter should be almost 99%

6. In order to ensure consistent and reliable down flow velocity across the supply HEPA filter over the life of the cabinet, the cabinet must use a pressure sensor (rather than anemometer) to detect pressure drop across the supply filter, rather than in just one point across the down flow. The pressure sensor must be encased in order to protect the sensor form temperature, humidity and other environmental phenomena that can impact the sensor's performance.

7. Fluorescent lamps for lighting of the interior of the cabinet. Front of the cabinet preferably be angled to help minimize glair.

8. A provision for UV light to disinfect the interior of the cabinet. UV light must be programmable to allow for specific exposure time from 0 to 24 hrs. Automatic UV switch 'OFF' on opening of front window. The front window should be made of laminated safety glass to prot4ct against leakage of UV rays and to ensure containment of potential hazardous material.

9. Safety alarm / safety display for :

   - Low air velocity

   - Faulty exhaust fan etc.

10. Power input to be 220-240 v AC, 50 Hz fitted with Indian plug.
11. CE / ISI certified or equivalent standards of repute.
12. Movable stands
13. Three year warranty and annual maintenance contract for seven years which should include at least four annual services and CMC should cover UPS and batteries.
14. Calibration certificate shall be provided at the time of installation in respect of all the parameters that require calibration.
15. Comprehensive training for lab staff and support services till familiarity with the system.
16. Attach original manufacturer's product catalogue and specification sheet in English.
17. Satisfactory working of quoted model from Govt. installation of repute preferably from Delhi.
18. List of important spare parts and accessories with their part number and costing.

BACTERIAL DIGITAL COLONY COUNTER

1 Description of Function	
1.1	DIGITAL COLONY COUNTER is used for Counting colonies and measuring inhibition zone sizes for determination of microbial count in pharmaceuticals/ cosmetics.
2 Operational Requirements	
2.1	It should provide uniform, lighting of round or square culture dish up to 100 mm wide.
3 Technical Specifications	
3.1	Viewing area is illuminated obliquely by a peripheral metal reflector.
3.2	Field is magnified by a 1 to 7 mm lens, mounted adjustably on panel.
3.3	It should provide a manual electrode which used to touch the surface of culture colony at each point being counted
3.4	Count is totalized automatically on a 5 digit register, reading to 99,999
3.5	A pushbutton to reset to zero.
4 System Configuration Accessories, spares and consumables	
4.1	System as specified-
4.2	All consumables required for installation and standardization of system to be given free of cost.
5 Environmental factors	
5.1	The unit shall be capable of being stored continuously in ambient temperature of 0 - 50deg C and relative humidity of 15-90%
5.2	The unit shall be capable of operating continuously in ambient temperature of 10 -

	40deg 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	Suaitable voltage corrector/stabilizer
6.3	Suitable UPS with maintenance free batteries for minimum one-hour back-up should be supplied with the system.

7 Standards and Safety

7.1	Should be compliant to ISO 13485: Quality systems - Medical devices - Particular requirements for the application of ISO 9001 applicable to manufacturers and service providers that perform their own design activities.
7.2	Comprehensive training for lab staff and support services till familiarity with the system.
7.3	Should be FDA or CE or ISI approved product
7.4	Three years warranty, 7 yrs comprehensive AMC should be available with service centers in close proximity.

8 Documentation

8.1	User/Technical/Maintenance manuals to be supplied
8.2	Certificate of calibration and inspection from factory.
8.3	List of important spare parts and accessories with their part number and costing.

VORTEX MIXER

- Automatic press-start operation.
- Soft foam rubber pad for vibration free operation.
- Simultaneous vortex mixing of 1-4 tubes
- Speed stability to continue upto 3000 rpm
- Non slip feet
- Power supply 240 V/50 Hz

- **Standards and SafetyE**
- **The supplier should be preferably ISO certified for quality standards.**
- **Product should be FDA / CE approved or ISI approved**

Anaerobic Culture System

Features:

· Rapid- complete anaerobiasis in less than 3 minutes.
· Low gas consumption.
· Multifunctional- create anaerobic and microaerophilic environments all with one instrument.
· Built-in Quality Assurance Program (QAP).
· Fully automatic one-button operation.
· Generates high-quality atmospheres in dry conditions.
· Small footprint.
· Models available for both small and x-tra small jars.

Pressure Vaccum Pump- 150 mbar

Gas Consumption:

Micro-aerophilic standard recipe: Approx. 2 liters per jar only
Anaerobic standard recipe: Approx. 7 liters per jar only

Jars per gas cylinder:

10 litre/150 mbar>700 jars>200

10 litre/200 mbar>950 jars>200

50 litre/150 mbar>3600 jars>200

50 litre/200 mbar>4900 jars>200

Should be supplied with all jars, cylinders and accessories.

CO_2 INCUBATOR

Technical Specifications:-

- Steam jacket with internal capacity: 120 L (Approx) or as per user demand
- Minimum of 4 adjustable shelves (or as per user requirement) with separate air tight doors should be available.
- Interior chamber: Stainless steel for easy cleaning and decontamination
- Stable temperature control, excellent uniformity, and rapid recovery with no overshoot. Fan less convection circulation to provide chamber homogeneity, eliminate vibration & reduce sample evaporation.
- HEPA Filters (99.98% efficient)at the inlet to minimize contamination.
- Timer: 1 min. to 100 hours
- Temperature range: +5° C to 80°C
- Temp Accuracy +/-0.5^{0}C of required temp, with inbuilt Temperature Sensor.
- 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.
- There should be a Membrane Keypad with LCD/LED to set and display operating parameters, current status, running time and alarm conditions for time and temperature.
- Internal glass door for the observation
- CO_2 Range- 0-20%; CO_2 Accuracy: +/- 0.5%; CO_2 Inlet pressure 1.5 bars (app) and fast recovery after opening door.
- Compensation: Temperature compensation @ 0.5 deg C / min and CO_2 Compensation up to 5%+/-0.5% in 5 minutes.
- High Humidity Chamber to achieve 95% RH, minimizing sample evaporation. Independent door heater to eliminate condensation on inner glass surfaces should be available.
- 72-Hour Data Storage for CO_2 concentration, temperature, alarms and door openings should be a automatically recorded for on-screen display.
- Data output for data acquisition and printing.
- PC Connectivity through RS232C
- Communication protocols HL-7 for Networked environments to HIS
- Interior lighting facility, insulated door fitted with heavy hinges handles locking, mechanical door lock.
- Low water alarm/ indication
- On castors for easy movements

System Configuration Accessories, spares and consumables:

- System as specified-
- CO_2 cylinders 2 nos. (capacity at least 30 kg) with regular (at least one) compatible to machine part

Environmental factors:

- The unit shall be capable of operating continuously in ambient temperature of 10 -45^{0}C and relative humidity of 15-90%.

Power Supply:-

- Power input to be 220-240VAC, 50Hz fitted with plug, compatible with local electrical socket
- Resettable overcurrent breaker shall be fitted for protection
- Suitable voltage corrector/stabilizer
- Suitable UPS with maintenance free batteries for minimum one-hour back-up should be supplied with the system.

Standards and Safety:-

- Should be compliant to ISO 13485/ISO 9001 quality systems or equivalent
- Should be compliant with IEC 61010-1:covering safety requirements for electrical equipment for measurement control and laboratory use.
- Should be FDA or CE or ISI approved product
- 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. Please quote page number on compliance sheet as well as on technical bid corresponding to technical specifications.
- Comprehensive onsite training for lab staff and support services till familiarity with the system.

Documentation:

- Certificate of calibration and inspection from factory.
- List of Equipments available for providing calibration and routine maintenance support as per manufacturer documentation in service / technical manual.
- List of important spare parts and accessories with their part number and costing.
- User/Technical/Maintenance manuals to be supplied
- Log book with instructions for daily, weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out.
- Compliance Report to be submitted in a tabulated and point wise manner clearly mentioning the page/Para number of original catalogue.

TABLE TOP REFRIGERATED CENTRIFUGE

(Cold Centrifuge (-20°C))

- Table-Top centrifuge-Microprocessor Controlled with large LC Display of time, speed and temperature.
- Programmable speed with separate short spin key (in seconds).
- Brushless maintenance free motor drive with low noise levels less than 63 db at Max speed.
- Automatic rotor recognition and automatic imbalance detection.
- Double lid locking system for maximum safety.
- Maximum speed 15,000 to 17,000 rpm with maximum RCF 20,000 to 30,000 x g with speed/RCF increment in steps of 1,000.
- Wide temperature range of -20^0C to $+40^0$C and must be able to maintain 4^0C at Max speed.
- Angle rotor accommodating 24 X 1.5/2.0 ml Micro centrifuge Tubes with Max speed/RCF.
- Swing-out Rotor accommodating 6 X 50/15 ml Falcon Tubes Max speed up to 4,000 rpm/2,000 x g RCF.
- Rotor and Chamber should be made of chemical resistant and rust free material.

Suitable constant power supply backup / UPS.
Should be CE/USFDA/BIS approved product

TABLE TOP REFRIGERATED CENTRIFUGE

(Cold Centrifuge (-4°C))

- Table-Top centrifuge-Microprocessor Controlled with large LC Display of time, speed and temperature.
- Programmable speed with separate short spin key (in seconds).
- Brushless maintenance free motor drive with low noise levels less than 63 db at Max speed.
- Automatic rotor recognition and automatic imbalance detection.
- Double lid locking system for maximum safety.
- Maximum speed 15,000 to 17,000 rpm with maximum RCF 20,000 to 30,000 x g with speed/RCF increment in steps of 1,000.
- Wide temperature range of -4^0C to $+40^0$C and must be able to maintain 4^0C at Max speed.
- Angle rotor accommodating 24 X 1.5/2.0 ml Micro centrifuge Tubes with Max speed/RCF.
- Swing-out Rotor accommodating 6 X 50/15 ml Falcon Tubes Max speed up to 4,000 rpm/2,000 x g RCF.
- Rotor and Chamber should be made of chemical resistant and rust free material.

Suitable constant power supply backup / UPS.

Should be CE/USFDA/BIS approved.

Inverted Compound Microscope

1. Optical system - Infinity optical system.
2. Illumination - White LED illuminator
3. Objective - 4-position objective nosepiece; 4X,10X
4. Swivelling Siedentopf Tube
5. Viewing angle - 45°
6. Interpupillary distance-55-75mm.
7. Viewing Height-350-400mm.
8. Phase slider- Universal phase sliderPh1,Ph2
9. Condenser- LD condenser working distance 70-80 mm, N.A. 0.30
10. Stage - Mechanical stage to hold petri dishes, haemocytometer
11. Provision to view roller bottles of dia.~121 mm.
12. Provision of Port to attach camera
13. Power compatibility to Indian standards

DEIONISED WATER SUPPLY

DEIONISER, WALL MOUNTED WITH CONDUCTIVITY METER, BATTERY OPERATED. TO GIVE DEIONISED WATER FROM POTABLE WATER WITH THE FOLLOWING

SPECIFICATION:

CONDUCTIVITY: 50-10 US/CM

RESISTIVITY: 0.02-0.1 MN-CM

RESIDUAL SOLIDS: LESS THAN 100 PPM

DESIRED PH TO BE 7.

MAXIMUM FLOW RATE: 4L/H

RESISTIVITY UP TO 18.3 MEGHOHM-CM AND TOC LEVELS BELOW 5 PPB.

RE-CIRCULATION PUMP TO CONTINUOUSLY RECIRCULATION WATER THROUGHOUT THE ENTIRE SYSTEM TO MAINTAIN WATER PURITY AND REDUCE THE QUANTITY OF WASTE WATER REQUIRED FOR RINSE-UP.

S/S RESERVOIR AND 250L CAPACITY.

0.2 MICRON ABSOLUTE HOLLOW FIBRE TO REMOVES BACTERIA AND PARTICULATES.

DIGITAL RESISTIVITY METER TO BE AUTOMATICALLY TEMPERATURE COMPENSATED TO 25°C.

TEMP. RANGE : 4-49°C

ORGANIC FREE CATRIDGE KIT- 2 NOS. AND CONDUCTIVITY METER (BUILT IN) TO BE SUPPLIED ALONG WITH.

Should be CE/USFDA/BIS approved product.

Technical Specifications for Dialysis Machine

Should have facility for conventional and High flux dialysis.
Machine should have two bacterial filter (Pyrogen filters) one at water inlet and one before water going to dialyser
Battery back-up for 20-30 minutes to run complete machine with heater supply
Should have Na, Bicarbonate and UF profiling
Dialysate temperatures selectable between 35 degrees C to 39 deg. C
Variable conductivity setting between 12 to 15
Should have variable dialysate flow 350-800 ml/mt and should have increasing facilty to step up by 2o ml
Should have facility to show trends curve of all parameter for 15-20 minutes
Heparin pump with syringe sizes up to 50 ml with pump flow rate from 1-10 ml/hr(0.1 ml increments)
Stroke pressure operated short term single needle dialysis
Ultrafiltration 0.1 to 2.5 litres/hr. .The in and out fluid circuit must be separated so that there is no chance of contamination in the event of membrane rupture.
Treatment parameter should be displayed by graph and digitally both
Should have integrated heat and chemical disinfection facility with both short and long disinfection programme with day knight week schedule
Should have accurate feedback control conductivity mixing technique.
Should have drain facility.
Should have accurate UF control by flow by volume control measurement technique.
Extra facilities like Blood Volume sensor,Bicart Select technique and online clearance kt/V
All important data should be presetted so that machine can be used anytime without feeding data every time
Should have automatic self test facility
Should have auto ON/OFF Facility
Should have touch button screen and large colour TFT Screen
Automatic diagnosis of malfunctioning with on line ability to show the faults with trouble (Technical service Mode)
Machine can be connected to computer to feed all data and trouble shoot whenever any problem
Blood pump rate from 20-500 ml/min adaptable to stndard A-V bloodliness

Ability to monitor pulse rate and NIBP with graphic and tabulated trends.
Audio visual alarms on limit violation of conductivity,blood leak, air leak, transmembrane pressure alarms,, Dialysis temperature alarm,dialysis can empty alarm, end of disinfection alarm,bypass alarm and blood pump stop alarm
Alarm for reverse Ultrafiltration and also be able to do sequential dialysis On line in build NIBP recording
On line cleatrence clearance monitoring –build in device for measurement and monitoring of effective urea clearance and dialysis dose(KT/V)
The unit shall be capable of being stored continuously in ambient temperature of 0 -50deg C and relative humidity of 15-90%
The unit shall be capable of operating continuously in ambient temperature of 10 -40deg C and relative humidity of 15-90%
All consumables required for installation and standardization of system to be given free of cost.
To be supplied free of cost Bacterial filters– 2 sets extra , 100 polysulfone 1 m2 dialyzers and tubings
Power input to be 220-240VAC, 50Hz fitted with Indian plug
UPS of suitable rating with voltage regulation and spike protection for 60 minutes back up.
Should be FDA , CE,UL or BIS approved product
Manufacturer/Supplier should have ISO certification for quality standards.
Shall comply with IEC 60601-2-16 SAFETY requirements of medical electric equipment part2-particular requirements for the safety of Haemodialysis equipment.

CRRT

Four pumps, one each for Blood, Dialysate, Replacement fluid and Effluent/ filtrate.

Able to perform SCUF, CVV, CVVHD, CVVDF, TPE

Clear touch screen TFT/LCD Monitor/menu driven soft keys

Blood pump speed of approx 10-450 ml/min.

Close blood circuit to prevent air to blood interface.

Short preparation and priming program and ready to start treatment within 10-20 minutes.

Arterial pressure range:	**: 250 to 300 mm of Hg**
Venous pressure range:	**: 0 to 350 mm of Hg**
Pre Filter Pressure:	: 50mmHg to -500 mmHg
Effluent Pressure:	: 350 mmHg+/- 50 mmHg
Programmable Substitution solution flow rate	: 0-5000 mL/Hr
Dialysate Flow rate	: 0-2500 mL/Hr.
Programmable Effluent Flow Rate	: 60-10000 mL/Hr

Integrated heparin pump with flow rate of 0.5 ml-5 mL/Hr. Bolus facility range 0.5mL-5mL. Bolus frequency immediate 1-24 hrs.

Capable of changing therapies.

Three weighing scales to control system with balancing accuracy of less than 1 % of total turnover in normal conditions and weighing capacity of at least 0-20 kg.

Integrated Fluid/Blood warmer for blood/dialysate warming temp range app 33-40°C(± 3°C)

Ultrasonic air bubble detector and Blood leak Detector.

Alarm in case of blood leak, air in line, pressure limit violation, empty dialysate / replacement bag, full effluent bag and advisory alarms in case of excessive TMP and filter clotting.

Should have a 30 min Battery back up including Heater and pumps.

SYSTEM CONFIGURATION ACCESSORIES, SPARES AND CONSUMABLES

Should be supplied with 5 Nos. of essential accessories such as blood line set, haemofilters and ultra filtrate bags at no extra cost.

All media and consumables for setting up and standardization should be provided free of cost in addition to the items supplied in 4.3.

ENVIRONMENTAL FACTORS

The unit shall be capable of being stored continuously in ambient temperature of 0-50deg C and relative humidity of 15-90%

The unit shall be capable of operating continuously in ambient temperature of 10 -40 deg C and relative humidity of 15-90%

POWER SUPPLY

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

UPS of suitable rating with voltage regulation and spike protection for 60 minutes back up.

STANDARDS, SAFETY AND TRAINING

Should be FDA / CE approved product

Manufacturer/Supplier should have ISO certification for quality standards.

Shall comply with international electrical safety standards

Comprehensive training for lab staff and support services till familiarity with the system

Evoked Potential Machine (digital)

Technical Specifications for EMG/EP system 4 channels: for recording of the evoked response & EMG with accessories

Essential Requirements:

1) Minimum four channel
2) With facility for up gradation
3) Standard programs for recording motor nerve conduction velocity, sensory nerve conduction velocity, repetitive nerve stimulation, F response, H reflex and blink reflex.
4) Standard program for routine electromyogram (EMG) recording motor unit potential (MUP) analysis, interference pattern analysis, single fiber EMG, jitter analysis, automatic computation wit display
5) Standard program for recording sympathetic skin response
6) Standard program for recording brain stem auditory evoked response, middle latency response and slow vertex response
7) Standard program for recording pattern reversal visual evoked potential (VEP) and LED VEP
8) Standard program for recording P300 with audiovisual paradigms
9) Standard program for recording somato-sensory evoked potentials (upper limb & lower limb) and short latency evoked potentials
10) Facilities for checking electrode-skin impedance
11) PC requirements: Intel® CoreTM i5-760 processor (2.80GHz, 1333MHz FSB, 8MB Cache) Genuine Windows® 7 Professional, 64bit (English) or higher ; 21.5" Full HD Widescreen Flat Panel Monitor ; 6 GB DDR3 SDRAM, 500GB SATA Hard Drive ; Single Drive: Blu-ray Disc Combo (DVD+/-RW + BD-ROM). Facility for internet connectivity, with facility of up gradation
12) Color laser printer & UPS with 20 minutes back up for whole system along with computer
13) Patient Data management software & archiving facility
14) MS Word based report generation facility
15) Amplifier
    i. Input impedance: 1000 mega ohms or more
    ii. Sensitivity: 2 microvolt – 10 millivolts per division
    iii. Time base: 0.1 millisecond – 0.5 seconds per division in variable steps
    iv. Filters: Standard low cut filter (0.2 to 2KHz), high cut filters for all recordings

Standard accessories to be provided [items-quantity in numbers]

1. Surface stimulating (reusable) – 4 [Four]
2. Surface Recording electrodes (reusable) – 12 [Twelve]
3. Concentric needle electrodes (adult size, disposable, with adequate length of the connecting cable) – 50 [fifty]
4. Concentric needle electrodes (pediatric size, disposable, with adequate length of the connecting cable) – 50 [fifty]
5. Needle holder for disposable needles – 3 [three]
6. Single fiber EMG electrode with needle holder – 1 [one]
7. Ground electrode – 4 [four]
8. Headphones and child ear tips with cables – 2 [two]
9. VEP monitor and LED goggles – 1 [one]
10. Headphones for auditory evoked potentials – 1 [one]
11. Flash stimulator – 1 [one]
12. Electrode gel – 10 [ten]
13. EMG conductive paste (200 gms or more) – 10 [ten]

14. Recording paper – 3 [three]
15. Power cable – 2 [two]
16. Ground lead – 2 [two]
17. Power requirements: 220 V AC, 50 Hz

1. All essential spare parts and service manuals should be available with the local service center and all steps should be taken for immediate servicing to prevent down time
Annual Maintenance Contract:
2. A copy of service manual should be available with local service center

Installations, Commissioning, Testing, Maintenance and After Sales Service:
1. The equivalent and all accessories should be installed, tested and commissioned at the Department where the instrument is installed, free of cost.
2. One engineer should be posted for a week for imparting training at site of installation
3. All spare parts and consumables should be available with the supplier or principals for a period of 10 years.

Equipment Specifications for 32 CHANNEL DIGITAL EEG SYSTEM FOR NEUROLOGY

Description of Function

An electroencephalograph uses electrodes placed on a patient's scalp to measure, amplify, display in graphic form, and record the weak electrical signals generated by the brain. Electroencephalography is useful in observing and diagnosing a variety of neurologic conditions, including epilepsy, related convulsive disorders, and brain death. It can also be used to evaluate psychiatric disorders and differentiate among various psychiatric and neurologic conditions. In addition, electroencephalographic studies can assist in localizing tumors or lesions on or near the surface of the brain

Operational Requirements

EEG System complete with software for acquisition and review and the compatible computer with necessary interface and printer is required.

Technical Specifications

Hardware:
1. Should be PC based with minimum following PC specifications: Pentium IV, 512 MB DDR RAM, 160 GB HDD, CD/DVD RW, 17-25" LCD TFT Display, Key Board, Mouse and UPS.
2. Number of EEG Channels should be 32 with color coding,and another eight channels for Polygraphy. Also any two channels can be configured as Bipolar, AC or DC through software
3. Facillity for simultaneous sampling of all EEG channels and multiple sampling rates.
4. Photic Stimulator with software prorammable for manual or automatic sequences.
5. Networking facility
6. DICOM compatible.

Technical Specifications:
1. CMRR should be > 110 dB or better
2. Noise < 2uV peak to peak
3. Input Impedance > 100 Mohm
4. 16 bit ADC resolution voltage of 0.153 uV

Acquisition Software:
1. Facility to combine all user defined settings into templates or protocol, for use in diffferent applications.
2. Facility forIndividual Channel Control, Customization of Montages, along with Remontage Capabilities.
3. Should display a graphical view of the current montage during the EEG recording.
4. Facility to define New Sensors should be possible as standard i.e assign to amplifier inputs, define traces in a mintage, define calclulated channels (Average, Source/Laplacian), or define trends.
5. Facility to click any point to display corresponding traces & Slide pointer to change displayed

duration of the Overview.
6. Facility for sortable list of all events placed in the recording, both automatically and manually.
7. Facility to review and add events to recorded traces.
8. Facility for automatic time counters and fevent insertion during Hyperventilation.
9. Facility to controlled display Sensitivity for User defined value.
10. Facility to choose Low & High Cut Filters along with facility to enter any user defined value.
11. Facility to file zip.
12. Facility of configurable Time Base.
13. Spike & Seizure software
14. Trend Analysis software.

Review Software:
1. Paging facility as Automatic Paging, Mouse controlled Paging and/ or Keyboard Paging.
2. Playback of EEG for one or more channels.
3. Facility for Zoom/ Magnify EEG trace,
4. Facility for Copy & Paste of EEG or Trends to reports and presentations
5. Facility for Automatic generation of reports.
6. Facility for viewing several recordings in tiled or cascading windows.

Patient Administration Software:
1. Network supported patient and test management software, archive to CD or DVD, powerful search, patient folder, workspaces.

Should have an option of upgrading the digital EEG to Video EEG with day/night camera using MPEG-2 3rd generation technology

System Configuration Accessories, spares and consumables

System as specified

Compatible Laser Printer with 600 DPI Resolution and A4 Size printing facility.-01

Standard accessories to include the patient cable and connectors with electrodes and Papers for at lease 1000 EEG Exams and all the necessary power cables and other interfaces.

OPTIONAL REQUIREMENTS COMPONENTS FOR VIDEO EEG UPGRADATION.

Environmental factors

The unit shall be capable of being stored continuously in ambient temperature of 0 -50 deg C and relative humidity of 15-90%

The unit shall be capable of operating in ambient temperature of 20-30 deg C and relative humidity of less than 70%

Power Supply

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

Resettable overcurrent breaker shall be fitted for protection

Voltage corrector/stabilizer of appropriate ratings meeting ISI Specifications.(Input 160-260 V and output 220-240 V and 50 Hz)

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

Standards, Safety and Training

Manufactures/Supplier should have ISO certificate to Quality Standard.

Should be compliant with IEC 61010-1:(or any international equivalent eg EN/UL 61010) covering safety requirements for electrical equipment for measurement control and laboratory use

Should be FDA, CE, UL or BIS approved product

Comprehensive training for lab staff and support services till familiarity with the system.

Shall be certified to be meeting the safety standards IEC- 60601-2-26 PART 2: Particular requirements for safety of EEG Systems.

Documentation

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

Certificate of calibration and inspection.

List of Equipments available for providing calibration and routine maintenance support as per manufacturer documentation in service / technical manual.

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

Log book with instructions for daily, weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out.

Compliance Report to be submitted in a tabulated and point wise manner clearly mentioning the page/para number of original catalogue/data sheet.Any point ,if not substantiated with authenticated catalogue/manual, will not be considered.

Equipment Specifications for EMG / EP SYSTEM WITH ACCESSORIES (PC BASED TWO CHANNEL)

Description of Function

Electromyographs detect, process, and record the electrical activity of the skeletal muscles .EP graphic recorders measure and document the brain's electrical response to visual, auditory, or somatosensory stimuli. Electromyographs test the functional ability of peripheral nerves by using integral stimulators to measure nerve conduction velocity (NCV), the rate at which a nerve can carry a signal from the point of stimulus by an electrode to the muscle that it innervates.

Operational Requirements

EMG System complete with EP recorders and all software and hardware is required.

Technical Specifications

1. Standard programmes for recording motor nerve conduction velocity, sensory nerve conduction velocity, repetitive nerve stimulation, F response, H reflex and blink reflex.
2. Standard programme for routine electromyogram (EMG) recording, motor unit potential (MUP) analysis, interference pattern analysis, single fiber EMG, jitter analysis
3. Standard programme for recording brain stem auditory evoked response, middle latency response and slow vertex response
4. Standard programme for recording pattern reversal visual evoked potential (VEP), LED VEP.
5. Standard programme for recording P300
6. Standard programme for recording somatosensory evoked potentials (upper limb & lower limb) and short latency evoked potentials

OPTIONAL Specifications (features can be added or deleted depending upon user department)

7.Standard programme for recording sympathetic skin response (OPTIONAL)

8.Standard programme for recording electroretinogram (ERG) and electrooculogram (EOG)(Optional)

9.Facilities for checking electrode -skin impedence(optional required alongwith Standard programme for recording sympathetic skin response)

Amplifiers:

i. Input impedance: 100 mega ohms or more
ii. Sensitivity: 2 microvolt – 10 millivolts per division
iii. Time base: 0.1 millisecond – 0.5 seconds per division in variable steps
iv. Filters: Standard low cut, high cut filters for all recordings

PC worstation with Core 2 Duo CPU with inkjet printer(colour),17" LCD/TFT Monitor, 120 GB HDD, DVD Read/Write, 1GB RAM.4 USB Port.

System Configuration Accessories, spares and consumables

1. Surface stimulating and recording electrodes – 10
2. Concentric needle electrodes (30 mm long with connecting cable) – 4
3. Minimum number of Single fiber EMG electrode – 2
4. Ground electrode – 2

5. Headphones and child ear tips with cables – 2
6. VEP monitor and LED goggles – 1
7. Flash stimulator – 1
8. Electrode gel – 10
9. Recording paper – 3
10. Power cable – 2
11. Ground lead – 2

Optional specifications:

12. ERG contact lens electrode – 2 (optional : to be asked for in the case of the ERG provision in the programme)

Environmental factors

Shall meet IEC-60601-1-2 :2001(Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility.or should comply with 89/366/EEC; EMC-directive.
The unit shall be capable of operating continuously in ambient temperature of 20-30 deg C and relative humidity of 15-90%
The unit shall be capable of being stored continuously in ambient temperature of 0-50deg C and relative humidity of 15-90%

Power Supply

Power input to be 220-240VAC, 50Hz fitted with Indian plug
UPS of suitable rating with voltage regulation,spike protection and maintenance free batteries for 60 minutes back up

Standards, Safety and Training

Should be FDA, CE, UL or BIS approved product
Comprehensive training for lab staff and support services till familiarity with the system.
Manufacturer should have ISO certification for quality standards.
Should have local service facility .The service provider should have the necessary equipments recommended by the manufacturer to carry out preventive maintenance test as per guidelines provided in the service/maintenance manual.
Shall meet IEC 60601-2-040 Safety requirements - Part 2-040: Particular requirements for Electromyographs and Evoked Response Equipments

Documentation

User/Technical/Maintenance manuals to be supplied in English.
List of important spare parts and accessories with their part number and costing.
Certificate of calibration and inspection.
List of Equipments available for providing calibration and routine Preventive Maintenance Support. as per manufacturer documentation in service/technical manual.
Log book with instructions for daily, weekly, monthly and quarterly maintenance checklist.
The job description of the hospital technician and company service engineer should be clearly spelt out.
Compliance Report to be submitted in a tabulated and point wise manner clearly mentioning the page/para number of original catalogue/data sheet. Any point ,if not substantiated with authenticated catalogue/manual, will not be considered.

SLIT LAMP

1. Should be Galilean-type converging binocular microscope type
2. Should have at least 2/3/5 step magnification.
3. Should have real fields of view of 23mm to 5.6mm dia.
4. Should have interpupillary adjustment of atleast 55 to 75 mm
5. Should have slit width from at least 0 to 14mm continuously variable.
6. Should have slit length 0 to 14 mm continuously variable.
7. Should have slit inclination from 0 to 20^{o}
8. Should have heat absorbing, red-free, cobalt blue filters
9. Should operate from 200 to 240Vac, 50 Hz input supply.
10. Should be supplied with motorized table.
11. Should have a longitudinal movement of at least 90mm
12. Should have a lateral movement of at least 95mm.
13. Should have a vertical movement of at least 30mm.
14. Should have a chin rest vertical movement of at least 55mm.
15. Should have good illumination using Halogen/xenon lamps.

AUTOMATED FIELD ANALYSER (PERIMETER)

1. Maximum Stimulus Intensity : 10,000ASB
2. Stimulus Wavelength : Broadband visible light
3. Stimulus Duration : 200msec
4. Bowl Testing Distance : 30cm
5. Bowl illumination : 31.5ASB
6. Max Temporal Range : 90 degree(Full field)
7. Stimulus/Background colour : White on White
8. General Testing Features : Goldmann Stimulus size 1 to V Foveal Threshold Testing,Automatic Pupil Measurement.
9. Data Analysis Software : Statistical package for Single and Multiple Field Analysis
10. Data Storage : Hard disk drive, Tape, Back up
11. Fixation monitoring : Heji Krakau blind spot monitor Video eye monitor
12. Printer : Laser printer
13. Should have safety certificate from a competent authority CE / FDA (US) / STQC CB certificate / STQC S 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.

ARTHROSCOPY SET

Single Chip Arthroscopic Video Camera **01**

- Resolution more than 500 horizontal lines.
- Illumination 1.5 lux.
- 1.5X digital zoom in/out control on camera head.
- White balance on the camera head.
- Zoom in out on the camera head
- Should have long lead for camera 7feet min.
- Compatible Medical grade monitor

Fully automatic light source with fibrotic cable **01**

- should have 300 watt Xenon bulb.
- Should have both manual and automatic operation.
- Fibre optical cable should have min. 7.5 feet length

Arthrocopes **01**

For knee and shoulder

30 degree autoclavable (one knee one shoulder)

70 degree autocavable

Should have

-Wide field of view.

-Optics flush to distal tip.

-Light in weight and working length more than 130 mm.

-Inflow cannulla compatible with scope with dual speed lock.

Rotatable Cannula and blunt obuturator **01**

Small joint scopy

One arthroscope with compatible inflow cannula and obturator

Shaver System (one complete Unit with following)

Control Console unit

-Should have software upgradable provision.

-Should have touch screen display control for incorporating malfunctioning into systems.

-Supply 220-240 V

-Should be able to identify different handpieces with display on console.

-Should have function of controlling brightness, contrast and alarm volumes on the consnsole.

-Ability to accept – two hand pieces simultaneously is preferable.

-Torque sensing feedback capability.

-Oscillating forward and backward drive mode in the shaver.

ACL reconstruction Set with regular interlocking pegs on femoral side Footswitch

-Should shave fully programmable footswitch as per user need.

-User should be able to control following functions via footswitch.

Capabability of forward/reverse/oscilation mode.

Ability to switch over to high/low speed.

Shaver hand piece

-Attainable speed 9000-12000 rpm. Feedback circucity to maintain required speed and torque.

-DC brushless motor.

-Flash autoclaable.

-Tool less mounting attachments.

-Suction control on the hand pieces.

-Should have forward, Oscillating and reverse mode.

Saw and drill hand piece for wire driver, drill, reamer and oscillating saw attachments with appropriate attachment. 01

Arthroscopic Mannual instruments

For large joints 3.4 mm diameter

- Grasper with alligator jaws for knee and shoulder 01
- Big bite basket forceps (St.) for knee 01
- Meniscal knife (reusable) hook st. ratchet 01
- Big bite punch rigid and left 01

For Small joints 2.0mm diameter

- Small joint punch 01
- Small joint grasper 01
- Small joint scissors 01

Thermal radiofrequency device with suction and foot switch 01

- Max. 400 watt
- Hand control on probes
- Probes for suction ablation cutting and joints.
- Preferably should have probes bending facility

Probe as applicable 01

OT TABLE FOR ORTHOPAEDIC PROCEDURES

C-Arm fluoroscopy compatible with electrical and manual operation.

Off centre table top allowing maximum free movement of C-Arm

Radio Translucent tabletop

Piston Cylinder arrangement of high precision for smooth and trouble free up/down movements even at extreme off centre positioning of tabletop

Hand switch and electrical assembly for noiseless and smooth working

Electrical control for up/down and Trendelenberg /reverse trendelenberg position

Manual control for lateral tilt

Detachable table top sections to enable Orthopedic attachments

Complete stainless steel parts
Length 183 cm or more
Width 46 cm or more
Minimum height 75 cm or less
Maximum height 100 cm or more
Lateral tilt 25 degree
Trendelenberg and reverse – 30 degree
360 deg. rotatable table top

Hand Switch with Flexible Spiral cable with 24 V DC Motor 230/240 AC Main

Ortho Attachment :-
Complete set orthopedic extension attachment for abduction, traction etc., with X-ray translucent pelvic posts, sacral rests etc., fully adjustable easy movable but stable and sturdy during procedures. The table along with orthopedic attachment should be rendered immobile by efficient break system. Construction of material should be of 304G SS.

Shall comply to BIS standards or equivalent international standards.

Total hip replacement (THR) set
(cemented, uncemented and bipolar)

1. Should be FDA or CE approved product.
2. Manufacturer should also have ISO certification for quality standards.
3. Comprehensive training for OT staff and support services till familiarity with the system onsite.Documentation User/Technical/Maintenance manuals to be supplied in English.
4. Certificate of calibration and inspection.
5.. List of Equipments available for providing calibration and routine Preventive Maintenance Support. as per manufacturer service/ maintenance manual.
4. List of important spare parts and accessories with their part number and costing.
5. Log book with instructions for daily, weekly, monthly and quarterly maintenance checklist. The job description of hospital technician and company technician clearly spelt out.
6. Compliance Report to be submitted in a tabulated and point wise manner clearly mentioning thepage/para number with authenticated catalogue/manual, without which it will not be considered.

Environmental factors

__ The unit shall be capable of being stored continuously in ambient temperature of 0-50 deg C and
relative humadity of 15-90%.
2. The unit shall be capable of operating continuously in ambient temperature of 10-45 deg C
and relative humitidy of 15-90%

Uncemented THR instruments
Shall be FDA/CE approved.

S. No	Item	Qty
1	Charnley's Self Retaining Retractor	2
2	Vacuum liner inserter 28 or 22mm	1
3	Mechanical liner inserter 22mm or 28mm	1
4	Liner/shell disassembly instrument	1
5	Liner extractor	1
6	Gun sight alignment guide	1
7	Alignment rod	1
8	Drill guide	1
9	Screw driver universal	1
10	Screw Driver straight	1
11	Modular universal handle	1
12	Screw Forceps 15°	1
13	Flexible depth guage	1
14	A Frame Alignment Guide	1
15	Linear Provisional 46X (22 or 28mm)	1
16	Linear Provisional 48X (22 or 28mm)	1
17	Linear Provisional 50,52,54,56XX (22 or 28mm)	1 each
18	Shell Provisionals 46,48,50,52,54,56mm	1 each
19	Flexible drill bit 15mm, 30mm and 45mm	1 each
20	Impacting plate for shell for various sizes	1
21	Acetabular cup remover	1

22	Acetabular reamer 40,42,44,46,48,50,52,54 and 56mm	1 each
23	Shaft of acetabular reamer	1
24	Coupling handle for shaft	1
25	Nylon face impactor	1
26	Cup impactor- positioned	1
27	Screw for left forceps 45°	1

Bipolar Hip Replacement (Cemented) Instrument set (FDA/CE approved)

S. No	Item	Qty
1	Osteotomy template	1
2	Box Osteotome	1
3	Taper reamer	1
4	Trochanteric Reamer	1
5	Straight reamer 9mm	1
6	Coupling t handle	1
7	Rasp of various sizes	4
8	Rasp Handle	1
9	Cone provisional	1
10	Allen Medullary plug of various sizes	4
11	Allen plug introducer	1
12	Cement restrictor plate and seal	2
13	Femoral pressuriser plate and seal	2
14	Stem Impactor	1
15	Stem extractor	1
16	Head trials 22/28 mm X S	2
17	Head trials 22/28 mm X M	2
18	Head trials 22/28 mm X L	2
19	Head Impactor	1
20	Liner Trial cup 39-43 mm	1
21	Liner Trial cup 45-47 mm	1
22	Liner Trial cup 51-55 mm	1
23	Shell Trial cups 39,41,43,45,47,49,51,53,55,57 mm	1 each
24	Shell Trial Holding Rod	1
25	Forceps	1
26	Reamer adapter	1
27	Judet Head Extractor	1

Uncemented THR (CE/FDA approved)

S. No	Item	Qty
1	Osteotomy guide 9-10 mm, 11,12-13, 14-15	4
2	Box Osteotome small	1
3	Tapered awl	1
4	T handle with chuck	1
5	Trochanteric reamer	1
6	IM reamer 9-15 mm in 0.5 increment	1 each
7	Rasp 9,10,11,12,13,14,15 mm	1 each
8	Rasp alignment tip 9,10,11,12,13,14,15	1 each
9	Rasp tip wrench	1

10	Calcar planer	1
11	Cone provisional 09/110, 11, 12/13, 14/15	4
12	Femoral Head provisional 22mm	3
13	Femoral Head provisional 28mm	3
14	Rasp Handle	1
15	Alignment Rod	1
16	Stem Impactor	1
17	Stem driver/ insertor adaptor	1
18	Extractor hammer	1
20	Tommy bar	1

Total Hip Replacement (Cemented Instruments) (CE/FDA approved)

S. No	Item	Qty
1	Osteotomy template	1
2	Box Osteotome	1
3	Taper reamer	1
4	Trochanteric Reamer	1
5	Straight reamer 9mm	1
6	Muller Rasp of various sizes	4
7	Rasp Handle	1
8	Cone provisional	1
9	Allen Medullary plug of various sizes	4
10	Allen plug introducer	1
11	Cement restrictor plate and seal	2
12	Femoral pressuriser plate and seal	2
13	Muller Stem Impactor	1
14	Stem extractor	1
15	Head trials 22/28 mm X S	2
16	Head trials 22/28 mm X M	2
17	Head trials 22/28 mm X L	2
18	Head Impactor	1
19	Acetabular reamer of various sizes	5
20	Shaft for Acetabular reamer	1
21	Coupling T Handle	1
22	Reamer adaptor	1
23	Acetabular cup trials 43,45,47,49,51,53,55,57,59	1 each
24	Cup pusher cum positioned	1
25	Alignment Rod	1
26	Pusher rod with plastic head 22 and 28 mm	2
27	Acetabular preparation drill with stop 9, 11,13 mm	1 each
28	Stem Holder	1
29	Bone cement gun: Cartridge type, Clear cartridge- disposable Blade, Two speed injection gun large selection of nozzles, upto 3 batch for Any application	1 unit

Total Knee Replacement Instrument Set
(shall be FDA/CE approved)

Sl No.	Item	No.
1	Intramedullary Drill w/Step	1
2	IM Femoral A/P Sizing Guide	1
3	Universal Handle Peg Driver	1
4	Intramedullary Alignment Guide 9&4 inches	2
5	Anterior Femoral cutting guide 1x2	2
6	Rotational Alingment Guide	1
7	IM Distal Femoral cutting Guide	1
8	IM Femoral A/P measuring Guide	1
9	IM Femoral Finishing Guide of various sizes	5
10	Torchlear Recess finishing Guide of various sizes	5
11	Notch /Chamfer Guide for various sizes	5
12	Alignment Rod, Alignment Rod with Coupler	2
13	Extramedullary Alignment Arch	1
14	Femoral Trial Left & Right of various sizes	10
15	Universal Femoral File	1
16	IM Femoral Impactor	1
17	Spacer/Align Guide of Various sizes	7
18	Femoral provisional Extractor	1
19	T. Handle with Chuck	1
20	Extramedullary Tibial Cutting Guide	2
21	Universal Ligament Retract Spring	1
22	Tibial Depth Resection Gauge 1 Nos	1
23	Femoral Recutter 1 Nos.	1
24	Stemmed Tibial Sizing plates of various sizes	4
25	Tibial Provisional /Holding Clamp 1 Nos.	1
26	Cemented stemmed Drill Guide	1
27	Cemented stemmed Tibial Drill	1
28	Stemmed Tibial Broaches of various sizes	3
29	Tibial provisional Extractor	1
30	Tibial Impactor	1
31	Stemmed Tibial provisional impactor	1
32	Short spring screw pins	4
33	Grooved shout head holding pin	4
34	Holding pins	5
35	Headless holding pin	3
36	Hexhead holding pin	3
37	Tibial Resection Guide	1
38	Articular Surface insertion instrument	1
39	Articular Surface Removal instrument	1
40	Female hex Driver/extractor	1
41	Patella tendon retractor	1
42	Hex head screw driver	1

43	Holding pin plier	1
44	Patellar clamp	2
45	Patellar Drill Guides	1
46	Patellar Saw Guide	1
47	Patellar /Femoral Drill	1
48	Patella Trials of various sizes	3
49	Female hexa Screw driver	1
50	Varus/valgus tibial recutter	1
51	LPS Articular Surface provisional locking screw	1
52	Stemmed Tibial plate provisional of various sizes	4
53	Townley femur calliper	2
54	Tibial retractor	1
55	Slap Hammer	1
56	Bone Screw Drill 3.2 mm	1
57	Recutter 2mm	1
58	A/Surface trial of various sizes	10

TECHNICAL SPECIFICATIONS OF WHOLE BODY DEXA SYSTEM (BMD)

Measurement of Bone Densitometry by DEXA (Dual energy X Ray Absorptiometry) using Fan Beam Acquisition. Multi Detector elements minimum 60 or more. Precision error of < 1%.

1. **BMD Analysis** of AP Lumbar Spine, Lateral Spine, Proximal Femur, Forearm, Supine lateral BMD using integrated motorized rotating C arm, dual hip, whole body composition of adult with sub-region analysis, and sub-region bone density, infant & pediatric whole body densitometry should be possible.
2. Facility for High Definition Instant Vertebral Assessment (IVA), software for fracture risk assessment (FRAX). Should be dual vertebral assessment
3. DICOM & PACS compatibility. Prosthetic implant/orthopedic analysis and any advanced orthopedic software.
4. Spine, small animal & whole body phantoms. Suitable online UPS for equipment
5. Requisite workstation configuration: processor with 2.5 GHz speed or more, network ready facility, minimum 500 GB Hard Disk with 500 GB External Hard Drive, 4 GB RAM, 160 GB Video Board, CD/DVD writer,
6. **UPS** with 2 hrs 30 minute or more back up.
7. Printer : Color printer.
8. Requisite configuration for additional workstation (optional) : specifications same as above workstation to view the scans for reporting, to do all the required calculations and printing of reports without being attached to the main equipment. It should have all the features and software as per the main workstation.
9. Any software upgrade should be provided free of cost.
10. Installation should be free of cost.
11. Training: onsite training for personnel and to Doctors for reporting purpose at good centre : Mumbai/Delhi.
12. If the equipment is not repaired within 3 working days of complaint (telephonic/email), the firm shall be liable to pay a penalty of Rs. 2,500/- per working day, the equipment is non functional after 3 days.
13. **Datasheets** : Please attach the original manufacture's product catalog and datasheets. Photocopied, computer generated catalogue and datasheet will not be accepted.
14. The shortlisted bidders will have to give demonstration of their quoted model before finalizing the evaluation of their bids.
15. Turnkey: The bidder will carry out the assignment on turnkey basis and may visit site before quoting to assess the turnkey requirements.

Transcutaneous Bilirubinometer

1. Method of measurement –reflectance bichromatic photometry.
2. Light source- two white light emitting diodes (LED)
3. Detector- two photocell system
4. Measuring gauge- 2-58 (in unit of TBI)
5. Optical unaccuracy- <10%
6. Imprecision (CV%)-<2%
7. Correlated between TBI and laboratory values for serum bilirubin levels- more or equal to 0.92
8. Readout- three digits liquid crystal display
9. Measuring cycle time -~2 seconds. Between the measuring cycles the device is in a standby mode.
10. Power source- 3 batteries of AAA (or LR03) type or equivalent

NEONATAL RESUSCITATION UNIT

1. Should have microprocessor based heater control and manual modes of operation.
2. Should have both skin and air modes of operation.
3. Should have user friendly touch sensitive control panel with large easy to read LED displays for air and skin temperatures.
4. Should have Quartz Infrared Heater with parabolic reflector for uniform heat radiation
5. The unit should contain an in-built double surface phototherapy unit with acceptable distance for effective treatment.
6. The heater unit should be protected by a suitable grill
7. The heater unit should be swiveling type and should be swivelled effortlessly.
8. The probes should be detachable type and should be interchangeable.
9. Should have memory back up to retrieve set data against power failure
10. Should have calibration free temperature sensors.
11. The heater should automatically cut off at 38 degree Celsius irrespective of the set parameters.
12. Should be mounted on four smooth running swiveling casters with integrated brakes.
13. Should have a monitor stand and IV drip pole.
14. Should have alarms with visual indicator for the following
    a. Temp high
    b. Temp low
    c. Probe failure
    d. Power failure
    e. Heater failure
15. Should have an examination light with ON/OFF switch.
16. Should be provided with integrated baby bed system with cassette tray compatible for taking X-ray.
17. Should be provided with withdraw able bed with head raising facility on both end.
18. Should be supported with easily removable side flaps.
19. Should have an in built suction unit with pressure control.
20. Should have an in built humidified oxygen outlet with flow meter control.
21. Should be supplied with suitable filled oxygen cylinder with cylinder holding facility at the rear side.
22. Should have manual resuscitation unit with PEEP and airway pressure control facility.
23. The unit should be made of mild steel tubular structure pre-treated and powder coated.
24. Should operate on mains supply 200 to 240V ac, 50 Hz
25. Should have safety certificate from a competent authority CE / FDA (US) / STQC CB certificate / STQC S 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.

NEONATAL VENTILLATOR WITH ALL CONNECTOR

The Ventilator should be a microprocessor based for use on premature babies from 300gms onwards .
It should be a time cycled, pressure limited ventilator with continuous flow and with the following settings parameters.

Continuous flow range : 1 to 30 LPM
Inspiratory Time : 0.1 to 3.10 seconds
Expiratory Time : 0 to 99.9 seconds
Ventilation Frequency : 0-255 BPM
Inspiratory Pressure : 0 to 72cm H2O
Trigger Mechanism : Flow Triggering mechanism detected by reusable hot wire flow sensor at the proximal end of the circuit.
PEEP : 0 to 30LPM
Base Flow : 1 to 30LPM
Assist Sensitivity : 0.2 to 5.0 LPM

It should have the following operating modes:
Assist-control, SIMV/IMV, SIMV/PSV, flow cycled Assist-control, flow cycled SIMV, CPAP, PSV, Manual Breath, PEEP, Apnea backup ventilation with user selectable apnea time interval, etc.

The unit should be mobile mounted on trolleys for easy transportation

The unit should have an auxiliary gas outlet port delivering blended gas for Nebulization during ventilation and for nasal CPAP function.

The ventilator should have built in digital monitoring facility to display important parameters like breath rate, patient initiated indicator (LED), minute volume, tidal volume (inspired and expired), percentage of tube leak, inspiratory time, expiratory time, I:E ratio, peak inspiratory pressure, mean airway pressure, peep incoming air pressure, incoming O2 pressure, hour meter and test.

The Ventilator should have easy color coded for control setting, alarm setting and monitoring panels for user friendly operation with electronic knob controls.

The unit should have audio visual alarm facility to prompt the user for improper / incompatible settings and also to indicate the following alarm conditions. Low PEEP, high breath rate, low Inspiratory pressure, high pressure limit, failed to cycle, low gas supply, low battery patient circuit, prolonged inspiratory pressure, flow sensor fault, Apnea, etc.

The unit should have an integral air oxygen blender with proper bleed facility for accurate blending of air and o2 and should have an auxiliary outlet to provide nebulisation as and when deemed necessary.

The unit should be supplied with electronic humidifier, pole stand and two sets of reusable patient circuit.

The unit should have an analogue pressure gauge to measure proximal pressure and peep.

The unit should be supplied with the reusable flow sensor which is factory calibrated and should not have onsite calibration.
The unit should have volume limit feature to avoid volutrauma conditions.

The unit should operate on 240 VAC supply with built in rechargeable battery backup for 30 minutes.

The unit should have an audio-visual low battery alarm to indicate the user when the battery voltage falls to a level below which the unit may fail to perform satisfactorily.

The ventilator shall be adequately protected against and be able to withstand the prevailing climatic conditions in Bihar.

The Ventilator should be suitable for the operation with temperatures from 10 degrees to 40 degrees with a relative humidity of 0 – 99%.

The Ventilator should be provided with a line power cord of acceptable durability, quality, length and current carrying capacity.

Equipment should include power [plugs that are sufficient for maximum voltage and current of the equipment.

If fuses are used, a spare fuse should be provided permanent marking near each fuse holder should indicate fuse ratings.

Equipment performance should not be affected by electromagnetic interference radiated or conducted through power lines from another device.

Equipment should have no sharp edges, should be securely mounted and should provide adequate protection against moving and electrically energized parts. for easy access to serviceable parts.

Packaging and Storage:
Packing of the equipment should be easy to open and well labeled and marked with devices name and sellers name and address.

Equipments should be able to withstand temperature and humidity extremes likely to be encountered during storage and transportation.

Equipment should conform to international quality standards like CE/USFDA.

Incubator - Baby

1 Description of Function

1.1 An infant incubator provides a closed, controlled environment that warms an infant by circulating heated air over the skin. The heat is then absorbed into the body by tissue conduction and blood convection. Ideally, both the skin and core temperatures should be maintained with only minor variations.

2 Operational Requirements

2.1 High quality with humidity and servo controlled double walled with cabinet incubator.
2.2 Microprocessor controlled, easy access control panel with feather touch switches
2.3 With a facility to elevate base to offer adjustable range
2.4 Facility with both servo control as well as air temperature control and servo humidifier
2.5 Accommodates shelves and IV poles.
2.6 The quality of the material used should very high and crystal transparent
2.7 Super quality microprocessor based control system - self test functions are performed
2.8 System required complete with Oxygen port with tubing and Gel Mattress.

3 Technical Specifications

3.1 Continuous bed tilt up to 8° on either sides
3.2 Head end raise facility with auto lock.
3.3 Both visual and audible alarms for
    (i) Patient and control and high / low temperature alarm.
    (ii) Air circulation / probe / system / power failure alarm.
    (iii) Humidity control alarm.
3.4 Facility to take x-ray and weight without removing baby.
3.5 Facility to display and trends of temperature information on compatible monitors with other physiological parameter
3. 6 Height 140 cm + 5 cm, depth at least 60 mm , width at least 90 mm. Mattress to hood distance 40 cm working level – 90 to 100 cm. Iris port for tubing, probes, leads. 4cm foam mattress, easily cleanable. With at least 4" diameter caster wheel with swivel in all directions and with front lockable wheels. Two shelves cabinet with door. Weight 90-100 kg.
3.7 Patient control (Servo) mode – 35 deg-37 deg C. and Air Control (Manual mode)- 20 deg C to 39 deg C
3.8 Air velocity less than 10 cm/sec with inner wall.
3.9 Temperature variability less than +/-0.2 deg C. and Temperature resolution 0.1 deg C
3.10 Average oxygen input concentration range 5-15 liters/min or 25-70%.
3.11 Humidification adjustable electronically with digital display .
    Standard: 10-80% dependent on nursery environment and incubator temperature setting.
3.12 Double wall canopy with Six hand ports with elbow operated flaps with separate ports for tubing.
3.13 CO2 flushing, according to lEC 601-2-19 / 105.1 Maximum C02 concentration inside incubator 0.2%
3.14 Servo control for Oxygen with integrated monitoring
3.15 Air filter :- 0.3 micron
3.16 Built in weighing scale with sensitivity of ± 5 gm
3.17 Mattress should be radiolucent
3.18 Provision for X ray cassette holders
3.19 Two drawer storage facility and two platforms for keeping monitors , able to bear at least 5 kg weight each.

4 System Configuration Accessories, spares and consumables

4.1 System as specified

4.2 Two sets of extra non disposable temperature sensors and humidification sensors.

5 Environmental factors

5.1 Shall meet IEC-60601-1-2 :2001(Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility or should comply with 89/366/EEC; EMC-directive.

5.2 The unit shall be capable of being stored continuously in ambient temperature of 0 -50 deg C and relative humidity of 15-90%

5.3 The unit shall be capable of operating continuously in ambient temperature of 10 -40 deg 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 Suitable UPS with 30 Min Backup for Monitoring and alarm system.

7 Standards, Safety and Training

7.1 Should be FDA/CE or BIS approved product

7.2 Manufactures/Supplier should have ISO certificate to Quality Standard.

7.3 Electrical safety conforms to standards for electrical safety IEC-60601-2-19:Medical Electrical Equipment part 2 Particular Requirements of Safety of Baby Incubator.

7.4 CMC should provide 4 non disposable temperature sensors and sensors for humidity control every year per incubator.

8 Documentations to be provided

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

8.2 Certificate of calibration and inspection.

8.3 List of Equipments available for providing calibration and routine Preventive Maintenance Support. as per manufacturer documentation in service/technical manual.

8.4 List of important spares and accessories with their part number and costing.

8.5 Log book with instructions for daily, weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out.

Phototherapy unit, single head, high intensity

Technical Specifications:

Heavy base mobile stand phototherapy unit

Hood should Properly Streamlined with proper Ventilation.

Antistatic castors, 2 with breaks

Single head, surface size, approx: 0.50 x 0.75 m Head height adjustable, approx: 1.40 to 1.75 m Blue light, 4 Compact Fluorescence Tubes (CFL), approx: 20 W

White light, 2 Compact Fluorescence Tubes (CFL), approx: 20 W Separate On Off Switch for White and Blue Light

Tubes are protected by grill (Chrome plated wide mesh)

Irradiance at skin level, up to: 40 uW / cm2 / nm Wavelength: 420 to 500 nm, with highest intensity at 470 nm

Integrated cumulative hour timer

- Power requirement: 220 V / 50 Hz
- Device is produced by ISO 9001 certified manufacturer (Certificate to be submitted).
- CE/FDA/BIS approved product. (Certificate to be submitted).

Shall meet IEC-60601-1-2:2001(Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility. or should comply with 89/366/EEC; EMC-directive. (Submit the report)

Supplied with:

- 2 x spare blue CFL tubes
- 1 x spare white CFL tube

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

RADIANT WARNMER

Technical Specifications:

- Mobile newborn Servo Control resuscitation table/Basinet with fixed- height radiant warmer
- Antistatic castors, 2 with breaks
- Table surface made up of Polycarbonate (Transparent) with mattress
- Mattress-padding: foam density approx. 21 - 25 kg /m^3
- Matt ress cover: removable with zipper, waterproof, washable, resistant to cleaning with chlorine based solution and flame retardant
- Side boards transparent Polycarbonate, drop down and lockable
- Under table 2 storage drawers
- Side rails wi th pla teform allow for mounting of accessories
- Hood suspended above the table integrates heating element and overhead light
- Overhead light: 2 x a t le a s t 50W halogen spot, with separate On –Off Switch
- Integrated support for two 10 L oxygen bottles
- Control unit has flow meter and displays pressure
- Ceramic Heating element at least 600 Watt (Power Selectable) : 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 38°C (user pre- settable)
- Monitoring of skin temperature by means of sensor, range: 30 to 42°C
- Heater output: 0 to 100 % in increments of 5 % with display of Heat output.
- Control unit: audiovisual alarms according to timer and temperature presets avoiding overheating
- Digital Display systems errors, sensor failure
- Power requirement: 220 V / 50 Hz
- Device is produced by ISO 9001 certified manufacturer (Certificate to be submitted).
- CE/FDA/BIS approved product. (Certificate to be submitted).
  Shall meet IEC-60601-1-2:2001(Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility. or should comply with 89/366/EEC; EMC-directive. (Submit the report)

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
- 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

SPECIFICATIONS OF DOUBLE SURFACE PHOTOTHERAPY UNITS

1. Double surface phototherapy machine having Upper and lower surface phototherapy outputs as below and a baby bassinet having transparent baby bed side rails made of acrylic. All these should be mounted on a stainless steel stand (scratch and rust proof, Epoxy / Powder coated) with three or four castor wheels with brakes and earthing facility.

a) Upper surface phototherapy

Should have 4-blue and 2-white compact fluorescent lamps (CFLs)

With irradiance of at least 18μW/cm²/nm

Wave-length range of 420-470 nm

Mounted on a stainless steel canopy with adjustable height facility and well fixed baby protection sheet

Re-adjustable time totalizer for counting total elapsed life of CFL lamps.

b) Lower surface phototherapy:

Should have 6-blue compact fluorescent lamps (CFLs).

With irradiance of at least 18μW/cm²/nm

Wave-length range of 420-470 nm

Mounted on a stainless steel canopy fixed at 45 cms from baby bassinets and covered with adequate insulation sheet/ covering (to avoid soiling and short circuiting) with adjustable height facility and baby protection sheet.

Re-adjustable time totalizer for counting total elapsed life of CFL lamps

2. CVT of appropriate voltage adequate for the equipment – 1 KVA with each unit.

3. Power supplies – 220-240V A.C.

4. Should confirm to IEC – 601 safety standards.

5. Should be ISO 9001: 2000 & 13485 certified.

Paediatric Ventilator with All Connectors

1. Should be a Microprocessor Volume Cycled Pressure Limited
2. Ventilator for use on Paediatric to Adult Patients.
3. Should have the following modes:
    a. Controlled Assisted,
    b. SIMV,
    c. CPAP and
    d. Advanced modes – PVC, PC, PSV, SIMV/CPAP, Base Flow, Flow Trigger etc.
4. Should have a REUSABLE external flow sensor which works on pressure difference (Should not be Semi-disposable or disposable)
5. Should be able to control the inspiratory flow depending on patient conditions.
6. Should have Volume Guarantee features during spontaneous breaths.
7. Should have back-up ventilation.
8. Should be able to monitor the following:
    a. Exhaled Tidal Volume
    b. Total Minute Volume
    c. Total Breath Rate
    d. Spontaneous Rate, I:E Ratio, Insp. Time
    e. Backup percentage, mean, peak & plateau pressure
    f. Different types of breaths etc.,
9. Should have all necessary Audio- Visual Alarms.
10. Should have:
    a. Tidal Volume Range : 0.03 – 2.00 Ltrs
    b. Rate : 0 – 120 BPM
    c. Peak Flow : 5 – 150 LPM
    d. O2% : 21 – 100%
    e. Peep : 0 – 50 Cms H2O
11. Should have facility for inspiratory pause and expiratory hold
12. Should have built-in Nebulizer.
13. Should have built-in NOISE LESS compressor.
14. Should have Graphic Display to Monitor Flow
15. Volume Plus pressure Curves & Loops.
16. Unit to be supplied with UPS with a battery back up of 2 hours.
17. A low battery alarm should visibly and audibly indicate when the battery voltage falls to a level below which the unit may fail to perform satisfactory.
18. Recharging of battery within 16 hours after depletion.
19. Battery should be easy to recharge / replace.
20. Non – suppressible alarm for oxygen supply failure.
21. Equipment should conform to the equivalent Indian Standard or other
    Equivalent international or third country standard (CE/FDA certification) for good manufacturing practice and safety.

ECHOCARDIOGRAPHY (Paed)
TECHNICAL SPECIFICATIONS

1. Should be a stand alone system integrated on a light weight mobile cart.
2. The system should be a color Doppler Echocardiography all digital beam former system to study the anatomical abnormalities and blood flow in the heart and associated vessels. Should be a stand alone system integrated on a light weight mobile cart.
3. Should be a latest generation Electronic Phased array Color Doppler system with minimum 512 Electronic independent channels.
4. Should have 256 gray shades for sharp contrast resolutions.
5. Should be supplied with adult and pediatric cardiac and vascular probes of wide band transducers without frequency selection for higher sensitivity of response over a broad frequency range of operation.
6. Should have 2D, M-mode, Anatomical M-mode, Color M-mode, PW and CW doppler, Steerable CW doppler.
7. The system should have a very high dynamic range of at least 200dB to pick up subtle echoes.
8. Should have three active ports.
9. Should have 2-4 Mhz broadband phased array sector probe for adult cardiac imaging.
10. Should have 3-8 Mhz broadband phased array sector probe for paediatric and neonatal cardiac imaging.
11. Should have 3-12 Mhz broadband Linear Array probe for vascular imaging.
12. Should have multi frequency convex array probe 3-10 MHz for paediatric imaging
13. Pencil probe (optional)
14. Should have advanced tissue Harmonic Imaging.
15. Should have color flow imaging.
16. Should have color Tissue Doppler Imaging.
17. Should have gain control in Axial Plane.
18. Should have triple imaging possibility on the system.
19. Should have PW/CW Doppler facility in all imaging phased array sector probes.
20. Should have 15" or more high resolution TFT monitor with tilt and swivel facility and should be able to view in all angles and all light conditions.
21. Should have greater than 5000 images in the system hard disk drive
22. Should have in built CD/DVD writer.
23. Should have patient reporting page with embedded images.
24. Should have full functional measurement facility and calculation should be possible.
25. Should be supplied with thermal printer and 6 packs of thermal paper and the unit should have option to connect external printer.
26. Unit should function with 200-240Vac, 50/60 Hz input power supply.
27. Unit should be supplied with suitable UPS with a minimum 30 minutes back-up time.
28. Should have safety certificate from a competent authority CE / FDA (US) / STQC CB certificate / STQC S 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.

BINOCULAR MICROSCOPE COMPOUND

1. Optical system should be infinity corrected.
2. System complete with illumination system is required.
3. Body: Binocular, sturdy, stable base body with focus adjustment controls.
4. Eye piece: Paired, high quality, (the image of the object as seen through the binocular eyepiece should be well defined centrally in at least 2/3 field of view), achromatic, wide field, 10x with inbuilt pointer. The eyepiece should be aplanatic and have a minimum field number of 18. Diopter adjustment must be present on one/ both eye pieces or on the eye piece tube.
5. Objective: Three objectives10x, 40x, 100x, 10x and 40x objectives should have numerical apertures of 0.25 and 0.65 respectively and should be of spring loaded type or otherwise.100x should have numerical aperture of 1.25 and should be of oil immersion and spring loaded type. Suitable prominent marking should be provided on100x for easy identification. Unbreakable containers to be provided for storing the objectives. All objectives should be wide field, achromatic and parafocal. Making for the Objectives :Each objective should be engraved with the following information's :-

- Name of the manufacturer
- Magnification and numerical aperture, for example,10x/0.25
- 100x objective should be engraved with the word 'Oil' in changing from one objective to another or reintroducing the same objective by rotation of the nosepiece, the object at the center of the field should not appear displaced by more than 0.02 mm in the object plane in any direction.

6. Nose piece: Revolving nose piece to accommodate a minimum of three objectives with click stops. It should be provided with ribbed grip for easy rotation mounted on a precision ball bearing mechanism for smooth and accurate alignment. Extra ports if any should be fitted with dust proof metallic/ebonite caps.
7. Stage Uniformly horizontal, mechanical stage having dimensions of length 140 mm (+/-20mm) with fine vermier graduations (minimum reading accuracy of 0.1 mm). the stage should be provided with spring loaded slide holder for exact positioning of specimen/ slide. It should be designed with convenient sub-stage vertical coaxial adjustment for slide manipulation. The stage should have ball-bearing arrangement to allow smooth travel in transverse directions i.e. 80 mm (+/-5mm) and front to back direction, 50mm (+/-5mm).
8. Sub-stage condenser: Abbe-type condenser, numerical aperture (N.A.) 1.25 focusable with rack and pinion arrangement incorporating an aspherical lens and an iris-diaphragm. The

condenser should have a filter holder and removable/ swing in/ out blue filter (suitable for bright field Microscopy).

9. Sub-stage illuminator:

   1. The system should have a build-in variable light source (Illuminator). This light source should have a 20 W, 6 V Halogen lamp. The circuitry for the light source should include a constant voltage supply. The system should be provided with a step down transformer and an on-off switch and intensity control. The lamp should be provided with a lamp socket which has the facility for easy replacement of the bulb,

   2. Power Supply
      a. Voltage220V,50HzAC
      b. Should have one on-off power switch, 3 core power cord with a 3 point male plug.

   3. The system should have an inbuilt protective/ safety device to withstand fluctuations of voltage from 140 V to 280 V

   4. A plano-concave mirror in fork mounting should be supplied which would be attachable to the base for field use. (Where power is not available).

   5. The fuse for the halogen lamp should be easily accessible to the operator

   6. The Illuminator should have a build-in field diaphragm for Kohler illumination.

10. Eye piece tubes: Binocular eye piece tubes, inclined at 45 degrees, rotatable through an angle of 360 degrees, having inter-pupillary distance range of 54-74 mm or wider, covering the above mentioned range.

11. Focusing knob: Co-axial coarse and fine focusing knobs capable of smooth fine focusing movement over the full range of coarse travel. The fine focusing movement should have sensitivity of two microns or less (finer) over the entire coarse focusing stop safety arrangement should be provided.

12. General

   1. All optical parts including objectives, eye pieces and prisms should have anti-reflective coating which also gives anti-fungal property.

   2. All metallic parts should be corrosion-proof, acid-proof and stain-proof

   3. Working manual should be provided with each microscope

   4. A bottle of at least 25 ml immersion oil, a roll of lens tissue paper and lens cleaning solution (100 ml) should be provided with each microscope.

   5. One no.of anti static cleaning brush should be provided with each Microscope for cleaning purpose.

13. Microscope should be supplied with spare parts as under:
•100x oil immersion objective (as per the specifications given under B3) – one.
•Halogen bulb,(6volts,20w) – 6Nos.

- Fuses – 6 Nos.

14. All consumables including microscope cover required for installation and standardization of system to be given free of cost.

15. The unit shall be capable of being stored continuously in ambient temperature of 0 - 50deg C and relative humidity of 15-90%.

16. The unit shall be capable of operating continuously in ambient temperature of 10 -40deg C and relative humidity of 15-90%

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

18. Suitable voltage corrector/stabilizer

19. Should be FDA or CE or ISI approved product

20. User/Technical/Maintenance manuals to be supplied.

21. Certificate of calibration and inspection from factory.

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

HOT AIR OVEN

TECHNICAL SPECIFICATIONS

1. Should be operated on 230V, 50Hz single phase AC supply and having temperature ranging between 50-200ºC
2. Should be made of double walled chamber -Inner made of stainless steel SS 304 grade and powder coated outer surface.
3. Should provide with three heating elements on three sides of the equipment for uniform temperature on all shelves.
4. Should be provided with air circulating fan.
5. Should provide with a variable microprocessor based digital temperature controller with digital display and thermometer should be provided separate.
6. Should have a minimum chamber size of (L*B*H) 450*450*450 with 2 stainless steel trays with holes.
7. Should provide with air ventilations.

Equipment Specifications for Semi Automated ESR Analyzer

1 Description of Function	
1.1	ESR (erythrocyte sedimentation rate) is a nonspecific screening test for various diseases. This 1-hour test measures the distance (in millimeters) that red blood cells settle in unclotted blood toward the bottom of a specially marked test tube.
2 Operational Requirements	
2.1	Semi-Automated ESR Analyzer for quantitative ESR by using of capillary blood with kinetic photometry principle should accept any size of sample tubes and works by using all kind of anticoagulant (EDTA). System should have the following essential features :-
3 Technical Specifications	
3.1	Thru-put:Over 50-80 sample/ Hours
3.2	Principle of Measurement: By infra-Red Kinetic photometry
3.3	Loading of sample: Semi-Automated sample aspiration one by one
3.4	Reading time for each sample : Maximum 20 to 30 Sec./Sample
3.5	Sample Collection:Any type of blood collection EDTA tubes / vials
3.6	Anti-Coagulant: should work with sample collected in EDTA
3.7	Reading Temperature : 37ºC
3.8	Safety Features (Blood Sample) :Closed Cycle no touch with blood sample
3.9	Waste collection: In Safety tank at the end of cycle
3.10	Sample volume- 50 microlitre
3.11	Sample Transfer System- Automatic from loaded sample collection tube to measuring system
3.12	Correlation with Westergren Technique for blood collection in EDTA.
4 System Configuration Accessories, spares and consumables	
4.1	System as specified-
4.2	Compatible Barcode Scanner.
4.3	Vacuum Tubes-1.2 ml(box of 100)- 100 boxes
4.4	Printer paper- 10 packs.
5 Environmental factors	
5.1	The unit shall be capable of being stored continuously in ambient temperature of 0 - 50deg C and relative humidity of 15-90%

5.2	Thu unit shall be capable of operating in ambient temperature of 20-30 deg C and relative humidity of less than 70%

6 Power Supply

6.1	Power input to be 220-240VAC, 50Hz fitted with Indian plug
6.2	Resettable overcurrent breaker shall be fitted for protection
6.3	Voltage corrector/stabilizer of appropriate ratings meeting ISI Specifications.(Input 160-260 V and output 220-240 V and 50 Hz)
6.4	Suitable UPS with maintenance free batteries for minimum one-hour back-up should be supplied with the system.

7 Standards, Safety and Training

7.1	Sample Reading :As per compliance with ICSH (InternationalCommittee for the Standardization of Hematology)
7.2	Should be compliant to ISO 13485: Quality systems - Medical devices - Particular requirements for the application of ISO 9001 applicable to manufacturers and service providers that perform their own design activities.
7.3	Should be compliant with IEC 61010-1:(or any international equivalent eg EN/UL 61010) covering safety requirements for electrical equipment for measurement control and laboratory use
7.4	Comprehensive training for lab staff and support services till familiarity with the system.
7.5	Should be FDA , CE,UL or BIS approved product

8 Documentation

8.1	User/Technical/Maintenance manuals to be supplied in English.
8.2	Certificate of calibration and inspection.
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. The job description of the hospital technician and company service engineer should be clearly spelt out
8.6	Compliance Report to be submitted in a tabulated and point wise manner clearly mentioning the page/para number of original catalogue/data sheet. Any point ,if not substantiated with authenticated catalogue/manual, will not be considered.

Equipment Specifications for Automatic Cell Counter

1 Description of Function	
1.1	Automated Blood Cell Counter is used to count various types of blood cells in the blood.
2 Operational Requirements	
2.1	Automatic blood cell counter that measures 24 parameters including 5-part differential of WBC is required complete with printer.
3 Technical Specifications	
3.1	Parameters to be measured are -WBC, LYM%, LYM, MON%, MON, GRA%, GRA, RBC, HGB, HCT, MCV, MCH, MCHC, RDW, PLT, MPV, PCT, PDW.
3.2	Histogram WBC 5-part diff distribution, RBC distribution, PLT distribution .
3.3	Measurement Principle Electrical impedance method (WBC, RBC, HCT, PLT) Cyanmethemoglobin colorimetric method (HGB)
3.4	Sample volume : Whole blood upto 150 µL. It should also be able to give all parameters with a finger prick volume of app 20 µL
3.5	Throughput > 60 samples per second.
3.6	Linearity Ranges WBC 0.5-80.0 * 103/µL RBC 0.20-7.50 * 106/µL HGB 2.0-25.0 g/dL HCT 10.0%-70.0% PLT 10-999 * 103/µL
3.7	Reproducibility (CV) WBC RBC HGB HCT PLT LYM% MON% GRA%
3.8	The sampling probe should be automatically cleaned off, so that any blood stack doesn't occur.
3.9	It should take only 60-65 seconds to acquire the measurement result
3.10	Various sensors should check the condition of the instrument. If any abnormality is detected, an error message be displayed so that occurrence of trouble is prevented
3.11	Integrated thermal printer.
3.12	On board memory for about 200-250 tests records.
3.13	Monitoring and flagging functions.
3.14	Automatic startup , Electronic self checks, rinsing and background count check and

	automatic cleaning in case of blockage in capillary/ bubble in fluid.
4 System Configuration Accessories, spares and consumables	
4.1	System as specified-
4.2	Reagents and printer paper for at least 1000 test should be provided.
5 Environmental factors	
5.1	The unit shall be capable of being stored continuously in ambient temperature of 0 -50 deg C and relative humidity of 15-90%
5.2	Thu unit shall be capable of operating in ambient temperature of 20-30 deg C and relative humidity of less than 70%
6 Power Supply	
6.1	Power input to be 220-240VAC, 50Hz fitted with Indian plug
6.2	Resettable overcurrent breaker shall be fitted for protection
6.3	Voltage corrector/stabilizer of appropriate ratings meeting ISI Specifications. (Input 160-260 V and output 220-240 V and 50 Hz)
6.4	Suitable UPS with maintenance free batteries for minimum one-hour back-up should be supplied with the system.
7 Standards, Safety and Training	
7.1	Should be compliant to ISO 13485: Quality systems - Medical devices – Particular requirements for the application of ISO 9001 applicable to manufacturers and service providers that perform their own design activities.
7.2	Should be compliant with IEC 61010-1:(or any international equivalent eg EN/UL 61010) covering safety requirements for electrical equipment for measurement control and laboratory use
7.3	Should be FDA , CE,UL or BIS approved product
7.4	Comprehensive training for lab staff and support services till familiarity with the system.
8 Documentation	
8.1	User/Technical/Maintenance manuals to be supplied in English.
8.2	Certificate of calibration and inspection.
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. The job description of the hospital technician and company service engineer should be clearly spelt out

8.6	Compliance Report to be submitted in a tabulated and point wise manner clearly mentioning the page/para number of original catalogue/data sheet.Any point ,if not substantiated with authenticated catalogue/manual, will not be considered.

Equipment Specifications for FULLY AUTOMATED CLINICAL CHEMISTRY ANALYSER.

1 Description of Function	
1.1	For analysis of serum, plasma, urine, cerebrospinal fluid (CSF), hemolysate and whole blood.
2 Operational Requirements	
2.1	A discrete patient prioritized automated random access clinical chemistry analyzer,For chemistries, immunoglobulins, drug assay etc. in blood/urine/fluid with ISE electrolyte analyzer (Na+,K+,Cl). Independent calibration of photometer and electrolyte analysts and an open versatile system.
3 Technical Specifications	
3.1	Analytical Mode:End point as well as Kinetic, Automatic ,discrete, Random Access
3.2	On board parameters :Minimum 25-30 parameters
3.3	Through put:Minimum 600 test/hour without ISE test (350-400 tests with ISE). Continuous loading facility to be provided.
3.4	Sample Volume :Minimum 3 – 15 µl/test.
3.5	Reagent Volume:Maximum 150-300 micro litre for single reagent. Multi-reagent facility should be provided.
3.6	Error Check :Automatic flagging for errors
3.7	Auto dilution facility : For high value samples
3.8	Repeat Run facility :Facility to check the results by repeat run on the desired samples
3.9	Sample clot and Probe crash detection facility:For excluding erroneous analysis
3.10	Self diagnosis and trouble shooting:For minor day-to-day problem
3.11	Calibration & quality control :Linear/ Non-Linear/ Multipoint
3.12	Onboard Bar Code Facility:Bar Code ID for sample tube and Reagent Identification Facility
3.13	Reagent storage facility:Onboard refrigeration of 50 – 70 reagent bottles
3.14	Stat facility – refrigerated:Separate provision for Urgent Samples 8 – 12 preferred with refrigeration
3.15	LAN interface facility :Online data transmission facility through LAN to the Computer Network of the Hospital alongwith necessary software
3.16	Reagent system:Open system capable of working on reagent from any of the firms.
3.17	Measurement:Mono & Biochromatic with polychromatic correction for interfering

	substances.
3.18	Cuvette washing system:Inbuilt with automatic cuvette absorption measurement facility
3.19	Probe system:Separate probe for reagent and sample
3.20	OPTICAL SYSTEM: a)Light Source: Halogen/ Xenon Lamp b)Wave Length Range:340 – 800 µµ with polychromatic correction c)Optical Detection:Diffraction gratting d)O.D. Range : 0 – 2.5
3.21	Computer specification :CPU Pentium IV 2.7 GHz and above;128/64 MB RAM;1.44 MB Floppy drive;80 GB Hard Disk Drive;High Speed DVD/CD Rom 52 X: Serial and parallel pOrts ;Keyboard (IOS) , Mouse and Mouse Pad;Preloaded latest MS Windows Versions;SVGA Monitor size 15";Inkjet printer;Modem 56K;latest anti-virus SOLOMAN & NORTON.

4 System Configuration Accessories, spares and consumables

4.1	System as specified-
4.2	Deoiniser : With suitable water output capacity
4.3	Trial kits for various parameters, multi-calibrators and multicontrols.-01 set
4.4	ISE Electrodes for Na, K and Cl measurements-01 ea
4.5	Data Processor Computer with printer etc as specified above-01
4.6	All consumables required for installation and standardization of system to be given free of cost.

5 Environmental factors

5.1	Shall meet IEC-60601-1-2 :2001(Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility.or should comply with 89/366/EEC; EMC-directive.
5.2	The unit shall be capable of being stored continuously in ambient temperature of 0 - 50deg C and relative humidity of 15-90%
5.3	Thu unit shall be capable of operating in ambient temperature of 20-30 deg C and relative humidity of less than 70%
5.4	Complete installation of the system including water input and drainage system has to be installed

6 Power Supply

6.1	Power input to be 220-240VAC(Single Phase),/400-440 V (3 Phase)/ 50Hz as appropriate fitted with Indian plug
6.2	Voltage corrector/stabilizer of appropriate ratings meeting ISI Specifications.(Input 160-260 V and output 220-240 V and 50 Hz)

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

7 Standards, Safety and Training

7.1	Should be FDA , CE,UL or BIS approved product
7.2	Manufacturer/Supplier should have ISO certification for quality standards.
7.3	Comprehensive warranty for 3 years and 7 years Comprehensive AMC after warranty
7.4	Comprehensive training for lab staff and support services till familiarity with the system.
7.5	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. Please quote page number on compliance sheet as well as on technical bid corresponding to technical specifications.
7.6	Should be compliant with IEC 61010-1:(or any international equivalent eg EN/UL 61010) covering safety requirements for electrical equipment for measurement control and laboratory use

8 Documentation

8.1	User/Technical/Maintenance manuals to be supplied in English.
8.2	Certificate of calibration and inspection.
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. The job description of the hospital technician and company service engineer should be clearly spelt out
8.6	Performance report in the last 5 years from major hospitals should be enclosed.

BLOOD GAS ANALYSER

1. Should be able to measure directly PH, PCO2, PO2, Sodium, Potassium, Chloride, and Calcium in a single run.
2. Should have minimum 15 calculated parameters including SaO2,Bi-carbonate (HCO3), Standard HCO3, Base Excess of Blood (BE), Base Excess of extra cellular fluid
3. Should have a sample through put of minimum 30 samples per hour
4. Should have an automatic calibration for all the measured parameters without the use of gas cylinder
5. Electrode should be individual with ON/OFF facility and durable.
6. Should have an inbuilt printer and minimum inbuilt memory of 100 samples
7. Warm up time should be less than 30 minutes
8. Reagent pack for doing 1000 test, one deprotieniser of 125 ml, printer paper and one three level quality control of 5ml.
9. Should work on 200-240Vac 50Hz power supply.
10. Should be supplied with on line pure sine wave UPS of sufficient capacity for a minimum back of 30 minutes.
11. Should be provided with calibration certificate issued by the manufacturer at the time of installation and calibration certificate should be issued for the machine by the supplier during preventive maintenance visit in the warranty/AMC period if demanded by the end user.
12. Should have safety certificate from a competent authority CE / FDA (US) / STQC CB certificate / STQC S 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.
13. All types of electrodes supplied initially shall have one year warranty and there after any types of electrodes supplied shall have six months warranty.
14. Reagents supplied should have at least six months shelf life.
15. All consumables should have at least 45 days on-board stability.

Semi – automatic Coagulation analyzer

- It should be compact and easy to operate automated 4 channel coagulation analyzer for analyzing upto 4 differential parameters simultaneously .
- Parameters like PT , APTT , Fbg , TT and all factor assays should be possible on the coagulation analyzer.
- It should have the facility to store at least 4 reagents on-board.
- It should do automatic mixing of the cuvette after the addition of the reagent, with automatic sensing of the reagent addition.
- It should be able to store standard curve with maximum points in it memory.
- The analyzer should have a built in display and a built in graphic printer.
- Computer connection : RS 232 .
- Automatically calculates results related to the stored calibration curves with the corresponding units, activity and international normalized ratio (INR) .
- Installation and demonstration at place of working.
- Working manual.
- Start up reagents for 1000 tests.
- Standard accessories, spares as per catalogues.
- Equipments should be complete in all aspects to start working from day one including printing of results.
- Quotation for all consumables.

ELISA READER WITH WASHER
TECHNICAL SPECIFICATION

ELISA READER.

1. Should have 96 wells and should have reading capability of 1 to 96 wells individually.
2. Should have a linear measurement range of 0 to 3.000 Abs.
3. Should have wavelength range from 400 to 750nm.
4. Should have a photometric accuracy of ±3% or better.
5. Should have a resolution of 0.001Abs.
6. Should have variable speed plate shaking capability.
7. Should have easy access 8 position filter wheel
8. Machine should be supplied with 4 standard filters.
9. Should have automatic filter selection.
10. Should have automatic calibration before each reading.
11. Should have at least 6 second reading speed.
12. Should have facility for storage of calibration curves.
13. Capable of doing multi standard tests and controls.
14. Should have different types of blanking facility like air wise and well wise.
15. Should be capable of reading U, V and flat type wells
16. Should be capable of reading 8 or 12 well strip plates.
17. Should use halogen light source and two spare bulbs should be provided.
18. Should have internal thermal printer and 5 rolls of thermal should be supplied along with the unit.
19. Should have external printer connectivity option.
20. Should work with input 200 to 240Vac 50 Hz supply.

ELISA WASHER

1. Should have capability to wash flat, U or V bottomed micro plates or 8 or 12 well strip plates.
2. Should have 8 or 12 way manifold.
3. Should have 25 wash program memory or more.
4. Should have programmable washing time, volume and soaking time.
5. Should have minimum 6 wash cycles.
6. Should have continuous operating cycle.
7. Should have residual volume less than 5µl.
8. Should have removable and autoclavable plate carrier.
9. Should have in-built vacuum and dispensing pumps to ensure accurate and quite washing.
10. Should have waste bottle with full bottle alarm or sufficient mechanism to avoid spillage and damage to equipment
11. Should have solution based wash buffer intake.
12. Should work with input 200 to 240Vac 50 Hz supply.
13. Should be supplied with online pure sinewave UPS of sufficient capacity with minimum 30 minutes back up time and dust cover for both machines.
14. Should have safety certificate from a competent authority CE / FDA (US) / STQC CB certificate / STQC S 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.

Semi Auto Analyser

- Should be microprocessor controlled general purpose bi-chromatic photometer system with at least 6 filters ranging from 340 to 630nm.
- Temperature 37 self monitoring built-in incubation systems for temperature controlled absorbance reading.
- Light source : Tungsten/ halogen or higher grade with one additional bulb.
- Should have end point, kinetic and two point kinetic measurement modes.
- Should have flow cell measuring device.
- Should have inbuilt printer.
- Should have a measurement range from 0.001 to 2.300Abs
- Should have facility for reading results on LCD display.
- Should have quality control – two control/test QC survey of at least 30 points, Levy Jenny plot.
- Should have a filter half bandwidth of 10nm or lesser.
- Should have a test programme memory of 50 or more.
- Should be provided with sample carry over prevention facility.
- Should be supplied with 1 variable (10-100µl) and one fixed volume 500 µl pipettes.
- Aspiration should be based on Bellow/Peristaltic Pump/ Vacuum pump.
- Should provide 500 ml of reagents for urea, S. creatine, S. bilirubin, sugar,
- cholesterol, and Quality control 5ml one each for normal, abnormal.
- Should be supplied with on line pure sine wave UPS of sufficient capacity for a minimum back of 30 minutes.
- Should be provided with calibration certificate issued by the manufacturer at the time of installation and calibration certificate should be issued for the machine by the supplier during preventive maintenance visit in the warranty/AMC period if demanded by the end user.
- Should have safety certificate from a competent authority CE / FDA (US) / STQC CB certificate / STQC S 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.

Automatic Tissue Processor

1 Description of Function

1.1 Tissues from the body taken for diagnosis of disease processes are processed by the tissue processor in the histology laboratory to process tissues prior to microtomy to produce microscopic slides that are viewed under the microscope by pathologists.

2 Operational Requirements

2.1 Latest Model Fully automatic system carousel type with minimum 12 stations (10 reagents and 2 wax baths).

2.2 Computer controlled flow through tissue processor to automatically perform fixation, dehydration, clearing, and paraffin impregnation of tissue. Specimens should remain stationary during processing in a fully enclosed retort while processing reagents and molten paraffin are moved to and from the chamber in a programmed sequence.

3 Technical Specifications

3.1 Metal / Polypropelene tissue baskets each with a capacity of 160-200 cassettes to be met by either single or double baskets.

3.2 The tissue baskets should be such that they have a firm bottom and do not get
stuck to the sides of the reagent stations.

3.3 Reagent stations – Number of vessels: 10 (0.5- 1 litres each)

3.4 Paraffin stations– Number: 2 (0.5- 1 litres each)

– Temperature setting range: 45 – 70°C with tempera ture cut out facility (Temperature should be mentioned)

3.5 Computerized freely selectable and freely programmable Facility should be available. Easy editing and changing of programmes should be possible even during a processing run Infiltration time for each station should be separately programmable. Program start delay should be selectable without time limit.

3.6 In-built Vacuum function with fume control device.

3.7 Safety device for protection for drying of specimen in case of power failure The buckets should go back inside the respective solution when power fails and not hang in mid air.

3.8 LCD display panel with ergonomic control, fully protected control with full protection key board, audible alarm warning/ error message.

3.9 Machine should be able to cater to short time / quick process

3.10 Interrupting an automatic processing for reloading or removing cassettes before the end of a run should be possible

3.11 Should be an open system capable of using standard cassettes from open markets.

4 System Configuration Accessories, spares and consumables

4.1 Quote pricing to up gradation to another basket with similar cassettes capacity.

4.2 Basket Rotor – 01 Nos.

4.3 Metal tissue basket- 04 Nos.

4.4 Aluminium reagent vessels of 0.5-1 litre capacity each-10 nos.

4.5 Beaker covers- 11 Nos.

4.6 Wax baths complete with thermostat – 02 nos.

5 Environmental factors

5.1 The unit shall be capable of being stored continuously in ambient temperature of 0 -50deg C and relative humidity of 15-90%

5.2 The unit shall be capable of operating continuously in ambient temperature of 10 -40deg 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 Suitable voltage corrector/stabilizer

6.3 Reset table over current breaker shall be fitted for protection

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

7 Standards and Safety

7.1 Should be compliant to ISO 13485: Quality systems – Medical devices –Particular requirements for the application of ISO 9001 applicable to manufacturers and service providers that perform their own design activities.

7.2 Should be compliant with IEC 61010-1: covering safety requirements for electrical equipment for measurement control and laboratory use.

7.3 Should be FDA or CE or ISI approved product

7.4 Comprehensive training for lab staff and support services till familiarity with the system.

8 Documentation

8.1 Certificate of calibration and inspection from factory.

8.2 Compliance Report to be submitted in a tabulated and point wise manner clearly mentioning the page/Para number of original catalogue.

8.3 User/Technical/Maintenance manuals to be supplied

8.4 Log book with instruction for daily , weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out

8.5 List of Equipments available for providing calibration and routine maintenance support as per manufacturer documentation in service / technical manual.

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

Cytospin

Centrifuge should be designed for the preparation of cytological specimens.

Should have program memory storage in case of power failure.

Should have spinning speed programmable for speeds of 200 – 2000 rpm.,

Should have time window to display programmed time and remaining time from 1 – 99 minutes.

Safety alarm – audible alarm if the centrifuge is out of balance, outside the speed tolerance or if the lid is not properly locked.

Unit should not spin if the lid is not locked

Specimen safety alarm should be incorporated; users to be reminded inspecific intervals to remove specimen, protect them from air drying and improve consistency of results.

System design should prevent accidental spillage and should allow for easy disinfection.

System should have CE and UL certifications.

Enclose Gold standard products with supporting documents like traceability certificate and QC certificates.

Country of origin certificate along with date of manufacture certificate mandatory.

Should provide FDA / CE certifications.

Automated Electrophoresis System with scanner /Densitometer

Required to carry out electrophoresis based special assays on patient samples for a super speciality hospital. This has to cater to the needs of a complete onocology and nephrology set up.
I. Automated electrophoresis system for hospital clinical laboratory,
Featuring

- Automated electrophoretic run , drying staining and de-staining
- System machine should use Cellulose Acetate or Agarose strips as Matrix for Electrophoresis and separate strips and kits for Immunofixation.
- Should have two sample applicators made of special stainless steel.
- Automated control of voltage, time and current
- Gel temperature control with peltier effect
- Facility to separate serum proteins, haemoglobin, lipoproteins, CK, LDH & Alkaline phosphatase ,isoenzymes
- Facility for immunofixation
- Facility to store at least 30 application protocols
- Facility to run serum, urine & CSF samples without prior dilution or concentration
- Alarm for level sensing, timer and doors
- Samples for one gel should not exceed 10
- Equipment must not have any water sources or pumps.
- Migration Chamber should be monobloc with carbonium electrodes and should be able to give uniform distribution of current on the full strip.
- Should have multireagent (atleast 7) independent tanks.
- Process Control System should be guided by electromagnetic heads with optical sensor built in the Head.
- II. Densitometer (or) Gel scanner with the necessary accessories and software
- Either of these with the following features to be procured along with electrophoresis system
    - Scanning & processing all gels including those specified above
    - Facility to store the scanned image of the gel
    - Facility for curve editing and entry of patient demographics
    - Availability of quantification and quality control features
    - Storage of patient data and results – upto a minimum of 10000 samples
        - Facility to generate a comprehensive report containing patient demographics, scanned image of the gel, curve and quantification data

III Software upgradation to be provided free of cost upto 5 years
IV All necessary standard accessories like those required for sample application to be provided along with the instrument.
V Suitable PC with colour ink jet printer to be provided along with the equipment.
VI Online UPS suitable for the entire system with 30 minutes back up.
VII One set of standard spares
VIII Two kits of serum protein electrophoresis, one kit each of Lipoproteins, and isoenzymes of LDH and alkaline phosphatase to be provided as starter kits

Technical Specifications for Spectrophotometer

1. Instrument: Table top UV/V is Spectrophotometer capable of measuring micro liter volumes of Nucleic Acids(DNA,RNA) and proteins. Option for cuvettee should also be available.
2. The system should be capable of measuring sample volumes of 0.5 to 1µL.
3. System should have a path length of 0.5 and 1mm for higher and lower concentration measurements respectively.
4. The technology should be an open system.
5. Should not require any running or operational cost. The system should be free from any consumables like dedicated tips/capillaries/plates.
6. Light source: Xenon lamp.
7. Detector: CCD type.
8. Absorbance accuracy: 2% or better.
9. Absorbance range: 0.02 – 300nm.
10. Wavelength Range: 190 - 850nm.
11. Measurement cycle should be less than 10 seconds (preferably < 5 seconds).
12. System should have simple and easy cleaning option with minimum carryover between samples.
13. System should not require any adaptors or another accessories for operation.
14. Detection limits: Upper limit of up to 1500ng/ µL (as DNA) and lower limit of up to 2ng/ µL.
15. CE certification or equivalent.
16. Computer: Window 7, core i5 processor, 4.0 GB RAM, 500 GB Hard Disc, DVD Writer, 19" TFT Screen, Color Monitor, with appropriate UPS for computer, DVD Writer and Laser Printer.
16. Appropriate software and for Nucleic acid, protein, microarray, cytotoxicity, cell cultures, spectrum scan, kinetics and general UV/Vis should be available.

Equipment Specifications for Blood Gas Analyser With Electrolyte

1 Description of Function	
1.1	Blood gas analyzers are used to measure blood gases , electrolytes , Ph values and biochemical parameters of the blood
2 Operational Requirements	
2.1	Fully automatic, upgradeable, fast electrolyte combi analyzer
2.2	Demonstration of the system is a must
3 Technical Specifications	
3.1	Essential Measured parameters; pH, pCO2, pO2, tHb, Barometric Pressure, Na+, K+, Ca++, Cl-, Bl urea and Sr Creatanine & Blood sugar. All these parameters should be measured simultaneously
3.2	Calculated parameters should include BE, BE ecf, HCO3, Lactate, Anion Gap, SaO2 etc
3.3	Sample volume-less than 100ul.
3.4	Fast analysis time – less than 60 sec
3.5	Maintenance free electrodes with individual electrodes ON/OFF facility
3.6	Fully automatic liquid calibration of all parameters at user-defined intervals without the use of Gas calibrated reagents, external gases, tanks or regulators
3.7	Continuous reagent level monitoring with graphic display.
3.8	Data display on well-illuminated, adequate size LCD color touch screen display.
3.9	Data print out on built in graphic printer.
3.10	Built in auto Quality control facility
3.11	Automatic result processing, test ordering and transmission to the LIS/HIS system(laboratory Information System/Hospital Information System)
3.12	Automatic data archiving and customizable layout . Data backup with read/write CD-ROM drive
3.13	USB ports for easy connection of e.g. flash drives, keyboards, etc.
3.14	Hospital network integration through ASTM and HL7 standard communication protocols.
4 System Configuration Accessories, spares and consumables	
4.1	Bloood Gas Analyser -01
4.2	Reagents for one year@ 20 samples/day or as per requirement should be provided along with the machine.
4.3	Electrodes for all the parameters specified -01 set
4.4	Quality control tools/reagents for 1 year @20 samples a day-01 set or as per requirement.

4.5	Cost of reagents should be quoted for comparative evaluation.

5 Environmental factors	
5.1	The unit shall be capable of operating continuously in ambient temperature of 10 -400 C and relative humidity of 15-90%
5.2	The unit shall be capable of being stored continuously in ambient temperature of 0 -500 C and relative humidity of 15-90%
5.3	Shall meet IEC-60601-1-2 :2001(Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility.

6 Power Supply	
6.1	Resettable overcurrent breaker shall be fitted for protection
6.2	Power input :220-240V/ 50 Hz AC Single phase or 380-400V AC 50 Hz Three phase fitted with appropriate Indian plugs and sockets.
6.3	UPS of suitable rating with minimum 30 minutes back up .

7 Standards, Safety and Training	
7.1	Should be FDA or CE approved product
7.2	Electrical safety conforms to standards for electrical safety IEC-60601 / IS-13450
7.3	Manufacturer should have ISO certification for quality standards.
7.4	Stand by blood gas cum electrolyte analyzer in case of breakdown.
7.5	Should have local service facility .The service provider should have the necessary equipments recommended by the manufacturer to carry out preventive maintenance test as per guidelines provided in the service/maintenance manual.
7.6	Back to back warranty to be taken by the supplier from the principal to supply spares for a minimum period 10 years.

8 Documentation	
8.1	User Manual and Service manual in English
8.2	List of important spare parts and accessories with their part number and costing
8.3	Certificate of calibration and inspection from factory.
8.4	Log book with instruction for daily, weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out
8.5	List of Equipments available for providing calibration and routine maintenance support as per manufacturer documentation in service / technical manual.
8.6	Compliance Report to be submitted in a tabulated and point wise manner clearly mentioning the page/para number of original catalogue/data sheet. Any point ,if not substantiated with authenticated catalogue/manual, will not be considered.

Technical Specification for Handheld BPOC Blood Analysis System

1. The unit should be portable and ready to use it at any time and any where.
2. The unit should be based on Dry chemistry and the measurement Principle should be of **Fluorescence and Reflectance Technology**.
3. The system should use single Disposable Cartridges / Cassettes (prepacked)
4. The System should provide total Hemoglobin (thb) Saturation (SO2), Partial Pressure of O2 and Co2 as well as pH as standard parameters and also should offer Electrolytes like Potassium,Sodium, Calcium, Chloride and Glucose etc depending upon the Cartridges being used by theuser along with **calculated parameters** like Bicarbonate, Base Excess, Anion Gap, Total Co2 and Hydrogen Ion.
5. The results should be available after analysis with in 2 to 3 minutes which can be seen on the LCD Screen with built in Printer so as to print the results.
6. The systems should have rechargeable battery pack a minimum battery life of 8 Hours for using it in ambulance or any where in the hospital premises lie in OT/ICU/Wards.
7. The cartridges should have shelf life of a minimum of 6 months which should be stored at room temperature.
8. Should have auto aspiration of sample with facility to run CBG (Capillary Blood Samples) samples with out any adopter.
9. Should have built in auto electronic QC calibration with out the use of any reagents with validity of 2 years.
10. Should have auto detection of clot samples & Air bubbles in the sample
11. Should have capability to store minimum of 100 Blood Gas Analysis readings and able to display on demand.
12. The product should have the FDA Approval.

SHORTWAVE DIATHERMY

1. Should be microprocessor controlled solid state technology.
2. Should have continuous and pulsed output.
3. Should have an output of up to 400W in continuous mode.
4. Should have an output of up to 1000W in pulsed mode.
5. Should have a working frequency of 27.1MHz.
6. Should have a pulse width from 20 to 400 micro sec (pulse mode).
7. Should have inductive and capacitive applicator.
8. Should have a selectable treatment time from 1 to 30 minutes.
9. Should be supplied with all standard accessories including disc electrodes, rubber electrodes, mono-polar inductive electrodes, high frequency cables etc.
10. Should work with input 200 to 240 Vac 50Hz supply
11. Should have safety certificate from a competent authority CE / FDA (US) / STQC CB certificate / STQC S 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.

Ultrasound with diff. head (4 sizes) (Physiotherapy)

1. **Description of Function** Ultrasound uses a high frequency sound wave emitted from the sound head when electricity is passed through a quartz crystal. The sound waves cause the vibration of water molecules deep within tissue causing a heating effect. When the sound waves are pulsed, they cause a vibration of the tissue rather than heating. The stream of sound waves helps with nutrition exchange at the cellular level and healing. Ultrasound is helpful for ligament healing and clinically, for carpal tunnel syndrome, and muscle spasm

2. **Operational Requirements** Microprocessor based, Continuous & Pulsed modes, adjustable digital timer, auto shut off with buzzer, easy to use & sturdy machine.

3. **Technical Specifications** Microcontroller Based model

    - Timer: This is a 60 min. count down digital timer used to set the treatment time by pressing switches labeled ―F/equivalent‖ For fast reduction and ―S/equivalent‖ for slow reduction. When display shows ―Zero/equivalent‖ reading, the power output gets cut-off With an audible buzzer sound to indicate completion of treatment.
    - Treatment mode: Continuous/pulsed
    - Selector Switch: Feather touch keys are provided to select the mode of operation i.e. continuous, Pulse 1, Pulse 2, Pulse 3, or Pulse 4 which can be seen by the corresponding visual indication for each mode.
    - Power Output : 0-3 Watts per sq. cm.
    - Continuous Mode : 0-15
    - Watts Pulse Mode : 0-21 Watts
    - Frequency : 1 MHz
    - It should be supplied with all necessary accessories

4. **Power Supply** Power input to be 220-240VAC, 50Hz fitted with Indian plug

5. **Environmental Factors** 1. Shall meet IEC-606-1-1-2:2001(or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility or should comply with 89/366/EEC, EM C

6. **Standards & Safety** Should be FDA/ CE/UL / BIS approved product Manufacturer should have ISO certification for quality standards

Equipment Specifications for Q Switched Nd-Yag Laser System with Blending Facilities

1 Description of Function	
1.1	Q-switched technology, doctors are able to perform a wide range of aesthetic laser treatments, from wrinkle and acne scar reduction, multi-color tattoo removal, pigmented lesion (sun spot) removal, hair removal, and vascular lesion treatments.
2 Operational Requirements	
2.1	Should be suitable for pigmented lesions.
3 Technical Specifications	
3.1	1.Type of Laser :Nd Yag with KTP frequency doubling 2.Beam profile : Flat Beam 3.Delivery System : Direct 4.Wave length : 1064 nm / 532 nm or mixed wavelengths and 1064 nm single / 532 single 5.Fluence : Upto 15 J/cm2 6.Pulse Width : Upto 3 nsec (+/-1) 7.Dimensions(app) :20” (L), 20” (H), 15” (D)
4 System Configuration Accessories, spares and consumables	
4.1	Optional Accessories : 1. Protective Goggles (4 pairs)
5 Environmental factors	
5.1	Shall meet IEC-60601-1-2 :2001(Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility. Or should comply with 89/366/EEC; EMC-directive.
5.2	The unit shall be capable of operating continuously in ambient temperature of 20-30 deg C and relative humidity of 15-90%
5.3	The unit shall be capable of being stored 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	UPS of suitable rating with voltage regulation, spike protection and maintenance free batteries for 60 minutes back up
7 Standards, Safety and Training	
7.1	Should be FDA, CE, UL or BIS approved product
7.2	Manufacturer should have ISO certification for quality standards.

7.4	Comprehensive training for lab staff and support services till familiarity with the system on site.

8 Documentation

8.1	User/Technical/Maintenance manuals to be supplied in English.
8.2	Certificate of calibration and inspection.
8.3	List of Equipment available for providing calibration and routine maintenance support as per manufacturer documentation in service / technical manual.
8.4	Log book with instruction for daily, weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out
8.5	Compliance Report to be submitted in a tabulated and point wise manner clearly mentioning the page/para number of original catalogue/data sheet. Any point, if not substantiated with authenticated catalogue/manual, will not be considered.
8.6	List of important spare parts and accessories with their part number and costing.

RADIO FREQUENCY SURGICAL UNIT

1 Description of Function	
1.1	Electrosurgical units or Cautery are required to provide cutting and coagulation electrically during surgery
2 Operational Requirements	
2.1	RF Surgical unit suitable for dermatology applications is required.
2.2	RF Surgical unit suitable for dermatology applications is required.
3 Technical Specifications	
3.1	1. Operating frequency between 3.5 - 4 MHZ 2. Power output 100-150 watts. 3. Provision of finger switch and/or foot switch for activation. 4. Preferable not to have ground or skin contact of antenna plate. 5. Provision for cut mode, cut & coagulate mode, fulguration, dessication & hemostasis mode. 6. Adjustable volume for activation monitor. 7. Bipolar pinpoint Microfine coagulation will be preferable. 8. Line voltage of 220-240 AC. 1. Shall have autocut facility.
4 Environmental factors	
5.1	Shall meet IEC-60601-1-2 :2001(Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility. Or should comply with 89/366/EEC; EMC-directive.
5.2	The unit shall be capable of operating continuously in ambient temperature of 20-30 deg C and relative humidity of 15-90%
5.3	The unit shall be capable of being stored continuously in ambient temperature of 0 - 50deg C and relative humidity of 15-90%
5 Power Supply	
6.1	Power input to be 220-240VAC, 50Hz fitted with Indian plug
6.2	UPS of suitable rating with voltage regulation, spike protection and maintenance free batteries for 60 minutes back up
7 Standards, Safety and Training	
7.1	Should be FDA, CE, UL or BIS approved product
7.2	Comprehensive training for lab staff & support services till familiarity with the system.
7.3	Manufacturer should have ISO certification for quality standards.
8 Documentation	
8.1	User/Technical/Maintenance manuals to be supplied in English.

8.2	List of Equipment available for providing calibration and routine maintenance support as per manufacturer documentation in service / technical manual.
8.3	Compliance Report to be submitted in a tabulated and point wise manner clearly mentioning the page/para number of original catalogue/data sheet. Any point, if not substantiated with authenticated catalogue/manual, will not be considered.
8.4	List of important spare parts and accessories with their part number and costing.
8.5	Log book with instructions for daily, weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out.
8.6	Certificate of calibration and inspection.

WHOLE BODY PUVA

APPLICATIONS:

PSORIASIS, VITILIGI, LICHENPLANUS , ATOPIC DERMATITS, MICOSISFUNGOIDES AND OTHER DISORDERS CAN BE TREATED.

Technical Features

1. Less space requirement
2. Selector switch for NBUVB panels.
3. Microprocessor base digital timer accuracy
4. Individual NBUVB Hour Meter for separate panel
5. Individual MCB for separate panel
6. Imported mirror type reflectors ensure max irradiation.
7. Spike guard protection
8. MCB ensure max safety for the patient.
9. Operating voltage A.C-230v/50HZ.
10. Power consumption 6KVA
11. No of lamps 24 lamps NBUVB
12. Cooling Fan.
13. High Quality Copper Chokes for Maximum life of tubes.
14. Separate Control unit for Easy Operation.

TECHNICAL DATA

1. Types of Lamps NBUVB
2. No. of Lamps 24
3. Lamp Wattage 100 W Each
4. Electronic Time Selector Micro control based
5. Time Totalizer Micro control based
6. Reflector Aluminium (mirror type)

PROTECTIONS

1. Earth Leakage Circuit Breaker 40 Amp
2. Main Circuit Breaker 4 x 16 Amp

SIZE OF UNITS

1. Depth 47.5 inches
2. Width 47.5 inches
3. Height 84 inches
4. Weight 250 kg approx.

OPERATING VOLTAGE

2. Power consumption 6 KVA
3. Stabilizer Required 6 KVA servo voltage stabilizers

4. Initial Current 50 A
5. Running Current 25 A
6. Starter 100 W each
7. Choke Capacity 100 W each
8. Connecting Cable 3 core cable 3 metre Long
9. Castors 100 M Diameter
10. Finish Powder coated.

Electrical Dermabrader

1. Should drive any standard E-type Handpiece
2. Variable speed motor (Up to 30,000 rpm)
3. Digital rpm readout
4. Forward/ Reverse switch on console
5. Autoclavable Handpiece
6. Light weight and compact
7. Should include positive pressure, variable flow irrigation system.
8. With added LED therapy (Blue and Red)
9. With vaccum and diamond tipped handpiece.
10. With aluminum oxide crystals which are replacable.

Skin Graft Mesher

A. Meshing of Grafts in the ratio of different by changing of the carrier sheets

B. Wight base to provide added stability.

C. Completely sterilized/autoclavable unit made in stainless steel.

D. Cutting cylinder made of high tempered steel

E. Width of grafts 8 cm (3.5") x 23 cm

F. Graft integrity is maintained by state of the art of meshing mechanism that meshes the graft by pinching the skin in diamond shape pattern.

G. The unit is convenient and easy to use

H. The unique smooth operation of the ratchet handle makes the meshing effortless.

Equipment Specifications for Electric Dermatome

1 Description of Function	
1.1	A dermatome is a surgical instrument used to produce thin slices of skin from a donor area, in order to use them for making skin grafts. One of its main applications is for reconstituting skin areas damaged by grade 3 burns or trauma.
2 Operational Requirements	
2.1	The dermatome should be compact and in a case with compartments for Dermatome unit, knife clamps, conducting cord, and power supply neck
3 Technical Specifications	
3.1	Should be able to cut grafts of various widths from 5 cm to 10 cm.
3.2	Should be easy to operate with a hand, switch or foot switch.
3.3	Should be able to cut graft precisely of various thickness in thousandths of an inch.
3.4	Should be light in weight.
3.5	All the parts should be autoclavable.
3.6	Blades should be easily available.
3.7	Standard accessories.
4 System Configuration Accessories, spares and consumables	
	None
5 Environmental factors	
5.1	Shall meet IEC-60601-1-2 :2001(Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility or should comply with 89/366/EEC; EMC-directive.
5.2	The unit shall be capable of operating continuously in ambient temperature of 20-30 deg C and relative humidity of 15-90%
5.3	The unit shall be capable of being stored 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	UPS of suitable rating with voltage regulation, spike protection and maintenance free batteries for 60 minutes back up
7 Standards, Safety and Training	
7.1	Should be FDA, CE, UL or BIS approved product
7.2	Manufacturer should have ISO certification for quality standards.

7.3	Comprehensive training for lab staff and support services till familiarity with the system.
7.4	Electrical safety conforms to standards for electrical safety IEC 60601-1 (OR EQUIVALENT international/national standard) General requirement for Electrical safety of Medical Equipment.

8 Documentation

8.1	User/Technical/Maintenance manuals to be supplied in English.
8.2	List of Equipments available for providing calibration and routine Preventive Maintenance Support. as per manufacturer documentation in service/technical manual.
8.3	Certificate of Calibration and inspection from the factory
8.4	Compliance Report to be submitted in a tabulated and point wise manner clearly mentioning the page/para number of original catalogue/data sheet. Any point ,if not substantiated with authenticated catalogue/manual, will not be considered.
8.5	Log book with instructions for daily, weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out.
8.6	List of important spare parts and accessories with their part number and costing

TECHNICAL SPECIFICATION OF CO2 LASER
with Fractional, Incisional & Excisional capabilities
For: Skin Cutting, Slough Removal, Skin Resurfacing

Laser Type :**UltraPulse Fractional CO2 Laser sealed cavity RF-excited, tankless**

- **Power** : 60 Watts
- **Average power** : CW Mode: 0.05-60 Watts
- **UltraPulse Mode**: 0.1- 60 Watts
- **Wave Length** : 10,600 nm
- **Pulse Energy** **:** 2-225mJ (Adjustable)
- **Operative Mode**: Continuous, Repeat & Pulse mode
- **Repetition Rate** : 1-1000 pulses/second (User selectable)
- **Time Range** : 1ms-1sec
- **Repeat Delay** : 0.1 to 5.0 seconds
- **Pulse Width** : < 2ms (Varies with Pulse energy)
- **% Coverage/Pass** : 5-100%
- **Depth of penetration** : Up to 2000 micro meter/pulse
- **Scanner** : CPG (Computer Pattern Generator) Gun with Seven shapes 2mmx2mm-10mmx10mm, Micro Scanner
- **Transmission** : Durafite Articulated Arm, 360 degree rotation
- **1**.5 meters (5')
- **Spot Size** : 2000 micro meter,1300 micro meter,
- 1000 micro meter,200 micro meter,
- 120 micro meter.
- **Aiming Beam** : Helium or Diode Laser

635 nm, 5 mW, adjustable intensity, on/off lasing, blink on/off

Power Supply : 120V / 200-240V, 20A / 16A ± 10%, 50/60 Hz, single phase

- **Cooling System** : Self contained , Closed Cycle

- **Standards** : CE,UL,CSA

This machine should have following Accessories:

1) Power Back & Stabilizer/UPS (1)
2) Inbuilt Power Meter
3) Safety Goggles (10)
4) Eye Shield & Cornea shield (2)
5) Buffalo Whisper Turbo Smoke Evacuator (1)
6) Constant flow air pump for purge line of delivery devices (1)
7) Large, touch screen LCD color display (app 10.5")
8) True Collimated Hand Piece
9) 2 Fractional Hand Pieces

   Spot Size : 1.3mm, 0.12mm
10) 2 Focused Incisional hand pieces

    (Spot size : 0.2mm and 1mm hand pieces)
11) lens cleaning paper
12) 1 External Air Compressor
13) 2 Laser Warning signs
14) Operator Manual
15) Principal company should be present in India

Post sales service from Principal Company

Intense Pulse LIGHT

Description of Function: Intense pulse Light is a technology, aimed at producing light of high intensity during a very short period of time for hair removal and skin rejuvenation.

Technical Specifications:

Source of Light: Intense Pulse Light.

Standard Spectrum: 500-1200 nm.

Fluence: 30J/cm^2

Pulse Duration: minimum 6 ms.

Integrated Skin cooler on handpieces.

Handpieces:

a. One dedicated for Hair removal.
b. One dedicated for acne treatment.
c. One dedicated for vascular treatment

Filters of suitable wavelengths shall be provided for hair removal, Skin rejuvenation active acne treatment and treatment of vascular and pigmented lesions.

Shall be operated by handpiece and foot switch.

Standards:

CE/USFDA

VASCULAR DOPPLER

1. Operational Requirements

1.1 Suitable for screening the arterial and venous insufficiency

2 Technical Specifications

2.1 Should be portable, hand held

2.2 Should have Ankle Brachial index

2.3 Should be Provided with 8 MHz Doppler transducer.

2.4 Option ; Interchangeable with 2/3Mhz Doppler transducer.

2.5 Should have Superior Sound quality audio out put

2.6 Should be battery operated

3 **Documentaion**

3.1 User manual -02 nos

3.2 Service manual in English -02 nos

3.3 Certificate of calibration and inspection from factory.(validation program desirable)

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

Nd:YAG laser, 1064 nm, continuous – wave (cw)

Power Applied to the tissue
0.5 – 60 W

Modes of operation
• Continuous – wave (cw)
• Pulse mode
- single pulse
- pulse repetition
Time increments:
0.1s between 0.1 and 1.0 s
1s between 1 and 10 s
Pulse repetition:
ON/OFF time options: 1/1, 1 /2, 1/3

Pilot laser
1 mW, cw, red
5 mW, cw, red
Wavelength 670 +/- 10 nm

Control
Microprocessor

Values displayed
Operation mode, laser power, pulse duration, pilot laser stage, special values (total energy applied, pulse rate, irradiation time)

Cooling
Air-cooling system with closed water circulation system.

Optical fiber connector
Numerical aperture of coupler: NA < 0.2
SMA – 905 connector, suitable for fibers with
260, 400, 600 pm core diameter and NA > 0.2

Integrated automatic fiber tester
Electrical connection
208-240 V AC, 50/60 Hz, 12 A
-Should be ISO Certified

FUNCTIONAL SPECIFICATIONS OF Nd: Yag Laser 60W
• The laser should be compact, microprocessor controlled, continuous wave solid state lasers.
• The laser head and the supply unit should be separated and it can be installed separately, if required
• System should be advanced solid-state laser technology with solid quartz cavity.
• System should be compatible to 600 –micrometer and 400 micrometer fibers, super-thin 260-micro meter fibers for superior power density across the entire power range.
• Cross system use due to SMA –9056 fiber connection.

• Multiple protections of the SMA fiber connector and the focusing lenses by heat sensor, integrated protective glass and protective cover.
• Excellent power stability over the whole power range
• Integration of optomechanical components into a rugged, torsionally rigid, hermetically sealed laser block should ensure
- That no user readjustments are necessary
- Permanent availability of the laser
• Should have a highly sophisticated design showing in utmost user friendliness and easiness of use: just a few buttons should give the user full control over a powerful and intelligent device
• Special function display (total energy applied, stop watch and pulse counter)
• High level of operating and functional safety with microprocessor-controlled multiple monitoring of all operating functions.
• The electronically controlled coupling-in system should guarantee trouble free laser light transmission through the fiber.
• The beam quality provided by the lasers should allow transmission through thin 260 Micrometer fibers and laser application through micro endoscopes and guidable catheters should be possible at a minimum working channel diameter of 500 Micro meter.
• It should have non-contact application mode.
• Internal power meter should be available to check the delivery of set power
• It should display easily understandable error codes in case of any malfunction of the system.
• Various error codes should be available to enable the user to know the defect at the user level
The Nd:YAG laser should be able to use for softissue coagulation, vaporization or cutting, either on an endoscopic or open-surgery basis using a contact or non-contact technique.

The System should consist of

• Laser Head
• Supply Unit
• Foot Switch, 2 step
• Flyer and suport bracket
• Deionization Cartridge
• Cover
• Fiber test adoptor
• Laser warning signs
• User Manual
• Anti-laser goggles
• Fiber preparation set
• Replacement knife for fiber preparation set
• Replacement stripper for 400 Micro meter fibers
• Replacement stripper for 600 Micro meter fibers
• Protective glass for fiber tester
• Silicon pad for flyer and fiber preparation set
• Replacement filter mat for fan
• SMA connector cover
• Flyer
• Supporting brackets

Bare Fiber 600u, 3m. 1
Laser Goggles 2
Laser Goggles 2
Fuber handle without tip 1
Tip for Fiber handle 5cm 1

Tip for Fiber handle 8cm 1
Focussing handpiece basic body 1
Fiber for 260 UM 1
Fronttube short green 1
Frontlense Green f=30mm 1

Specification for Ultrasound Machine (Paediatric probes)

The system should be latest fully Digital Color Doppler Ultrasound System and can be used for applications like Abdominal, Obs. / Gynae, small parts, Endocavitary, Paediatric & Vascular applications. The system should have following essential features:

1. The system should have the following image modes:2D, M mode ,PW, Tissue Harmonic mode , Color Doppler, Power Doppler mode.
2. The system should have minimum 1500 or more digital processing channels and 256 or more grey shades.
3. The system should have a very high dynamic range of 170dB or more and should independently selectable in B & M mode. Please specify the range.
4. The system should have a very high frame rate for B-mode & Colour mode. Maximum frame rate should be greater than 350 fps for B-mode & colour mode. Please specify the maximum frame rate in B-mode & M-mode.
5. The system should be able to support all type of transducers (Convex, Endocavitary, Linear, Phased array and Intraoperative Transducers).Frequency range of all transducers should be 2-14Mhz.
6. The system should have advanced measurement packages for all applications.
7. The system should an integrated high resolution TFT/LCD of 15 inches or more with facility of tilt and swivel facility alongwith convenient grip.
8. The system should have minimum three active universal ports & two parking ports. Active ports can be directly selectable from the control panel.
9. The system should have scanning depth in the range of 2- 24cms.
10. The system should have a very high capacity of Hard Disc Drive min.80GB for storage of images.
11. The system should have inbuilt CD/DVD R/W and USB ports for image export.
12. The system should have zoom facility both in real time and frozen image and it should be minimum 6 times or more in both real time & frozen modes.
13. The system should have minimum 6 steps transmitting focussing (transmit focal zones) and adjustable gain should be available up to 100 dB for B-mode & M-mode.
14. The system should have Directional Power Doppler to define the low blood flow directions.
15. The system should have HD-flow/Advanced dynamic flow to acquire the blood flow with directions in the deeper region at a very high frame rate.

16. The system should have automatic optimization in B-mode and auto adjustment of Doppler base-line & velocity range.

17. The system should have B-mode image steering & Color Doppler steering . Please mention the angle.

18. The system should have the facility of on-screen adjustment for Dynamic range, Frequency selection, Presets, Name of the patient etc.

19. The system should have the facility to view the Thumbnail images and system can be programmed for various users with the facility of user passwords.

20. The system should have the Trapezoid scan facility for linear probes.

21. The system should have Compound Imaging and Contrast Harmonic Imaging.

22. The system should have the facility of having direct image print out through a B/W thermal printer.

23. The system should be upgradeable to real time 3D (4D) package. Please quote optionally for convex volume probe.

24. System should be offered with the following probes and accessories:

    (a) 3-8 MHZ Broadband phased array sector probe for paediatric and neonatal cardiac imaging.
    (b) 3-10 MHZ micro-convex probe for paediatric imaging.
    (c) 1 KVA On-line UPS

    (d) B/w Thermal Printer with 10 paper rolls.

    Above mentioned probes must have multifreqency selection and THI.

25. Please attach the original manufacture's product catalog and datasheets. Photocopied, computer generated catalogue and datasheet will not be accepted.

26. The shortlisted bidders will have to give demonstration of their quoted model before finalizing the evaluation of their bids.
27. The unit must be CE/USFDA approved.

DIGITAL RADIOGRAPHY

Should be a Digital Radiography system with single flat panel detector, capable to take digital images in horizontal, vertical and oblique positions of all skeletal body including spine and chest.

The detector should be fixed type and move between horizontal and vertical positions.

GENERATOR

1. Generator should be of latest high frequency inverter technology for constant output and lowest radiation doses.
2. Should have at least 80 KW power.
3. The range should be from 40 to 150 KV.
4. Should have 800mA or more at 100KV.
5. Should have automatic exposure control device.
6. Should have anatomical programming radiography.
7. Should have over loading protection feature.
8. Should have a digital display for KV and mAs.

X-RAY TUBE AND COLLIMATOR

1. Should be a high speed rotating anode dual focus tube compatible with the generator.
2. Should have focal spot sizes of 0.6mm and 1.2mm or less.
3. Should have an anode heat capacity of 300KHU or more.
4. Should have a multi leaf collimator having halogen/bright light source with auto shut provision for the light.
5. Should have over load protection.

CEILING SUSPENDED TUBE

1. Should be ceiling suspended type.
2. It should have movements in all directions i.e. 3D transverse 140 cm or more, longitudinal 290 cm or more and vertical 125 cm or more.
3. All movements should have electromagnetic brakes with fully counter balanced mechanism.
4. It should have facility to display FFD/SID.
5. It should have provision of auto centering with the detector.
6. Tube rotation at vertical axis and horizontal axis +/ - 180 degree.

X-RAY TABLE

1. Should be a horizontal table with carbon fiber table top of minimum 2000mmx720mm.59 with adjustable height.
2. It should have a weight bearing capacity of 200kg or more.
3. The table should be mounted on high quality fiber wheels with brakes.

VERTICAL DETECTOR STAND

1. Should have an in-built detector capable to take digital images in horizontal, vertical and oblique positions with suitable movements for all skeletal body including spine and chest.
2. It should have provision to do chest radiography without grid.
3. It should have automatic exposure control with at least 3 fields.
4. Should be supplied with grids suitable for horizontal and vertical imaging.
5. The detector should be capable of rotating on its axis across +90 to -15 degrees synchronized with X ray tube.

DIGITAL DETECTOR

1. The detector should be a flat panel detector of latest technology with Cesium Iodide scintillator.
2. The size of the detector should be 35 cm x 41 cm or more.
3. Should have a minimum spatial resolution of 2.5/3 lines pair/millimeter.
4. Detector Quantum Efficiency (D.Q.E) should be more 55% @ Zero Line Pairs.
5. The active matrix size should be 2 k x 2k or more.
6. Should have a minimum image depth of 14 bit.

IMAGE ACQUISITION, IMAGE PROCESSING

1. The digital workstation should be based on the latest high speed processors of at least 32 to 64 bit.
2. It should have the possibility of acquiring the image from the detector system. Should have preview time 5 seconds or better.
3. It should have image storage disk of 70 Gigabyte or more.
4. The system should have ready DICOM interface and networking capability with RIS/HIS/PACS.
5. Post processing function must be available.
6. (1+4) Workstation one state of the art latest Pentium system minimum 2 GB RAM, minimum 1 Tera Byte Hard disk, 19" or more Medical grade monitor supported by all necessary software for all the various DR functions and four additional fully networked workstation with high resolution monitors. DICOM images should be viewed on all the four additional workstations. The configuration of the main and additional work stations should be specified in the bid and should be supplied with suitable table and UPS.
7. Dry Laser camera with at least 3 online film tray, 500 dpi or more for printing the digital images should be supplied.
8. A CD, DVD – R/W drive should be supplied.
9. Free comprehensive software upgrade with existing platform on site till CMC.

ACCESSORIES

1. On line UPS with 30 minutes back up for work station and laser camera (3 hrs backup).
2. Lead Glass of size 80cms x 120cms.
3. Lead apron: 6 nos
4. Thyroid and Gonad protection.
5. Four 3 ton split AC for X-ray and work station room.
6. Diesel Generator 100 KVA
7. Chemical earthing
8. Film badge for radiation measurement – 20p/c per college.
9. Syringe needle destroyer.

TRAINING:

Training of doctors and technicians 7 days continuous at the site where equipment is installed.

TURNKEY

The bidder will carry out installation on turnkey basis. To assess the turnkey costs the bidder may visit the sites before quoting for the equipment.

TECHNICAL SPECIFICATION OF FULL FIELD DIGITAL MAMMOGRAPHY SYSTEM ALONG WITH DIGITAL STEREOTACTIC BREAST BIOPSY SYSTEM

Full field digital mammography system should offer the breast imaging and breast cancer detection through the combination of lowest possible dose of radiation and state of art facility. The system should deliver outstanding performance with high-resolution image quality at the lowest possible dose.

Technical Specifications

(1) X- Ray Generator

i) X- Ray generator system should be high frequency constant with minimum rating of 3.2Kw with 100 mA at 35KV.
ii) 22kV to 35kV in 1 kV increment or more
iii) 3 to 500 mAs or More
iv) Range of mA should be 100mA at large focal spot and 25at small focal spot or more

(2) X – Ray Tube:

i) Bi directional rotating anode with speed 8500 RPM or more.
ii) Heat storage capacity of the x ray tube must be 150 KHU or more.
iii) Dual focal spot size of 0.3mm (Large) & 0.1mm (Small).
iv) Dual filtration X-ray tube.
v) Fully automatic collimation or user selectable. System must have predefined collimation setting.

(3) C- Arm assembly:

i) Fully motorized vertical and iso centric rotation and vertical movement
ii) Define Angular rotation of the c-arm
iii) SID – 65cm or more with removable patient face shield.

(4) Compression Mode:

i) Precompression, full compression, Dual compression, manual compression, Compression paddle tilt. (Motorized/ User selectable)
ii) Magnification factor of minimum 1.5 x
iii) Digital Display of compression should be available.

(5) Digital Flat Panel Detector

i) Detector should be TFT Based Direct capture technology, with X ray absorption material of Amorphous Selenium, size of 24 x 29 cm.
ii) Pixel size of the detector should be 90 micron or less.
iii) Spatial resolution 3.5Lp/mm
iv) Dynamic range - 13 bit or less image data for output of image.

(6) Acquisition Workstation:

i) Multi core Intel based CPU with minimum 1 GB RAM, hard drive of 60 GB or more DVD+/- R/W

ii) 3 mega pixel grey scale medical grade LCD Display.
iii) Facility for Work list, print, storage query/ retrieve, modality performed procedure step, scheduled workflow, patient information, reconciliation, and mammography image.
iv) Image storage capacity of the system should be approximately 9000 screening mammography.

(7) Reporting Workstation

i) High end Dual processor window based 3GB high Speed RAM with high speed Hard disc of minimum 160 GB
ii) Dual Medical Grade monitors with Display of 5 Mega pixel each (High definition)
iii) Dedicated mammography workflow keypad, Mouse Key Board.
iv) High accuracy calibration photometer with automated QC monitors Software.
v) Customizable Image layout, orientation of Images for diagnostic, screening or multiple modalities, annotation.

(8) Mammography Image Management System

i) Should provide a unique workflow and archiving requirements for mammography with PACS or without PACS network.
ii) Should design to support all women's imaging modalities and unique workflow needs

(9) CAD Solutions-CAD solution should be FDA approved.

(10) Digital Stereo tactic Breast Biopsy along with Vacuum Assisted Breast Biopsy Device:

i) System should be patient comfort, efficient accurate testing in upright position with superb image quality with advanced digital spot mammography system,
ii) Motorized release of compression.
iii) Stereotactic guidance system should be Cartesian coordinate system with smart window, accuracy of ±1.0mm, Stereotactic angle of ± 15º
iv) Facility for needle core biopsy, fine needle aspiration and wire localization with 10 Nos. of core needle, 10 Nos. of aspiration needle and bard magnum gun for core procedure.
v) Vacuum assisted breast biopsy system should standard along with the Stereotactic biopsy system with all reusable standard accessories.

(11) Out Put Device

Dry direct Digital camera of minimum 500 DPI or more with 3 online sizes, and supporting 5 sizes films, one of them should be 11 x 14 inch. should be provided.

(12) Standard Accessories along with Mammography Unit:

ii) Screening Compression paddles of 18 x 24 and 24 x 30 cm.
iii) Small breast compression paddle.
iv)9 cm or more contact paddle for diagnostic compression
v) 7 cm or more spot contact paddle
vi)Frame less spot compression paddle
vii) 9 cm or more magnification compression paddle
viii) 7 cm or more spot magnification paddle.
ix)Magnification platform
x) Dual function footswitches

(13) Standard Accessories along with Biopsy Unit:

i) Scout biopsy paddle.
ii) ultrasound biopsy paddle
iii) perforated biopsy paddle
iv) scout and digital stereo aperture
v) Gel pads, arm slings, filter panel foam cushion.
vi) Stool with backrest
vii) Quality assurance needle
viii) Needle guide
ix) Biopsy gun holder
x) Air Phantom
xi) DSM computer cart
xii) Needle guide holder
xiii) Biopsy Gun - 4 Nos.

(14) **DICOM**: The system should be DICOM 3 ready for send and print images.

(15) Other Requirements

i) UPS along with 3 Hrs. back up time
ii) Storage space for accessories
iii) Zero Lead aprons 4 in Nos. (light weight), 5 nos. face shields and 5 nos. thyroid shields.
iv) One set of mammography atlas.

(16) Training:

2 weeks application training at the site of installation on mammography and Stereo tactic biopsy device in a good centre for biophysics for technicians.

(17) **Approvals**--Complete system should be FDA/CE and AERB approved.
The bidder should provide AERB approved certification for machine and site. Please enclose the necessary certificates

(18) Principal manufacturer to give undertaking that they will maintain and service the equipment in case Indian agent / supplier fails to provide the service.

(19) TURNKEY:

The bidder will carry out installation on turnkey basis. To assess the turnkey costs the bidder may visit the sites before quoting for the equipment.

C-ARM MOBILE IMAGE INTENSIFIER
TECHNICAL SPECIFICATIONS

I X-RAY GENERATOR

i. Type: High Frequency minimum 20 Khz.
ii. Fluoroscopy anode potential: 40 to 110Kvp (1Kvp step)
iii. Fluoroscopy mA range: Normal mode : 0.5 to 4 mA
iv. Power: 2.5 Kw

II. X-RAY TUBE

i. Type: Stationary anode
ii. Focal spot: 0.6/1.5 mm

III. IMAGE INTENSIFIER

i. Input field size: 9" (Triple field)
ii. Grid on the entrance field: circular grid.

IV. TV CAMERA SYSTEM

i. Type: CCD with 752x582 pixels.
ii. Memory: Minimum 25 images non-volatile storage.
iii. Video Standard: PAL/NTSC

V TV monitor

i. Two 15" or more medical grade LCD/TFT/CRT monitors.
ii. One for LIH and one for memory display

.

VI C-ARM CART

i. SID: 880mm
ii. Orbital Travel: 115º (90/25)
iii. C-arm Pivotal rotation: ±180º
iv. Horizontal Travel: 200mm
v. Vertical Travel: 400mm
vi. Panning Movement: ±12.5º
vii. Depth of C-arm: 600mm

VII OTHER SPECIFICATONS

The unit should have the following facilities

i. Automatic KV and mA technique selection and manual mode.
ii. Cumulative exposure timer for fluoroscopy.
iii. Audible and Visual indication for X-ray emission.
iv. 360 º rotations of images should be possible for LIH image after fluoroscopy and should not be CRT based rotation.
v. Image vertical and horizontal reversal should be possible on the LIH image after fluoroscopy.
vi. Should not be a PC based system.

vii. Iris collimation or two pairs of parallel shutters which can be controlled independently and can be rotated.
viii. Should have at least 20cm distance between the focal spot and skin for radiation safety.
ix. Should have a single double steering wheel with 180º rotation.
x. Two sets of sterile drape for the X-ray tube assembly, Image intensifier and C-arm and clips to hold the drape on the c-arm should be provided.
xi. Cassette holder should be supplied.
xii. Five lead aprons with thyroid guards
xiii. The quoted model and tube should be AERB type approved for usage up to 4mA. Relevant copies of the certificate should be attached with the bid.

VIII POWER REQUIREMENTS

i. Single phase, 230 Vac, 50Hz
ii. Suitable stabilizer should be provided along with the unit.

IX SPECIFICATION OF LEAD APRON.

i. Should be AERB approved.
ii. Should be light weight 0.5mm lead equivalent.
iii. Should be hook and loop type (Velcro).
iv. Should be supplied along with thyroid guard

Portable X Ray Machine

High Frequency mobile X ray machine with output 60mA or more. The mobile X ray equipment is required to perform x ray studies in emergency and trauma center and bedside in wards and ICU. The unit should be compact, lightweight and easily transportable. It should have following specifications.

1. The unit should be operating on mains voltage from single phase 170-260V AC.
2. **Generator:**
    - Power: 2.5 KW or more
    - KVp range: 40-100KVp
    - mAs range: 200mAs or more
    - mA range: 30 mA- 75 mA
    - Exposure time: 3 ms to 4 sec.

3. **X ray Tube:** Rotating Anode tube. Anode speed 300 rpm, thermal capacity 40 KHU or better.
4. The tube stand should be fully counterbalanced with rotation in all directions.
5. The unit should have automatic calibrator. It should have auto shut off facility for lamp.
6. The equipment should have cassette storage Box for minimum of 4 cassettes.
7. The equipment should be light weight not more than 160 KG.
8. The unit should have small foot print.
9. The height of the column stand should not be more than 150 cm for easy transportation in the Lift and areas of small height doors.
10. The unit should have effective braking system for parking.
11. The equipment should be AERB approved.

DENTAL X-RAY MACHINE

1) Should be stand model with fibre wheels and locking system
2) Should have a X-ray tube current of minimum 7/8/10 mA and 60/65/70 KV adjustable preferably.
3) Should have a constant potential minimum 20 Khz high frequency X-ray generator.
4) Should have an exposure timer of minimum 0.02 to 2 seconds
5) Focal spot size should not exceed 0.8x0.8mm.
6) Should be compatible for digital radiograph.
7) X-ray tube head should have swing angulations of at least 290º in the vertical plane and 360 º continuous rotations in the horizontal plane.
8) X-ray tube head should have angle indication
9) Should have a counter balanced arm mechanism.
10) Should be supplied with cones.
11) Should be supplied with one light weight lead apron of 0.5mm lead equivalent.
12) Should work on 200-240Vac/50Hz.
13) The quoted model and tube should be AERB type approved and relevant copies of the certificate should be attached with the bid.
14) Should have safety certificate from a competent authority CE / FDA (US) / STQC CB certificate / STQC S 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.

SPECIFICATION OF LEAD APRON:

1) Should be AERB approved.
2) Should be light weight 0.5 mm lead equivalent.
3) Should be hook and loop type (Velcro).
4) Should be supplied along with thyroid guard.

Ultrasound with color Doppler

1. Should be a stand-alone system integrated on a light weight mobile cart.
2. The system should be a color Doppler Echocardiography all digital beam former system to study the anatomical abnormalities and blood flow in the heart and associated vessels. Should be a stand-alone system integrated on a light weight mobile cart.
3. Should be a latest generation Electronic Phased array Color Doppler system with minimum 512 Electronic independent channels.
4. Should have 256 gray shades for sharp contrast resolutions.
5. Should be supplied with adult and paediatric cardiac and vascular probes of wide band transducers without frequency selection for higher sensitivity of response over a broad frequency range of operation.
6. Should have 2D, M-mode, Anatomical M-mode, Color M-mode, PW and CW Doppler, Steerable CW Doppler.
7. The system should have a very high dynamic range of at least 200dB to pick up subtle echoes.
8. Should have three active ports.
9. Should have 2-4 Mhz broadband phased array sector probe for adult cardiac imaging.
10. Should have 3-8 Mhz broadband phased array sector probe for paediatric and neonatal cardiac imaging.
11. Should have 3-12 Mhz broadband Linear Array probe for vascular imaging.
12. Should have pencil probe (Optional)
13. Should have multi frequency convex array probe 3-10 MHZ for paediatric Imaging.
14. Should have advanced tissue Harmonic Imaging.
15. Should have color flow imaging.
16. Should have color Tissue Doppler Imaging.
17. Should have gain control in Axial Plane.
18. Should have triple imaging possibility on the system.
19. Should have PW/CW Doppler facility in all imaging phased array sector probes.
20. Should have 15" or more high resolution TFT monitor with tilt and swivel facility and should be able to view in all angles and all light conditions.
21. Should have greater than 5000 images in the system hard disk drive
22. Should have in built CD/DVD writer.
23. Should have patient reporting page with embedded images.
24. Should have full functional measurement facility and calculation should be possible.
25. Should be supplied with thermal printer and 6 packs of thermal paper and the unit should have option to connect external printer.
26. Unit should function with 200-240Vac, 50/60 Hz input power supply.
27. Unit should be supplied with suitable UPS with a minimum 30 minutes back-up time.
28. Should have safety certificate from a competent authority CE / FDA(US) / STQC CB certificate / STQC S 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.

Portable Ultrasound B & W

- Portable ultrasound machine with biopsy attachment.
- Scanning mode: linear and convex
- Display mode: b mode, m mode and b+m
- Monitor screen should be 10” high resolution latest technology
- Display depth:25 cm max
- Magnification: 8 steps
- Facility for image zoom, image reverse, image freeze and image magnification, reduction
- Alphanumeric keyboard for character entry and character display
- Gynaecology measurement facility for uterus, cervix, special probe for gynecology to be provided
- 6-13 MHZ linear Array probe.
- 3.5 mhz convex probe.
- Should have safety certificate from a competent authority CE / FDA (US) / STQC CB certificate / STQC S 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.

Accessories:

Ultrasound gel, biopsy attachment and black and white video printer with at least 10 no. Rolls, mobile stand.

Handheld Ultrasound Machine

The handheld Ultrasound should be pocket size capable of acquiring black and white anatomic and color-coded blood flow images in real time.

Display unit shall be approx. 140*75*30mm

Display shall be 4 inch or less with pixel resolution of 240*320 pixels.

Imaging: Black and white mode for displaying anatomy in real-time. Color-coded overlay for real-time blood flow imaging.

Broadband phased array probe for cardiac, abdomen, urinary bladder, Obstetrics and Gynaecology and paediatric imaging.

Should operate on a built-in rechargeable battery with a minimum scan time of one hour with fully charged battery.

Should be provided with adaptor for battery recharging.

Depth of view shall be 25 cms or more.

Data storage shall be available on micro SD card upgradable to 32 GB.

Data storage formats: jpeg for still images, mpg for loops, wav for voice recordings.

USB connection to PCB for data interfacing shall be available

The Scanner shall be supplied with PC software to provide gateway between scanner and PC.

Suitable compatible PC should be provided by bidder along with installed software for interfacing of device with PC.

Shall confirm to IEC60601-1:1988 safety standards for electromagnetic compatability.

Should be CE/USFDA approved product.

Specification for portable color Doppler USG machine

- The system should be a multipurpose, high performance color imaging system designed for abdominal, vascular, obstetrics, gynecology, cardiology,
- Gray Scale, 256 Channel system**,** Scanning depth 25 cms or more should be possible**.** Scanning Methods should be - Electronic Sector, Electronic Convex and Electronic Linear. Tissue Harmonic imaging in Abdomen and cardiac.
- Dynamic range should be up to 120 db, should have 2 or more active probe ports,
- Should have15" or more high resolution monitor with tilt and swivel facility
- Transducer Types should be - Electronic- Convex Array, Sector phases array, Micro convex array and linear array probe
- Operating Modes- B mode, M-Mode, Color M-Mode, power Angio Mode, Directional power Angio, pulse Wave Doppler with preferably CFM Mode, Steerable Continuous wave Doppler Mode, Flexibility of M-Mode curve across any plane
- Alphanumeric keyboard with hard keys and time gain compensation controls, Multiple focus selection – minimum 4 focal point,
- Hard Disk Image Storage (up to 30 GB Memory) and flexibility to review the stored images in clipboard format.
- Should be able to store single frames and Cine loops and post processing of all stored images & Doppler spectrum
- Integrated CD Read/ Write drive to store and review images on CD with option of storing images in different formats including AVI
- Complete measurement and analysis package with Real Time Doppler Calculations Fetal trend graph etc.
- Trapezoidal imaging (Convex like image on Linear probe) to view complete large organs
- The system should have weight less than 10 kgs and can be hand carried
- **Probes** -All probes should be wide band frequency probes for Convex, TV, Linear, Tissue Harmonic Imaging should be available in all the above probes, and Biopsy should be available with Convex & TV / TR Probe.
- All transducers should have broad band width technology for extremely high resolution imaging. All transducers should have multifrequency selection.
    - Broad band convex array transducer with frequency range 2-5MHz
    - Broad band linear array probe with frequency range 3-6 MHz
    - Broad band transvaginal with frequency range 5-9 MHz
    - Broad band transrectal probe with frequency range 5-9 MHz

Accessories :

Black & White Thermal Printer**,** Color Inkjet Printer**,** UPS with 30 Minutes Battery BACK UP.

TECHNICAL SPECIFICATIONS
EQUIPMENT NAME : ULTRA SOUND MACHINE (GYNAE)

1. State-of-the-art and all digital beam former general purpose stand-alone ultrasound machine with integrated light weight mobile cart.
2. Should have a flat panel screen size from 12 to 15 inches.
3. Should have a Trans-vaginal probe of 5-8 Mhz.
4. Should have a convex probe of 2-5 Mhz.
5. Should have two active ports.
6. Should have B-mode, M-mode, B/M mode and dual B mode.
7. The display should be swivelling type.
8. Should have an alpha-numeric keyboard with easy access scans controls and track ball and status display.
9. Should have gynaecology, general package software and dedicated reporting page for all applications.
10. The system should have extensive calculation software package for Ob/Gyn and general imaging.
11. The system should have provision for measurement and calculation of distance, area, volume and circumference on the image.
12. The unit should have minimum 256 gray scales.
13. Unit should function with 200-240Vac, 50/60 Hz input power supply.
14. Unit should be supplied with suitable UPS with a minimum 30 minutes back- up time.
15. Should have a built-in CD writer.
16. Should have a compatible thermal printer with the unit.
17. Should have safety certificate from a competent authority CE / FDA (US) / STQC CB certificate / STQC S 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.

Digital OPG (Dental X-ray) Machine

1 Description of Function
1.1 This equipment enables digital imaging of both panoramic and cephalometric x-rays

2 Operational Requirements
2.1 System with Panaromic as well as Cephalometric X-Ray is required with all the accessories.
2.2 Should cater to all types of patients including adult, pediatrics, standing, sitting and wheel chair patients.

3 Technical Specifications
3.1 Based on DC current/ constant potential.
3.2 Focal spot is 0.4/0.5 mm according to IEC 336/1993 specifications
3.3 Inherent filtration : 2.5mm Al equivalent
3.4 Tube voltage min range 60 kV to 80 kV
3.5 Tube current min range 5 mA to 10 mA
3.6 Exposure time – Panoramic – 10-15 secs, Cephalometric - 0.5 to 20 secs
3.7 Pixel size – 96-99 μm
3.8 Image resolution – 5 to 9 lp/mm or more.

4 System Configuration Accessories, spares and consumables
4.1 Standard Intel Quad core desktop with original windows software, 4 GB RAM, 500 GB hard disk, 20 inch TFT monitor, DVD-RW and suitable film printer (Qty. 1 each)
4.2 X-ray unit should be supplied with lead apron, thyroid collar and gonadal sheath (Qty. 1each).

5 Power Supply
5.1 Power input to be 220-240VAC, 50Hz fitted with Indian plug
5.2 Five KV Servo Voltage stabiliser of appropriate ratings meeting ISI Specifications. (Input 160-260 V and output 220-240 V and 50 Hz)

6 Standards, Safety and Training
6.1 Should be FDA/ CE approved product
6.2 Manufacturer/ Supplier should have ISO certification for quality standards.
6.3 Electrical safety for dental x-ray unit conforms to standards for electrical safety IEC-60601 / IS-13450

LUNG FUNCTION TEST

1 Description of Function

1.1 Pulmonary function tests are a group of procedures that measure the function of the lungs, revealing problems in the way a patient breathes. The tests can determine the cause of shortness of breath and may help confirm lung diseases, such as asthma, bronchitis or emphysema. The tests also are performed before any major lung surgery to make sure the person won't be disabled by having a reduced lung capacity

2 Operational Requirements

2.1 Complete with all hardware and software is required

3 Technical Lung Function Test System

3.1 The system should be able to measure spirometry and flow volume parameters and sub divisions, Maximum Ventilation Volume(MVV),Lung Volume including TLC,RV& FRC by multibreath closed circuit Helium Dilution.

3.2 Should be able to perform diffusion studies.

3.3 Broncho Provocation/ Histamine Challenge Test Software

3.4 System should incorporate Precision Dry Rolling Seal Spirometer(11-13 Litres)/heated Pneumotech for highest accuracy and reproducibility and Flow Volume Differentiator (Resistance less than 1 cm of H2O /Liters/Sec

a)Volume resolution < 8ml

b.)Accuracy < 0.5%

c)Flow Range+/- 15 Liters/Sec.

3.5 Should have linear analyzers for

Helium Analyzer: Range 0-15% Helium Accuracy+/- 0.1 %

Carbon Monoxide Analyzer: Range0- 0.350%CO, Accuravy+/- 0.1%

Oxygen Analyzer: Range: Range 0-100% Accuracy +/- 0.1%

3.6 Gas Control Module with Automatic Filling circuit.

3.7 System should have automatred O2 compensation during FRC test.

3.9 System should also have fully automated Calibration/Test procedure wPC requirements: Intel® CoreTM i5-760 processor (2.80GHz, 1333MHz FSB, 8MB Cache) Genuine Windows® 7 Professional, 64bit (English) or higher ; 21.5” Full HD Widescreen Flat Panel Monitor ; 6 GB DDR3 SDRAM, 500GB SATA Hard Drive ; Single Drive: Blu-ray Disc Combo (DVD+/-RW + BD-ROM). Facility for internet connectivity, with facility of up-gradation, inkjet printer and latest Anti-virus.

4 System Configuration Accessories, spares and consumables

4.1 System as specified

4.2 Should be supplied complete with Computer Interfacing package, cables, Trolley, PFT Software, Manual and standard accessories

4.3 Should be supplied complete with Gas mixture cylinders (at least 2 cubic metres)

a) Helium Cylinder-01

b) Cylinders Diffusion Mixtures-02

5 Environmental factors

5.1 Shall meet IEC-60601-1-2 :2001(Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility or should comply with 89/366/EEC; EMCdirective.

5.2 The unit shall be capable of being stored continuously in ambient temperature of 0 -50 deg C and relative humidity of 15-90%

5.3 The unit shall be capable of operating continuously in ambient temperature of 10 - 40deg 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 UPS of suitable rating with voltage regulation and spike protection for 60 minutes back up.

7 Standards, Safety and Training

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

7.2 Manufacturer should have ISO certification for quality standards.

7.3 Electrical safety conforms to standards for electrical safety IEC-60601-1.

General requirement.

7.4 Should have local service facility .The service provider should have the necessary equipments recommended by the manufacturer to carry out preventive maintenance test as per guidelines provided in the service/maintenance manual.

8 Documentation

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

8.2 Certificate of calibration and inspection.

8.3 List of Equipments available for providing calibration and routine Preventive Maintenance Support as per manufacturer documentation in service/technical manual.

8.4 List of important spares and accessories with their part number and costing.

8.5 Log book with instructions for daily, weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out.

Computerised Spirometry

- Powerful compact desktop Spirometer with all calculated respiratory function tests with graphics display and high resolution printer.
- Uses the digital volume transducer, which measures expired air directly at B.T.P.S (Body temperature and pressure with saturated water vapour). Thus, avoiding the inaccuracies of temperature corrections.
- Digital volume transducer is insensitive to the effects of condensation and temperature and avoids the need for individual calibration prior to performing a test.
- Real time high resolution graphic backlit LCD (124 x 64 pixels) displays either flow/volume/ time curve, both pre and post bronchodilator, as well as the predicted curves.
- Full internal database of up to 90 patients (Pre and post Bronchodilator with graphics)
- The spirometry measurements, Flow/Volume loop and volume/Time curve may be printed at the time of testing or at any time subsequently from memory with 320 dot per line thermal printer with user configurable report.
- Twelve parameters with actual, predicted and percent of predicted values a well as normal range with option of interpretation and lung age can be reported.
- Predicted values E.C.C.S for adults, Zapetal. Cosgwell and Solymar for children.
- Serial port for PC communications.
- Accurate measurement of 12 parameters, including:
- Relaxed vital capacity (VC)
- Forced vital capacity (FVC)
- Forced expired volume in 1 second (FEV1)
- FEV1 as a percentage of FVC (FEV1/FVC)
- Peak expiratory flow rate (PEF)
- Flow rate at 50 % of expired volume remaining (FEF 50)
- Flow rate at 50 % of expired volume remaining (FEF 25)
- Mid-expiratory flow rate (MEF)
- Flow rate at 50 % of expired volume remaining (150)
- Ratio of 150 to F50 (R 50)
- Forced expiratory time (FET)
- Indirect measurement of minute ventilation (MVV Ind)
- Lung age
- All with baseline and post bronchodilator comparison
- Supplied complete with all accessories in a sturdy carry case for true portability.
- Resolution: 10 ml volume, 0,03 I/s flow.
- Accuracy: 3% (To ATS recommendations –standardization of spirometry 1994 update for flows and volumes). Meets all international standards for diagnostic spirometry.
- Input 250 V, 50 Hz.

Accessories

- Adult Mouthpieces : 500 pcs
- Printer cord : 10 pkt
- Power cord : 2 pcs
- Flow sensor : 2 pcs
- Nose clips : 5 pcs
- Reusable mouthpieces : 2 pcs
- Operator and service manual.
- Should be compatible with hospital networking

FIBRE OPTIC BRONCHOSCOPE WITH LIGHT SOURCE AND CAMERA

1. Should have minimum 100º field of view.
2. Should have a depth of field of 3 to 50 mm
3. The insertion tube should have maximum 6mm diameter.
4. Should have at least 180º upwards and 130º downwards angulations.
5. Should have a working length of 600mm.
6. Should have an instrument channel of at least 2.2mm inner diameter.
7. Should have a light guide illuminating system.
8. Should be supplied with all standard accessories including different type of biopsy forceps, cleaning brushes and storage box.

DIGITAL CAMERA SYSTEM

1. Should be a single chip camera technology.
2. Should have two composite video outputs and one S-video output.
3. Should have anti-moister filter for fibre scopes.
4. Should have fully automatic exposure control.
5. Should have automatic white balance with memory function.
6. Should have horizontal resolution of more than 450 lines.
7. Should provide compatible optical interface for the fibre bronchoscope supplied.
8. Should be supplied with 15" CRT flat TV monitor (Medical Grade).
9. Should work with input 200 to 240Vac 50 Hz supply.

LIGHT SOURCE

1. Should be a halogen light source with minimum 150W light output.
2. Should have manual light intensity control.
3. Should have dual fan cooling system.
4. Should have two lamps of 150W and should have provision to change over in the event of failure from one lamp to another.
5. Should work with input 200 to 240Vac 50 Hz supply.

OTHERS

1. Should be supplied with suitable trolley
2. Trolley should have at least 5 power sockets to connect the camera, monitor etc. The product must be CE/USFDA approved.

Under Water Cutting/Coagulation Cautery

1. Should be suitable for all types of surgeries.
2. Digital system with automatic patient plate monitoring.
3. Display: Digital
4. Mono polar cut: 300 to 400 W
5. Not less than two blend modes
6. Provision for Spray, Desiccation
7. Bipolar Coagulation
8. Facility for underwater cutting
9. Facility for simultaneous coagulation
10. Audio visual alarm for breakage of contact between patient and plate
11. Accessories:
    Double pedal foot switch
    Single Pedal Foot switch
    Patient plate with cable x1
    Autoclavable handles: 3 sets
    Electrodes: 3 sets
    Bipolar forceps with cord x 1
12. All accessories should be from same manufacturer to ensure compatibility.
13. All instruments should be autoclavable or Single Use. Single Use Disposables if offered should be sufficient for 20 surgeries.

The equipment should be US FDA Approved

Complete instruction and service manual should be supplied.

Specifications for High Pressure Autoclave

1 Description of Function	
1.1	Autoclaves are required for sterilizing an object in high temperature and high pressure steam.
2 Operational Requirements	
2.1	High pressure horizontal cylindrical steam sterilizers pressure type designed to operate on steam from steam generator
3 Technical Specifications	
3.1	Rectangular, horizontal, single door, high pressure, high vaccum fully automatic, microprocessor based autoclave for sterilizing hospital materials
3.2	Electrically operated 18 KW in built electric steam generator with the unit.
3.3	Double jacketed, Outer jacket shall be SS 304; and inner chamber shall be SS 316 heavy duty, with full argon welding.
3.4	Door should be (SS 316) and designed with several automatic mechanical and control features that provide for safety. Door must be lined with silicone rubber gaskets (expansion type).
3.5	Temperature adjustable from 121o to 135o C
3.6	Working pressure range from 15 to 32 psi
3.7	Sterilization cycles: a. The autoclave residence time should not be less than 60 minutes if the autoclave operates at the working temperature (inner chamber) of 121oC at a pressure of 15 pounds per square inch (psi). b. If the temperature of inner chamber is 135o C at a pressure of 31 pound per square inch(psi) then the autoclave residence time should be not be less than 45 minutes.
3.8	Size: 1000-1100 mm (W) x 1100-1400 mm (H) x 2000-2200 mm (L) approx.
3.9	Autoclave should be properly equipped with door safety locks, steam traps, pressure gauges and safety valves for chamber and jacket.
3.10	Autoclave should have insulation jacket with glass wool, covered with aluminium foil.
3.11	The unit should have a timer from 1 to 250 minutes that may be used for process or to record turn- on and shutdown timings.
3.12	The unit should have integral alarms that ring, flash, or otherwise display information when temperature set-points are exceeded or fallen below.
3.13	Pressure safety valve, over-temperature limiter, anti-scorch limiter, door (lid) interlock, overpressure limiter, current fuse
3.14	The unit includes a data logger or chart recorder for monitoring operational history

3.15	Integral controls, keypad, and/or display on the panel of the unit. Controls mounted over the door are not acceptable. The control panel must document all cycle information, including key transition points in the cycle, alarms and deviations that may jeopardize the sterilization process, resulting in inadequate sterilization.
3.16	The sterilizer should be supported on a steel stand, appropriately coated for corrosion protection.
3.17	Gauge glass with safety valves and dram temperature gauge
3.18	Pressure switches for economic power consumption and prevention of accidental pressure build up.
3.19	The steam generator shall be electrically heated by immersion heaters having mineral filled sheathed heating elements. Heater plate: Brass/SS
3.20	Air shall be removed from the sterilization chamber after loading the sterilizer by one or more pressure/vaccum pulsing for proper steam penetration either manually or automatically through the automatic control system
3.21	Vacuum breaker for jacket
3.22	Low water protection with audio-visual indicator

4 System Configuration Accessories, spares and consumables

4.1	System as specified-
4.2	It should be supplied with the following accessories(which should be quoted separately individually):- a. Carriages b. Baskets c. Trays d. Trolleys e. Heating element f. Gasket g. Valves
4.3	All consumables required for installation and standardization of system to be given free of cost.
4.4	All infrastructural work including plumbing and electrical work will have to be done by the supplier. The hospital will only provide space and water outlet

5 Environmental factors

5.1	The unit shall be capable of being stored continuously in ambient temperature of 0 - 50deg C and relative humidity of 15-90%
5.2	The unit shall be capable of operating in ambient temperature of 20-30 deg C and relative humidity of less than 70%

6 Power Supply

6.1	Power input to be 440VAC, 3-phase, 50Hz fitted with Indian plug

6.2	The immersion heaters shall be wired for operation on 3 Phase 4 wire 400/440 V 50 Hz AC supply and electric load for the unit shall be 18 KW. The control will be of independent switch

7 Standards & Safety

7.1	Should be FDA , CE, UL or BIS approved product (as per IS:3829 (Part2)/1978 (reaffirmed 2001) with amendment Nos. 1 to 4)
7.2	Manufacturer should have ISO certification for quality standards.
7.3	Autoclave should conform to IS 3829 part 1, 1999 or later standards.
7.4	The immersion heater used for electric heating shall have mineral filled sheathed heating elements and shall be BIS marked conforming to IS:4159/2002 and complying with safety requirements as per IS:302-2-201(1992).
7.5	Electrical safety conforms to standards for electrical safety IEC-60601 / IS-13450
7.6	Should be compliant to ISO 13485: Quality systems – Medical devices - Particular requirements for the application of ISO 9001 applicable to manufacturers and service providers that perform their own design activities.

8 Training

8.1	Comprehensive training for staff of user department and support services till familiarity with the system.

9 Warranty & Service

9.1	After sales service must be provided in the city of installation. In situations requiring service/repair of the unit outside the city of installation, the expenditure on account of this will have to be borne by the supplier

10 Documentation

10.1	Product Literature in original along with that of accessories and indigenous components, if any. Photocopies/computer generated copies are not acceptable
10.2	Statement of compliance with tender specifications with clear and unambiguous links to relevant portions of product literature/authentic document, which should be highlighted. Alternatives provided for noncompliant specifications with justification must be described in detail with supporting literature.
10.3	Certificate of compliance with standards and approvals stated above
10.4	Certificate of manufacturer/principal regarding authorisation of service facility provided by the supplier
10.5	List of Equipment available in the Service Centre for providing calibration and routine Preventive Maintenance Support as per manufacturer documentation in service/technical manual.
10.6	List of important spare parts and accessories, which are required for

	maintenance and repair, with their part number and costing.
10.7	Terms and conditions of warranty and CMC including schedules of visit by service personnel with check list of services to be carried out
10.8	Commitment for supply of log book with check list for daily, weekly, monthly and quarterly maintenance checklist along with contact details of service personnel along with the equipment. The job description of the hospital technician and company service engineer should be clearly spelt out in the log book.
10.9	List of users of quoted model with performance certificate from major institutions

Specifications for Noiseless Suction Machine

1. Noiseless Suction machine with fast vaccum build up
2. Vaccum should have minimum 675 mm Hg, suction capacity 50 litres/min., and twin bottle capacity of 3 litres each.
3. System should have piston/cylinder self lubricating.
4. Fitted on mobile stand with ON/OFF facility.
5. Mechanical overflow protection system.
6. Accessories:
    - 3 litres suction container, polysulphone graduated- 2 nos.
    - Lid with overflow sensor and mechanical overflow protection device.
    - Holder for 3 litres suction container.
    - Tubing
    - Footswitch.
7. Should be operable in manual mode in case of electricity failure.
8. Should have comprehensive warranty of 3 years.
9. Should be BIS approved product.

Equipment Specifications for OPERATION TABLE HYDRAULIC

1 Description of Function	
1.1	Hydraulic operating Tables are simple tables for performing surgical procedures and it works without electrical power.
2 Operational Requirements	
2.1	OT Table is required for general surgery and should have X-Ray transluscent tops.
3 Technical Specifications	
3.1	1. Four section table top with divided foot section 2. Table top should be constructed from a high-pressure laminate to permit x-ray penetration and fluoroscopy 3. All table positioning, i.e., height, back section, lateral tilt, trendelenburg, and anti-trendelenburg, except foot and head section should be operated hydraulically 4. Should have a manual position selector, whose location should be interchangeable between foot and head end 5. The casings on the frame and centre supporting column should be made of hygienic stainless steel 6. Mattress should be radio lucent and suitable for fluoroscopy .7Measurements:(all dimensions are approximated to +/_ 10 % variations) a. Height: 730-1040 mm b. Side tilt: + 15 degrees c. Back section adjustment: - 15 degrees to 70 degrees d. Foot section adjustment: - 90 to 0 degree, detachable e. Trendelenburg: 25 degree f. Anti trendelenburg: 25 degree g. Head section adjustment: -40 to -30 degree, detachable h. Maximum width: 555 mm i. Length: 1950 mm
4 System Configuration Accessories, spares and consumables	
4.1	System as specified
4.2	Accessories should include a. Padded arm rest with straps - pair with damps b. Anaesthesia screen with clamps c. Side supports: pair with clamps d. Shoulder supports: pair with clamps e. Knee crutches: pair with damps

	f. X-ray cassette tray g. Kidney bridge h. SS bowl with clamps i. Infusion rod with clamp

5 Environmental factors

5.1	The unit shall be capable of being stored continuously in ambient temperature of 0 - 50 deg C and relative humidity of 15-90%
5.2	The unit shall be capable of operating continuously in ambient temperature of 10 - 40deg C and relative humidity of 15-90%

6 Power Supply

	None	

7 Standards, Safety and Training

7.1	Should be FDA , CE,UL or BIS approved product
7.2	Manufacturer should be ISO certified for quality standards.
7.3	Should have local service facility .The service provider should have the necessary equipments recommended by the manufacturer to carry out preventive maintenance test as per guidelines provided in the service/maintenance manual.

8 Documentation

8.1	User/Technical/Maintenance manuals to be supplied in English.
8.2	Certificate of calibration and inspection.
8.3	List of Equipments available for providing calibration and routine Preventive 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 instructions for daily, weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out.

SECTION VI: SAMPLE FORMS

Notes to Bidders on the Preparation of Sample Forms

The Purchaser has prepared the forms in this section of the Bidding Documents to suit the specific requirements of the procurement. In its bid, the Bidder **MUST** use these forms (or forms that present in the same sequence substantially the same information). If the Bidder has a question regarding the meaning or appropriateness of the contents or format of the forms and/or the instructions contained in them, these questions should be brought to the Purchaser's attention as soon as possible during the bid clarification process, by addressing them to the Purchaser in writing pursuant to ITB Clause 7.

The Purchaser has provided explanatory text and instructions to help the Bidder prepare the forms accurately and completely. The instructions that appear directly on the forms themselves are indicated by use of typographical aides such as italicized text within square brackets.

In preparing its bid, the Bidder **MUST** ensure all such information is provided and that the typographical aides are removed.

1. Bid Form

Date: 21st May 2012 *[insert: **date of bid**]*

[Purchaser specify: "IFB No.: BMSICL/2012-13/MC-001"]
*[insert: **Procurement and Rate Contracting of Medical equipment for Government Medical Colleges in Bihar**]*

To:
Managing Director,
Bihar Medical Services and Medical Services Corporation,
Gandhi Maidan, Patna.

Dear Sir or Madam:

Having examined the Bidding Documents, including Addenda Nos. *[insert **numbers**]*, the receipt of which is hereby acknowledged, we, the undersigned, offer to supply and deliver the Goods under the above-named Contract in full conformity with the said Bidding Documents for the sum of Rs. 10,000/- (hereinafter called "the Total Bid Price") or such other sums as may be determined in accordance with the terms and conditions of the Contract. The above amounts are in accordance with the Price Schedules attached herewith and are made part of this bid.

We undertake, if our bid is accepted, to deliver the Goods in accordance with the delivery schedule specified in the Schedule of Requirements.

If our bid is accepted, we undertake to provide an advance payment security and a performance security in the form, in the amounts, and within the times specified in the Bidding Documents.

We agree to abide by this bid, for the Bid Validity Period specified in Clause 18 of the ITB and it shall remain binding upon us and may be accepted by you at any time before the expiration of that period.

Until the formal final Contract is prepared and executed between us, this bid, together with your written acceptance of the bid and your notification of award, shall constitute a binding Contract between us. We understand that you are not bound to accept the lowest or any bid you may receive.

We undertake that, in competing for (and, if the award is made to us, in executing) the above contract, we will strictly observe the laws against fraud and corruption in force in India namely "Prevention of Corruption Act 1988".

We confirm that we comply with the eligibility requirements as per ITB Clause 3 of the bidding documents.

We understand that you are not bound to accept the lowest or any bid you may receive.

Dated this *[insert: **number**]* day of *[insert: **month**]*, *[insert: **year**]*.

Signed: _____

Date: _____

In the capacity of *[insert: **title or position**]*

Duly authorized to sign this bid for and on behalf of *[insert: **name of Bidder**]*

PRICE SCHEDULE												
1	**2**	**3**	**4**	**5**						**6**	**7**	**8**
Sch No	**Item Description**	**Country of origin**	**Quantity**	**Ex-factory Ex-warehouse ex-Showroom off-shelf** (A)	**Excise duty if any** (B)	**Packing & Forwarding** (C)	**Inland transport, Insurance & Incidental costs incidental to delivery** (D)	**Incidental services as listed in GCC** (E)	**Customs Duty** (F)	**Unit Price** A+B+C+D+E+F	**Total Price per schedule for delivery at final destination** (4X6)	**Sales & Other taxes payable if contract is awarded**

Unit Price (6) (Rs. In words)

AMC Charges (Labour only)

Equipment name	AMC CHARGES						
	4TH YEAR	5TH YEAR	6TH YEAR	7TH YEAR	8TH YEAR	9TH YEAR	10TH YEAR
TOTAL							

CMC CHARGES

Equipment name	AMC CHARGES						
	4TH YEAR	5TH YEAR	6TH YEAR	7TH YEAR	8TH YEAR	9TH YEAR	10TH YEAR
TOTAL							

Note:

i. In case id discrepancy between unit price & total price Unit price shall prevail.
ii. This price schedule should be placed in separate envelope sealed **'Cover B'**

Place
Date

Signature of Bidder……
Name ……
Address ……

3. Earnest Money Deposit (EMD) Form

Date: *[insert:* ***date*** *]*
IFB: *[insert:* ***name and number of IFB*** *]*
Contract: *[insert:* ***name and number of Contract*** *]*

To:
Managing Director,
Bihar Medical Services And Infrastructure Corporation Limited,
Patna

WHEREAS *[insert:* ***name of Bidder*** *]* (hereinafter called "the Bidder") has submitted its bid dated *[insert:* ***date of bid*** *]* for the performance of the above-named Contract (hereinafter called "the Bid")

KNOW ALL PERSONS by these present that WE *[insert:* ***name of bank*** *]* of *[insert:* ***address of bank*** *]* (hereinafter called "the Bank") are bound unto *[insert:* ***name of Purchaser*** *]* (hereinafter called "the Purchaser") in the sum of: *[insert:* ***amount*** *]*, for which payment well and truly to be made to the said Purchaser, the Bank binds itself, its successors and assigns by these presents.

Sealed with the Common Seal of the said Bank this *[insert:* ***number*** *]* day of *[insert:* ***month*** *]*, *[insert:* ***year*** *]*.

THE CONDITIONS of this obligation are the following:

1. If, after the bid submission deadline, the Bidder

   (a) withdraws its bid during the period of bid validity specified by the Bidder in the Bid Form, or
   (b) does not accept the Purchaser's corrections of arithmetic errors in accordance with the Instructions to Bidders; or

2. If the Bidder, having been notified of the acceptance of its bid by the Purchaser during the period of bid validity

   (a) fails or refuses to sign the Contract Agreement when required; or

   (b) fails or refuses to issue the performance security in accordance with the Instructions to Bidders.

We undertake to pay to the Purchaser up to the above amount upon receipt of its first written demand, without the Purchaser having to substantiate its demand, provided that in its demand the Purchaser will note that the amount claimed by it is due it, owing to the occurrence of any one of the two above-named CONDITIONS, and specifying the occurred condition or conditions.

This guarantee will remain in full force up to and including *[insert:* ***the date that is 30 days after the period of bid validity*** *]*, and any demand in respect thereof must reach the Bank not later than the above date.

For and on behalf of the Bank

Signed: _____

Date: _____

in the capacity of: *[insert:* ***title or other appropriate designation*** *]*

Common Seal of the Bank

Form – 4 Form of Contract Agreement

THIS CONTRACT AGREEMENT is made the _____day of _____ *[month and year purchase]* and between the Bihar Medical Services And Infrastructure Corporation Limited, Patna [*Name of Purchaser*] on behalf of Governor of Bihar (hereinafter referred to as the 'Purchaser') and _____ _____ __ _____*[Name of Supplier]*, having its principal place of business at _____ _____*[address of Supplier]* (hereinafter referred to as the "Supplier) on the other part.

WHEREAS the Purchaser invited bids for certain goods and ancillary services, viz., *[insert: **brief description of goods and services**]* and has accepted a bid by the Supplier for the supply of those goods and services in the sum of *[insert: **contract price in words and figures**]* (hereinafter called "the Contract Price").

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to.

2. The following documents shall constitute the Contract between the Purchaser and the Supplier, and each shall be read and construed as an integral part of the Contract:

   (a) This Contract Agreement

   (b) General Conditions of Contract

   (c) Special Conditions of Contract

   (d) Technical Requirements (including Functional Requirements and Implementation Schedule)

   (e) The Supplier's original Techno-commercial and Price bid

   (f) The Schedule of Requirements

   (g) The Purchaser's Notification of Award

   (h) *[Add here: **any other documents**]*

3. In consideration of the payments to be made by the Purchaser to the Supplier as hereinafter mentioned, the Supplier hereby covenants with the Purchaser to provide the Goods and Services and to remedy defects therein in conformity in all respects with the provisions of the Contract.

4. The Purchaser hereby covenants to pay the Supplier in consideration of the provision of the Goods and Services and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

Brief particulars of the goods and services which shall be supplied/provided by the Supplier are as under:

SL. NO.	BRIEF DESCRIPTION OF GOODS	QUANTITY TO BE SUPPLIED	UNIT PRICE	TOTAL PRICE	DELIVERY TERMS

TOTAL VALUE:

Delivery Schedule:

For and on behalf of the Purchaser

Signed: _____
in the capacity of *[insert: **title or other appropriate designation**]*

in the presence of _____

For and on behalf of the Supplier

Signed: _____
in the capacity of *[insert: **title or other appropriate designation**]*

in the presence of _____

CONTRACT AGREEMENT
dated the *[insert: **number**]* day of *[insert: **month**]*, *[insert: **year**]*

BETWEEN

Bihar Medical Services And Infrastructure Corporation Limited, "the Purchaser"

and

*[insert: **name of Supplier**]*, "the Supplier"

5. Performance Security Bank Guarantee

(Unconditional)

Date: *[insert: **date**]*

IFB: *[insert: **name or number of IFB**]*

Contract: *[insert: **name or number of Contract**]*

To:
Managing Director,
Bihar Medical Services And Infrastructure Corporation Limited,
Patna

Dear Sir or Madam:

We refer to the Contract Agreement ("the Contract") signed on *[insert: **date**]* between you and *[insert: **name of Supplier**]* ("the Supplier") concerning the supply and delivery of *[insert: **a brief description of the Goods**]*. By this letter we, the undersigned, *[insert: **name of bank**]*, a bank (or company) organized under the laws of *insert: **country of bank**]* and having its registered/principal office at *[insert: **address of bank**]*, (hereinafter, "the Bank") do hereby jointly and severally with the Supplier irrevocably guarantee payment owed to you by the Supplier, pursuant to the Contract, up to the sum of *[insert: **amount in numbers and words**]*. This guarantee shall be reduced or expire as provided for by GCC Sub-Clause 5.4.

We undertake to make payment under this Letter of Guarantee upon receipt by us of your first written demand signed by your duly authorized officer declaring the Supplier to be in default under the Contract and without cavil or argument any sum or sums within the above-named limits, without your need to prove or show grounds or reasons for your demand and without the right of the Supplier to dispute or question such demand. Our liability under this Letter of Guarantee shall be to pay to you whichever is the lesser of the sum so requested or the amount then guaranteed under this Letter in respect of any demand duly made under this Letter prior to expiry of this Letter of Guarantee, without being entitled to inquire whether or not this payment is lawfully demanded.

This Letter of Guarantee shall be valid from the date of issue until the date of expiration of the guarantee, as governed by the Contract. Except for the documents herein specified, no other documents or other action shall be required, notwithstanding any applicable law or regulation. Our liability under this Letter of Guarantee shall become null and void immediately upon its expiry, whether it is returned or not, and no claim may be made under this Letter after such expiry or after the aggregate of the sums paid by us to you shall equal the sums guaranteed under this Letter, whichever is the earlier. All notices to be given under this Letter shall be given by registered (airmail) post to the addressee at the address herein set out or as otherwise advised by and between the parties hereto.

We hereby agree that any part of the Contract may be amended, renewed, extended, modified, compromised, released, or discharged by mutual agreement between you and the Supplier, and this security may be exchanged or surrendered without in any way impairing or affecting our liabilities hereunder without notice to us and without the necessity for any additional endorsement, consent, or guarantee by us, provided, however, that the sum guaranteed shall not be increased or decreased.

No action, event, or condition that by any applicable law should operate to discharge us from liability hereunder shall have any effect, and we hereby waive any right we may have to apply such law, so that in all respects our liability hereunder shall be irrevocable and, except as stated herein, unconditional in all respects.

For and on behalf of the Bank

Signed: _____

Date: _____

in the capacity of: *[insert:* ***title or other appropriate designation*** *]*

Common Seal of the Bank

6. Manufacturer's Authorization Form

(Manufacturer's or Producer's letterhead)

To:
Managing Director,
Bihar Medical Services And Infrastructure Corporation Limited,
Patna

WHEREAS *[**name of the manufacturer or producer**]* (hereinafter, "we" or "us") who are established and reputable manufacturers or producers of *[**name and/or description of the Goods requiring this authorization**]* (hereinafter, "Goods") having production facilities at *[insert: **address of factory**]* do hereby authorize *[**name and address of Bidder**]* (hereinafter, the "Bidder") to submit a bid, and sign the Contract with you against IFB *[**title and reference number of the Invitation for Bids**]* including the above Goods produced by us.

We hereby extend our full guarantee and warranty for the above specified Goods against these Bidding Documents.

For and on behalf of the Manufacturer or Producer

Signed: _____

Date: _____

In the capacity of ***[title, position, or other appropriate designation]*** and duly authorize to sign this Authorization on behalf of ***[name of manufacturer or producer]***

Note: This letter of authority should be on the letter head of the manufacturers and should be signed by a person competent and having the power of attorney to legally bind the manufacturer. This should be included by the bidder in it's bid.

7. Proforma for performance statement

(For a period of last three years)

Bid No: _____ Date of Opening: _____ Time :_____Hours

Name of the Firm :_____

Order Placed By (Full address of Purchaser)	Order No. and Date	Description and quantity of ordered Goods	Value of order	Date of completion of delivery		Remarks indicating reasons for late delivery, if any	Was the supply of Goods satisfactory ? (Attach a certificate from the Purchaser/Consignee)
				As per contract	Actual		

Signature and seal of the Bidder _____

8. LETTER OF AUTHORISATION FOR ATTENDING BID OPENING

(To reach the Purchaser before date of bid opening)

To

Managing Director,
Bihar Medical Services And Infrastructure Corporation Limited,
Patna

Subject : Authorisation for attending bid opening on _____(date) in the Tender of _____.

Following persons are hereby authorised to attend the bid opening for the tender mentioned above on behalf of _____ (Bidder) in order of preference given below.

Order of Preference	Name	Specimen Signatures
I.		
II.		
Alternate Representative		

Signatures of bidder
Or
Officer authorized to sign the bid
Documents on behalf of the bidder.

Note : 1. Maximum of two representatives will be permitted to attend bid opening. In cases where it is restricted to one, first preference will be allowed. Alternate representative will be permitted when regular representatives are not able to attend.

2. Permission for entry to the hall where bids are opened, may be refused in case authorization as prescribed above is not recovered.

9. CONSIGNEE RECEIPT CERTIFICATE/ Installation Report

(To be given by consignee and the user of the item)

The following equipments has / have been received in good condition:

Name of item supplied	
Name of the Supplier / Manufacturer	
Quantity supplied	
Purchase Order reference no.	
Serial Nos of equipment supplied	
Place of destination	
Name and Address of the Consignee along with tel. no. and fax no.	
Date of receipt by the Consignee	
Date of Installation	
Installation Location at Hospital.	
Accessories supplied and the serial numbers of Accessories	
Training satisfactorily completed Yes/No	
Name and Designation of Personnel trained.	
Date of commencement of warranty	
Date of expiry of warranty	
Stock Book page no. where the items have been entered	
Signature of Authorized Representative of Consignee with date	
Name and designation of the authorized representative	
Seal of the consignee	

Note: In case of Hospital the Incharge of the hospital concerned would be treated as consignee. In case of office (other than hospital), the office incharge of the office would be treated as consignee.

(Hospital / Office Incharge) (User Department)

Statement for technical Deviation:

Sr. No	Specifications desired by BMSICL	Bidders specifications	Bidders Deviation if any

FORMAT OF GENERAL GUARANTEE FOR WARRANTY

(To be submitted on Firms Letterhead)

Warranty Certificate

Date:

We the Undersigned ……...hereby guarantee satisfactory operation of ……. supplied by us to you against your purchase order No…….for a period of……. *calendar months* from the date of commissioning and shall be responsible for failure of the equipment to conform to the standard of performance, proficiency, production and / or out-turn stipulated or implicit in the order and for any defects that may develop under proper use arising from the use of faulty materials, design or workmanship in the supply made and shall remedy such defects at our cost.

for……

Station : (Signature with Name and Designation)

Date :

Company Seal