

**PANDIT RAGHUNATH MURMU MEDICAL  
COLLEGE AND HOSPITAL (PRMMCH), BARIPADA,  
MAYURBHANJ, ODISHA-757001**  
(District Head Quarter Hospital Campus, Baripada)

**BID DOCUMENT**

**FOR**

**SUPPLY, INSTALLATION & COMMISSIONING OF**

**LABORATORY EQUIPMENTS**

**ON RATE CONTRACT**

**Reference No. PRMMCH/2017-18/LAB/01**

**Date: 07.04.2017**

Tel. : (06792) 252670 Website : [www.mayurbhanj.nic.in/](http://www.mayurbhanj.nic.in/) [www.dmetodisha.gov.in](http://www.dmetodisha.gov.in)  
Email : [prmmchbaripada@gmail.com](mailto:prmmchbaripada@gmail.com)

**TABLE OF CONTENT**

**A. Notice Inviting Bid**

- B. Eligibility Criteria
- C. Instructions to Bidders
- D. General Conditions of Contract
- E. Special Conditions of Contract
- F. Schedule of Requirement with Technical Specification
- G. Annexure-I (Information about the bidder)
- H. Annexure-II (List of items quoted)
- I. Annexure-III (Details of past supply)
- J. Annexure-IV (Details of Service Centre)
- K. Annexure-V (Declaration Form)
- L. Annexure-VI (Price Schedule for Item & CMC)
- M. Annexure-VII (Compliance to Technical Specification)
- N. Annexure-VIII (Manufacturer Offer Form)
- O. Annexure-IX (Manufacturer Authorization Format)
- P. Annexure-X (Agreement Format)
- Q. Annexure-XI (Bank Guaranty Format)
- R. Annexure-XII (Installation & Commissioning Format)

#### **A. Notice Inviting Bid**

1. Bids are invited from eligible Bidders (Manufacturers/ Authorized Dealers) interested to supply & maintain “**Laboratory Equipments**” to PRMMCH, Baripada vide a contract with specific terms and conditions as prescribed.
2. Interested Bidders can download the bid document containing detailed terms & conditions, scope and eligibility criteria from the official website: [www.mayurbhanj.nic.in](http://www.mayurbhanj.nic.in) & [www.dmetodisha.gov.in](http://www.dmetodisha.gov.in). The cost of the bid document for **Rs.5,250/- (Rupees Five Thousand Two Hundred Fifty)** only (including Odisha

VAT) (non-refundable) shall be submitted along with the technical bid in the form of Demand Draft/ Pay Order from any Nationalized/ Scheduled Bank in India in favour of PRMMCH, payable at Baripada.

3. The bids (both technical and financial) by eligible Bidders shall reach the Office of the undersigned within due date and time (i.e. 29.04.2017 up to 5 P.M.) in the prescribed format and manner. All bids must be accompanied by an EMD as specified in the Table in Point No.1 above. Electronic bidding is not permitted. Bids received after due date and time shall be rejected. Bids shall be received only through drop box/ registered post/ speed post/ courier service.

4. Bids are invited under **3 (Three) Packages** in this bid document i.e.

**1. Common High Value items,**

**2. Department wise High Value items,**

**3. Department wise Low Value/Consumables/Reagents/ Glass ware items.**

5. The informations to bidders for all the Packages are contained in a single bidding document. Bidders need not purchase more than one bid document even if they want to bid for more than one Package.

6. The bidders have to submit information in the Proforma attached as **Annexure I**.

7. Delivery Sites are mentioned in **Schedule of Requirement with Specification**.

8. Key Information:

Sl. No.	Particulars	Information
1.	Start Date for sale or availability of bid document in the official website	07.04.2017, Friday
2.	Cost of bid document (including Odisha VAT) (non-refundable)	Rs.5,250/-
3.	Date & Time for Pre-Bid Meeting	17.04.2017, Monday, 12 Noon
4.	Venue of Pre-Bid Meeting	Office of the Dean & Principal, PRMMCH-Baripada, Dist.-Mayurbhanj, Odisha
5.	Last date and time for receipt of bids	29.04.2017, Saturday up to 5PM
6.	Date and time for opening of Technical bids	01.05.2017, Monday 12 Noon
7.	Venue of Bid Opening Meeting	Office of the Dean & Principal, PRMMCH-Baripada, Dist.-Mayurbhanj, Odisha
8.	EMD	As mentioned under Point no.19 (EMD)
9.	Address for submission of bids	Office of the Dean & Principal, PRMMCH-Baripada, Dist.-Mayurbhanj, Odisha

**Note:** In case the closing date for sale of bid document or/ and date for Pre-Bid Meeting or/ and last date for receipt of bids happens to be a holiday for PRM **MCH, Baripada** for any reason, the activity will be held on the immediate next working day at the same time & place.

Sd/-  
**Dean**  
PRMMCH, Baripada

### **B. Eligibility Criteria**

The interested Bidders shall have to comply to the following criteria to participate in the tendering process -

1. The bidder should either be an Importer or Authorized Distributor or Original Manufacturer, he must have successfully supplied the equipments similar to the type specified in this bid document up to at least 100% of the quantity required in **any one or all of** the last 3 Financial Years i.e. 2013-14 to 2015-16 to Government / Private Medical College or Central Government Autonomous Institutions, on the last date of bid submission. Furthermore, the manufacturer should be in continuous business of manufacturing equipments similar to that specified in this bid document during the last three years prior to the last date of bid submission.
2. The equipments for supply must be of the most recent series models incorporating the latest technology and design.
3. The manufacturing facility should be certified **for ISO 9001** or ISO 13485 in design, development, testing, manufacturing, supply and after sales support.
4. The bidder shall furnish the information on all past supplies and satisfactory performance for 1 and 2 above in the Proforma under **Annexure III**.
5. **The bidder has to furnish a Declaration on Rs.10 Non-Judicial Stamp paper stating to set up a Registered Service Center by own company or some agency or a JV/Tieup with any existing registered Service centre for Medical Equipments in the state of Odisha. And that the Service center details will be furnished within 2 months of getting the PO. Also the declaration should state that the Service centre so established shall also cater to the spareparts requirement of the Consignee as per the tender requirement.**

6. **Financial Capability:** The Minimum required average annual turnover in respect of the bidder in the last 3 Financial Years i.e. 2013-14, 2014-15 & 2015-16 is **Rs.10 Crore for Package. 1. Common High Value items, & 2. Department wise High Value items**

**AND**

**Rs.5 Crore for Package 3. Department wise LowValue/Consumables/ Reagents / Glass ware items**

7. All bids submitted shall also include the following information along with specified formats:

- (i) Copies of original documents defining the constitution or legal status, place of registration and principal place of business of the company or firm, etc.
- (ii) Copies of Purchase Orders for the similar equipments supplied during last 3 Financial Years i.e. 2013-14 to 2015-16.
- (iii) Copies of Performance Certificates indicating satisfactory operation of similar equipments supplied during last 3 Financial Years i.e. 2013-14 to 2015-16.
- (iv) Documentary evidence showing the bidder is providing annual maintenance service for such equipments in at least two centers in the country for over one year as on the last date of bid submission.
- (v) A brief write-up, backed with adequate data, explaining his available capacity and experience (both technical and commercial) for the manufacture and supply of the required equipments within the specified time of completion after meeting all their current commitments.
- (vi) Details of Service Centers in **Annexure IV** and information on service support facilities that would be provided after the warranty period.
- (vii) Reports on financial standing of the Bidder such as Profit and Loss Statements, Balance Sheets and Auditor's Reports for the past three (3) Financial Years i.e. 2012-13 to 2014-15.
- (viii) Copies of PAN Card, Service Tax Registration Certificate, Up to date VAT Clearance Certificate, etc.
- (ix) Affidavit in **Annexure V** that the bidder has not been debarred/ blacklisted by any Govt./ Semi-Govt./ Public Sector/ Corporate Organization.

### **C. General Conditions of Contract**

## **1. General:**

- 1.1 The Bidder is expected to examine all instructions, forms, terms and specifications in the Bidding Documents. Failure to furnish all information or documentation required by the Bidding Documents may result in the rejection of the bid.
- 1.2 **PRMMCH** is not responsible for the completeness of the Bidding Documents and their addendum, if any.

## **2. Clarification on Bidding Documents:**

A prospective Bidder requiring any clarification on the Bidding Documents shall contact the Purchaser in writing at the Purchaser's address. The Purchaser will respond in writing to any request for clarification, provided that such request is received no later than the pre-bid meeting, to be held on **17.04.2017**. The Purchaser shall forward copies of its response to all those who have acquired the Bidding Documents directly from it, including a description of the inquiry but without identifying its source. Should the Purchaser deem it necessary to amend the Bidding Documents as a result of a clarification, it shall do so following the due procedures.

## **3. Amendment of Bidding Documents:**

- 3.1 At any time prior to the deadline for submission of bids, the Purchaser may amend the Bidding Documents by issuing addendum.
- 3.2 Any amendment issued shall be part of the Bidding Documents and shall be communicated in the Website and institution Notice board.
- 3.3 To give prospective Bidders reasonable time in which to take an amendment into account in preparing their bids, the Purchaser may, at its discretion, extend the deadline for the submission of bids.

## **4. Cost of Bidding:**

The Bidder shall bear all costs associated with the preparation and submission of its bid, and the Purchaser shall not be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

## **5. Language of Bid:**

- 5.1 The Bid as well as all correspondences and documents relating to the bid exchanged by the Bidder and the Purchaser, shall be written in English language. Supporting

documents and printed literature that are part of the Bid may be in another language provided they are accompanied by an accurate translation of the relevant passages into English language, in which case, for purposes of interpretation of the Bid, such translation shall govern.

5.2 The Supplier shall bear all costs of translation to the governing language and all risks of the accuracy of such translation, for documents provided by the Supplier.

## 6. Documents Comprising the Bid:

The Bid shall comprise the following:

### (a) Technical Bid:

- i. Cost of Bid Document for **Rs.5,250/-**;
- ii. EMD;
- iii. Written confirmation authorizing the signatory of the Bid to commit the Bidder;
- iv. Documentary evidence establishing the Bidder's eligibility to bid;
- v. Documentary evidence that the Goods and Related Services conform to the Bidding Documents;
- vi. Manufacturers' authorization form.
- vii. Any other document required in the Bid Document other than Financial Bid;

### (b) Financial Bid:

Financial Bid in the Format at **Annexure VI/1 & Annexure VI/ 2**.

## 7. Alternative Bids

Alternative bids shall not be considered.

## 8. Bid Prices:

### 7.1 Rate Contract:

7.1.1 This is a Rate contract Bid, the rate of which will be valid for a period of **two years** from the date of finalization of rate contract. However, the approx. quantity requirement is mentioned in the Schedule of Requirement – Section IV, which may increase or decrease to an **extent of 100%**. The bidders are expected to quote their best rates for the items. The technical specification, approx. quantity and locations, under the first instance of supply are also mentioned in this bid document. During the rate contract period, only PRMMCH, Baripada is authorized

to place purchase orders for the supply of item (s) to be procured under this bid during the validity of the rate contract period.

7.1.2 If the Tender Inviting Authority chooses to place repeat order (s) during the rate contract period for supply of the item (s), then the successful bidder is bound to supply the same as approved at the same rates and under the same terms and conditions of this bid.

7.1.3 The bidders can't withdraw their bid within the minimum bid validity period of 180 days after the last date of submission of bid and also after accepting the Letter of Intent or entering into the rate contract agreement with MCH, Baripada Issue of purchase order.

8.1.2 Prices shall be quoted as specified in the Financial Bid. The disaggregation of price components is required solely for the purpose of facilitating the comparison of bids by the Purchaser. This shall not in any way limit the Purchaser's right to contract on any of the terms offered.

8.1.3 Prices quoted by the Bidder shall be fixed during the Bidder's performance of the Contract and not subject to variation on any account, unless otherwise specified in this bid document. A Bid submitted with an adjustable price quotation shall be treated as non-responsive and shall be rejected. However, if in accordance with the bid document, prices quoted by the Bidder shall be subject to adjustment during the performance of the Contract, a bid submitted with a fixed price quotation shall not be rejected, but the price adjustment shall be treated as zero.

8.1.4 **Prices should be quoted for Medical Equipments as well as CMC, otherwise bids shall be rejected. Evaluation shall be made taking into consideration both the cost of Medical Equipments and CMC.**

#### 9. **Currencies of Bid:**

The Bidder shall quote in Indian Rupees only.

#### 10. **Documents Establishing the Conformity of the Goods and Related Services:**

10.1 To establish the conformity of the Goods and Related Services to the Bidding Documents, the Bidder shall furnish as part of its Bid, the documentary evidence that the Goods conform to the technical specifications and standards **specified in Annexure VII.**



10.2 The documentary evidence may be in the form of literature, drawings or data, and shall consist of a detailed item by item description of the essential technical and performance characteristics of the Goods and Related Services, demonstrating substantial responsiveness of the Goods and Related Services to the technical specification, and if applicable, a statement of deviations and exceptions to the technical specifications.

10.3 The Bidder shall also furnish 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 during the period specified in this bid document following commencement of the use of the goods by the Purchaser.

10.4 Standards for workmanship, process, material, and equipment, as well as references to brand names or catalogue numbers specified by the Purchaser in this bid document, if any, are intended to be descriptive only and not restrictive. The Bidder may offer other standards of quality, brand names, and/ or catalogue numbers, provided that it demonstrates, to the Purchaser's satisfaction, that the substitutions ensure substantial equivalence or are superior to those specified in this bid document.

#### 11. Documents Establishing the Qualifications of the Bidder:

The documentary evidence of the Bidder's qualifications to perform the contract if its bid is accepted shall establish to the Purchaser's satisfaction:

- (a) that, if a Bidder is the Original Equipment Manufacturer (OEM) of the Goods it offers to supply shall submit the Manufacturer's Offer Form using the form included in **Annexure VIII**;
- (b) that, if a Bidder that does not manufacture or produce the Goods it offers to supply shall submit the Manufacturer's Authorization using the form included in **Annexure IX** to demonstrate that it has been duly authorized by the manufacturer or producer of the Goods to supply these Goods;
- (c) that the Bidder meets each of the qualification criterion specified in **Eligibility Criteria**.
- (d) Bids from Joint Ventures are not acceptable

## **12. Period of Validity of Bids:**

12.1 Bids shall remain valid for a period of **180 days** after the last date of submission of bid prescribed by the Purchaser. A bid valid for a shorter period shall be rejected by the Purchaser as non-responsive.

12.2 In exceptional circumstances, prior to the expiration of the bid validity period, the Purchaser may request bidders to extend the period of validity of their bids. The request and the responses shall be made in writing. The EMD shall also be requested to be extended for a corresponding period. A Bidder may refuse the request without forfeiting its EMD. No Bidder shall be required or permitted to modify its bid.

## **13. Format and Signing of Bid:**

13.1 The bid shall be signed by a person duly authorized to sign on behalf of the Bidder. The authorization shall be indicated by written Power of Attorney accompanying the bid.

13.2 Any interlineations, erasures or overwriting shall be valid only if they are signed or initialed by the person signing the Bid.

## **14. Submission, Sealing and Marking of Bids:**

14.1 Bidders shall have the option of submitting their bids only through registered post/ speed post/ courier service.

(a) The bid shall be submitted in a sealed envelope with clear inscription as **“BID FOR SUPPLY, INSTALLATION & COMMISSIONING OF LABORATORY EQUIPMENTS, BID REFERENCE NO. PRMMCH/2017-18/LAB/01”** on top of it before due date and time.

(b) The bid shall be in two parts i.e. Cover-A and Cover-B. “Cover-A” shall contain the Technical Bid and “Cover-B” shall contain the Financial Bid.

(c) Technical Bid and Financial Bid shall be submitted separately in sealed covers with clear inscription as **“TECHNICAL/ FINANCIAL BID; BID REFERENCE NO. “PRMMCH/2017-18/LAB/01”** on top of respective covers and both the sealed envelopes shall be sealed in a third envelop with required inscription on it as mentioned in Clause (a) above.

14.2 The inner and outer envelopes shall:

- (a) bear the name and address of the Bidder;
- (b) be addressed to the Purchaser;
- (c) bear the specific identification of this bidding process and
- (d) bear a warning not to open before the time and date for bid opening.

14.3 If all envelopes are not sealed and marked as required, the Purchaser will assume no responsibility for the misplacement or premature opening of the bid.

14.4 Telex, Cable or Facsimile bids will be rejected as non-responsive.

**15. Deadline for Submission of Bids:**

15.1 Bids must be received by the Purchaser at the address and no later than the date and time specified in the bid document i.e. **5 P.M. of 29.04.2017**. In the event of the specified date for the submission of Bids being declared a holiday for the Purchaser, the Bids will be received up to the appointed time on the next working day.

15.2 The Purchaser may, at its discretion, extend the deadline for the submission of bids by amending the Bidding Documents, in which case all rights and obligations of the Purchaser and Bidders previously subject to the deadline shall thereafter be subject to the deadline as extended.

**16. Late Bids:**

The Purchaser shall not consider any bid that arrives after the deadline for submission of bids i.e. **5 P.M. of 29.04.2017**. Any bid received by the Purchaser after the deadline for submission of bids shall be declared late, rejected and returned unopened to the Bidder.

**17. Withdrawal, Substitution, and Modification of Bids:**

17.1 A Bidder may withdraw, substitute, or modify its Bid after it has been submitted by sending a written notice, duly signed by an authorized representative, and shall include a copy of the authorization (the power of attorney). The corresponding substitution or modification of the bid must accompany the respective written notice.

All notices must be:

- (a) submitted in accordance with the respective clauses of this bid document and in addition, the respective envelopes shall be clearly marked "Withdrawal," "Substitution," or "Modification;" and
- (b) received by the Purchaser prior to the deadline prescribed for submission of bids i.e. **5 P.M. of 29.04.2017**.

17.2 Bids requested to be withdrawn shall be returned unopened to the Bidders.

17.3 No bid may be withdrawn, substituted or modified in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder in the bid submitted or any extension thereof.

### **18. Cost of Bid Document:**

18.1 The bidder shall submit along with the Technical Bid, the cost of Bid Document for **Rs.5,250/- (Rupees Five Thousand Two Hundred and Fifty)** only (including Odisha VAT) (non-refundable) in the form of Demand Draft/ Pay Order from any Nationalized/ Scheduled Bank in India in favour of MCH, payable at Baripada.

18.2 Any bid not accompanied by cost of Bid Document for **Rs.5,250/- (Rupees Five Thousand Two Hundred and Fifty)** only shall be rejected by the Purchaser as non-responsive.

### **19. EMD:**

19.1 The bidder shall submit along with the Technical Bid, EMD as mentioned below only in form of Demand Draft/ Pay Order from any Nationalized/ Scheduled Bank in India in favour of MCH, payable at Baripada. As per the below criteria on quoted value:

- 1. Less than Rs.20lakh: Rs.50,000/-**
- 2. Rs.20lakh to Rs.1 Crore: Rs.1.5Lakhs**
- 3. More than Rs.1 Crore: Rs.3Lakhs**

19.2 **Any bid not accompanied by Cost of Bid Document and EMD as mentioned in the above Table shall be rejected by the Purchaser as non-responsive.**

19.3 The EMD of the unsuccessful bidders shall be returned once the successful bidder deposits the Performance Security and signs the Contract.

19.4 In case of the successful bidder, the EMD shall be adjusted towards Performance Security. The successful bidder shall deposit the balance amount (after adjustment of EMD) towards Performance Security.

19.5 EMD of a bidder may be forfeited:

- (a) If the bidder:

- (i) withdraws its bid during the period of bid validity; or
  - (ii) does not accept the correction of errors requested by the Purchaser, or,
- (b) if the successful Bidder fails to:
- (i) furnish the Performance Security; or
  - (ii) sign the Contract;

## **20. Technical Bid Opening:**

- 20.1 The Purchaser shall conduct the bid opening in public at the address, date and time specified in this bid document i.e. **MCH, Baripada**. In the event of the specified date of bid opening being declared a holiday for the Purchaser, the bids will be opened at the appointed time and location on the next working day.
- 20.2 First, envelopes marked "Withdrawal" shall be opened and read out and the envelope with the corresponding bid shall not be opened and will be returned to the Bidder. If the withdrawal envelope does not contain a copy of the "power of attorney" confirming the signature as a person duly authorized to sign on behalf of the Bidder, the corresponding bid will not be opened. No bid withdrawal shall be permitted unless the corresponding withdrawal notice contains a valid authorization to request the withdrawal and is read out at bid opening. Next, envelopes marked "Substitution" shall be opened and read out and exchanged with the corresponding Bid being substituted, and the substituted Bid shall not be opened, but returned to the Bidder. No Bid substitution shall be permitted unless the corresponding substitution notice contains a valid authorization to request the substitution and is read out at bid opening. Envelopes marked "Modification" shall be opened and read out with the corresponding Bid. No Bid modification shall be permitted unless the corresponding modification notice contains a valid authorization to request the modification and is read out at Bid opening. Only envelopes that are opened and read out at Bid opening shall be considered further.
- 20.3 All other envelopes shall be opened one at a time, reading out: the name of the Bidder and whether there is a modification; the presence of Cost of Bid Document, the presence of EMD and any other details as the Purchaser may consider appropriate. No Bid shall be rejected at Bid opening except late bids.
- 20.4 The Purchaser shall prepare a record of the Bid opening that shall include, as a minimum: the name of the Bidder and whether there is a withdrawal, substitution or modification; and the presence or absence of Cost of Bid Document and EMD. The

Bidders' representatives who are present shall be requested to sign the attendance sheet.

## **21. Financial Bid Opening:**

21.1 The Financial Bids shall be opened of those bidders who will qualify in the technical evaluation.

21.2 Financial Bids shall be opened in the presence of the technically qualified bidders' representatives, who choose to attend in person at the address given below –

**MCH, Baripada**

**Date of Opening of Financial Bids shall be communicated to the technically qualified bidders.**

## **22. Confidentiality:**

22.1 Information relating to the examination, evaluation, comparison and recommendation of contract award, shall not be disclosed to bidders or any other person not officially concerned with such process until publication of the Contract Award.

22.2 Any effort by a Bidder to influence the Purchaser in the examination, evaluation, comparison or contract award decisions may result in the rejection of its Bid.

22.3 From the time of bid opening to the time of Contract Award, if any Bidder wishes to contact the Purchaser on any matter related to the bidding process, it shall do so in writing.

## **23. Clarification of Bids:**

To assist in the examination, evaluation and comparison of the bids, the Purchaser may, at its discretion, ask any Bidder for a clarification of its Bid. Any clarification submitted by a Bidder in respect to its Bid and that changes the substance of the Bidder price of the bid shall not be considered. The Purchaser's request for clarification and the response shall be in writing. No change in the prices or substance of the Bid shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Purchaser in the evaluation of the bids.

## **24. Responsiveness of Bids:**

24.1 The Purchaser's determination of a bid's responsiveness is to be based on the contents of the bid itself.

24.2 A substantially responsive Bid is one that conforms to all the terms, conditions and specifications of the Bidding Documents without material deviation, reservation or omission. A material deviation, reservation or omission is one that:

- (a) affects in any substantial way the scope, quality or performance of the Goods and Related Services specified in the Contract; or
- (b) limits in any substantial way, inconsistent with the Bidding Documents, the Purchaser's rights or the Bidder's obligations under the Contract; or
- (c) if rectified, would unfairly affect the competitive position of other bidders presenting substantially responsive bids.

24.3 Bids from Agents, without proper authorization from the manufacturer shall be treated as non-responsive.

24.4 If a bid is not substantially responsive to the Bidding Documents, it shall be rejected by the Purchaser and may not subsequently be made responsive by the Bidder by correction of the material deviation, reservation or omission.

**25. Nonconformities, Errors and Omissions:**

25.1 Provided that a Bid is substantially responsive, the Purchaser may waive any non-conformities or omissions in the Bid that do not constitute a material deviation.

25.2 Provided that a bid is substantially responsive, the Purchaser may request that the Bidder submit the necessary information or documentation, within a reasonable period of time, to rectify non-material non-conformities or omissions in the bid related to documentation requirements. Such omission shall not be related to any aspect of the price of the Bid. Failure of the Bidder to comply with the request may result in the rejection of its Bid.

25.3 Provided that the Bid is substantially responsive, the Purchaser shall correct arithmetical errors on the following basis:

- (a) if there is a discrepancy between the unit price and the line item total that is obtained by multiplying the unit price by the quantity, the unit price shall prevail and the line item total shall be corrected, unless in the opinion of the Purchaser, there is an obvious misplacement of the decimal point in the unit price, in which case the line item total as quoted shall govern and the unit price shall be corrected;

- (b) if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and
  - (c) if there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) and (b) above.
- 25.4 If the Bidder that submitted the lowest evaluated Bid does not accept the correction of errors, its Bid shall be rejected and the EMD may be forfeited.

## **26. Preliminary Examination of Bids:**

26.1 The Purchaser shall examine the bids to confirm that all documents and technical documentation requested in the bid document have been provided and to determine the completeness of each document submitted.

26.2 The Purchaser shall confirm that the following documents and information have been provided in the Bid. If any of these documents or information is missing, the offer shall be rejected and the EMD may be forfeited -

- (a) Cost of bid document in accordance with this bid document.
- (b) EMD in accordance with this bid document.
- (c) Financial Bid.

## **27. Examination of Terms and Conditions; Technical Evaluation:**

**27.1 Bids are invited for 3 (Three) Packages in this bid document. Evaluation will be done for each Package separately.**

27.2 The Purchaser shall examine the bid to confirm that the Bidder has accepted all terms and conditions specified in Special Conditions of Contract without material deviation or reservation. Deviations from or objections or reservations to critical provisions such as those concerning Performance Security, Warranty, Force Majeure, Limitation of Liability, Governing Law and Taxes & Duties will be deemed to be a material deviation. The Purchaser's determination of a bid's responsiveness is to be based on the contents of the bid itself without recourse to extrinsic evidence.

27.3 The Purchaser shall evaluate the technical aspects of the Bid submitted in accordance with the provisions in the bid document, to confirm that all the requirements specified in the bid document have been met without any material deviation or reservation.



27.4 If, after the examination of the terms and conditions and the technical bid evaluation including technical specification, the Purchaser determines that the Bid is not substantially responsive, it shall reject the Bid.

**28. Financial Evaluation; Comparison of Bids:**

**The Purchaser shall compare the evaluated prices of all substantially technically responsive bids for each Package to determine the lowest evaluated bid for each Package.**

Prices shall be considered for evaluation like below –

The quoted rate should include excise / customs duty, transportation, insurance, packing & forwarding or any other incidental charges.

28.1 In case of bidders who have quoted CST (firms not registered under Odisha VAT), CST as mentioned in the Price Bid by the bidder shall be added to the quoted rate for price evaluation.

28.2 In case of bidders who have quoted VAT (firms registered under Odisha VAT), VAT as mentioned in the Price Bid by the bidder shall be excluded for price evaluation.

28.3 Entry Tax will not be considered for price evaluation.

28.4 After giving price preferences to eligible local MSE Units of Odisha.

28.5 As per the Govt. of Odisha Finance Deptt. Order No.13290/F dt.02.04.2013, “in comparing the cost of an article, if purchased from within the State with the price of similar article if purchased from outside the State, the amount of Odisha Sales Tax (OST) now VAT shall be deducted from the total cost since it accrues back as revenue to the State. If after such deduction, the cost of articles to be purchased within the State is not more than the cost of including Central Sales Tax, transport and other charges of similar articles from outside the State, it would be economical to purchase articles within the State”.

28.6 The basic price, Installation cost (if any), CMC (wherever applicable as mentioned in list of item requirement) & Cost of reagents (wherever applicable) shall be taken into account for evaluation.

28.7 Bids which do not contain prices for CMC shall be rejected.

**29. 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 contract award, without thereby incurring any liability to Bidders.

### **30. Award Criteria:**

30.1 **Contract for a Package shall be awarded to the bidder whose bid will be determined to be substantially responsive and who has offered the lowest evaluated bid price for that Package.**

30.2 A bidder can be awarded contracts for more than one Package if in more than one Package, the bid of the bidder is determined to be substantially responsive and who has offered the lowest evaluated bid price for those Packages.

30.3 The Purchaser shall award multiple contracts to the Bidder that offers the lowest evaluated combination of bids (one contract per Package) and meets the eligibility criteria mentioned in this bid document.

The Purchaser shall take into account:

- (i) The lowest-evaluated bid for each Package and
- (ii) The price reduction per Package and the methodology for its application as offered by the Bidder in its bid.

30.4 **In case two technically qualified bidders quote the same lowest price, contract shall be awarded to the bidder with the higher average annual turnover during the last 3 Financial Years i.e. 2013-14, 2014-15 & 2015-16 or distributed among them equally.**

### **31. Purchaser's Right to Vary Quantities at Time of Award:**

At the time the Contract is awarded, the Purchaser reserves the right to increase or decrease the quantity of Goods and Related Services originally specified in this bid document, provided this does not exceed 15% of quantity mentioned in this bid document (rounded off to next full no.) and without any change in the unit prices or other terms and conditions of the bid and the Bidding Documents.

### **32. Notification of Award:**

32.1 Prior to the expiration of the period of bid validity, the Purchaser shall notify the successful Bidder, in writing, that its Bid has been accepted.

32.2 Along with the notification, the Purchaser shall send the successful Bidder the Agreement as at **Annexure X** and the Special Conditions of Contract.

32.3 Until a formal Contract is prepared and executed, the notification of award shall constitute a binding Contract.

### **33. Maintenance Service:**

33.1 Free maintenance services shall be provided by the supplier during the period of warranty. After warranty period, annual maintenance and repairs of the entire system

including supply of spares, etc. (excluding consumable items) for next 36 months will be done by the supplier.

33.2 The supplier has to undertake routine maintenance service of the equipments mandatorily in every 6 months within the warranty period.

33.3 The maximum response time for a maintenance complaint from any of the destination specified in **Annexure II** (i.e. time required for supplier's maintenance engineers to report to the installations after a request call/ telegram/ fax is made or letter is written) shall not exceed 2 (Two) days.

33.4 It is expected that the average downtime of an item will be less than half the maximum downtime (i.e. defined as number of days for which an item of equipment is not usable because of inability of the supplier to repair it) as mentioned in the form of technical details. In case an item is not usable beyond the stipulated maximum downtime, the supplier will be required to arrange for an immediate replacement of the same till it is repaired. Failure to arrange for the immediate repair/ replacement, the supplier will be liable for penalty of **Rs.2,500/- per day per item**. The amount of penalty will be recovered from the Performance Security during warranty or annual maintenance period as the case may be.

#### **34. Performance Security:**

34.1 Performance Security shall be 10% of the contract value for equipments excluding Comprehensive Annual Maintenance Contract (CMC) Cost.

34.2 The successful bidder shall deposit the **balance amount (after adjustment of EMD)** towards Performance Security in the form of Demand Draft (DD)/ Pay Order (PO)/ Bank Guarantee as per Format in **Annexure XI** from any Nationalized/ Scheduled Bank in India in favour of **MCH**, payable at **Baripada** within 21 days of notification of award.

34.3 Performance Bank Guarantee shall be valid up to 60 days after the date of completion of performance obligations including warranty obligations. In the event of any correction of defects or replacement of defective material during the warranty period, the warranty for the corrected/ replaced material shall be extended to a further period of 12 months and the Performance Bank Guarantee for proportionate value shall be extended 60 days over and above the extended warranty period.

34.4 Failure of the successful Bidder to submit the above-mentioned Performance Security or sign the Contract shall constitute sufficient grounds for the annulment of

the award and forfeiture of the EMD. In that event, the Purchaser may award the Contract to the next lowest evaluated Bidder, whose offer is substantially responsive and is determined by the Purchaser to be qualified to perform the Contract satisfactorily.

34.5 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.

34.6 The Performance Security shall be discharged by the Purchaser and returned to the Supplier not later than sixty (60) days following the date of Completion of the Supplier's performance obligations under the Contract, including any warranty obligations, but excluding CMC and following receipt of a Performance Security for 5% of the contract value for CMC.

34.7 The Performance Security for CMC shall be in the form of Demand Draft (DD)/ Pay Order (PO) from any Nationalized/ Scheduled Bank in India in favour of **MCH, payable at Baripada**.

34.8 The Performance Security for CMC shall be discharged by the Purchaser and returned to the Supplier not later than sixty (60) days following the date of Completion of the Supplier's performance obligations under the Contract for CMC.

### **35. Signing of Contract:**

Within twenty-one (21) days of receipt of the Agreement, the successful Bidder shall submit the Performance Security and sign, date & return the Contract to the Purchaser.

### **36. Delivery Period:**

The goods are required to be delivered **within 60 days** following the date of issue of purchase order. No credit will be given to deliveries before the earliest date and bids offering delivery after the final date shall be treated as non-responsive. Within this acceptable period there will not be any adjustment.

## **D. Special Conditions of Contract**

### **1. Fraud and Corruption:**

1.1 If the Purchaser determines that the Supplier and/ or any of its personnel or its agents or its consultants, service providers, suppliers and/ or their employees is engaged in corrupt, fraudulent, collusive, coercive or obstructive practices, in

competing for or in executing the Contract, then the Purchaser may, after giving 14 days notice to the Supplier, terminate the Supplier's employment under the Contract and cancel the contract, and the provisions of Clause 24 shall apply as if such expulsion had been made under Sub-Clause 24.1.

(a) For the purposes of this Sub-Clause:

- (i) "corrupt practice" is the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party<sup>1</sup>;
- (ii) "fraudulent practice" is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation<sup>2</sup>;
- (iii) "collusive practice" is an arrangement between two or more parties<sup>3</sup> designed to achieve an improper purpose, including to influence improperly the actions of another party;
- (iv) "coercive practice" is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party<sup>4</sup>;
- (v) "obstructive practice" is
  - (a) deliberately destroying, falsifying, altering or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede an investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; and/or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or

---

1 "Another party" refers to a public official acting in relation to the procurement process or contract execution. In this context, "public official" includes Govt. and employees of other organizations taking or reviewing procurement decisions.

2 "Party" refers to a public official; the terms "benefit" and "obligation" relate to the procurement process or contract execution; and the "act or omission" is intended to influence the procurement process or contract execution.

3 "Parties" refers to participants in the procurement process (including public officials) attempting to establish bid prices at artificial, non competitive levels.

4 "Party" refers to a participant in the procurement process or contract execution.

(b) acts intended to materially impede the exercise of MCH's inspection rights.

3.2 Should any employee of the Supplier be determined to have engaged in corrupt, fraudulent, collusive, coercive or obstructive practice during the purchase of the Goods, then that employee shall be removed.

## **2. Interpretation:**

### 2.1 Entire Agreement

The Contract constitutes the entire agreement between the Purchaser and the Supplier and supersedes all communications, negotiations and agreements (whether written or oral) of the parties with respect thereto made prior to the date of Contract.

### 2.2 Amendment

No amendment or other variation of the Contract shall be valid unless it is in writing, is dated, expressly refers to the Contract, and is signed by a duly authorized representative of each party thereto.

### 2.3 Non-waiver

- (a) No relaxation, forbearance, delay or indulgence by either party in enforcing any of the terms and conditions of the Contract or the granting of time by either party to the other shall prejudice, affect or restrict the rights of that party under the Contract, neither shall any waiver by either party of any breach of Contract operate as waiver of any subsequent or continuing breach of Contract.
- (b) Any waiver of a party's rights, powers, or remedies under the Contract must be in writing, dated, and signed by an authorized representative of the party granting such waiver, and must specify the right and the extent to which it is being waived.

### 2.4 Severability

If any provision or condition of the Contract is prohibited or rendered invalid or unenforceable, such prohibition, invalidity or unenforceability shall not affect the validity or enforceability of any other provisions and conditions of the Contract.

## **3. Notices:**

- 3.1 Any notice given by one party to the other pursuant to the Contract shall be in writing to the address specified in the bid document. The term “in writing” means communication in written form with proof of receipt.
- 3.2 A notice shall be effective when delivered or on the notice’s effective date, whichever is later.

#### **4. Governing Law:**

The Contract shall be governed by and interpreted in accordance with the laws of the Govt. of India.

#### **5. Settlement of Disputes:**

- 5.1 The Purchaser and the Supplier shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the Contract.
- 5.2 If, after twenty-eight (28) 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. 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. Arbitration proceedings shall be conducted in accordance with the rules of procedure specified below.

The dispute settlement mechanism to be applied shall be as follows:

- (a) In case of Dispute or difference arising between the Purchaser and the 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.

(c) Arbitration proceedings shall be held at **Baripada, Odisha, India** and the language of the arbitration proceedings and that of all documents and communications between the parties shall be English.

(d) The decision of the majority of arbitrators shall be final and binding upon both 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.

(e) Except otherwise agreed to by the Parties, Arbitrators should give a decision in writing within 120 days of receipt of notification of dispute

5.3 Notwithstanding any reference to arbitration herein,

(1.a) the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree; and

(1.b) the Purchaser shall pay the Supplier any money due the Supplier.

#### **6. Inspection by MCH:**

The goods supplied by the Supplier shall be inspected by the Purchaser prior to acceptance as described in Cl. 15 of Special Conditions of Contract.

#### **7. Terms of Payment:**

7.1 The Contract Price, including any Advance Payments, if applicable, shall be paid as below –

##### **(A) Equipments:**

(a) On Delivery & Installation: **90%** (Ninety Percent) of the contract price shall be paid by Bank transfer/ cheque on receipt of Goods and upon submission of the documents specified below -

(i) Two copies of the Supplier invoice showing contract number, goods description, quantity, unit price, total amount;

(ii) Acknowledgement of receipt of goods from the Consignee;

(iii) Warranty Certificate;

(iv) Satisfactory installation/commissioning report



(b) On Final Acceptance: the remaining **10%** (Ten Percent) of the Contract Price shall be paid within thirty (30) days after the date of the Acceptance Certificate issued by the Purchaser's **representative in the proforma given in Annexure XII.**

**B. Comprehensive Annual Maintenance and Repair Cost (after warranty period)**

Cost towards CMC shall be paid in equal quarterly installments within thirty days of receipt of claim at the end of each quarterly period, after completion of maintenance obligations of that quarterly period, at the rates quoted in the financial bid and as agreed.

7.2 The Supplier's request for payment shall be made to the Purchaser in writing, accompanied by invoices describing, as appropriate, the Goods delivered and Related Services performed, and by the documents submitted pursuant to the relevant Clauses in Special Conditions of Contract and upon fulfillment of all other obligations stipulated in the Contract.

7.3 Payments shall be made promptly by the Purchaser, but in no case later than sixty (60) days after submission of an invoice or request for payment by the Supplier, and after the Purchaser has accepted it.

7.4 The payments shall be made in Indian Rupees to the Supplier under this Contract.

**8. Taxes and Duties:**

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

**9. Copyright:**

The copyright in all drawings, documents and other materials containing data and information furnished to the Purchaser by the Supplier herein shall remain vested in the Supplier, or, if they are furnished to the Purchaser directly or through the Supplier by any third party, including suppliers of materials, the copyright in such materials shall remain vested in such third party.

**10. Confidential Information:**

10.1 The Purchaser and the Supplier shall keep confidential and shall not, without the written consent of the other party hereto, divulge to any third party any document, data or other information furnished directly or indirectly by the other party hereto in

connection with the Contract, whether such information has been furnished prior to, during or following completion or termination of the Contract.

10.2 The Purchaser shall not use such documents, data and other information received from the Supplier for any purpose unrelated to the contract. Similarly, the Supplier shall not use such documents, data and other information received from the Purchaser for any purpose other than the performance of the Contract.

10.3 The obligation of a party under Sub-Clauses 10.1 and 10.2 above, however, shall not apply to information that:

- (a) the Purchaser or Supplier need to share with Govt. or other institutions participating in the financing of the Contract;
- (b) now or hereafter enters the public domain through no fault of that party;
- (c) can be proven to have been possessed by that party at the time of disclosure and which was not previously obtained, directly or indirectly, from the other party; or
- (d) otherwise lawfully becomes available to that party from a third party that has no obligation of confidentiality.

10.4 The above provisions of this Clause 10 shall not in any way modify any undertaking of confidentiality given by either of the parties hereto prior to the date of the Contract in respect of the Supply or any part thereof.

10.5 The provisions of this Clause 10 shall survive completion or termination, for whatever reason, of the Contract.

**11. Sub-contracting:**

Subcontracting is not allowed in this bid document.

**12. Specifications and Standards:**

- (a) The Goods and Related Services supplied under this Contract shall conform to the technical specifications and standards mentioned in this bid document.
- (b) The Supplier shall be entitled to disclaim responsibility for any design, data, drawing, specification or other document or any modification thereof provided or designed by or on behalf of the Purchaser, by giving a notice of such disclaimer to the Purchaser.
- (c) Wherever references are made in the Contract to codes and standards in accordance with which it shall be executed, the edition or the revised version of such codes and standards shall be those specified in this bid document.

During Contract execution, any change in any such codes and standards shall be applied only after approval by the Purchaser and shall be treated in accordance with the Special Conditions of Contract.

**13. Packing and Documents:**

13.1 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. During transit, the packing shall be sufficient to withstand, without limitation, rough handling and exposure to extreme temperatures, salt and precipitation, 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.

13.2 The packing, marking and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the Contract, including additional requirements, if any, specified in the Special Conditions of Contract, and in any other instructions ordered by the Purchaser.

**14. Insurance:**

14.1 Unless otherwise specified in the Special Conditions of Contract, the Goods supplied under the Contract shall be fully insured - against loss or damage incidental to manufacture or acquisition, transportation, storage, and delivery, in the manner specified in the Special Conditions of Contract.

14.2 Should any loss or damage occur, the Supplier shall -

- a) initiate and pursue claim till settlement, and
- b) Promptly make arrangements for repair and/ or replacement of any damaged item/s and ensure supply/ commissioning as per terms of the contract, irrespective of settlement of claim by the underwriters.

**15. Inspections and Tests:**

Inspection and tests prior to final acceptance are as follows:

- (i) The inspection of the goods shall be carried out to check whether the goods are in conformity with the technical specifications attached to the purchase order and shall be in line with the inspection/ test procedures laid down in the technical specifications and the manufacturer's warranty certificate. The purchaser will test the equipment after completion of the installation and commissioning at the site of the installation. The complete equipment should be supplied, installed and commissioned properly by the supplier prior to commencement of performance tests.
- (ii) The acceptance test will be conducted by a committee chaired by **MCH, Baripada** with following members, who will inspect and make recommendation on the specification of the equipments for acceptance by the **Dean, MCH, Baripada** -  
However, **Dean, MCH, Baripada** can co-opt any other subject matter specialist to facilitate the inspection. There shall not be any additional charges for carrying out acceptance tests. No malfunction, partial or complete failure of any part of hardware or excessive heating of motors attached to printers, drivers, etc. or bugs in the software should occur. All the software should be complete and no missing modules/ sections shall be allowed. The supplier shall maintain necessary log in respect of the results of the tests to establish to the entire satisfaction of the purchaser, the successful completion of the test specified. An average uptake efficiency of **98%** for the duration of test period shall be considered as satisfactory.
- (iii) In the event of the equipment failing to pass the acceptance test, a period not exceeding two weeks will be given to rectify the defects and clear the acceptance test, failing which the purchaser reserves the rights to get the equipment replaced by the supplier at no extra cost to the purchaser.

### **Manuals**

- (a) Before the goods and equipments are taken over by the Purchaser, the Supplier shall supply operation and maintenance manuals of the goods and equipments. These shall be in such detail as will enable the Purchaser to operate, maintain, adjust and repair all parts of the works as stated in the specifications.
- (b) The manuals shall be in the ruling language (English) and in such form and numbers as stated in the contract.
- (c) Unless and otherwise agreed, the goods and equipments shall not be considered to be complete for the purpose of taking over until such manuals have been

supplied to the Purchaser.

**For the System and Other Software the following will apply:**

The Supplier shall provide complete and legal documentation of the equipments. The Supplier shall also provide licensed software for all software products, whether developed by it or acquired from others. The supplier shall also indemnify the purchaser against any levies/ penalties on account of any default in this regard.

**Acceptance Certificates:**

- (a) On successful completion of acceptability test, receipt of deliverables, etc. and after the purchaser is satisfied with the working on the system, the acceptance certificate signed by the supplier and the representative of the purchaser will be issued. The date on which such certificate is signed shall be deemed to be the date of successful commissioning of the systems.
- (b) The training as specified in this bid document shall be conducted by the supplier.

**16. Liquidated Damage:**

Except as provided under Clause "Force Majeure", if the Supplier fails to deliver any or all of the Goods by the Date (s) of delivery or perform the Related Services within the period specified in the Contract, the Purchaser may without prejudice to all its other remedies under the Contract, deduct from the Contract Price, as liquidated damages, a sum equivalent to 1% (One percent) per week or part thereof up to a maximum of 4% (four percent) on the value of delayed goods or unperformed Services, so the maximum allowed penal period will be 4 (four) weeks. However, Dean, MCH, Baripada reserves the right to allow an additional penal period of 4 (four) weeks beyond the normal penal period (4 weeks) on the written request of the supplier with the condition that liquidated damage @ 1.5% will be charged for each week or part thereof during the extended penal period. Once the maximum is reached, the Purchaser may terminate the Contract pursuant to Clause "Termination".

**17. Warranty:**

- 17.1 The Supplier warrants that all the Goods are new, unused and of the most recent or current models, and that they incorporate all recent improvements in design and materials, unless provided otherwise in the Contract.
- 17.2 Subject to Special Conditions of Contract Sub-Clause 12 (b), the Supplier further warrants that the Goods shall be free from defects arising from any act

or omission of the Supplier or arising from design, materials and workmanship, under normal use in the conditions prevailing in the country of final destination.

**17.3 The warranty shall be as specified in the detail list of requirement.**

17.4 The Purchaser shall give notice to the Supplier stating the nature of any defect together with all available evidence thereof, promptly following the discovery thereof. The Purchaser shall afford all reasonable opportunity for the Supplier to inspect such defects.

17.5 Upon receipt of such notice, the Supplier shall expeditiously repair or replace the defective Goods or parts thereof within 15 days, at no cost to the Purchaser.

17.6 If having been notified, the Supplier fails to remedy the defect within 15 days of notice, the Purchaser may proceed to take within a reasonable period such remedial action as may be necessary, at the Supplier's risk and expense and without prejudice to any other rights which the Purchaser may have against the Supplier under the Contract.

**18. Patent Indemnity:**

18.1 The Supplier shall, subject to the Purchaser's compliance with Special Conditions of Contract Sub-Clause 18.2 below, indemnify and hold harmless the Purchaser and its employees and officers from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of any nature, including attorney's fees and expenses, which the Purchaser may suffer as a result of any infringement or alleged infringement of any patent, utility model, registered design, trademark, copyright, or other intellectual property right registered or otherwise existing at the date of the Contract by reason of:

- (a) the installation of the Goods by the Supplier or the use of the Goods in the country where the Site is located; and
- (b) the sale in any country of the products produced by the Goods.

Such indemnity shall not cover any use of the Goods or any part thereof other than for the purpose indicated by or to be reasonably inferred from the Contract, neither any infringement resulting from the use of the Goods or any part thereof, or any

products produced thereby in association or combination with any other equipment, plant, or materials not supplied by the Supplier, pursuant to the Contract.

- 18.2 If any proceedings are brought or any claim is made against the Purchaser arising out of the matters referred to in Special Conditions of Contract Sub-Clause 18.1 above, the Purchaser shall promptly give the Supplier a notice thereof and the Supplier may at its own expense and in the Purchaser's name conduct such proceedings or claim and any negotiations for the settlement of any such proceedings or claim.
- 18.3 If the Supplier fails to notify the Purchaser within twenty-eight (28) days after receipt of such notice that it intends to conduct any such proceedings or claim, then the Purchaser shall be free to conduct the same on its own behalf.
- 18.4 The Purchaser shall, at the Supplier's request, afford all available assistance to the Supplier in conducting such proceedings or claim, and shall be reimbursed by the Supplier for all reasonable expenses incurred in so doing.
- 18.5 The Purchaser shall indemnify and hold harmless the Supplier and its employees and officers from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of any nature, including attorney's fees and expenses, which the Supplier may suffer as a result of any infringement or alleged infringement of any patent, utility model, registered design, trademark, copyright, or other intellectual property right registered or otherwise existing at the date of the Contract arising out of or in connection with any design, data, drawing, specification, or other documents or materials provided or designed by or on behalf of the Purchaser.

**19. Limitation of Liability:**

Except in cases of criminal negligence or willful misconduct,

- (a) the Supplier shall not be liable to the Purchaser, whether in contract, tort, 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, or to any obligation of the supplier to indemnify the purchaser with respect to patent infringement.

**20. Change in Laws and Regulations:**

20.1 Unless otherwise specified in the Contract, if after the date of 28 days prior to date of Bid submission, any law, regulation, ordinance, order or bylaw having the force of law is enacted, promulgated, abrogated, or changed in India, where the Site is located (which shall be deemed to include any change in interpretation or application by the competent authorities) that subsequently affects the Delivery Date and/ or the Contract Price, then such Delivery Date and/ or Contract Price shall be correspondingly increased or decreased, to the extent that the Supplier has thereby been affected in the performance of any of its obligations under the Contract. Notwithstanding the foregoing, such additional or reduced cost shall not be separately paid or credited if the same has already been accounted for in the price adjustment provisions where applicable, in accordance with Contract Price.

20.2 This clause will apply only to variations in VAT/ Octroi, etc. payable in India on the final product which is being supplied and not for the individual components / raw materials which go into the product.

**21. Force Majeure:**

21.1 The Supplier shall not be liable for forfeiture of its Performance Security, liquidated damages or termination for default if and to the extent that its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

21.2 For purposes of this Clause, "Force Majeure" means an event or situation beyond the control of the Supplier that is not foreseeable, is unavoidable, and its origin is not due to negligence or lack of care on the part of the Supplier. Such events may include, but not be limited to, acts of the Purchaser in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions, and freight embargoes.

21.3 If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the



Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

## **22. Change Orders and Contract Amendments:**

22.1 The Purchaser may at any time order the Supplier through notice in accordance Special Conditions of Contract Clause 3, to 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 furnished under the Contract are to be specifically manufactured for the Purchaser;
- (b) the method of shipment or packing;
- (c) the place of delivery; and
- (d) the Related Services to be provided by the Supplier.

22.2 If any such change causes an increase or decrease in the cost of or the time required for, the Supplier's performance of any provisions under the Contract, an equitable adjustment shall be made in the Contract Price or in the Delivery/ Completion Schedule, or both, and the Contract shall accordingly be amended. Any claims by the Supplier for adjustment under this Clause must be asserted within twenty-eight (28) days from the date of the Supplier's receipt of the Purchaser's change order.

22.3 Prices to be charged by the Supplier for any Related Services that might be needed but which were not included in the Contract shall be agreed upon in advance by the parties and shall not exceed the prevailing rates charged to other parties by the Supplier for similar services.

22.4 Subject to the above, no variation in or modification of the terms of the Contract shall be made except by written amendment signed by the parties.

## **23. Extension of Time:**

23.1 If at any time during performance of the Contract, the Supplier should encounter conditions impeding timely delivery of the Goods or completion of Related Services pursuant to Special Conditions of Contract, the Supplier shall promptly notify the Purchaser in writing of the delay, its likely duration and its cause. As soon as practicable after receipt of the Supplier's notice, the Purchaser shall evaluate the situation and may at its discretion extend the Supplier's time for performance, in

which case the extension shall be ratified by the parties by amendment of the Contract.

23.2 Except in case of Force Majeure, as provided under Special Conditions of Contract Clause 21, a delay by the Supplier in the performance of its Delivery and Completion obligations shall render the Supplier liable to the imposition of liquidated damages pursuant to Special Conditions of Contract Clause 16, unless an extension of time is agreed upon, pursuant to Special Conditions of Contract Sub-Clause 23.1 above.

#### **24. Termination:**

##### **24.1 Termination for Default:**

(a) The Purchaser, without prejudice to any other remedy for breach of Contract, by written notice of default sent to the Supplier, may terminate the Contract in whole or in part:

(1.b.i) if the Supplier fails to deliver any or all of the Goods within the period specified in the Contract or within any extension thereof granted by the Purchaser pursuant to Special Conditions of Contract Clause 23;

(1.b.ii) if the Supplier fails to perform any other obligation under the Contract;  
or

(1.b.iii) if the Supplier, in the judgment of the Purchaser has engaged in fraud and corruption, as defined in Special Conditions of Contract Clause 1, in competing for or in executing the Contract.

(b) In the event the Purchaser terminates the Contract in whole or in part, pursuant to Special Conditions of Contract Clause 24.1 (a) above, the Purchaser may procure, upon such terms and in such manner as it deems appropriate, Goods or Related Services similar to those undelivered or not performed, and the Supplier shall be liable to the Purchaser for any additional costs for such similar Goods or Related Services. However, the Supplier shall continue performance of the Contract to the extent not terminated.

##### **24.2 Termination for Insolvency:**

(a) The Purchaser may at any time terminate the Contract by giving notice to the Supplier if the Supplier becomes bankrupt or otherwise insolvent. In such event, termination will be without compensation to the Supplier, provided that such termination will not prejudice or affect any right of action or remedy that has accrued or will accrue thereafter to the Purchaser

### 24.3 Termination for Convenience:

- (a) The Purchaser, by 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.
- (b) The Goods that are complete and ready for shipment within twenty-eight (28) 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:
- (1.a.i) to have any portion completed and delivered at the Contract terms and prices; and/ or
- (1.a.ii) to cancel the remainder and pay to the Supplier an agreed amount for partially completed Goods and Related Services and for materials and parts previously procured by the Supplier.

### 25. Assignment:

Neither the Purchaser nor the Supplier shall assign, in whole or in part, their obligations under this Contract, except with prior written consent of the other party.

## **SCHEDULE OF REQUIREMENT WITH TECHNICAL SPECIFICATION**

### **A) SCHEDULE OF REQUIREMENT FOR COMMON ITEMS**

<b>Sl.</b>	<b>Item Name</b>	<b>Qty.</b>	<b>Warrant y</b>	<b>CMC Required (3years after warranty)</b>
1	Monocular Microscope	<b>129</b>	2 Years	YES
2	Binocular Microscope	<b>136</b>	2 Years	YES
3	Research Binocular Microscope	<b>5</b>	2 Years	YES
4	Semi automatic Rotary Microtome	<b>5</b>	2 Years	YES
5	Incubator	<b>14</b>	2 Years	YES
6	Hot plate	<b>8</b>	2 Years	YES
7	Hot air oven	<b>10</b>	2 Years	YES
8	Analytical weighing balance	<b>15</b>	2 Years	YES
9	Water still for distilled water	<b>8</b>	2 Years	YES
10	Stethoscope	<b>48</b>	2 Years	YES
11	BP Apparatus	<b>54</b>	2 Years	YES
12	Digital pH meter	<b>10</b>	2 Years	YES

13	pH meter (hand held)	<b>2</b>	2 Years	YES
14	Water bath	<b>30</b>	2 Years	YES
15	Autoclave	<b>13</b>	2 Years	YES
16	Water distillation plant (Glass)	<b>6</b>	2 Years	YES
17	Centrifuge Machine	<b>18</b>	2 Years	YES
18	Elisa Reader and Washer	<b>5</b>	2 Years	YES
19	Deep freezer	<b>4</b>	2 Years	YES

### **MONOCULAR MICROSCOPE**

1. Should be CE / BIS approved product

2. Should have sturdy stand with convenient location of focus controls
3. The monocular tube should be 45 degrees inclined, and 360 degrees rotatable,
4. Should be an integrated wide field eyepiece- 10x, 18mm with foldable eye guard,
5. Should have an anti-fungus coating,
6. Should have quadruple nose piece with ball bearings with rubber grip.
7. Objectives should be semi-plan, achromatic, 4x ,10x, 40x, 100x spring loaded, oil immersion with anti-fungus coating,
8. Should have a mechanical stage of dimension: 135x125 mm, with low dry coaxial control, ball bearing slides with graduated scale,
9. Should have an SS holder for slide 75x50mm movement.
10. Should have coaxial coarse and fine focusing system with ball bearing guide ways.
11. Should have an abbe condenser,
12. Should have NA 1.25 with aspheric lens,
13. Should have an iris diaphragm with removable blue filter.
14. Halogen illumination with variable intensity control.

15. Input 220v – 240V , AC

### **BINOCULAR MICROSCOPE**

Product should be CE certified.

#### **illumination:**

- Built in transmitted Koehler illumination.
  - 6 V, 30 W halogen bulb – (5 Spare bulbs should be supplied with each microscope)
  - Should work on voltage 220-240V AC.

#### **Focusing:**

- Stage height movement by roller guide (rock & pinion)
- Upper limit stopper
- Tension adjustable on coarse focus adjustment knob.

#### **Revolving nosepiece:**

Quadruple click-stop, revolving mechanism with multiple ball bearings; Elastic nosepiece grip-ring

#### **Observation Tube: All DIN type**

- Binocular head
- Tube inclination: 30degree
- Diopter adjustment for both eyepiece lenses;
- Inter pupillary distance adjustment range – approximate 50 to 70mm

#### **Stage:**

- Movement range – 75 mm X - direction X 25mm Y direction.
- Rectangular scratch resistant stage with right hand control with double slide holder and vernier calipers on X Y axis.
- Should have rounded edges of the stage corners.

#### **Condenser:**

- Type – Abbey condenser
- N.A. = 1.25
- Aperture iris diaphragm - built – in

#### **Objectives: All DIN type**

Plan Achromatic (Anti Fungus)

- ❖ 04xN.A .01 WD 6.50mm
- ❖ 10x N.A 0.25 WD 5.6mm
- ❖ 40x N.A 0.65 WD 0.6mm
- ❖ 100x (Oil).N.A 1.25 WD .13mm
- Minimum working distance for 100X should be 0.13 to 0.2 mm

#### **Eyepiece: DIN type**

- 5X/10X with F.N 18 wide field

#### **Power Supply:**

Power input to be 220-240VAC, 50Hz

### **BINOCULAR RESEARCH MICROSCOPE**

Should be CE approved product

#### **Technical Specification**

- Built-in 5 mega-pixel digital camera, image data can be easily retained without external computers and other equipment, they can improve the efficiency of research and analysis.
- 9-inch digital LCD screen, high definition and bright colors
- Large storage capacity, with SD card, print pictures instantly without being connected to PC.

- Two kinds of observation modes, binocular eyepiece and LCD screen, which can meet different needs. Combine the compound microscope, digital camera and LCD together.
- **Optical System:** Optics par focal, plan achromatic lenses with anti fungal properties.
- **Illumination:** Built in transmitted Koehler illumination.
- 6 V, 30 W halogen bulb (5 Spare bulbs should be supplied with each microscope)
- Should work on voltage 220-240V AC.

- **Focusing**

- Stage height movement by roller guide (rock & pinion)
- Upper limit stopper
  - Tension adjustable on coarse focus adjustment knob.

**Revolving nosepiece:** Quadruple click-stop, revolving mechanism with multiple ball bearings Elastic nosepiece grip-ring.

**Observation Tube: All DIN type**

- Binocular head
- Tube inclination – 30
- Diopter adjustment for both eyepiece lenses;
- Interpupillary distance adjustment range – approximate 50 to 70mm.

**Stage:**

- Movement range: 75 mm X - direction X 25mm Y direction.
- Rectangular scratch resistant stage with right hand control with double slide holder and vernier calipers on X Y axis.
- Should have rounded edges of the stage corners.

**Condenser:**

- *Type – Abbe condenser*
- *N.A. = 1.25*
- *Aperture iris diaphragm - built – in*

**Objectives: All DIN type**

Plan Achromatic (Anti Fungus)

- ❖ 04x N.A .01 WD 6.50mm
- ❖ 10x N.A 0.25 WD 5.6mm
- ❖ 40x N.A 0.65 WD 0.6mm
- ❖ 100x (Oil).N.A 1.25 WD .13mm

Minimum working distance for 100X should be 0.13 to 0.2 mm

**Eyepiece: DIN type**

- 5X/10X with F.N 18 wide field

**Power Supply:**

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

**SEMI AUTOMATIC ROTARY MICROTOME**

Calibrated controls should make assessable variable on the x/y axis for re – cuts

Section Thickness                      Section Thickness Setting range 0.5 mm - 90mm

Setting Values    from 0.5 mm - 1 mm in 0.5 mm increments, from 1mm -99 mm in 1mm increments

Trimming Section

Thickness setting Range              0.5 mm - 99mm

Setting Values    from 0.5 mm - 1mm in 0.5 mm increments, from 1mm - 99 mm in 1mm increments

Motorized Operation                    Varying with section speed

Horizontal Specimen Feed	Approx. 30mm
Vertical Specimen Feed	Approx. 60mm
Sectioning Modes	1 Manual Mode
Maximum Specimen Size	50mm(L)x60mm(H) x 40mm(W)
Specimen Orientation	Horizontal:8°,Vertical:8°, Z:360°
Operating Voltages	Nominal Supply Voltages 100V/120V/230V/240V

### **General**

Compact Ergonomic Overall Design  
 Accurate Specimen orientation with zero point reference  
 Easy shift between trimming and sectioning operation  
 Two motorized forward specimen coarse feed speeds  
 Automatic Specimen retraction  
 Section – Handed function universal cassette clamp  
 Absolutely new knife holder replica for disposable blades, with finger guard in contrasting color  
 User safety incorporated into overall design  
 Smoothing – running hand wheel with incorporated quick – lock method  
 Accurate knife holder lateral movement  
 Ergonomically optimized hand wheel handle  
 Communication display incorporated in instrument housing enclosed micrometer mechanism  
 Enclosed micrometer mechanism  
 Spacious section waster tray  
 Wide range of accessories  
 Automatic retraction

*The equipment is supplied complete with :-*

- |                             |                             |
|-----------------------------|-----------------------------|
| i. Cassette holder          | ii. Knife holder base       |
| iii. Standard knife holder. | iv. Object orientation unit |
| v. Section waste tray.      | vi. Microtome knife 15cm    |

### **INCUBATOR**

Should be BIS approved as per IS 3118 standard.

Temperature range should be from 5 degree C above ambient temperature to 80degreeC with accuracy of 0.5 degreeC .

- The control panel should have digital indication of chamber temp. with visual indication of heating process and ergonomically designed controlled panel.
- The inner chamber should be made from SS 316 grade or higher stainless steel with outer chamber of mild steel having duly primer coated for rust proofing and powder coated.
- The heating coil should be placed inside stainless steel chamber to provide uniform temp. inside the chamber
- The inner chamber should be provided with air circulatory system to maintain contact chamber temp.
- The inner and outer chambers should be well insulated with glass wool and should have appropriate air gap to maintain minimum air loss and maximum heat retention capacity.
- The door must be well insulated and provided with thermal resistant glass to visualize inside of chamber during heating process.
- The control panel should have alarm (audio/visual) for abnormal increment of chamber temp. than setting and door opening
- Should be provided with 2/3 detachable perforated steel rack for placement of samples.

- Inner chamber dimension should be 600x600x800(D x W x H) mm.(Approx.) with  $\pm 5\%$  tolerance.

Should operate on 230V, 50Hz power supply.

**HOT PLATES:** It should be a rectangular flattening table. Stainless steel Surface ensuring very high thermal conductivity rates & exceptional resistance to mechanical exploitations temperature ranging from ambient to 300degreeC can be selected. The programmed as well as set temp should be displayed on the instrument.

Top Plate Size: – Length xWidth : 300 mm x 250 mm

### **HOT AIR OVEN**

- Should be BIS approved as per IS 3119 standard.
- Microcontroller based temperature setting from ambient temp. up to 150°C with increment in steps of 1°C.
- The control panel should have digital indication of chamber temp with visual indication of heating process and ergonomically designed controlled panel.
- The inner chamber should be made from **SS 304** grade or higher stainless steel with outer chamber of mild steel having duly primer coated for rust proofing and powder coated.
- The heating coils should be placed inside stainless steel chamber to provide uniform temp inside the chamber.
- The inner chamber should be provided with air circulatory system to maintain constant chamber temp.
- The inner and outer chambers should be well insulated with glass wool and should have appropriate air gap to maintain minimum heat loss and maximum heat retention capacity.
- The door must be well insulated and provided with thermal resistant glass to visualize inside chamber during heating process.
- The incubator should be provided with cooling fan to re-stabilize the inner temp.
- The control panel should have alarm (audio/visual) for abnormal increment of chamber temp. than setting and door opening
- Should be provided with 2/3 detachable perforated steel rack for placement of samples.
- Inner chamber dimension should be 400x400x600(D x W x H) mm.(Approx.) with  $\pm 5\%$  tolerance.

### **ANALYTICAL WEIGHING BALANCE:**

- The machine should be made of high grade chemical resistant die-cast aluminium housing
- Should have quick and comfortable dismantling of the draft shield
- It should have overload protection that is the machine should protect the weighing call against excess weight overload.
- The machine should have side loading facility.
- The machine should have facility of internal automatic calibration.
- The machine should have LCD display with freely programmable smart keys to operate the balance quickly
- The maximum capacity should be 1000g.
- The readability should be 0.01g.
- The accuracy should be 0.01g
- Adjustment Pan should be built in.
- Weighing pan dimension should be 120mm.



- The machine should operate both on battery and electric supply.

### **WATER STILL FOR DISTILLED WATER**

Free standing, electrically operated water still that is capable of producing Pyrogen free distilled water as per IP/BP standards. All contact parts should be made of stainless steel, fitted with ISI Marked immersion water heater, low water protection & electrical control box. It should be mounted on a sturdy MS tubular stand. Capacity: 5ltr./hr. Should be BIS certified as per IS 3830 standard.

### **STETHOSCOPE (ADULT & PAEDIATRIC)**

1. Manufacturer should be ISO 13485 certified.
2. Should be CE/UL approved product.
3. Stethoscope of standard size, chromium plated metal binaural, V rubber tube in one piece and rotating piper fitting for both flip functions.
4. Double sided adult & paediatric stethoscope.
5. Extra-soft, replaceable and pivot able ear-tips for perfect sealing at the ear canal.
6. Designed with precision chest-piece made of stainless steel/ chromed brass.
7. Good quality diaphragm of maximum -Ø 45mm.
8. High quality membrane for precise acoustics with non-chill rims for improved adaptation on the skin and for excellent sound transmission.

### **BP APPARATUS**

1. Manufacturer should be ISO 13485 certified.
2. Should be CE/BIS/UL approved product.
3. Corrosion resistant shock proof body, chrome plated metal/ stainless steel /ABS body with pressure control valve, scale 0 to 300 mm hg with accuracy of +/- 3mmHg.
4. Air release at closed lap with maximum 4mmHg/Minute.
5. Manual setting of deflation possible upto 2/3mm Hg/sec. From 260mmHg to 15mm Hg in a maximum deflation time of 10 seconds.
6. Gauge's background in white colour.
7. Graduated scale for ever/ 2mmHg, every 10 units and every 20 units.
8. Nylon straps cuff with pouch, latex bulb with completely chromium plated valve with regulation of vent-hole air by screw valve.
9. Settings-The cuff is inflated just to fit in the limb for which an inflation bulb is used to control the air pressure within the cuff.
10. User's interface-manual
11. Dimensions (metric)-The rubber tubes used should have an internal diameter of 3 ± 0.5mm and the external diameter should not be less than 8mm; The dial manometer with diameter of 50 mm-60mm
12. Accessories (mandatory, standard, optional)- Arm cuffs of size ( Large, Medium& Small) with inflation bulb and tubing

### **DIGITAL PH METER (BENCH TYPE)**

- Should be CE approved model.

	<u>p<sup>H</sup> Mode</u>	<u>mV mode</u>
1. Range:	0.00 to 14.00	0 to +/- 1999 mV
2. Resolution:	0.01 p <sup>H</sup>	
3. Accuracy:	0.01 p <sup>H</sup> +/- 1 digit	1mV +/- 1 digit
4. Input Impedance:	100 ohm	
5. Buffer calibration:	7.00 p <sup>H</sup> , 4.00 p <sup>H</sup> and 9.20 p <sup>H</sup>	
6. Temperature Range:	0-100 ° C with continuous digital display	
7. Resolution:	1.0°C	
8. Temperature compensation:	Automatic and Manual	
9. Display:	16 character x 2 lines LCD	
10. Polarity and Decimal:	Automatic	
11. Supply:	220 V AC ±10%, 50Hz	

12. Optional: Printer Interface

**WATER BATH**

- Should be BIS approved as per IS 3119 standard.
- General purpose water bath is required
- Small (approx. dimensions 40-45 x 35-40 x 20-25 cms) light Stainless steel body
- Complete inner chamber should be made of HIGHLY POLISHED STAINLESS STEEL
- Microprocessor controlled programmable, digital display for temperature etc.
- Temp range: 37<sup>o</sup> C to 60<sup>o</sup> C with deviation range of +- 0.5<sup>o</sup>C.
- Should be fitted with mechanical stirrer to circulate uniform temperature all around the water
- Both Capacity: 8 to 10 litre

**Accessories:**

- Stirrer with 1/20 hp motor with S.S. rod & blades
- Rack- S.S. 13mm dia x 24 holes
- Should work with 220-240 V AC, 50Hz power supply having Indian plug pins

**AUTOCLAVE**

- Pressure range 10 to 20 PSI adjustable with working temperature of 121<sup>o</sup>C.
- Automatic pressure control switch with digital display for controlling preset pressure valve.
- Should have digital temp. Indicator with timer 0 to 60 min.
- Should have automatic low water cut-off facility for safety of heating coil.
- Outer and inner chamber made of stainless steel of SS 304 grade
- Inner chamber made of at least 18 SWG SS Sheet
- Should have inner chamber size of 400(D) × 600(H).
- Stainless steel steam jacket insulated with high grade glass wool.
- Water level indicator with automatic low water level cut off device.
- Should have jointless gasket.
- Water inlet and drain valves with steam release valve.
- With the feature of double safety radial locking facility.
- Supplied with pressure gauge, pressure release valve as standard accessories.
- Power input should be 220 -240 VAC, 50 H fitted with Indian plug
- Should be CE certified.

**GLASS DISTILLED WATER PLANT**

- The assembly consists of a heat-resistant glass flask with embedded heating elements fused in spiral type glass coil internally at bottom
- A double wall coiled condenser has standard ground glass joints.
- Complete with glass fitting, metallic stand, rings clamps and electrical fittings.
- Capacity: 5 Liters per Hour
- Stage: Double
- Supplied with low water level cut-off device for general safety of the heating element.

**CENTRIFUGE**

1. Aerodynamic compact construction for vibration free performance.
2. Microprocessor controlled with digital display of speed
3. Digital countdown timer with quick deceleration facility
4. Imbalance detection and centrifugation stop with error display
5. Stable speed output under unstable voltage condition
6. Tube capacity should be minimum 16 tube of 15ml.
7. Stainless steel centrifuge chamber with metallic total body with glossy painting

8. Body should be made of strong fabricated and corrosion resistant steel.
  9. Control panel should have display of speed
  10. Body should be made of strong fabricated & corrosion resistant steel
  11. Control panel should have display of speed digital timer, start/stop switch
  12. Rotation speed should be regulated by dedicated button switch with dynamic brake for quick deceleration.
  13. Maintenance free brushless drive motor with exact speed pre-selection and display
  14. Speed range 1000 to 6,000 RPM and above, accuracy 10 RPM.
  15. Should be supplied with Tachometer for measurement of rpm.
  16. CE or BIS certified
- Should work with 220-240 V AC, 50Hz power supply having Indian plug pins

### **MICRO PIPETTE**

- Should have ergonomic design with light & smooth plunger action.
- Totally adjustable, air-displacement pipette.
- Usable for dispensing of aqueous fluids of moderate viscosity.
- Should have soft feel handle grip having both left & right hand operation
- Pipette handle should have thermoplastic elastomeric to prevent transfer of body heat to pipette volume during continuous usage
- The parts of pipette likely to be exposed to chemicals should have provisions for autoclaving so as to sustain temp. of 121<sup>o</sup>C
- Long self life and high resistance to aggressive chemicals Permissible volume errors should be a minimum.
- Should have larger & clear 4 digit display giving smaller increment for wider selection of volume
- Volume range should be of adjustable type of **set range (0.1-0.5µl) (0.2-10µl); (10-100µl); (20-200µl); (200-1000µl)**
- Should have locking mechanism to prevent accidental volume change during pipetting
- Should have one hand eject facility.
- Should have in house clinical, repair and calibration facility.
- The tip cone should have leak free operation, smooth and light loading operation with choice of using variety of tips
- Should be available with different color codes.

**Quantity of requirement: 60 Nos.** as mentioned below:

<b>Pipette range</b>	<b>Quantity</b>
0.1-0.5 µL	12
0.5-10 µL	12
10-100µL	12
20-200 µL	12
100-1000 µL	12

### **ELISA READER & WASHER**

1. Product should be CE certified.
2. Should have 96 wells and should have reading capability of 1 to 96 wells individually.
3. Should have a linear measurement range of 0 to 3.000 Abs.
4. Should have wavelength range from 405 to 630nm or better.
5. Should have a photometric accuracy of 2% or better.

6. Should have a resolution of 0.001Abs.
7. Should have variable speed plate shaking capability.
8. Machine should be supplied with 4 standard filters 405, 450, 492 & 630 nm.
9. Should have provision to add 2 additional filters.
10. Should have automatic filter selection.
11. Should have automatic calibration before each reading.
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 use halogen light source and two spare bulbs should be provided.
17. Should have inbuilt or external thermal printer for direct printing from the equipment 5 rolls of thermal papers should be supplied along with the unit.
18. Should have external printer connectivity option.
19. Should work with input 200 to 240Vac 50 Hz supply.
20. Should have display option and storage of plates readings.
21. Should have graphical display of plate layout for specifying controls, standards, blanks etc.

### **Elisa Washer**

1. Should have capability to wash flat, U or V bottomed micro plates or 8 strip plates.
2. Should have 8 way manifold.
3. Should have 25 wash program software memory or more.
4. Should have programmable washing time, volume and soaking time.
5. Should have minimum 6 wash cycle.
6. Should have residual volume less than 3 ul with proper demo during technical demonstration.
7. Should have removable and autoclavable plate carrier.
8. Should have in-built vacuum and dispensing pumps to ensure accurate and quiet washing.
9. Should have waste bottle with full bottle alarm or sufficient mechanism to avoid spillage and damage to equipment.
10. Should have suction based wash buffer intake.
  11. Should work with input 200 to 240Vac 50 Hz supply.
  12. Should be supplied with online pure sine wave UPS of sufficient capacity for both reader and washer.

## **ITEMS UNDER VARIOUS DEPARTMENTS**

### **1. DEPARTMENT OF ANATOMY**

<b>S I.</b>	<b>Item Name</b>	<b>Qty.</b>	<b>Warranty</b>	<b>CMC Required</b>
1	Drill Machine	2	2 years	YES
2	Band saw for body& limb sectioning	1	2 years	NO
3	Brain Knife	3	2 years	NO
4	X-ray viewing lobby	3	2 years	NO
5	Dissecting instruments	15 sets	2 years	NO
6	Meat cutting machine for thin body sections	1	2 years	YES
7	Dissection Microscope	5	2 years	YES
8	Sledge large cutting microtome	1	2 years	YES

9	Weighing Balance (6kg)	2	2 years	YES
1			2 years	YES
0	Embalming machine	2		

### **DRILL MACHINE WITH REAMING SAW**

Universal Drill Hand piece (Autoclavable)

- Pistol grip
- Stainless steel Jacob's Drill check (0-1/4" )
- Weight 800 gms approx
- Ergonomically designed Grip
- Maximum speed 1200 RPM 5.5 cannulated

Sagittal Saw Hand piece (Autoclavable )

- Pistol grip
- To difficult cuts at depth
- Ideal for TKR THR
- Five types of Blades can be set at 450 , 900
- Weight 750 Gms approx

Flexible Reamers (Autoclavable)

Reaming Handpiece

- Pistol grip
- Max speed 400 rpm
- AO type quick coupling
- 5.5 mm cannulated
- Ideal for Intra Medullary reaming
- Autoclavable
- Weight 700 Gms

Flexible Reamers

- Flexible reamer shaft 8 mm dia fixed head (j)
- Flexible reamer shaft for detachable
- Heads up to 12 mm (K)
- Heads up above 12 mm (M)
- Detachable reamer heads from 8.5 to 12 mm, step of 0.5 mm (L1)
- Heads from 12.5 to 15mm, step 0.5 mm (L2)
- Guide wires std length 440 mm.

#### **EMBALMING MACHIES FOR CADAVER:**

- Cadaver injector electrically operated on pressure generation. Fitted with rotary compressor suitable for embalming the cadaver with stellate and required needle and should complete 1 cadaver within 1 to 1 and ½ hours.

Driving Unit: 220 Volts/5 Amp AC

Foot control for on/off and speed

Shaft: Weight approx 1000 gms Autoclavable

### **BAND SAW**

- Width/Depth/Height: 900 x 600 x 1500 mm
- Working height approx. 900 mm
- Cut height max. 210 mm
- Cut width max. 350 mm
- Should comply with Safety standard EN 13849-1
- Band speed about 200–1200 m/min
- For precise alignment and guidance, should have Line laser for cut orientation, parallel stop

- Should have LED light strip provides optimal illumination of the workspace
- Should have Water jet cleaner to effortlessly remove tissue residues from the work table while working.
- Extended spray containment cabinet over the entire workspace provides additional safety

### **BRAIN KNIFE**

Straight cutting edge 30cm, thickness/1.77mm,  
Alloy Material or Stainless steel

**X-RAY VIEWING LOBBY:** Should be six viewing lobby, LED type having minimum 50,000hr.of life.

**DISSECTING INSTRUMENTS:** Should consisting of cartilage knife bone cutting forceps scissors, straight and curved Enterotome Scalpels, knives with spare blades, probe metal scale graduated in cms. Etc.

### **MEAT CUTTING MACHINE FOR THIN BODY SECTIONS**

Size of cutting table 780 × 580 mm approx.

Total Table Travel 1245 mm Extension Table 450 × 760 mm

Size of Wheel 450 mm approx. Height 1700 mm approx

Motor Capacity : 1 H.P. Crompton / A.U.E. Make

The table should be made of thick S.S. sheet with special heavy axles for easy and firm movement.

Supplied complete with one blade, starter, cord and plug.

Suitable to work on 220 V, single phase, 50 Hz, AC supply.

**DISSECTION MICROSCOPE:** Should be a Trinocular microscope. Should have High resolution 16 to 32 mega pixel with provision to attach with digital software and CCTV camera, and can be transmitted to web.

**MICROTOME, SLEDGE, LARGE CUTTING** : - CE Approved product A sledge microtome, where the sample can be placed into a fixed holder (shuttle), which then moves backwards and forwards across a knife. Used for cutting thin sections. Section thickness: 5 microns and up calibrated 5-40 microns Sledge Cutting Knife : 6” (17 cm)

### **WEIGHING BALANCE (6KG)**

- Capacity: 6Kg
- Least count: 0.5gram
- Accuracy: 2gram
- Table top
- Platform size: 180mm×250mm
- CE Certified

## **2. DEPARTMENT OF PHYSIOLOGY**

<b>Sl.</b>	<b>Item Name</b>	<b>Qty.</b>	<b>Warranty</b>	<b>CMC Required</b>
1	Large extension kymograph	3	2year	YES
2	Operation table	3	2year	YES
3	Dale's bath for internal organ	15 sets	1year	NO

4	Animal weighing machine (big)	1	1year	NO
5	Animal weighing machine (small)	1	1year	NO
6	Mary's Tambour	20	1year	NO
7	Haemocytometer	40	1year	NO
8	Perimeter Priestly Smith	6	2year	YES
9	Polygraph	2	2year	YES
10	Venus pressure apparatus	2		
11	Spirometer (ordinary)	6		
12	Gas analyser (CO <sub>2</sub> , O <sub>2</sub> , N <sub>2</sub> )	1	2year	YES
13	Thermanaesthesiometer	3	2year	YES
14	Olfactometer	2	2year	YES
15	Ophthalmoscope	2	2year	YES
16	Phakoscope	1	2year	YES
17	Dynamometer	1	2year	YES
18	Otorhinolaryngoscope	3	2year	YES
19	Physiograph (3ch.) with all accessories	1	2year	YES
20	Physiograph (1ch.) with all accessories	6	2year	YES
21	Calorimeter	4	1year	NO
22	Electronic stimulator	10	1year	NO
23	Stethograph	10	1year	NO
24	Bicycle ergometer	4	1year	NO

#### **LARGE EXTENSION KYMOGRAPH**

- Microprocessor controlled drum with stepper motor,
- 16X2 Blue LCD display
- Highly accurate 7 Speeds- 0.12, 0.25, 0.50, 0.75, 1.00, 1.25, 2.50 mm/sec
- Sturdy and corrosion resistant
- Chrome plated rod and MS Powder coated body
- Auto concentration response curve (CRC) and Normal Mode
- Timer and timer multiplier with audio and visual Alarm
- Height of rod: 340mm
- Should be Maintenance Free

#### **OPERATION TABLE**

- 1) Should be a manually controlled operating table, working range from floor level: 700-1040mm.
- 2) Should be adjustable to all essential positions.
- 3) Should be equipped with movement controls at side of the table.
- 4) Should have Frame and bottom made of Stainless Steel 304 material.
- 5) Should have reinforced three section stainless steel top.
- 6) Height should be adjustable by oil pump, foot step control.
- 7) Should have detachable head rest which can be easily adjustable to any desired position, above or below table top.
- 8) Table top can be rotated 360° through base.

- 9) Trendelenburg:  $\geq 25^{\circ}$ - $30^{\circ}$
  - 10) Reversed Trendelenburg:  $\geq 30^{\circ}$
  - 11) Kidney Position should be achievable by breaking the table.
  - 12) Table-top should be radio-lucent.
  - 13) Should have handset for position selection by in-built stand-by control.
- Dimensions (metric) Table top dimension (1900 mm x 525 mm)  $\pm$  15%  
 Table elevation: (700mm to 1000 mm)  $\pm$  10%  
 Weight (lbs, kg): Should be able to bear patient having weight upto 120 kg.  
 Should be BIS or CE certified.

#### **DALE'S BATH FOR INTERNAL ORGAN**

The System should have:-

- A high quality Perspex single unit organ bath with inbuilt water-pump, gas diffuser, digital temperature controller, filling/draining knobs with easy set up for conducting experiments to record the movements/displacements through the force transducer (0-50 gms) along with required accessories.
- At-least 50 ready to use experiments for animal physiology with sample data & real time recording/analysis & easy customization of the experiments.
- **Simulated Experiments/Pre-configured Experiments list should include :-** Chick Biventer Cervicis, Mammalian Atria, Mammalian Jejunum, Mammalian Uterus, Stimulated Ileum, Stimulated Rat Vas Deferens, Toad Rectus Abdominis, Unstimulated Ileum, Unstimulated Rat Vas Deferens, Vascular Resistance Vascular Smooth Muscle, Mammalian Blood Pressure -Drug Effects and Frog Heart Experiments :-Temperature Effects, Starling's Law of the Heart, Drug Effects, Conduction Block, Hear Refractory Period, Vagal Escape, Frog Neuromuscular Junction:- Twitch Recruitment – Nerve, Muscle, force, latency, fatigue, Tubocurarineetc, Frog Sciatic Nerve & Skeletal Muscle:- Twitch Recruitment, Effect of Stretch on Contractile Force, Muscle Summation, Muscle Tetanus, Muscle and Nerve Fatigue, Nerve Threshold, Nerve Refractory Period,
- The software should be provided with free experiments and software updates for at least 5 years.
- It should be supplied with signal conditioners & force transducer (0-50g) and PC with Printer.
- It should allow students and educators to access experiment material as well as the recorded data anywhere from outside the lab through internet.
- System should be compatible with both WINDOWS & MACINTOSH operating systems.
- Manufacturer should be ISO & CE Certified with all standard certifications.
- Power Back Up by Online UPS for 30 minutes

#### **ANIMAL WEIGHING MACHINE (BIG)**

- Bright RED LED Display.
- High resolution up to 15,000/100000 counts.
- Built-in rechargeable battery for continues use.
- Surrounding strong Back Rail support provided
- Door provided for Animal in & out
- MS heavy fabrication structure with powder coating
- Use Micro-controller based software suitable for Animal weighing.
- High accuracy / stability & Readability
- Over load protection, Digital auto calibration facility
- Power sources:AC220 -10%, 50/60Hz.,



- Rugged construction suitable for industrial environment.  
Should be BIS or CE certified.

### **ANIMAL WEIGHING MACHINE (SMALL)**

Capacity: 30 kg, 50 kg, 60 kg, 100 kg,

Division: 20 g

- Platform size:, 40×50 cm
- Material: ABS plastic + stainless iron
- Power: 110 V-230 V, AC and should have inbuilt battery.
- Should have LCD display.

### **MARY'S TAMBOUR**

### **HAEMOCYTOMETER**

1. Good quality scratch proof glass Improved Neubauer's chamber with brightline markings,
2. WBC pipette with white bead in the chamber and markings at 0.5, 1.0 and 11 and attached suction bulb at back.
3. RBC pipette with red bead in the chamber and markings at 0.5, 1.0 & 101 and attach suction bulb at back

### **PERIMETER-PRESTELY SMITH**

- Priestly – Smith perimeter for accurate charting of the field of vision pivoted vertical stand,
- semicircular metallic arc with removable shield, chart marker, hand wheel, spring clock,
- adjustable chin stand, leveling bar, movable test object for white and color object, circular back disc with tightening screw. Free chart paper marked with isopters.
  9. Length should be 27" to 29" with colour -black.
  10. The Y-tube should be made of Latex-free treated rubber.
  11. Easy to dismantle, and therefore to clean and disinfect.
  12. **Accessories (mandatory, standard, optional)-** 1 x spare set of earpiece, 1 x spare diaphragm.

### **POLYGRAPH**

1. Digital Polygraphs (window based) 8 channel with provisions for recording EMG,SPO2, Finger tip Oxygen saturation, Nerve conduction, Evoked Potential, HRV, ECG,EEG, Capillary pulse tracing, Spirometer, Stethography and GSR.
2. System should have 8 channels for recording and 32 channels for analysis aggregate sampling rate 400KHZ via 2.0 High speed USB, ADC resolution should be 16 or more.
3. Bioamplifiers and isolated stimulator for real time cardiac, neurological analysis.
4. Stethography should include digital stethoscope to hear the heart sound and lung sound while recording them.
5. Isolated GSR amplifier along with finger clips.
6. HRV Options-beat to beat and continuous blood pressure analysis to assess sympathetic/ parasympathetic during rest and exercise.
7. Should meet European EMC directives for FCC Class B-Standard.
8. Data transfer and storage facility.
9. Separate Computer/Printer along with online up gradation facility for 5 years free.

### **VENUS PRESSURE APPARATUS SPIROMETER**

Ordinary students Spirometer 6l capacity, chain, calibrated wheel, counter weight, stainless steel water chamber with drainage facility, aluminium or plastic inverted chamber, complete with corrugated rubber and mouth piece. CE certified.

### **GAS ANALYSER, AUTOMATIC FOR CO<sub>2</sub>, O<sub>2</sub>, N<sub>2</sub>**

- Should be computerized metabolic gas analysis system to provide all vital parameters such as ECG, heart rate, pulmonary volumes and capacities, respiratory gases and metabolic measurements.
- The system should calculate VE Expired minute volume , VO<sub>2</sub> oxygen consumption , VCO<sub>2</sub> carbon dioxide production , RER respiratory exchange ratio, ECG, HRV, Body Temperature and Pressure Saturate BTPS, Standard Temperature and Pressure Dry STPD, (VE / VO<sub>2</sub>), (VE / VCO<sub>2</sub>) etc. and should generates a number of graphs like Metabolic Log Window , VE (BTPS) vs. VO<sub>2</sub>, VE (BTPS) vs. VCO<sub>2</sub>, VCO<sub>2</sub> vs. VO<sub>2</sub>, RER vs. time, VO<sub>2</sub> vs. time, VCO<sub>2</sub> vs. time , VE (BTPS) vs. time.
- The gas analyzer should have an Oxygen sensor with minimum range of 5-100% oxygen and resolution of at least 0.02% & the carbon dioxide sensor with minimum range 0-8% of carbon dioxide and resolution of at least 0.1% and variable flow range of 0-185 ml/min for best performance and results.
- Facility for recording ECG leads (I, II, III, aVL, aVF, aVR and V1 to V6) for real time cardiac axis & vector analysis etc.
- Should be supplied with multichannel recording unit with a range of +2 mV to +10 V and Sampling rate of 400 KHz (aggregate speed),
- ADC resolution of 16 bits on all gain ranges and variable sampling speed on each channel with continuously record and display up to 32 channels of data.
- The system should provide wireless monitoring of Posturography, 4 channel force sensor balance board should communicate with the Software via inbuilt blue tooth.
- Non Invasive Tonometer should be provided for beat to beat pressure waveforms from Human subject.
- Compatible Computer/Laptop & trolley should be provided.

### **THERMANAESTHESIOMETER**

- Compact Size with Mobility and Flexibility
- Should work on temp. range of 5deg. To 55deg.
- Sampling rate: 18 sample/sec
- Control and Heater Fuses
- Serial/Ethernet Communications Available
- Integrated EMO
- Detachable Probe with Protection Cap
- Temperature Controller
- Temperature Controller Cord
- Thermocouple Extension Cable for Data Logger
- Carrying Case

### **OLFACTOMETER**

1. Detection technique: Human Nose
2. Discrete dilution ratio: 2,4,7,15,30,60 D/T
3. Response time: 10 seconds or less
4. Accuracy: ±10%
5. Readability: ±2%
6. Inhalation rate: 16 to 20ltr./min
7. Odour filter cartridge, nasal mask of suitable size

### **OPHTHALMOSCOPE**

- Should have on/off button for illumination and battery operated;
- Should have rotating knob to control the intensity of the ophthalmoscope and should be used with filters that eliminate UV radiation (<400nm) and whenever possible, filters that eliminate short- wavelength blue light (<420nm);
- Should have the range of +20 to -20 in single diopter steps to ensure easy examination of all ocular structures;
- Should have apertures shape: Large spot, small spot, slit, central net, and red free.
- Should be Hand held.
- CE or BIS certified.

**PHAKOSCOPE:** Good quality lens and prism

**DYNAMOMETER:** Adjustable grip distance with easy to read dial from 0 to 100kgs graduation 500grms. strong enough for long durability.

**OTORHINOLARYNGOSCOPE**

1. Should be wide angle straight forward telescope 0°
2. Enlarged view Diameter 4mm Length 18cm
3. Should be autoclavable
4. Fiber optic light transmission Incorporated
5. Color Code: Green
6. Manufacturer should be ISO certified for quality standards.

**ELECTRIC STERILISER**

1. Should have seamless shell & lever operated Lid fitted with full proof mechanism control excessive steam escape and restricts condensate within the shell.
2. Synchronized manoeuvrability of lid, due to statistically perforated tray for flushing & entry of water.
3. SS 304/316 deep drawn seamless construction
4. Thermostatically controlled
5. Drainage plug at the bottom
6. Size ideally: 12x6x4 inch
7. Input voltage- 220V-240V AC, 50Hz

**PHYSIOGRAPH (3 CHANNEL)**

- The system should have ready-to use experiments with step-by-step instructions for a wide range of experiments including human & animal experiments.
- It should have report pages which include study questions as well as students' recorded data, analysis tables and graphs from their completed experiments. It should allow students to type their answers and the reports can be saved for easy review or printing.
- It should allow students and educators to access experiment material as well as the recorded data anywhere from outside the lab through internet.
- The software should allow user to customise experiments as per their lab requirement.
- The software should be provided with free experiments and software updates for at least 5 years.
- Recorder with high sampling rate 100 KHz and an two channel for bio-potential & isolated stimulator with a software controlled filtering, Voltage Range: 0-10 V & Current Range: 0-20mA with software selectable pulse duration (50-200 μ sec).
- Simulated Experiments/Preconfigured Experiments with sample data for Frog Heart:-Temperature Effects, Starling's Law of the Heart, Drug Effects, Conduction Block, Heart Refractory Period, Vagal Escape, **Frog Neuromuscular Junction:-** Twitch Recruitment – Nerve, Muscle, force, latency, fatigue, Tubocurarine etc,

**Frog Sciatic Nerve & Skeletal Muscle:-** Twitch Recruitment, Effect of Stretch on Contractile Force, Muscle Summation, Muscle Tetanus, Muscle and Nerve Fatigue, Nerve Threshold, Nerve Refractory Period, Conduction Velocity and other physiological parameters.

- Should have clinical pharmacology/Medical case laboratories live videos & Patient data to provide student an interactive solution for learning.
- Human ECG, EOG, HRV, EMG, BVP, Grip Strength transducer, spirometer. Reflective Drop Counter.
- Transducers & accessories:-pulse transducer, teaching force transducer (0-500g) , animal nerve & bar stimulating electrode, nerve chamber, bio-amp cable, shielded wires, alligator clips, muscle holder, manipulator with stand, needle electrode and other related accessories.
- Desktop Computer with 17" TFT Monitor, 4GB RAM, 380GB HDD, DVDR/W, Laser Printer & UPS

### **PHYSIOGRAPH (1 CHANNEL)**

- The system should have ready-to use experiments with step-by-step instructions for a wide range of experiments including human & animal experiments.
- It should have report pages which include study questions as well as students' recorded data, analysis tables and graphs from their completed experiments. It should allow students to type their answers and the reports can saved for easy review or printing.
- It should allow students and educators to access experiment material as well as the recorded data anywhere from outside the lab through internet.
- The software should allow user to customise experiments as per their lab requirement.
- The software should be provided with free experiments and software updates for at least 5 years.
- Recorder with high sampling rate 100 KHz and an two channel for bio-potential & isolated stimulator with a software controlled filtering, Voltage Range: 0-10 V & Current Range: 0-20mA with software selectable pulse duration (50-200  $\mu$  sec).
- Should have clinical pharmacology/Medical case laboratories live videos & Patient data to provide student an interactive solution for learning.
- Transducers & accessories:-Human ECG, EOG, EEG, HRV, EMG, BVP, Grip Strength transducer, spirometer. Cardio microphone, Push button switch, Wireless Heart rate variability transducer.
- Desktop Computer with 17" TFT Monitor, 4GB RAM, 380GB HDD, DVDR/W, Laser Printer & UPS

### **ELECTRONIC STIMULATOR**

- Different pulse rates per second starting from 5 pulses/sec pulse width 2 ms. Pulse voltage from 0 V onwards, should be able to give single or train of pulses , can be triggered by external source.

### **STETHOGRAPH**

- Corrugated rubber tube which should be 60 cm long and 2 cm diameter.
- One end should be blind and other end is connected to pressure rubber tubing.
- Dale's acrylic (glass) Jar Bath, rectangular about  $\frac{3}{4}$  L to 1L Capacity, metal stand, fitted with electrical heating element, provision to run out the fluid inner vessel, facilities for oxygen tube, and thermometer held firmly with screw clamp lever.
- The product should be CE or FDA or BIS Certified

### **BI CYCLE ERGOMETER**

- Bicycle Ergometer to study mechanical work based on electromagnetic principle.

- Fitted an a strong wooden board/stand Break Band an rear wheel with revolution counter attached, work done in Kg-meter-per minute from the electric power produced with digital display of work/distance/calorie /time/Heart-rate. Adjustable string balance dynamo wheel resistance, low height.

### 3. **DEPARTMENT OF BIOCHEMISTRY**

Sl.	Items Name	Qty.	Warrant y	CMC Required
1	Weighing balance Semi-micro (0.0001gram to 100gram.)	1	1year	NO
2	Vortex mixer	2	1year	NO
3	Urinometer	10	1year	NO
4	Magnetic stirrer	2	1year	NO
5	Spectrophotometer	1	2year	YES
6	Digital Calorimeter	4	1year	NO
7	Electrophoresis apparatus	2	2year	YES
8	Auto analyser (300 throughput)	1	2year	YES
9	Auto analyser (150 throughput) Bench top	1	2year	YES
10	Semi autoanalyser	1	2year	YES
11	Electrolyte analyser with ISE	2	2year	YES
12	Water treatment plant (Class 1 )	1	2year	YES

#### **SEMI MICRO WEIGHING BALANCE**

- The manufacturers should be ISO 9001 certified for quality and environmental standard
- The model should be CE approved.
- The machine should be made of high grade chemical resistant die-cast aluminum housing
- Should have quick and comfortable dismantling of the draft shield
- It should have overload protection that is the machine should protect the weighing call against excess weight overload.
- The machine should have side loading facility
- The machine should have facility of internal automatic calibration.
- The machine should have LCD display with freely programmable smart keys to operate the balance quickly
- The maximum capacity should be 200g.
- The readability should be 0.0001g.
- The accuracy should be 0.1mg
- Sensitivity Temperature Drift (10oC .....30oC) 2.5 ppm/oC
- Setting Time: 4s to 15s.
- Adjustment Pan should be built in.
- Weighing pan dimension should be 80mm.
- Suitable Laser Printer as per General Specification should be provided.

- The machine should be provided with certified weights for customized testing and adjustment.
- The machine should operate both on battery and electric supply.

### **VORTEX MIXER**

Short, rapid, eccentric stroke, motor driven Neoprene cup imparts vigorous agitation to tubes or small flask held in or against it. The housing should be minimum 150 × 150mm approx. The Vacuum Rubber pads should be provided at bottom. Machine should be supplied with complete with speed control, cord and ON/OFF switch and indicator to work on 220V, 1Ph, 50 Hz. AC supply.

### **URINOMETER**

Should be made from best quality glass. Graduations should be rechecked in distilled water and temperature should be indicated in the body of the Urinometer. **ISO certified**

### **MAGNETIC STIRRER**

Work plate Dimensions(mm)--  $\Phi$ 135(5 inch)

- Work Plate Material-- Stainless steel with ceramic coated
- Max. Stirring Quantity:[H<sub>2</sub>O], L----20 Litre
- Speed and Temperature Display –LCD
- Heating Power in Watt—550
- Max. Work plate Heating Temperature[°C]-- 340°C
- RPM--100- 1500
- External temperature sensor PT1000 is available for hotplate model, real-time controls medium temperature.
- PID temperature technology precise controls heating process, rapidly reaches target temperature and enhances control accuracy.
- Brushless DC motor maintenance free and explosion proofed, accurately control speed
- Separate safety circuits, fixed safety temperature of 360°C, Automatically stops

heating once exceed secure temperature

- HOT warning indicates residual hotplate temperature. LCD display would show “Hot” when hotplate temperature over 50°C warning point, even if switched off
- Electrical Requirements –As per Indian Standard

### **SPECTROPHOTOMETER**

Spectrophotometer to be used for 0.5microliter droplet, sample within standard 10mm path length cuvette.

Should be usable for Life Science Spectrophotometer also with onboard software for DNA, RNA and Protein measurements dsDNA, ssDNA, RNA, Oligonucleotides, 260/280, 260/ 230, Variable ratio, Pierce 660, BCA, Bradford, Lowry, Biuret, Direct UV  
The instrument should be warranted for at least 3years including lamp.

Only 0.5 $\mu$ l sample volume required

Detects DNA concentrations as low as 2ng/ $\mu$ l

Method and result saving to USB memory stick

Wavelength Range : 198 to 1000nm

Absorbance Range : 15 to 125A (10mm equivalent)  
Absorbance Accuracy :  $\pm 2\%$  at 260nm  
Absorbance Precision :  $< 0.005A$  between 0 and 1A (at 260nm and 0.5mm)  
Light Source : Xenon lamp  
Online UPS with minimum 1 hour backup, etc), power backup

### **CALORIEMETER**

1. Table model
2. Should have 8 no filters wave length from 400 nm to 700 nm, minimum volume – 1 ml
3. Should have a 3 digit display calibrated directly in optical density, selenium photocell/ photodiode
4. Detector should be encased spill proof photocell
5. Should provide standard accessories
  - a. turret -mounted filters
  - b. 10 cuvettes, 2 test tube stand
  - c. 3 standby lamp
6. Should have facilities for concentration, calculation, percentage transmission and optical density
7. Should work on 200-240 V AC 50Hz power supply

### **ELECTROPHORESIS**

#### **Automated electrophoresis system with scanner/densitometer**

##### **I. Automated electrophoresis system**

1. Automated electrophoretic run with drying and staining
2. To use cellulose acetate or agarose strips as matrix for electrophoresis and separate strips and kits for immunofixation
3. To have 2 sample application made of special stainless steel
4. Automated control of voltage, time and current
5. Gel temperature control with peltier effect
6. Facility to separate proteins, haemoglobin, lipoproteins, CK,LDH, and alkaline phosphates is enzymes
7. Facility for immunofixation
8. Facility to store at least 30 application protocols
9. Facility to run serum, urine, and CSF samples without prior dilution or concentration
10. Alarm for level sensing, timer and doors
11. Samples for one gel should not exceed 10
12. Equipment should not have water sources water or pumps
13. Migration chamber should be monoblock with carbonium electrodes and should give uniform distribution of current on the full strip
14. Should have multi reagents at least 7 independent tanks
15. Process control system should be guide by electromagnetic heads with optical sensor built in the head

##### **II. Densitometer or gel scanner**

1. Scanning and processing of all gels
2. Facility to store the scanned image of the gel
3. Facility of curve editing and entry of demographic
4. Availability of qualification and quality control features
5. Storage of patient data and result up to a minimum of 10000 samples
6. Facility to generate a comprehensive report containing the patient demographics, scanned image of the gel and curve and quantification data
7. Software up gradation should be provided free of cost up to 5 years
8. All necessary standard accessories like those required for sample application to be provided along with the instrument

9. Online UPS suitable for the entire system with 30 min backup
10. One set of standard spares
11. Two kits of serum protein electrophoresis, one kit each of lipoproteins and isoenzymes of LDH, and Alkaline Phosphatase to be provided as starter kits
12. Rates of consumables/ accessories items to be quoted which should be valid for at least 5 years

#### **AUTOANALYSER (300 Throughput/hr.)**

Throughput: 00 tests/hr excluding ISE . Completely open system

- ? Number of tests performed simultaneously upto 100 tests
- ? Measurement method: End assay, rate assay(kinetics)
- ? Wavelength 340-800 nm
- ? Sample dispensing volume: 2.0 to 40 micro ltr/ test (selectable in 0.1 – 0.5 micro ltr/step)
- ? Reagent dispensing volume: 50 to 350 micro ltr/reagent (selectable in 1-5  $\mu$  ltr/step)
- ? Reaction volume : upto 150-200 micro ltr(preference for lowest volume)
- ? Sample positions minimum 150 with continuous loading facility
- ? Reagent position: 70 or more
- ? Reaction cuvettes: hard glass (air heated ) with temperature option at 25°C and 37 °C
- ? On board refrigeration, on board laundry
- ? STAT position should be present
- ? More than 100 tests programmed in memory
- ? Data processing: Fully computerized (windows based with printer and online interface).
- ? UPS integrated backup for at least 30 minutes.
- ? System with dedicated water deionizer.

#### **AUTOANALYSER (150 Throughput/hr.)**

Should be CE certified.

1. Microprocessor controlled general purpose bichromatic photometer system with at least 6 filters ranging from 300-800 nm
- Throughput: 150 tests/hr excluding ISE . Completely open system
2. Self monitoring built in incubation system for temperature controlled absorbance reading
3. Light source: Tungsten/halogen or higher grade with one additional bulb
4. Wavelength: from 300-800 nm free to choose spectral band width; 6mm
5. Linearity range: 0.000 ~3.000 Abs
6. Sample volume: 2-10 $\mu$ l
7. Temperature: 25°C, 30°C, 37°C, control by pettier element
8. Test mode: Endpoint, kinetic, two point kinetic, fixed time, bio chromatic, differential.
9. Flow cell measuring device
10. Inbuilt printer
11. LCD display of results
12. QC .survey of at least 30 points, Levy Jennings plot.
13. Test programme of at least 150 programmes
14. Must have sample carry over prevention facility.
15. Power failure protection: test result can be recalled & printed out when power failure.
16. Communication with R S 232
17. Must be supplied with one variable (10-100 $\mu$ l) & one fixed volume (500 $\mu$ l) pipettes
18. Supply online UPS of capacity for a minimum back of 30 min.

#### **SEMI AUTO ANALYSER**

- Should be USFDA or CE (As per IVD directive) of the quoted model.



- Manufacturer should be ISO 13485 certified for quality standards.
- Semi automated Chemistry analyzer with built in software for the calculation and curve plotting.
- User programmable memory for up to 50 chemistries with programmable by the user.
- Light Source : Quartz Halogen Lamp
- Wavelength Range: Automatic selection from 340 to 700 nm.
- Photometric Range: 0 to 3.0 Absorbance.
- Should have real time graphical LCD display.
- Calculation Modes:
  - Absorbance/concentration
  - End point with factor or standard.
  - Enzyme kinetics with factor or standard.
  - Fixed time with factor or standard.
  - Differential mode with factor or standard.
  - Polygonal multi standard (Calibration Curve).

#### **Aspiration system:**

- Programmable sipping volume from 200 – 1000µl.
- Automatic calibration of sipping volume.
- Automatic adjustment of sipping time.
- Facilities for air purge in between 2 samples to avoid carry over.
- Quality Control - At least 2 controls per test.
- Programme : Levey jening's plot -High/Low flags.
- Flow Cell- Metal with quartz window, measuring volume of about 30-40 µl.
- Temperature control by pettier element
- Computer connection: Possibility to take repeat readings of reaction solution aspirated flow cell for kinetics.
- The unit shall be capable of operating in ambient temperature of 20-30 deg C and relative humidity of less than 70%
- Input Power: 220 VAC+10%, 50Hz;
- Should have inbuilt battery or suitable UPS with maintenance free batteries of minimum one hour back up should be supplied with the system.

#### **ELECTROLYTE ANALYSER**

1. Should be CE certified.
2. The Analyser should have option to measure Blood/Serum/Plasma/Urine /and other biological fluid.
3. The Analyser should be able to measure Na, K, Cl .
4. Should have Integrated Pack to avoid Wastage Handling.
5. Should have at least 100 Samples results Storage.
6. Sample volume should be less than 120 ul.
7. Should have economy mode to save Reagents Consumption.
8. Should have In-Built Thermal Printer.
9. Should have option to feed Patient Name and Patient ID.
10. Suitable UPS with maintenance free batteries of minimum one hour back up should be supplied with the system.

#### **WATER PURIFICATION SYSTEM (Type-I)**

- Should be CE/USFDA/UL approved model.
- Manufacturer should confirm to ISO 13485:2012 for Medical devices- Quality management systems.

(All the documents should be furnished in the technical bid towards meeting the quality standards.)

- Should have facility to provide both Type- I (ISO 3696:1987) water directly from tap water for use in HPLC system.

**Type – I**

- Conductivity : <0.2uS/cm @ 25 Deg. C
- Resistivity at 25 degC : 18.2 Mega-Ohm –cm
- Dispensing flow Rate: 1 to 2 Liters/Min
- TOC : 2 – 5 < 5 ppb
- Bacterial : 1CFU/ 10ml
- Bacterial Endotoxin : <0.001 EU / ml .
- Particle using 0.2 µmfilter : less than 20 particle/100 ml
- Storage Capacity : 30 liters or more made up of Non Shedding HDPE material
- Should have RO, UV treatment for output water.
- RO cartridges life should be indicated & must be replaced at specified interval without no additional cost within warranty period.
- Should have provision for monitoring of self-test, filter replacement, Auto-rinsing & Service check.
- Should run on power supply of 230 V (50–60 Hz) with standard Indian plug/adapter.
- Should be provided with UPS for power back up for entire system upto 120 minutes

4. **DEPARTMENT OF COMMUNITY MEDICINE**

S I.	Item Name	Qty .	Warranty	CMC Required
1	<b>Weighing machine (Adult)</b>	<b>4</b>	<b>2years</b>	<b>YES</b>
2	<b>Ice lined refrigerator</b>	<b>1</b>	<b>2years</b>	<b>YES</b>
3	<b>Electric steriliser</b>	<b>2</b>	<b>2years</b>	<b>YES</b>
4	<b>Dissecting microscope</b>	<b>30</b>	<b>2years</b>	<b>YES</b>

**ADULT WEIGHING SCALE**

1. Sturdy dial type mechanical platform weighing machine for adult and children.
2. Zero adjustment facility should be there.
3. Sensitivity: 100 g
4. Range of weighing: 0 to 120kg
5. The manufacturer shall have the valid manufacturing license and should have model approval by the legal metrological Deptt. and the weighing scale must be stamped by the by legal metrological Deptt. In case of distributor, the bidder should have valid distributor and repair license from legal metrological Deptt., Govt. of Odisha.
6. ISO 9001 certified manufacturer (certificate to be submitted).

**ICE LINED REFRIGERATOR (ILR)**

- Quoted model should be BIS or CE or USFDA approved.
  - Manufacturer should be ISO 9001, ISO 14001 and ISO 18001 certified.
  - Certificate of inspection for the quoted model from an independent laboratory approved /recognized by WHO/UNICEF/National Accreditation Board /STQC labs should be furnished.
1. Load must remain at **+2 to +8 deg C** with accuracy of  $\pm 1^{\circ}\text{C}$  during 43 deg C continuous ambient temperature with holdover time of **more than 48hrs.**
  2. Storage capacity in volume: **150 ltr.±5%.**

3. Construction: Internal: Stainless steel Galvanised steel (min.0.9 mm, 22 G) and External: Corrosion Resistance Galvanized steel (at least 1 mm thickness)
4. Chest type with CFC free polyurethane insulation.
5. Should have adjustable upright SS mess type trays to be provided.
6. Unit should be fitted with a digital electronic temperature controller with temperature indicator for easy readability along with high & low alarm system.
7. Should have data logger with export facility to pdf format.
8. Should use CFC Free Refrigerant R-134a (both for refrigeration and insulation)
9. The Cooling coil should be of Copper. The compressor should have **five (5) years** replacement warrantee.
10. Should have auto defrost facility.
11. Provision for drainage for the waste water. Easy access to this waste water container for disposal of waste water. Compatible water trap system should be provided.
12. Should have adjustments for uneven bases. The adjustments should be easy to use like rotating a screw at the legs in the base.
13. Should have ON/OFF Switch and Power indicator should be available

The following spares should be provided with machine:

- Digital Thermometer-01no.

Should work on 230-240V, 50Hz mains supply.

Appropriate rating Automatic servo stabilizer ISI marked (Copper core) 90V-270V must be provided with the machine.

### **ELECTRIC STERILISER**

1. Should have seamless shell & lever operated Lid fitted with full proof mechanism control excessive steam escape and restricts condensate within the shell.
2. Synchronized maneuverability of lid, due to statistically perforated tray for flushing & entry of water.
3. SS 304/316 deep drawn seamless construction
4. Thermostatically controlled
5. Should have drainage plug at the bottom
6. Size ideally: 18x8x6 inch
7. Input voltage- 220V-240V AC, 50Hz
8. Power consumption not less than 2KW

**DISSECTION MICROSCOPE:** Should be a Trinocular microscope. Should have High resolution 16 to 32 mega pixel with provision to attach with digital software and CCTV camera, and can be transmitted to web.

### 5. **DEPARTMENT OF PATHOLOGY**

Sl.	Items Name	Qty.	Warranty	CMC Required
1	Micro projection apparatus	2	2years	YES
2	Water bath (Tissue flowing)	2	1year	NO
3	Band saw	1	1year	NO
4	Autopsy table	2	1year	NO
5	Weighing balance	3	1year	NO
6	X-ray view box	2	1year	NO
8	Paper Electrophoresis	1	2year	YES

	<b>apparatus (vertical)</b>			
<b>9</b>	<b>Paper Electrophoresis apparatus (horizontal)</b>	<b>1</b>	<b>2year</b>	<b>YES</b>

## **MICRO PROJECTION APPARATUS:**

### **TISSUE FLOATATION BATH**

Should Be Microprocessor Controlled.

Elegantly designed & fabricated and tested for carrying out distortion less and wrinkle free tissue specimens. In the field of diagnostic Histo-Pathology and Cyto-Pathology Laboratories.

**Outer Wall :** Made of CRCA Sheet duly powder coated after surface treatment

**Inner Chamber :** Should be rectangular in construction & is made of seamless (Die pressed) stainless steel sheet polished bright.

**Insulation :** High Grade insulation, filled around

**Power Supply :** 220 Volt, 50 Hz, Single Phase, A.C.

**Heating Element :** Embedded heater element plate.

**Temperature Controller :** Micro Processor Based Digital Temperature Controller fitted on the control panel.

**Temperature Range :** Ambient to 70oC ± 1oC

**Chamber Size (mm) :** 240 (L) x 150 (W) x 50 (D)

### **BAND SAW**

- Width/Depth/Height: 900 x 600 x 1500 mm
- Working height approx. 900 mm
- Cut height max. 210 mm
- Cut width max. 350 mm
- Should comply with Safety standard EN 13849-1
- Band speed about 200–1200 m/min
- For precise alignment and guidance, should have Line laser for cut orientation, parallel stop
- Should have LED light strip provides optimal illumination of the workspace
- Should have Water jet cleaner to effortlessly remove tissue residues from the work table while working.
- Extended spray containment cabinet over the entire workspace provides additional safety

### **AUTOPSY TABLE**

The Autopsy table should be mounted to a central support column and is made entirely from stainless steel 304 grade.

Through a three-piece, removable, perforated test area, all unsanitary orders should be safely vacuumed away.

The work surface should be equipped with a high surrounding border with a negative inclination to the waste sieve (detachable).

A tub with drainage channel should be located under the perforated work surface.

An integrated sprinkler system should be available for continuously sanitization of the table. The table is to be connected to the side-mounted ventilation system, which should have minimum capacity of 1000 m<sup>3</sup>/h. the Autopsy table should includes the following features:

**Features:**

Hydraulic Height Adjustable & Exhaust System  
Self cleaning / washing sprinkler on sides  
Central support column with 2 access doors  
Basin W / D / H 400×500×200 mm  
Knee-operated mixing tap for cold and warm water  
3 m shower hose with hand sprinkler  
2 splash proof electrical outlets  
2 buttons for height adjustment  
Regulator valve for integrated sprinkler system  
3-piece work top with large waste basin/sieve insert  
Circumferential perforation for safe removal of all odors  
Height adjustable from 750 to 1000mm

Dimensions (mm) : 2600 (W) × 850 (D) × 750/1000 (H)

Carrying Capacity : 200Kg.

Dead Weight : 250Kg.

Material of Construction : S.S. 304 grade.

**MICRO WEIGHING BALANCE**

- The machine should be made of high grade chemical resistant die-cast aluminium housing
- Should have quick and comfortable dismantling of the draft shield
- It should have overload protection that is the machine should protect the weighing call against excess weight overload.
- The machine should have side loading facility
- The machine should have facility of internal automatic calibration.
- The machine should have LCD display with freely programmable smart keys to operate the balance quickly
- The maximum capacity should be 200g.
- The readability should be 0.0001g.
- The accuracy should be 0.1mg
- Setting Time: 4s to 15s.
- Adjustment Pan should be built in.
- Weighing pan dimension should be 80mm.
- Suitable Laser Printer as per General Specification should be provided.
- The machine should be provided with certified weights for customized testing and adjustment.
- The machine should operate both on battery and electric supply.
- Should be CE certified.
- The manufacturer shall have the valid license and should have model approval by the legal metrology Department and the weighing scale must be stamped by the by legal metrological Department.

**X-RAY VIEW BOX**

- Should be ultra-thin X ray film illuminator using light
- It should have a thickness of 30 mm
- It should be suitable for viewing 14"x17' film.
- Should have position to insert 4 films in 2 rows.
- The LED light must have a life span of more than 1,00,000 hours.

- It should have easy insertion & removal of the film.
- It should have homogeneous illumination more than 95% and maximum intensity of over 10,000 lux.
- It should have an on-off switch along with digital feather touch dimmer and a button to set the intensity
- It should have fully electronic continuous brightness control, with adjustment range of approximately 90%.
- It should have directly connectable to power supply without any external adapter.
- It should have flicker free high frequency light for reduction of eye strain.
- It should have external fuses for protection against power surge.
- 10 step Digital dimmer facility with step up/step down intensity of 500 lux or less.
- Should have automatic film sensor
- Should have facility to switch on only the section where the film needs to be viewed.
- 230V, AC, 50Hz. 3 Amps, Single phase

### **VERTICAL GEL ELECTROPHORESIS UNIT**

#### **Specifications:**

1. Gel Capacity: No of gels 1-2
2. Suitable for readymade pre cast gels and manually made gels.
3. Gel Casting: Hand cast gels Cast using the spacer plates
4. Comb Ridged combs 10&15 well or more
5. Stand Gel casting stand, no tapes or grease
6. Should include at least 5 sets of compatible glass plates (spacer plate and shorter plates) and 2 casting frames.
7. Should include all the accessories of SDS-PAGE gel including sample loading guide, electrode assembly, tank, lid with power cables.
8. Should be a modular system to support blotting and elctro-elutions also in the same system.

#### **Powerpack:**

1. Output range:10-300 V and 4-400 mA, fully adjustable. Constant voltage and current type.
2. Operational voltage should be  $220 \pm 20V$ .
3. Should have power of approx. 75W and time control of 001-999 minutes, fully adjustable.
4. Should have atleast 2 pairs of output jacks.
5. Full bright LED Display indicating voltage and time clearly.
6. Must accommodate minimum two electrophoresis units simultaneously.
7. Auto power up feature in the event of power failure.

#### **Western blotting unit:**

1. Gel size of upto 7.5X10cm
2. Capacity: to run at least 2 mini gels simultaneously
3. Modular system with dedicated buffer cooling unit and compatible with the mini-SDS-PAGE gel apparatus.
4. Color coded cassettes and electrodes to ensure proper orientation.
5. All the required accessories like buffer tank, electrode module, gel holder cassette, fiber pad and lid with power cables, brochure in original must come with the equipment.
6. Operational voltage must be  $220 \pm 20V$ .
7. Should have ISO, CE certifications.

### **HORIZONTAL ELECTROPHORESIS APPARATUS WITH POWER PACK**

1. Number of gels 1–4
2. Gel size (W x L) Precast: 8.6 x 6.8 cm; handcast: 8.3 x 7.3 cm
3. Glass plate size (W x L)
4. Short plate 10.1 x 7.3 cm
5. Spacer plate 10.1 x 8.2 cm
6. Total buffer volume for 2 gels 700 ml
7. Total buffer volume for 4 gels 1,000 ml
8. Typical run times for SDS-PAGE 35–45 min (at 200 V constant)
9. Display 3 digit LED.
10. Timer 1-999 min

**Specification for Power Pac:**

11. Volts : 10-300 V
12. Current : 4-400Ma
13. Power : 75 W(Maximum)
14. Automatic recovery after Power Failure must be present
15. Safety features like load detection, sudden load change detection, overload, short –circuit detection, over voltage protection.
16. Operating Conditions: 0-400C
17. Four sets of output jacks should be available.

**Specification for Horizontal Electrophoresis**

18. The electrophoresis unit should be able to resolve upto 30 samples.
19. The cell size should be(WxLxH) 9.2x25.5x5.6cm
20. Gel Tray sizes should be 7x7 and 7x10cm.
21. Sample throughput should be 8 to 30 samples.
22. The base buffer volume can be around 270 to 300ml.
23. It should accommodate ready gels also.
24. It should accommodate both 8 well combs and 15 well combs.
25. The bromophenol blue migration should be around 4.5cm/hr (at 75V)

6. **DEPARTMENT OF MICROBIOLOGY**

Sl.	Items Name	Qty.	Warranty	CMC Required
1	Refrigerated centrifuge	1	2years	YES
2	Anaerobic apparatus	3	2years	YES
3	Electrophoresis set	1	2years	YES
4	BOD incubator	2	2years	YES
5	Laminar flow table	1	2years	YES
6	VDRL shaker	2	2years	YES

**REFRIGERATED CENTRIFUGE**

7. Max Speed should be 18000 rpm with Speed range: 200 to 18,000 rpm
8. Max RCF should be 23545 x g ( with microphage tube 1.5/2.0 ml)
9. Temperature range should be -20°C to +40°C with 1°C increment
10. There should be provision Pre-cooling arrangement
11. Should have Pre-selection of running time 30 sec to 99 Hrs 59 min or continuous
12. Should be CFC free refrigeration system

13. Quick-Key for short runs.
14. Permanent indication of preset & actual values.
15. Splash proof large LCD display
16. Motor driven lid lock.
17. Should have 99 programmer facility.
18. Active imbalance identification & cut-off protection.
19. Imbalance tolerant drive pin Automatic rotor identification system with over speed protection.
20. Audible signal at the end of each run with several melody options
21. Direct access to parameters, no click through the programmer permanent indication of preset and actual values
22. The system should have confirmation on CE certification.
23. The system should complete with i) Fixed angle rotor for 24 x 1.5/2.0 rotor with rcf x 21381g & for provision for rotates 0.2ml & 0.5 ml tubes.

### **ANAEROBIC APPARATUS**

- Transparent unbreakable jar with 3.5 Liters capacity
- Sturdy lid, clamp and sealing ring with built in safety features.
- System with compound gauge.
- Supplied with Stainless steel Petri-plate carrier, stainless steel test tube carrier and gas pack pkt.

### **ELECTROPHORESIS SET**

Should be CE certified.

#### **Automated electrophoresis system with scanner/densitometer I.**

##### **I. Automated electrophoresis system**

1. Automated electrophoretic run with drying and staining
2. To use cellulose acetate or agarose strips as matrix for electrophoresis and separate strips and kits for immunofixation
3. To have 2 sample application made of special stainless steel
4. Automated control of voltage, time and current
5. Facility to separate proteins, haemoglobin, lipoproteins, CK,LDH, and alkaline phosphates is enzymes
6. Facility for immunofixation
7. Alarm for level sensing, timer and doors
8. Samples for one gel should not exceed 10
9. Equipment should not have water sources water or pumps
10. Migration chamber should be monoblock with carbonium electrodes and should give uniform distribution of current on the full strip
11. Should have multi reagents at least 7 independent tanks
12. Process control system should be guide by electromagnetic heads with optical sensor built in the head

##### **II. Densitometer or gel scanner**

1. Scanning and processing of all gels
2. Automated control of voltage, time and current Gel temperature control with peltier effect
3. Facility to store at least 30 application protocols
4. Facility to run serum, urine, and CSF samples without prior dilution or concentration.
5. Facility to store the scanned image of the gel Facility of curve editing and entry of demographic
6. Availability of qualification and quality control features
7. Storage of patient data and result up to a minimum of 10000 samples



8. Facility to generate a comprehensive report containing the patient demographics, scanned image of the gel and curve and quantification data
9. Software up gradation should be provided free of cost up to 5 years
10. All necessary standard accessories like those required for sample application to be provided along with the instrument
11. Online UPS suitable for the entire system with 30 min backup.
12. One set of standard spares
13. Two kits of serum protein electrophoresis, one kit each of lipoproteins and isoenzymes of LDH, and Alkaline Phosphatase to be provided as starter kits.

#### **BOD INCUBATOR**

- Should be CE/USFDA/UL approved model.
- Size: Inner chamber- 60cm x 45cm x 40cm (H x W x D) with  $\pm 10\%$  variation.
- Cabinet: MS steel, powder coated, inner chamber 304 SS, 2 to 5 shelves, Temperature Range: 5<sup>o</sup> C to 60<sup>o</sup> C, temperature accuracy:  $\pm 0.5^{\circ}\text{C}$
- Should be Peltier based / compressor cooling, No CFC, Vibration free
- Should be with timer and auto off facility.
- Should be provided with RS 232 interface with compatible software for reporting.
- The instrument should be complete in all respect to run as per requirement.
- Should be provided with 2/3 detachable perforated steel rack for placement of samples.
- Should run on power supply of 230 V (50 Hz) with standard Indian plug/adapter.

#### **LAMINAR FLOW TABLE**

- Should be CE approved model.
- Should comply with EN 12469:2000 or NSF ANSI 49 standards towards basic requirement for Microbiological safety cabinets.
- **Description:** The external dimensions should be approx. 1000 x 750 x 1400mm (WxDxH) with an internal dimension of 950 x 550 x 850mm. (WxDxH) with  $\pm 10\%$ .
- **Chamber Material:** Stainless steel body with antimicrobial coated cabinet structure which should prevent surface contamination and inhibit bacterial growth on the cabinet's external surfaces.
- **Filter:** All the filters should be of 99.999% Efficiency ULPA filter 0.1 to 0.3  $\mu\text{m}$  of particle removal; ULPA filter lifespan should be more than 3 years depending on ambient operating conditions and the total number of hours in usage per day.
- **Air Quality Standard:** Should be within work zone of Class 1 as per US Federal Standard 209E or equivalent standard of ISO 14644-1).
- **Alarm:** Visual and audible alarm for low air flow, flow malfunction.
- **Air Flow volume:** 900 m<sup>3</sup>/h
- Air flow velocity should be approx. 90 fpm.
- Microprocessor controller with digital display for Air velocity, Cabinet temperature, UV lamp hour meter, Filter life/ change date.
- Should run on power supply of 230 V, 50Hz with standard Indian plug.

#### **VDRL SHAKER**

- For rotating slides for VDRL tests
- Platform size 300x300 mm spring holder which can accommodate concave slides etc.
- 180 rpm continuously adjustable with regulation.
- 0 to 30 minutes for control of shaking duration with 1 minute interval.
- Should be CE certified.

## **DEPARTMENT OF PG RESEARCH LAB**

Sl.	Items Name	Qty.	Warranty	CMC Required
1	Laminar Flow Bench	1	2 years	YES
2	Vacuum Pump	2	2 years	YES
3	Octa pipette (50 to 200ul)	3	2 years	YES
4	Ice lined refrigerator	1	2 years	YES

### **LAMINAR FLOW BENCH**

- Should be CE approved model.
- Should comply with EN 12469:2000 or NSF ANSI 49 standards towards basic requirement for Microbiological safety cabinets.
- **Description:** The external dimensions should be approx. 1000 x 750 x 1400mm (W×D×H) with an internal dimension of 950 x 550 x 850mm. (W×D×H) with ±10%.
- **Chamber Material:** Stainless steel body with antimicrobial coated cabinet structure which should prevent surface contamination and inhibit bacterial growth on the cabinet's external surfaces.
- **Filter:** All the filters should be of 99.999% Efficiency ULPA filter 0.1 to 0.3 µm of particle removal; ULPA filter lifespan should be more than 3 years depending on ambient operating conditions and the total number of hours in usage per day.
- **Air Quality Standard:** Should be within work zone of Class 1 as per US Federal Standard 209E or equivalent standard of ISO 14644-1).
- **Alarm:** Visual and audible alarm for low air flow, flow malfunction.
- **Air Flow volume:** 900 m<sup>3</sup>/h
- Air flow velocity should be approx. 90 fpm.
- Microprocessor controller with digital display for Air velocity, Cabinet temperature, UV lamp hour meter, Filter life/ change date.
- Should run on power supply of 230 V, 50Hz with standard Indian plug.

### **VACUUM PUMP**

Vacuum pumps should be V Belt driven and fitted with capacitor start Crompton/AUE or equivalent electric motor mounted on base plate.

All the parts should be precisely machined, and assembled to close tolerance for high efficiency.

Pumps should be supplied either single stage or double stage to create pressure upto 0.001 mm Hg.

Suitable to work on 220 V, 1 Ph, 50 Hz AC Supply.

Capacity: 25 lt./min

#### **Accessories :-**

- (a) High Vacuum Oil per lit.
- (b) Vacuum Gauge with Regulator
- (c) Moisture Trap

#### **OCTA PIPETTE (50 TO 200uL)**

- Should be octa pipetting head.
- Should have ergonomic design with light & smooth plunger action.
- Totally adjustable, air-displacement pipette.
- Usable for dispensing of aqueous fluids of moderate viscosity.

- Should have soft feel handle grip having both left & right hand operation
- Pipette handle should have thermoplastic elastomeric to prevent transfer of body heat to pipette volume during continuous usage
- The parts of pipette likely to be exposed to chemicals should have provisions for autoclaving so as to sustain temp. of 121°C
- Long self life and high resistance to aggressive chemicals Permissible volume errors should be a minimum.
- Should have larger & clear 4 digit display giving smaller increment for wider selection of volume
- Volume range should be of adjustable type of **set range (50-200µl)**
- Should have locking mechanism to prevent accidental volume change during pipetting.
- Should have one hand eject facility.
- Should have in house clinical, repair and calibration facility.
- The tip cone should have leak free operation, smooth and light loading operation with choice of using variety of tips
- Should be available with different color codes.

### **ICE LINED REFRIGERATOR (ILR)**

#### **Product Eligibility Criteria**

- Quoted model should be BIS or CE or USFDA approved.
- Certificate of inspection for the quoted model from an independent laboratory approved /recognized by WHO/UNICEF/National Accreditation Board /STQC labs should be furnished.

#### **Technical Specifications:**

1. Load must remain at **+2 to +8 deg C** with accuracy of  $\pm 1^\circ\text{C}$  during 43 deg C continuous ambient temperature with holdover time of **more than 24hrs.**
2. Storage capacity in volume: **150 ltr.±5%.**
3. Construction: Internal: Stainless steel Galvanised steel (min.0.9 mm, 22 G) and External: Corrosion Resistance Galvanized steel (at least 1 mm thickness)
4. Chest type with CFC free polyurethane insulation.
5. Should have adjustable upright SS mess type trays to be provided.
6. Unit should be fitted with a digital electronic temperature controller with temperature indicator for easy readability along with high & low alarm system.
7. Should use CFC Free Refrigerant R-134a (both for refrigeration and insulation)
8. The Cooling coil should be of Copper. The compressor should have **five (5) years** replacement warranty.
9. Should have auto defrost facility.
10. Provision for drainage for the waste water. Easy access to this waste water container for disposal of waste water. Compatible water trap system should be provided.
11. Should have adjustments for uneven bases. The adjustments should be easy to use like rotating a screw at the legs in the base.
12. Should have ON/OFF Switch and Power indicator should be available

#### **The following spares should be provided with machine:**

- Digital Thermometer-01no.
- Should work on 230-240V, 50Hz mains supply.
- Appropriate rating Automatic servo stabilizer ISI marked (Copper core) 90V-270V must be provided with the machine.

**DEPARTMENT OF FORENSIC MEDICINE**

Sl.	Items Name	Qty.	Warranty	CMC Required
1	Adult Weighing machine	2	2Year	YES
2	Standiometer	2	1Year	YES
3	Weighing balance for weighing foetus	1	1Year	YES
4	Weighing machine for dead bodies	1	1Year	YES
5	Weighing machine for organs	2	1Year	YES
6	Autopsy table	2	2Year	YES
7	Autopsy saw with accessories	3	1Year	YES
8	Dissection set consisting of cartilage knife, bone cutting forceps, scissors, Enterotome scaples, knife with spare blades, probe metal scale in cms.	4	1Year	YES
9	Viscerotome with attachment for illumination (Battery operated)	1	1Year	YES
10	X-ray view box (4 in 1 row)	3	1Year	YES
11	Anthrometric set	1	1Year	YES
12	Automatic tissue processing machine	1	2Year	YES
13	Brain Knife	8	1Year	YES
14	Digital Spectrometer	1	2Year	YES
15	Cold storage for dead bodies (4 body)	1	2Year	YES
16	Instrument trolley	20	1Year	YES
17	Instrument cabinet	20	1Year	YES
18	Portable x-ray machine	1	2Year	YES
19	Embalming pump	1	2Year	YES
20	Parafin embedding bath	2	2Year	YES

### **ADULT WEIGHING SCALE**

1. Sturdy dial type mechanical platform weighing machine for adult and children.
2. Zero adjustment facility should be there.
3. Sensitivity: 100 g
4. Range of weighing: 0 to 120kg
5. The manufacturer shall have the valid manufacturing license and should have model approval by the legal metrological Deptt. and the weighing scale must be stamped by the by legal metrological Deptt. In case of distributor, the bidder should have valid distributor and repair license from legal metrological Deptt., Govt. of Odisha.
6. ISO 9001 certified manufacturer (certificate to be submitted).

### **STANDIOMETER**

1. The measuring rod can be dismantled into several pieces and can be set easily.
2. The scale must be printed along the side of the measuring rod.
3. Measuring range (Both in cm & inch) : 20-205 cm and 8 - 81".
4. Graduation of measuring rod : 1mm / 8inch.
5. The structure should be made of ABS plastic.

6. The product should be **CE certified** (certificate to be submitted in technical bid)

### **WEIGHING BALANCE FOR WEIGHING FOETUS**

1. Sturdy electronic digital type machine with stable bassinet made of ABS (Detachable).
2. The display should be LCD / LED. Zero adjustment facility should be there.
3. Bassinet: curved smooth surface to prevent fall of baby with minimum length of 55 cm.
4. Accuracy: 10 gm
5. Resolution: 1 gm
6. Maximum capacity: 20 kg
7. The machine should be work both on line supply (230V) and on battery of minimum 1hr backup.
8. The manufacturer shall have the valid license and should have model approval by the legal metrological Deptt. and the weighing scale must be stamped by the by legal metrological Deptt. In case of distributor, the bidder should have valid distributor and repair license from legal metrological Deptt., Govt. of Odisha.
9. ISO 9001 certified manufacturer (certificate to be submitted)
10. Device is to be CE certified (certificate to be submitted).

### **WEIGHING BALANCE FOR DEAD BODIES**

1. Weighing Scale for Dead Body has 304 Grade Stainless Steel Construction
2. These weighing scales provide accurate weight information with weight display of up to 200 kgs.
3. These scales are used for weighing cadavers.  
It has a Digital display with accuracy of 20gms
4. These scales have complete stainless steel platform for easy cleaning and anti-staining
5. The size of the Platform is 210L x 60W cm
6. It is provided with rechargeable battery back-up in case of power failure
7. Tare function is provided to reset the scale display to zero
8. Device is to be CE certified (certificate to be submitted).

### **WEIGHING BALANCE FOR BODY ORGANS**

1. Organ Weighing Scales has 304 Grade Stainless Steel Construction
2. The capacity of organ weighing scales is maximum upto 15 kgs.
3. These scales are ideal for usage in autopsies, where organs are weighed for record maintenance and forensic investigations.
4. Our scales are accurate and efficient weighing scales  
It has a Digital display with accuracy of 2gms
5. The size of the Platform is 35L x 35W cm
6. These scales have complete stainless steel platform for easy cleaning and anti-staining
7. It is provided with rechargeable battery back-up in case of power failure
8. Tare function is provided to reset the scale display to zero.
9. Device is to be CE certified (certificate to be submitted).

### **AUTOPSY TABLE**

The Autopsy table should be mounted to a central support column and is made entirely from stainless steel 304 grade.

Through a three-piece, removable, perforated test area, all unsanitary orders should be safely vacuumed away.

The work surface should be equipped with a high surrounding border with a negative inclination to the waste sieve (detachable).

A tub with drainage channel should be located under the perforated work surface.

An integrated sprinkler system should be available for continuously sanitization of the table. The table is to be connected to the side-mounted ventilation system, which should have minimum capacity of 1000 m<sup>3</sup>/h. the Autopsy table should includes the following features:

**Features:**

- Hydraulic Height Adjustable & Exhaust System
- Self cleaning / washing sprinkler on sides
- Central support column with 2 access doors
- Basin W / D / H 400×500×200 mm
- Knee-operated mixing tap for cold and warm water
- 3 m shower hose with hand sprinkler
- 2 splash proof electrical outlets
- 2 buttons for height adjustment
- Regulator valve for integrated sprinkler system
- 3-piece work top with large waste basin/sieve insert
- Circumferential perforation for safe removal of all odors
- Height adjustable from 750 to 1000mm

Dimensions (mm) : 2600 (W) × 850 (D) × 750/1000 (H)

Carrying Capacity : 200Kg.

Dead Weight : 250Kg.

Material of Construction : S.S. 304 grade.

**AUTOPSY SAW**

1. Oscillating Autopsy Saw should be made of light metals and gears that should be permanently lubricated
2. Oscillating Autopsy Saw should comprise of exchangeable saw blades, mounted ball bearing, well ventilated motor for AC 230 volt with switch housed in a shock-proof, insulated casing.
3. Should be equipped with electrical connection cord fitted with plug
4. The length of the cord of minimum 5 mtr.
5. A speed controller should facilitate exact setting so that the rotations of the saw blade can be adjusted according to the requirements.
6. The complete set should comprises of autopsy saw , round saw blade , deep segment saw blade (small) and one set screw-wrench for exchange of saw blades
7. The Voltage is 230 volt / 50 hz / 125 watt
8. The Oscillation ranges between 12000 - 21000 / min

**DISSECTION SET:** Should consisting of cartilage knife, bone cutting forceps, scissors, Enterotome scaples, knife with spare blades, probe metal scale in cms.

**VISCEROTOME:** Should be with attachment for illumination (Battery operated)

**X-RAY VIEW BOX**

- Should be ultra-thin X ray film illuminator using light
- It should have a thickness of 30 mm
- It should be suitable for viewing 14”x17’ film.
- Should have position to insert 4 films in 2 rows.

- The LED light must have a life span of more than 1,00,000 hours.
- It should have easy insertion & removal of the film.
- It should have homogeneous illumination more than 95% and maximum intensity of over 10,000 lux.
- It should have an on-off switch along with digital feather touch dimmer and a button to set the intensity
- It should have fully electronic continuous brightness control, with adjustment range of approximately 90%.
- It should have directly connectable to power supply without any external adapter.
- It should have flicker free high frequency light for reduction of eye strain.
- It should have external fuses for protection against power surge.
- 10 step Digital dimmer facility with step up/step down intensity of 500 lux or less.
- Should have automatic film sensor
- Should have facility to switch on only the section where the film needs to be viewed.
- 230V, AC, 50Hz. 3 Amps, Single phase

### **ANTHROMETRIC SET**

All the items should be CE approved.

Set should consist of

1. Weighing Machine (Adult) : Digital, Capacity upto 200Kg.
2. Weighing Scale for Infant / Baby: Digital, Capacity upto 20Kg.
2. Stadiometer: range 20 - 205 cm
3. Length Measuring Board: range 10 - 100 cm
4. disposable cloth pieces for infants : 50 Pcs
5. **Measuring Tape for Mid-upper-arm circumference:** measuring range: 0 – 59 cm

### **AUTOMATIC TISSUE PROCESSING MACHINE**

1. Microprocessor controlled Tissue Processor with freely selectable programs
2. User programmable parameters like infiltration time, delay time, agitation on-off and single basket operation.
3. Programmable infiltration time.
4. Delayed start up function to a maximum of 9 days.
5. Drain time of 60 second in each station to reduce carry over contamination.
6. Glass Reagent containers of at least 1.8 litres with seals to minimize evaporation and exposure the hazardous fumes.
7. Agitation in 3 second intervals with on/off function for thorough and even mixing of reagents.
8. Maximum tissue processing capacity of 110 tissue cassettes using with single basket operation.
9. Maximum safety concept with automatic immersion of the tissue basket into the beaker in case of power failure.
10. Audible alarms, error message and warning codes for maximum safety.
11. Wax bath over temperature (at 750 C) and under temperature cut-off facility for the safety of tissues.
12. Locking facility to avoid inadvertent operation.
13. Facility of manual lifts the carousel and removable tissues in case of long power failures UPS with 30 minutes

### **BRAIN KNIFE**

Straight cutting edge 30cm, thickness/1.77mm,  
Alloy Material or Stainless steel

### **DIGITAL SPECTROMETER**

<b>No.</b>	<b>Parameters</b>	<b>Details</b>
1.	ADC	1024 Channels
2.	Energy Ranges	0-1024 keV
3.	Nuclide Library	≥ 50 nuclides
4.	High Voltage Supply	0-1300 volt
5.	Power Supply	90-260 VAC and 50-60 Hz
6.	Temperature	-50C to +400C
7.	Relative Humidity	0%-90%
8.	Detector	Scintillation, Well type, NaI (TI) crystal Crystal thickness = 2 inches Lead Shielding = 35 mm or more on all sides

### **COLD STORAGE FOR KEEPING DEAD BODIES (4 BODY)**

1. Four body mortuary chamber with PUF installation and recessed handle option of PP/SS in tank
2. Each Compartment should have hinged door with locking arrangement
3. Stainless steel panel 304 grade for outer and inner chambers with insulation in between made of PUF
4. Exterior surface of material SS 304 grade
5. Temperature should be maintained between 2degree C to 5degreeC
6. Refrigeration of each compartment should be individually controlled, individually insulated and temperature can be adjusted with separate digital display. Individual drainage system should be provided for individual chambers.
7. Should have stabilizer backup to control voltage fluctuation for all chambers
8. Thickness of panel not less than 60mm
9. Front door with stainless steel SS 304 Grade
10. One piece stainless steel tray for keeping cadaver
11. Telescope type carrier assembly for cadaver
12. Manufacturer should be ISO certified.

### **PORTABLE X – RAY (MOBILE)**

**Operational Requirements:-** Compact, lightweight, easily transportable mobile radiographic unit Suitable for bedside X-rays. The unit must have an effective braking system for parking and transport. The tube stand must be fully counter balance with rotation in all directions. Exposures with remote control should be available. The unit must have cassette facility for all size of cassette.

#### **Technical Specifications**

The Generator:

1. Microprocessor controlled high frequency, output 10 KW or above.
2. It should have a digital display of mA and KV.
3. KV range: 40KV to 120 KV.
4. mA range: 100 mA or more

**X-Ray Tube:** 1. Rotating anode with a least 2500 rpm and focal spot size should be 1 mm. Or less. 3light Beam Collimator of multi leaf type with auto cut off switch. The exposure release switch should be detachable with a cord of sufficient length as per ICRP recommendation.

#### **System Configuration Accessories, spares and consumables**

Grid (Ratio 12:1) of the following size should be provided – 01 each -12”x 15”-10”x 12”



## **Standards and safety**

Should comply with AERB/BIS/ICRP Guidelines for radiation leakage and X-Ray equipments.

### **INSTRUMENT TROLLEY**

- 1) Its size should be 680mm L x 450mm W x 900mm H (Approx.)
- 2) Stainless steel tubular frame work made of 25mm OD x 18G verticals mounted on 125mm dia on rusting castor two with brakes.
- 3) Castor housing and wheels should be made from high grade non floor staining synthetic materials with integrated thread guards wheel center having precision ball bearing to run smoothly.
- 4) Two stainless steel shelves of 20G thickness, with protective railing on three sides.
- 5) The railing shall be made from dia. 10mm S.S. rod with 304 grade stainless steel.
- 6) Should be used for trolley frame work and SS shelves. SS parts finished with Matt Polish.

### **INSTRUMENT CABINET**

- 1) M.S Angle covered by CRCA sheet of 20 gauge.
- 2) Overall Size : 66inch(H) x 36inch(W) x 18inch(D)
- 3) Double Door Fitted with Glass for visibility of instruments with lock.
- 4) Four partitioned shelf of 6mm thickness.
- 5) Should have Pre-treated epoxy powder coated finish.
- 6) Should have stainless steel bottom with four leg support.

### **EMBALMING PUMP**

- Flow rate: 1 to 1000ml/min.
- Variable Speed
- RPM 10 to 100 with unidirectional flow
- ON/OFF switch with light indicator
- Power supply: 230V,50Hz
- Stainless mounting hardware to connect the head.

#### Pump Head:

- Should be compatible with pump drive.
- Should retain automatically
- Should have stainless steel rotor material and polyphenylene sulphide for housing material.

#### Tubing

- Silicone rubber material with heat and chemical resistant.
- Autoclavable upto 100degreeC.
- Internal diameter 5-7mm
- Hose size: 6-7mm
- Length:6 to 10mtr.
- Should be provided with two extra tubes.

### **PARAFIN EMBEDDING BATH**

1. Temperature ranges:
2. Paraffin Reservoir: 50 deg C - 70 deg C ( $\pm 2$  deg C)
3. Work Surface: 50 deg C - 70 deg C ( $\pm 5$  deg C)
4. Tissue Holding Tank: 50 deg C - 70deg C ( $\pm 2$  deg C)
5. Cold Plate: - 5 deg C to -15 deg C to ambient
6. Refrigerant: Cold Plate, Cold Spot (Peltier controlled)
7. Resolution of temperature display: +/- 1 deg C

8. Height of Work Surface: 6 cm or more
9. Cold Plate: (at least to hold 80 to 100 cassettes)
10. Prices should be quoted for each separately: Standard size Cassettes – 1000 Nos.
  - Large field Magnifying lens with cold light source
  - Stainless Steel Moulds of different sizes (Depth 9 to 12 mm) – 80 Nos.
  - Paraffin Scrapper – 3 Nos.
  - Halogen Bulb – 12 Nos.
  - Fuse – 12 Nos.

### **DEPARTMENT OF PHARMACOLOGY**

Sl.	Items Name	Qty.	Warranty	CMC Required
1	Kymograph	1	2Year	NO
2	Digital Plethysmometer	1	2Year	YES
3	Accessories for Organ Bath	1	1Year	NO
4	Pharmacology and physiology setup	1	1Year	YES
5	Cook's Pole Climbing Apparatus	1	1Year	NO
6	Actimeter	1	2Year	YES
7	Digital Electroconvulsimeter	1	1Year	YES
8	Rotarod Apparatus	1	1Year	NO
9	Rotarod Apparatus: (Acceleration mode)	1	1Year	NO
10	Analgesia Meter (Eddy's Hot Plate type)	1	1Year	YES
11	Hot and Cold plate Analgesiometer	1	1Year	NO
12	Digital Physiograph	1	2Year	YES
13	Computerized Physiograph	1	2Year	YES
14	Paw pressure Analgesia Meter	1	1Year	NO
15	Analgesia Meter (Tail Flick Type)	1	2Year	NO
16	Metabolic Cages For Small Rodents	1	1Year	NO
17	Rack For Metabolic Cages	1	1Year	NO
18	Metabolic Cages For Small Rodents	1	1Year	NO
19	RACK FOR METABOLIC CAGES	1	1Year	NO
20	Metabolic Cage for Large Rodents	1	1Year	NO

#### 1. Kymograph

Should be *CE Certified*

Microprocessor controlled drum with stepper motor,

16X2 Blue LCD display

Highly accurate 7 Speeds- 0.12, 0.25, 0.50, 0.75, 1.00, 1.25, 2.50 mm/sec

Sturdy and corrosion resistant

Special chrome plated rod and MS Powder coated body

Auto concentration response curve (CRC) and Normal Mode

Timer and timer multiplier with audio and visual Alarm

Should be provided with spare fuse and inbuilt filter for mains socket

Height of rod: 340mm

Should be maintenance Free

## 2. Digital Plethysmometer:

Should be *CE Certified*

The control unit should detect the conductance changes, whose electronics generates an output signal in ml (**with resolution of 0.01ml and accuracy of  $\pm 0.01$ ml**) shown in the digital display.

The control unit should be automatically zeroed between successive readings, making intermediate adjustments unnecessary. The control unit should be provided with RS 232 port for communication to computer and the instrument should be provided with software to transfer data to the PC and allows exporting them to software like excel.

Instrument should be provided with a stand to hold the acrylate tube assembly.

Inbuilt memory for experiment data

Power Supply: 230V 50Hz AC

Display: Digital Display Monochrome graphical LCD 128X64

Resolution: 3 Digits, 0.01

### **Components to be included:**

Control unit with communication port to PC

Pedal switch

Auto-calibration mode

Manual calibration mode for: 0.5ml, 1ml, 2ml

Two separate retort stands

Instruction manual

Cables and Connectors

Surfactant solution bottle

Microlitre syringe

Digital pocket conductivity meter

Dust protection cover for control unit

Software for data collection

**(Computer / Laptop & Printer of branded make to be provided by the supplier)**

## 3. ACCESSORIES FOR ORGAN BATH:

Sr. No.	Description
1	AERATOR
2	KYMOGRAPH PAPER (PACKET OF 100 SHEETS)
3	SMOKING BURNER KEROSENE TYPE
4	STAND FOR SMOKING BURNER
5	MARRIOT BOTTLE MADE OF ACRYLIC WITH PTFE STOPCOCK, 1 LT
6	MARRIOT BOTTLE MADE OF ACRYLIC WITH PTFE STOPCOCK, 500ML
7	MARRIBOT BOTTLE STAND
8	SIMPLE LEVER
9	FRONTAL WRITING LEVER
10	STERLING HEART LEVER
11	FROG BOARD
12	SYMES CANNULAE

13	VENOUS CANNULAE
14	AERATION TUBE METALIC
15	ORGAN TUBE P.P./ GLASS
16	RESERVOIR COIL PERSPEX/ GLASS
17	P.P. ORGAN TUBE/RESERVOIR COIL HOLDER
18	HEART CLIP
19	<b>Ink Marking device for organ bath:</b> Ink Marker without lever for above: Non ink refillable type, Writing length of the pen would be appx 450 to 500 running ft. Should not dry for average 4 to 6 months if kept open to atmosphere or on recorder without touching paper. In sealed condition self life should be around 18 to 24 months.
20	Frontal writing Lever for holding ink marking device
	<b>TUBINGS</b>
1	SILICON TUBING: 6.5mm x 11mm (I.D. x O.D.)
2	TRANSPARENT PVC TUBING: 7mm x 12mm(I.D. x O.D.)
3	PVC TUBING FOR AERATOR (Minimum pack size 5 meter coil)
21	<b>COUPLER SET</b>
A	BOSS HEAD FOR COPLER SET
B	CLAMP FOR HOLDING BOSS HEAD
C	FULCRUM/ SIMPLE LEVER FOR HOLDING FRONTAL WRITING LEVER
D	BOSSHED FOR HOLDING AERATION TUBE
E	CLAMP FOR HOLDING BOSS HEAD OF AERATION TUBE
F	TISSUE HOLDER FOR OB SERIES

#### 4. Pharmacology and physiology setup:

##### Description

##### A. Experiments on isolated heart

Digital Sherrington Recording Drum (kymograph)

X block

Heart Chamber with lever and electrode

Stand for above

Cannulae symmes

Clamp for holding Symmes cannulae

Marriot bottle Perspex 500ml

Marriot bottle stand

Rubber tubing

Dissection tray

Dissection box

Heart clip

Heartclip

Frog Board

Kymograph paper packet

**Recording or writing devices: Ink based**

Sterling heart Lever for ink pen attachment

Ink marker (non refillable)

**Requirement for Physiology:** Stimulator Digital

##### B. Experiments on isolated muscle

Digital Sherrington Recording Drum (kymograph)

Organ bath Single unit thermostatic

Aerator

Marriot bottle Perspex 500ml

Marriot bottle stand  
 Rubber tubing  
 Dissection tray  
 Dissection box  
 Kymograph paper packet  
**Recording or writing devices:**  
**Ink based**  
 Frontal writing lever for ink type  
 Ink marker (non refillable)

**C. Nerve Muscle Assembly:**

Sl.	Item
1	Dubois Raymond induction coil
2	Drum paper clips
3	Crank myograph
4	Starling heart lever
5	Adjustable stand
6	Standard X block
7	Open sided X Block
8	N 100 Tunning fork
9	Dubois Raymond key
10	Simple electrode
11	Simple contact key
12	Hook and weight set 110g
13	Hook and weight set 11g
14	Muscle clip
15	Frog heart clip
16	Pithing needle
17	Connecting wires
18	Fixing pins
19	Capillary lever
20	Nerve muscle chamber 17x13x3cm
21	Sherrington recording drum SRD 01
22	Kymograph paper
23	Smoking burner with stand

**5. Cook's Pole Climbing Apparatus:**

Should be CE Certified

Cook's Pole Climbing Apparatus should be with built in solid state buzzer and stimulator to provide electrical shocks of 16 to 200V DC in pulsating rates of 0.1mA at a frequency of 5Hz for controlled duration.

Features:

Digital Timer : 0.1-999 sec  
 Digital delayed timer : 0.1-999 sec (cyclic)  
 Digital voltmeter : Range 16-200V DC  
 Inner chamber made of : Transparent imported acrylic  
 Complete outer chamber made of: 10mm acrylic sheets  
 Climbing pole made of : Bakelite  
 Switch for selecting light or sound mode

**6. Actimeter:**

Should be CE CERTIFIED

An ideal tool for assessing loco-motor activity & exploration in rodents. The system should represent a reliable system for easy & rapid drug screening in both day & night light condition.

**Features:**

Same instrument useful for Actimeter study and Hole Board Study

Maintenance free compact system

Minimum lightening conditions required

Same system can be upgraded for Z axis

System should work without computer

should be provided with 16 IR source on X axis and 16 IR source on Y axis creating a 16x16 grid.

Same instrument should be used as hole board test apparatus using hole board plate provided.

Provision for Digital timer and digital counts for Actimeter as well as hole board apparatus.

should be supplied with software for data transfer

**(Computer / Laptop & Printer of branded make to be provided by the supplier)**

**7. Digital Electroconvulsimeter**

Should be CE Certified

Ammeter: Digital Type

Timer: Digital type

Current: 0.1mA to 330mA

Provided with corneal electrodes and ear electrode

Supplied with foot switch

**8. Rotarod Apparatus:**

Should be CE Certified

Features:

Same instrument should be used for mice as well as rat just by changing the rotor

Five compartment model

Plate type sensor for detection of fall

Diameter for mice rotor: 30mm, Diameter for rat rotor: 60mm

Individual lane timers (0-999.9s) with resolution of 0.1s

Electronic rod speed adjustment- constant speed (5-80 rpm)

Software for data collection

**(Computer / Laptop & Printer of branded make to be provided by the supplier)**

**9. Rotarod Apparatus: (Acceleration mode)**

Should be CE Certified

Features:

Password protected system.

Same instrument can be used for mice as well as rat just by changing the rotor & some partitions.

Lane width can be easily adjusted for mice and rat model

Five Lanes.

Detection of fall by plate type sensor

Individual lane timers (0-999s) with resolution of 0.1s

Electronic rotor speed adjustment- constant speed (5-80rpm)

Software for data collection

Easy replacement of rotor  
3 different modes- Normal mode, Acceleration 1 and acceleration 2  
Reverse- forward direction selection mode  
Cuf-off time settings  
Auto Experiment Number  
Password protected delete mode  
Software Features:  
Password protected software.  
Experiment title, comments can be entered.  
Graphical presentation of data  
Test ID can be assigned to compartment for animal groups  
PC Connectivity software with report generation in pdf, transfer of data to excel & calibration report generation facility  
Parameters recorded: Distance travelled in meters, Falling RPM, Time spent on rod  
**(Computer / Laptop & Printer of branded make to be provided by the supplier)**

#### **10. Analgesia Meter (Eddy's Hot Plate type):**

Should be CE Certified

- Should be programmed with features of auto experiment number, animal ID, animal sex and auto sequence number
- Lid open sensor and gives message if lid is open during experiment
- Plate temperature should be held at a set point between 5°C above ambient to 70°C(±0.2°C)
- Remote foot-switch control the test start / stop allowing rapid Hands-free experiments
- High temperature stability & Uniform surface heat distribution
- A built-in timer should be activated by an external foot switch allows the precise measurement of the reaction time (0.1 Sec. Resolution)
- Calibration mode for calibrating the plate temperature
- PC Connectivity software with facility to add experiment title, comments, calibration report generation facility, transfer of data to excel and graphical presentation

**(Computer / Laptop & Printer of branded make to be provided by the supplier)**

#### **11. Hot and Cold plate Analgesiometer:**

- Should be programmed with features of experiment number, animal ID, animal sex and auto sequence number.
- Lid open sensor should give message if lid is open during experiment
- Plate temperature should be held at a set point between 2°C to 60°C (±0.5°C)
- Remote foot-switch should control the test start / stop allowing rapid Hands-free experiments
- High temperature stability & Uniform surface heat distribution
- A built-in timer should be activated by an external foot switch allows the precise measurement of the reaction time (0.1 Sec. Resolution)
- Calibration mode for calibrating the plate temperature
- PC Connectivity should have software with facility to add experiment title, comments, calibration report generation facility, transfer of data to excel and graphical presentation

**(Computer / Laptop & Printer of branded make to be provided by the supplier)**

## 12. DIGITAL PHYSIOGRAPH: (TFT DISPLAY)

### **STUDENT PHYSIOGRAPH with SINGLE Channel Console with Time & Event channel and stimulator**

For Human & Animal experiments having following coupler and transducers

#### **COUPLERS**

- i) STRAIN GAGE
- ii) ISOTONIC
- iii) PULSE RESPIRATION
- iv) TEMPERATURE
- v) EKG (CLINICAL) with Electrode, 5 pin Junction box and Jelly.
- vi) BIO POTENTIAL (with Electrodes, 3 pin Junction box, Paste and Electrodes for Action Potential).

#### **TRANSDUCERS REQUIRED**

- i) PRESSURE
- ii) VOLUME
- iii) MUSCLE ACTIVITY/FORCE
- iv) RESPIRATION BELT
- v) ISOTONIC FINE MOVEMENT
- vi) PULSE
- vii) RESPIRATION (Thermister Type)
- viii) TEMPERATURE

ACCESSORIES: Following accessories are supplied along with each console:-

- Fuses
- Earthing wire
- Instruction Manual
- Machine Cover

## 13. Computerized Physiograph:

Features:-

-ECG,EEG,EMG,ENG & ECG,

-Pulmonary Function Measured Parameters:-

FVC,FEV0.5, FEV1,PEF,PIF,FEV1, FVC% FEF25% 75%, Vmax 25% Vmax 50%, Vmax-75%, FET 100% SVC,IRV, ERV,VE,Rf,tE,tI,VT,VT/tI, tI/t.tot, MVV.

Respiration

Blood Pressure (Invasive & Non Invasive)

Heart Sounds & Korotkoff sounds

Nerve Conduction

Electrodermal Activity (GSR)

Pulse

Reaction Time

Temperature

Force & Pressure.

System Comprises of :-

i) Data Acquisition System-

ii) 4 Channel BASIC hardware unit (4 Channels digital data acquisition system)

iii) System Software

iv) Data cable BASIC



- v) Main cable
- vi) 3 Pin Junction Box
- vii) 5 Pin Junction Box
- viii) EEG/ EMG Electrodes
- ix) ECG Limb Electrodes
- x) ECG Chest Electrode
- xi) Pulse Transducer
- xii) Respiration Belt (Stethograph Type)
- xiii) Phono Cardiogramme Transducer
- xiv) EEG Paste
- xv) Electrode Jel
- xvi) Skin Temperature Transducer
- xvii) Blood Pressure Cuff
- xviii) Pressure Transducer
- xix) Muscle Activity/Force Transducers
- xx) Nerve Conduction Stimulator
- xxi) Digital Turbine
- xxii) Hand Dynamometer

**(Computer / Laptop & Printer, Trolley of branded make to be provided by the supplier)**

b. Isolated Tissue bath system:

Double unit isolated tissue bath system with digital temperature controller, automatic emptying and filling of organ tube system, aeration speed control, supplied with micromanipulator, aerator, organ tube, reservoir coil, marriot bottle, marriot bottle holding stand, silicon tubing

#### **14. Paw pressure Analgesia Meter:**

**Should have following features:**

- Pre Calibrated easy to use system
- High accuracy and resolution
- Automatically storing of the peak readings
- Stand alone system, no need of computer
- Zero key to make readings zero during operations
- PC Connectivity with Software using USB cable for data analysis & report generation
- Inbuilt weight calibration & calibration report generation facility
- Instrument operates on rechargeable battery\*
- Data can be converted to excel & Pdf file for further analysis
- Provision to add experiment name, instrument serial number, test ID, animal sex & 3 readings averaging facility in software report
- Digital full color TFT Display
- In-built Memory up to 150 readings
- Three units for measurement available gf/N/ lbf

<b>Capacity</b>	2000 gf
<b>Resolution</b>	0.1 gf
<b>Accuracy</b>	±0.2%
<b>Display</b>	TFT
<b>Battery</b>	Rechargeable batteries*
<b>Unit</b>	gf/N/lbf

<b>Useful for</b>	Forelimbs
<b>PC Connectivity</b>	Through USB
<b>Material of composition</b>	Methacrylate, S.S. 304
<b>Certifications</b>	CE Compliant
<b>Power requirements</b>	220/230V AC 50Hz

**Should have following software features:**

Provision of experiment title, instrument serial number, animal start number and animal end number, animal sex selection so that no need of manual entry of animal number for each animal.

Software should automatically create the rows from selected animal start number up to the last animal number.

**Averaging option:** Software should automatically give average of 3 readings if needed.

**Error code option:** Errors like instrument error, wrong animal number and repeat trial can be coded in front of a particular reading if needed.

**Components included**

Control Unit

Stimulation Unit

Pedal Switch

Flat and pointed tip points

Instructions manual

Software for PC Connectivity

**(Computer / Laptop & Printer of reputed brand to be supplied by the supplier)**

**15. Analgesia Meter (Tail Flick Type):**

- Should be CE Certified
- Tail Flick Analgesia Meter should measure pain sensitivity in mice and rats as they respond to heat application to a small area of the tails.
- Should have program with features of auto experiment number, animal ID, animal sex and auto sequence number
- Should have remote foot-switch control to test start / stop allowing rapid Hands-free experiments
- Heating through Halogen lamp
- Should be provided with digital intensity controller for controlling the intensity of heating lamp from range 1-99% in the total 50 steps.
- Heating platform made of thick special grade plastic with groove provided for placement of animal tail
- PC Connectivity software with facility to add experiment title, comments, calibration report generation facility, transfer of data to excel and graphical presentation.
- Instrument should be supplied with 2 perspex restrainers- one for mice and one for rat

**16. METABOLIC CAGES FOR SMALL RODENTS:**

Should be CE Certified

Should offer 99% separation efficiency of urine and feces assuring maximum purity of samples.

Each cage should be placed on a single cage stand or a stainless steel rack or trolley accommodating up to eight or ten cages.

**Components Included:**

Polycarbonate cage with lid  
Polycarbonate collection funnel  
S.S. 304 floor grill  
Polycarbonate Linear diffuser guide  
Urine collection tube P.P  
Feces collection tube P.P  
Polycarbonate water bottle 250ml with holder  
Waste water collection tube P.P.  
S. S. 304 Universal Food Hopper  
S.S. 304 stand for cage  
Overall Approx Dimensions: 300x300x650mm  
Floor grill has diameter of: 235mm

### **17. RACK FOR METABOLIC CAGES**

Our mobile, stainless steel rack should accommodate up to eight or ten metabolic cages per rack. The two tier construction should ergonomically position cages at convenient height levels for easy observations and routine maintenance.

Racks should be designed to minimise the number of parts necessary for reducing labour and saving your valuable time.

Racks should be supplied in parts ready to assemble for ease of transportation

### **18. METABOLIC CAGES FOR SMALL RODENTS:**

Especially useful for urine collection experiments

The cage should be provided with cage body, floor, Funnel, Water bottle and waste water collection tube. Waste water is to be collected in the P.P. tube.

Cage body should be fitted with tag holder for identification purpose.

#### **Components Included:**

S.S. Cage body  
S.S. grill type floor  
S.S. Funnel  
S.S. mesh plate for separation  
Water bottle 150ml  
Water bottle holder  
Waste water collection P.P. tube  
Urine collection beaker P.P  
M.S. Powder coated stand

**Overall Approx Dimensions:** 260x300x420mm

### **19. RACK FOR METABOLIC CAGES**

Made of S.S. 304 material and suitable to hold 6-8 metabolic cages for small rodents

### **20. Metabolic Cage for Large Rodents:**

Should be equipped with system for separation of feces and urine.

Each system should be divided in 3 parts- Cage body, Separation hopper and feeding and water supplying unit.

Separation hopper should be fitted with S.S. mesh for separation of urine and feces.

Feces are to be collected above the mesh while urine goes down through tube.

Design and finish should be such that the animal has a maximum of comfort.

Made of Complete S.S. 304 Material.

Overall Outer Dimensions: 550x360x720mm

Should be supplied with Food hopper, Polycarbonate Water bottle of 550ml, Waste water collection tube & graduated beaker of 500ml for Urine collection.  
Should be suitable for Rabbit, Guinea Pigs

### **C) SCHEDULE OF REQUIREMENT OF LOW VALUE ITEMS**

#### **DEPARTMENT OF ANATOMY**

<b>Sl.</b>	<b>Item Name</b>	<b>Qty.</b>	<b>Specification Details</b>
1	Metal Stools	60	Made of Stainless steel of 304 grade.
2	Plastic tanks for storing body parts	10	
3	Steel trolley table	3	Made of Stainless steel of 304 grade.
4	Slide cabinet for 1000	6	Stainless steel, 1,000 capacity Wrap proof, break proof for storage Have slots to accommodate 1000 slides with lid/ wooden with hinged lid Should have index inside the lid.
5	Paraffin bath	1	
6	Diamond Pencil	4	
7	7 color marking pencil	2sets	
8	Specimen Jars	100	
9	Steel racks	50	
10	All chemicals as specified		Formalin (5ltr.)-300 Glycerol (500ml.)-100 Ethanol (500ml.)-100 Phenol (500ml.)-25 Thymol(25gm)-50 Eosin(25gm)-10 Haematoxin (5gm)-10 Xylene (500ml.)-5 Parafin wax (500gm)-5 Cedar wood oil (25ml.)-5
11	Skeleton (Articulated)	5	Artificial/ Original human bones, from single source, articulated scientifically as per the placement of the bones in the human body. Proper synthetic materials must have been put in the joint spaces. It must be certified by an Anatomist.
12	Skeleton (Dis-Articulated)	25sets	Artificial/ Original human bones, from single source, dis-articulated scientifically as per the placement of the bones in the human

13	Hand Saw	3	body with colors of the muscles. Proper synthetic materials must have been put in the joint spaces. It must be certified by an Anatomist. Made of Stainless steel with firm grip
----	----------	---	---

**DEPARTMENT OF PHYSIOLOGY**

SI .	Item Name	Qty.	Specification Details
1	Electric Steriliser	4	Made of SS 304, Size: 12(L)×8(D)×6(W)
2	Instrument trolley	1	Size should be 680mm L x 450mm W x 900mm H (Approx.) Stainless steel tubular frame work made of 25mm OD x 18G verticals mounted on 125mm dia on rusting castor two with brakes. Two stainless steel shelves of 20G thickness, with protective railing on three sides.
3	Oxygen cylinder with trolley	6	Made with hi-grade MS tubular steel. Mounted on two 10cm wheels. Pre-treated and Epoxy Powder Coating for Scratch proof Finish. For small (40cft) Oxygen Cylinder.
4	CO2 cylider with trolley	2	Made with hi-grade MS tubular steel. Mounted on two 10cm wheels. Pre-treated and Epoxy Powder Coating for Scratch proof Finish. For small (40cft) CO2 Cylinder.
5	Thermometer	12	Digital, Range 0 to 100degreeC.
6	Balances	2	
7	Venus & Arterial cannula (different size)	12 sets	
8	Micro slide & Glassware	1000	
9	Electric time maker, 100/sec	6	
10	Tuning fork, 100/sec	6	Tuning forks : Set of 8 forks in velvet lined case Ragg's. English Blue Steel Set of 8 in case.
11	Electrodes, X-blocks, burrete clamps, enamel bowl brass uprights with coarse and fine adjustments basin, spirit lamp, cooper wire (double cotton covered) Kymograph paper	40 sets	
12	Smoking outfit with fume	1	

2	cupboard		
1 3	Vanishing outfit for long & short papers	1	
1 4	Haemoglobinometer (Sahli's)	40	Measuring range - 40-360 g/litre. As a photometer, precision not worse than 1% the total error of conc. Of Hb does not exceed 2% The volume of liquid for photometry must be not less than 1ml. optical length of a cuvette or cylindrical test tube – 10 ±0.1 mm.
1 5	Windtrob's haematocrit tube with rack (6)	30	
1 6	Gas analysis apparatus, Haldane's student type	1	
1 7	Van Slyko's apparatus Manometric	2	
1 8	Ergograph Mosse's	6	
1 9	Compas (Aesthesiometer)	10	
2 0	Knee hammer	50	Soft Rubber to prevent any breakage Light weight Ease in store and maintenance
2 1	Schematic eye	2	
2 2	Perimer with charts color percetion lantern Edridge Green Maddox rod Newtons color wheel tuning forks to test hearing (32pcs.)	2sets	
2 3	Stop watch	6	Digital with screen illumination. SWISS make 1/10 second

### DEPARTMENT OF BIOCHEMISTRY

S I.	Items Name	Qty.	Specification Details
1	Fume Cupboard	2	
2	Thermometer (0 to 250C)	4	Glass Thermometers with Mercury up to 250°C
3	Thermometer (0 to 110C)	4	Glass Thermometers with Mercury up to 110°C
4	Cork borer set	1	
5	Sprit lamp	30	
6	Chromatographic chamber	2	Rescholars chromatography cabinets, made of teak wood with glass on four sides and on top. The internal surface coated with wax in order to ensure resistance to solvent and other

			chemicals.
7	Desicator (Large)	6	
8	Desicator (Small)	6	
9	Homogeniser (grinder type)	1	
10	UV lamp	1	
11	Tools for glass glowing & mending	1 set	
12	Plastic bottle dispenser	15	
13	Pipette Stand	4	
14	Vertical page agarose	2	
15	Power packs for electrophoresis (300V)	2	Output range: 10-300 V and 4-400 mA, fully adjustable. Constant voltage and current type. Operational voltage should be 220 ±20V. Should have power of approx. 75W and time control of 001-999 minutes, fully adjustable.
16	Ryles tube	4	
17	Stop watch	4	Digital with screen illumination. SWISS make 1/10 second

18.. All glassware items: **As specified below**

Borosilicate Glass ware		
1	Beaker 100 ml.	12
2	Beaker 250 ml.	12
3	Beaker 500 ml.	6
4	Beaker 1000 ml.	6
5	Conical flask 100 ml	12
6	Conical flask 250 ml	12
7	Conical flask 500 ml	6
8	Conical flask 1000 ml	6
9	Measuring Cylinder 25 ml.	6
10	Measuring Cylinder 100 ml.	10
11	Measuring Cylinder 250 ml.	10
12	Measuring Cylinder 500 ml.	10
13	Measuring Cylinder 1000 ml.	10
14	Measuring Flask 50 ml.	4
15	Measuring Flask 100 ml.	4
16	Measuring Flask 500 ml.	6
17	Measuring Flask 1000 ml.	6
18	Pipette 0.1 ml.	10
19	Pipette 1 ml.	10
20	Pipette 2 ml.	10
21	Pipette 5 ml.	10
22	Pipette 10 ml.	10
23	Burette 10 ml.(100 division)	30
24	Burette stand	30
25	Reagent Bottle -all glass, stopper cap type 100 ml.	120
26	Reagent Bottle -all glass, stopper cap type 250 ml.	60
27	Reagent Bottle -all glass, stopper cap type 500 ml.	60
28	Reagent Bottle -all glass, stopper cap type 1000 ml.	20
29	Test tube 20 ml.	200
30	Test tube 15 ml.	200
31	Centrifuge tube 15 ml.	100
32	Centrifuge tube (Graduated with cap) 15 ml.	50
33	Test tube racks	30
34	Test tube holders	40
35	All glass large water jars capacity 5 lit with tap at bottom	4
36	pH paper (Range 2 - 10) & (Range 7 - 8)	6 pkt each
Clinical Diagnostic (R.D.C)		

### DEPARTMENT OF COMMUNITY MEDICINE

Sl.	Items Name	Qty.	Specification Details
1	Comparator, Nessler	1	
2	Barometer, Fotin	1	
3	Extraction apparatus, fat	1	
4	Filter, Pasteur Chamber land	1	
5	Filter,berke fed	1	
6	Hydrometer, Spirit	3	
7	Hydrometer, Milk	3	



8	Hydrometer, wet & dry	1	
9	Museum jar	200	
10	Model, chart, diagram	200	
11	Weighing machine for balancing food stuff (2kg.)	1	
12	Salter weighing machine	4	
13	Height measuring stand	1	Measuring range (Both in cm & inch) : 20-205 cm and 8 - 81". Graduation of measuring rod: 1mm / 8inch. The structure should be made of ABS plastic.
14	Harpender's caliper	2	Dial graduation: 0, 20 mm, Measuring range 0mm - 80mm measuring pressure 10gms/mm <sup>2</sup> , Repeatability 0, 20 mm Accuracy 99% Accessories-carrying case

#### DEPARTMENT OF PATHOLOGY

Sl.	Items Name	Qty.	Specification Details
1	Staining racks	10	
2	Paraffin embedding bath	2	
3	Cabinet for 1000 slides	4	Stainless steel, 1,000 capacity Wrap proof, break proof Have slots to accommodate 1000 slides with lid/ wooden with hinged lid Should have index inside the lid.
4	Coplins jar	24	
5	Trough for staining	12	
6	Slide box for 100 slides	120	
7	Double demonstration eye piece	2	
8	Sternal puncture needle (Adult)	3	
9	Sternal puncture needle (Child)	2	
10	Liver biopsy needle	2	
11	Stop watch (1/100sec.)	6	Digital with screen illumination. SWISS make 1/10 second Digital with screen illumination. SWISS make 1/10 second
12	UV lamp	1	
13	Dark room lamp	1	
14	Glass ware,. Stains, chemical	1	

	reagents		
15	Micro burette (5cc)	2	
16	Haemoglobinometer (Sahlis)	60	Measuring range - 40-360 g/litre. As a photometer, precision not worse than 1% the total error of conc. Of Hb does not exceed 2% The volume of liquid for photometry must be not less than 1ml. optical length of a cuvette or cylindrical test tube – 10 ±0.1 mm.
17	Staining jars	12	
18	Centrifuge tube graduated	40	
19	Graduated pipette	10	
20	Reagent bottle	60	
21	Dropping bottle	60	
22	Staining material (Quick H&E)	2	
23	Magnifying lens	6	
24	Albuminometer	2	
25	Aspirator	2	

#### DEPARTMENT OF MICROBIOLOGY

SI	Items Name	Qty.	Specification Details
1	Serum inspissator	2	
2	Lovibond comparator	1	
3	Flat bottom flask (50cc)	6	
4	Micrometer eye piece	2	
5	Micrometer stage	2	
6	Oil immersion lens	55	
7	Dropping bottle for stains	500	
8	Trough for staining	60	
9	UV lamp	1	
10	Thermometer (Assorted)	12	
11	Glassware such as pipette, burettes, beaker, conical flask, petri dishes of different sizes, reagent bottle required for media preparation		

#### DEPARTMENT OF FORENSIC MEDICINE

SI.	Items Name	Qty.	Specification Details
1	Folding metal scale (upto 7ft.)	1	
2	Steel measuring tape	2	

3	Vernier calipers	1	Measuring Range: 0-300 mm Depth Gauge Flat: 0-150 mm LCD Resolution: 0.01 mm Accuracy: +/- 0.04 mm Total Length: Approx 400mm Total Weight: Approx 175 gm (Calibration certificate to be provided along with the gauge)
4	SLR camera with accessories	1	
5	Stop Watch	2	Digital with screen illumination. SWISS make 1/10 second
6	L Modes	16	
7	Leather Strops	2	
8	Slide warming table	1	It should be dark coloured rectangular flattened table The surface should have high thermal conductivity and insulation. It should digital temperature control with digital display of the temperature.
9	Stone Carbarandon	1	
10	Black holder	50	
11	Diamond pencil	1	
12	Hand set heat sealer	1	
13	Hack saw	4	
14	Rib shears right & left	4	

### DEPARTMENT OF PHARMACOLOGY

Sl.	Items Name	Qty	Specification Details
1	Skin & Rectal Thermometer	1	
2	Antihistamine chamber with manometer	1	
3	Top clock	12	
4	Bel jar (assorted)	36	
5	Petri dishes assorted	36	
6	Museum drugs specimen jar	30	
7	Multimeter	1	Should be digital
8	Razor hone	2	
9	Rotarod Assembly	1	
10	Cook's pole climbing apparatus	1	
11	Glass rod assorted size (6ft.)	100	
12	Glass mortar & pestle	24	
13	Cork borer set of 12	1 set	

14	Mechanical Stromhur	2	
15	Cannual (different sizes)	48	
16	X-blocks	50	
17	Hook grip rods	50	
18	Plain stand	100	
19	Oncometer Kidney	2	
20	Oncometer Heart	2	
21	Copper trays (10*8*1)	100	
22	Thermometer	100	0 to 110 degree, Digital, CE certified
23	Pneumograph Palamer	1	
24	Oxygen cylinder with trolley	4	Epoxy powder coated
25	CO2 cylinder with trolley	2	Epoxy powder coated
26	Animal trolley with 12 cages	4	
27	Pills tiles	30	
28	Suppository moulds	30	
29	Porcelain dishes	30	
30	Crusibles with tongs	10	
31	Pestle & Mortar	30	
32	Iron spatula	60	
33	Measure glass all sizes	30	
34	Ordinary & Non polarisable ,insulated wires	50	
35	Tuberculine Syringe	30	
36	Aeration tube	25	
37	Troube's tube	25	
38	Screw clip	10	
39	Pinch clip	10	
40	Wash bottle	15	

**ANNEXURE I**

**INFORMATION ABOUT THE BIDDER**

**(To be furnished in Cover "A" - Technical Bid)**

<b>Sl. No</b>	<b>Particulars</b>	<b>Details</b>
---------------	--------------------	----------------

1.	Name and Address of the Bidder	
2.	Constitution and Date of Incorporation/ Registration (Self-attested copy of Certificate of Incorporation/ Registration to be enclosed)	(NGO/ Partnership Firm/ Company/ Others) Date.....
3.	Details of Bank Account	Name of Account Holder: Name of Bank with Branch: Account Type: Account No.: IFS Code:
4.	Name, Designation, Contact No. and Address of the Contact Person/ Local Representative	
5.	Bid submitted for	No. and Name of Package
6.	Cost of Bid Document	<b>Details of Demand Draft/ Pay Order:</b> No.: Date: Name of Issuing Bank with Branch: Amount:
7.	EMD	<b>Details of Demand Draft/ Pay Order:</b> No.: Date: Name of Issuing Bank with Branch: Amount:

Date:

Place:

**Authorized Signatory**

(Signature and seal of the Authorized Signatory)

**ANNEXURE II**

**LIST OF ITEMS QUOTED**  
**(To be furnished in Cover "A" - Technical Bid)**

<b>Sl. No.</b>	<b>Name of the item</b>	<b>Make</b>	<b>Model</b>
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
21.			

**ANNEXURE III**

**DETAILS OF PAST SUPPLY**

**(To be furnished in Cover "A" - Technical Bid)**

<b>Sl. No.</b>	<b>Name and Address of Purchaser</b>	<b>Purchase Order No. with Date</b>	<b>Quantities Ordered</b>
1.			
2.			
3.			
4.			
5.			

Date:

Place:

**Authorized Signatory**

(Signature and seal of the Authorized Signatory)

**Note: The Bidder shall furnish separate sheet for each Package for which the Bidder has submitted bids.**

**DETAILS OF SERVICE CENTRES**

(To be furnished in Cover "A" - Technical Bid)

Sl. No.	Full Address of Service Centre	Phone No., Fax No. and E-Mail id of Service Centre	Name of Contact Person	Phone No., Fax No. and E-Mail id of Contact Person	Details of Service Engineers

Date:

Place:

**Authorized Signatory**

(Signature and seal of the Authorized Signatory)

**Note: The Bidder shall furnish separate sheet for each Package for which the Bidder has submitted bids.**

**DECLARATION FORM**

(To be furnished in Cover "A" - Technical Bid)



(Affidavit before Executive Magistrate / Notary Public)

I / We .....having My / our office at.....do declare that I / We have carefully read all the terms & conditions of bid of **MCH, Baripada** for the supply & maintenance of “**Medical Equipments**”. I will abide with all the terms & conditions set forth in the Bid document Reference No. **PRMMCH/2017-18/LAB/01** along with the subsequent amendment, if any. I/ We do hereby declare I/ We have not been de-recognized/ black listed by any State Govt./ Union Territory/ Govt. of India/ Govt. Organization/ Govt. Health Institutions for supply of Non-standard quality equipment/ Non-supply. I / We agree that the Tender Inviting Authority can forfeit the Earnest Money Deposit and/ or Performance Security Deposit and blacklist me / us for a period of 3 years if any information furnished by me/ us proved to be false at the time of inspection/ verification and not complying with the bid terms & conditions. I / We .....do hereby declare that I / we will supply the Medical Equipments as per the terms, conditions & specifications of the bid document and all the supplied items shall be new and not of either refurbished/old/used items.

Seal

Signature of the bidder

Date:

Name & Address of the Firm:

**ANNEXURE VI/ 1**

**PRICE SCHEDULE FOR EQUIPMENTS**

(To be furnished in Cover "B" - Financial Bid)

Sl. No.	Name of the Item	No. of Units	Unit Price (Inclusive of transportation, insurance and other services required to convey the Goods to their final destinations)	Total Price	VAT/ CST (in %age )	Total Cost (inclusive of Taxes)
1	2	3	4	5 (=3x4)	6	7 (=5+6)
1						
2						
3						
4						
5						
6						
7						

**Total Cost (Col. 10 above) Excluding Tax: Rs.....(in words.....) only**

**Please mention the percentage as well as the amount of VAT and the details of Other Taxes, if any.**

**Note:**

a.i.1.                                   **The Bidder shall furnish a detailed operations and maintenance manual for the equipments.**

a.i.2.                                   **The Supplier is responsible for performance of on-site assembly and start-up of the supplied equipments.**

a.i.3.                                   **The Supplier is responsible for all unpacking, assemblies, wiring, installations, cabling between instrument units, connecting it to the computer (wherever applicable) and connecting to power supplies.**

a.i.4.                                   **The Supplier will test all operations of the equipments, measurements and data production, storage & output and accomplish all adjustments necessary for successful and continuous operation of the equipments at all installation sites.**

a.i.5.                                   **Warranty.**

a.i.6. The equipment price shall cover all costs including installation, tests, trials and commissioning at final destinations, Warranty Cost and Training to the Staff designated by **MCH**.

a.i.7. Training is to be imparted to the Staff designated by **MCH** at each of the destinations in one batch (one to two Personnel) **within 2 days of installation of the equipment with a repeat training after 15 days of initial training.**

Date:

Place:

**Authorized Signatory**

(Signature and seal of the Authorized Signatory)

**ANNEXURE VI/ 2**

**PRICE SCHEDULE FOR CMC**

(To be furnished in Cover "B" - Financial Bid)

Sl. No.	Description of Services	No. of Units	Unit Price including all Taxes	Total Cost including all Taxes
1	2	3	4	5 (=3x4)
<b>PACKAGE NO. AND NAME OF EQUIPMENT:-----</b>				
1.	Cost of CMC (Maintenance, repair including supply of spare parts and updates of the supplied goods) for Year 1 after Warranty			
2.	Cost of CMC (Maintenance, repair including supply of spare parts and updates of the supplied goods) for Year 2 after Warranty			
3.	Cost of CMC (Maintenance, repair including supply of spare parts and updates of the supplied goods) for Year 3 after Warranty			
<b>Total</b>				
<b>In Words (Rupees</b>			<b>) only</b>	

Date:

Place:

**Authorized Signatory**

(Signature and seal of the Authorized Signatory)

**Note: The Bidder shall furnish separate sheet for each Package for which the Bidder has submitted bids.**

**ANNEXURE VII**

**COMPLIANCE TO TECHNICAL SPECIFICATIONS**  
**(To be furnished in Cover "A" - Technical Bid)**

**Each Bidder has to prepare a comparison sheet as below –**

<b>Sl. No.</b>	<b>Description</b>	<b>Required Specifications as per the Bid Document</b>	<b>Bidder's Offered Specifications</b>	<b>Remarks/ Deviations, if any</b>
1.				
2.				
3.				

4.				
5.				

**ANNEXURE VIII**

**MANUFACTURER'S OFFER FORM**

**(To be furnished in Cover "A" - Technical Bid)**

[(to be submitted by Manufacturer in case the bidder is the Manufacturer (OEM)]

No.

Dated:

To  
The Dean  
MCH, Baripada

Dear Madam/ Sir,

Bid Reference No.:

Equipment Name:

1. We ..... (name of the OEM) declare that we are the original manufacturers of the above equipment having registered office at .....(full address with telephone number/ fax number, e-mail ID and website), and having factories at \_\_\_\_\_ .

2. No company or firm or individual have been authorized to bid, negotiate and conclude the contract in regard to this business against this specific bid.
3. We hereby declare that we are willing to provide guarantee/ warranty and after sales service during the period of warranty/ CMC as per the above bid.
4. We also hereby declare that we have the capacity to manufacture, supply, install and commission the quantity of the equipments bided within the stipulated time.

(Name)

Date: \_\_\_\_\_ for and on behalf of M/s. \_\_\_\_\_

Place: \_\_\_\_\_ (Name of manufacturers)

Seal

**Note: This letter of authority should be on the letterhead of the manufacturing concern and should be signed by a person competent and having the power of attorney to bind the manufacturer.**

**ANNEXURE IX**

**MANUFACTURER'S AUTHORIZATION FORM**  
**(To be furnished in Cover "A" - Technical Bid)**

(to be submitted by authorized dealer in case the bidder is the authorized dealer of OEM)

No. \_\_\_\_\_ Date: \_\_\_\_\_

To  
 The Dean  
 MCH, Baripada

Dear Madam/ Sir,

Bid Reference No.:  
 Equipment Name:

1. We ..... (name of the OEM) are the original manufacturers of the above equipment having registered office at ..... (full address with telephone number/ fax number, email ID and website), having factories at \_\_\_\_\_ and \_\_\_\_\_, do hereby authorize M/s. \_\_\_\_\_ (Name and address of bidder) to submit bids and subsequently negotiate and sign the contract with you against the above bid no.

2. We also hereby undertake to provide full guarantee/ warranty/ CMC as agreed by the bidder in the event the bidder is changed as the dealer or the bidder fails to provide satisfactory after sales and service during such period of comprehensive warranty/ CMC.

3. We also hereby declare that we have the capacity to manufacture, supply, install and commission the quantity of the equipments bided within the stipulated time.

4. We \_\_\_\_\_ (Name of the OEM) hereby undertake to provide service & spare part service for 10 year of supply for the quoted items.

Date: \_\_\_\_\_ (Name)  
Place: \_\_\_\_\_ for and on behalf of M/s. \_\_\_\_\_  
(Name of manufacturers)

Seal

**Note: This letter of authority should be on the letterhead of the manufacturing concern and should be signed by a person competent and having the power of attorney to bind the manufacturer.**

**ANNEXURE X**

**FORMAT FOR AGREEMENT**

**(To be furnished in Cover "A" - Technical Bid)**

[The successful Bidder shall fill in this form in accordance with the instructions indicated]

THIS CONTRACT AGREEMENT is made

the [ insert: **number** ] day of [ insert: **month** ], [ insert: **year** ].

BETWEEN

(1) **MCH, Baripada**, having its principal place of business at **xxxxxxxxxxxxxxxx**  
(hereinafter called "the Purchaser"), and

(2) [insert name of Supplier] having its principal place of business at [ insert: address of  
Supplier ] (hereinafter called "the Supplier").

WHEREAS the Purchaser invited bids for **Medical Equipments and Related Services**, 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 Special 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) Special Conditions of Contract
- (c) Technical Requirements (Technical Specifications)
- (d) The Supplier's Bid and original Price Schedules
- (e) The Purchaser's Notification of Award
- (f) Performance Security
- (g) [Add here any other document (s)]

3. This Contract shall prevail over all other Contract documents. In the event of any discrepancy or inconsistency within the Contract documents, then the documents shall prevail in the order listed above.

4. 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.

5. 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.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of [insert the name of the Contract governing law country] on the day, month and year indicated above.

**For and on behalf of the Agency**

**For and on behalf of the MCH**

**Authorised Signatory**  
**<Name and Address of the Supplier>**

**<Authorized Signatory>**

Date:

Date:



1.Witness

1. Witness

2.Witness

2. Witness

**ANNEXURE XI**

**BANK GUARANTEE FORM**

(for Performance Security)

**(To be furnished in Cover "A" - Technical Bid)**

To  
The Dean  
MCH, Baripada

WHEREAS.....(Name and address of the Service Provider) (Hereinafter called " Supplier") has undertaken, in pursuance of contract No..... dated ..... (hereinafter "the contract") to supply, install & commission **Medical Equipments** AND WHEREAS it has been stipulated by you in the said contract that the Supplier shall furnish you with a bank guarantee by a Nationalized/ Scheduled Bank in India for the sum specified therein as security for compliance with its obligations in accordance with the contract; AND WHEREAS we have agreed to give such a bank guarantee on behalf of the Supplier; NOW THEREFORE we hereby affirm that we are guarantors and responsible to you, on behalf of the supplier, up to a total of..... (Amount of the guarantee in words and figures), and we undertake to pay you, upon your first written demand declaring the supplier to be in default under the contract and without cavil or argument, any sum or sums within the limits of (amount of guarantee) as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein. We hereby waive the necessity of your demanding the said debt from the supplier before presenting us with the demand. We further agree that no change or addition to or other modification of the terms of the contract to be performed there under or of any of the contract documents which may be made between you and the supplier shall in any way release us from any liability under this guarantee and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid up to 60 days after the date of completion of the contractual obligations including warranty period, i.e. up to ..... (indicate date)

.....

(Signature with date of the authorized officer of the Bank)

.....

Name and designation of the officer

.....

Seal, name & address of the Bank and address of the Branch

**ANNEXURE XII**

**CERTIFICATE FOR SUCCESSFUL INSTALLATION AND STARTUP OF THE SUPPLIED GOODS**

**(To be furnished in Cover "A" - Technical Bid)**

Date:

Name of Supplier:

Sub.: Certificate of startup of the supplied Goods

1. This is to certify that the equipment as detailed below has been received in good condition along with all the standard and special accessories (subject to remarks in Para No. 2) and a set of spares in accordance with the Contract/ Specifications. The same has been installed and commissioned.

(a) P.O. No. \_\_\_\_\_ dated \_\_\_\_\_

(b) Description of the Equipment  
\_\_\_\_\_

(c) Quantity  
\_\_\_\_\_

(d) Name of the Consignee  
\_\_\_\_\_

(e) Date of Supply \_\_\_\_\_ \

(f) Date of start up and proving test \_\_\_\_\_

2. Details of accessories/ spares not yet supplied and recoveries to be made on that account:

<u>Sl. No.</u>	<u>Description</u>	<u>Amount to be recovered</u>
----------------	--------------------	-------------------------------

3. The proving test has been done to our entire satisfaction and operators have been trained to operate the plant.

4. The supplier has fulfilled his contractual obligations satisfactorily. \*  
or

The supplier has failed to fulfill his contractual obligations with regard to the following:

(a)

(b)

(c)

(d)

5. The amount of recovery on account of non-supply of accessories and spares is given under Para No. 2.

6. The amount of recovery on account of failure of the supplier to meet his contractual obligations is as indicated in endorsement of the letter.

Signature \_\_\_\_\_

Name \_\_\_\_\_

Designation with Stamp \_\_\_\_\_

\* Explanatory notes for filling up the certificates:

- (a) The supplier has adhered to the time schedule specified in the contract in dispatching the documents pursuant to Technical Specifications.
- (b) The supplier has supervised the startup of the plan in time i.e. within the period specified in the contract.
- (c) Training of personnel has been done by the supplier as specified in the contract.
- (d) In the event of documents having not been supplied or installation and startup of the plant have been delayed on account of the supplier, the extent of delay should always be mentioned.