

**NOTICE INVITING TENDER FOR SUPPLY &
INSTALLATION OF LABORATORY EQUIPMENT
FOR DEPARTMENT OF LIFE SCIENCES**

Tender No.29/2016-17

Date of Issue: 19.01.2017

Date of closing: 06.03.2017



Central University of Tamil Nadu
Neelakudi Campus
Thiruvarur-610 005



तमिलनाडु केन्द्रीय विश्वविद्यालय

(संसद द्वारा पारित अधिनियम 2009 के अंतर्गत स्थापित)

CENTRAL UNIVERSITY OF TAMIL NADU

(Established by an Act of Parliament, 2009)

नीलक्कुडी परिसर/Neelakudi Campus, तिरुवारूर/Thiruvapur - 610 005

☎:04366-277359 / email: purchase@cutn.ac.in

TENDER NO.29/2016-17

19.01.2017

AMENDED TENDER DOCUMENT

(Including amendments after pre-bid conference held on 30.01.2017)

NOTICE INVITING TENDER FOR SUPPLY & INSTALLATION OF LABORATORY EQUIPMENT FOR DEPARTMENT OF LIFE SCIENCES

Central University of Tamil Nadu, an institution setup by an Act of Parliament, invites sealed Tender under Two-Bid System for **Supply & Installation of Laboratory Equipment for Department of Life Sciences** as per the specifications given in **Annexure-III**.

The tender documents may be obtained from the Office of the Registrar, Central University of Tamil Nadu, Thiruvapur by paying a fees of **Rs.500/-** or downloaded from www.cutn.ac.in. The tenderers who are downloading the document from the website are required to enclose a Demand Draft for **Rs.500/-** drawn in favour of **Central University of Tamil Nadu** payable at Thiruvapur/Thiruvapur, towards the document fees. If exempted by the Govt. of India from payment of tender processing fee, a self-attested photocopy of the certificate issued by competent authorities for supply of equipment should be enclosed. The sale of tender documents will close on the last working day at **15:00 hours** before the last date for submission of the tenders.

The Technical Bid (**Annexure-I**) and the Commercial Bid (**Annexure-II**) shall be sealed by the bidder in separate covers duly superscribed as **Tender for Laboratory Equipment for Department of Life Sciences - Technical Bid** and **Tender for Laboratory Equipment for Department of Life Sciences - Commercial Bid** respectively and both these sealed covers are to be put in a bigger cover which should also be sealed and duly superscribed as **Tender for Laboratory Equipment for Department of Life Sciences - Tender Notice No.29/2016-17**. The bidding may be made for a specific item or for all the items in **Annexure-III**. **The technical details of the equipments along with the filled-in format (Annexure-I) should be kept inside the Technical Bid Envelope and sealed.** The tender must reach **The Registrar, Central University of Tamil Nadu, Neelakudi Campus, Thiruvapur 610 005** by Registered / Speed post or by hand on or before **06/03/2017, 16:00 hours**.

Tenders received after due date/time will not be considered under any circumstances. Canvassing in any form will result in the disqualification of the bidder. Tenders sent by fax/email will not be considered. To avoid any complications with regard to Late Receipt/Non Receipt of Tenders, it may please be noted that responsibility rests with the bidder to ensure that the tenders reach the above mentioned address on or before the due date.

There will be a Pre-bid Conference on **30.01.2017** at **11:00** hours at the Room No.F1-07 Conference Hall, Administrative Building, CUTN. Pre-Bid conference shall be held to clear the doubts of intending tenderers, if any.

Who can bid?

1. The tenderer should be dealing with the supply of similar equipment at least FIVE years as on 01-01-2017.
2. The tenderer should have an annual turnover of at least **Rs. 3 Crore** during the last THREE financial years viz. 2013-2014, 2014-2015 and 2015-2016 (each year). However a reduction of requisite annual turnover to **Rs.2 Crore** per annum may be considered, if the total value of the quoted items is less than Rs.50 Lakhs and **Rs.1 Crore** per annum may be considered, if the total value of the quoted items is less than Rs.25 Lakhs. Such bidder has to declare in the technical bid that their total value of items quoted in the bid is less than Rs.50 Lakhs (or) Rs.25 Lakhs. The technical clearance shall be conditional subject to verification of their total quotes.
3. The tenderer should undertake to provide comprehensive onsite maintenance during the warranty and AMC for a minimum period of Five Years after warranty.
4. The tenderer should be either an original manufacturer or the authorized dealer having been established in the field for minimum period of FIVE years as on 01-01-2017.
5. The firm should have registered with CST/ and VAT (State Government).
6. The University has been granted the benefit of exemption from the payment of the Central Excise Duty and Customs Duty by the Department of Scientific and Industrial Research (DSIR), Govt. of India, vide their Notification No.10/97 dt. 01-03-1997 and 51/96 dt. 23-07-1996 respectively, in respect of
 - a. Scientific and technical instruments, apparatus, equipment including computers.
 - b. Accessories and spare parts of goods specified in (a) above and consumables.
 - c. Computer software, compact disks, CD ROM, Recording magnetic tapes, microfilms, micro-chips etc.,
 - d. Prototypes

Hence, the bidders should take into consideration about this facility of the University while quoting for the advertised scientific equipment.

Pre-bid Conference:

A pre-bid conference will be held as indicated in the tender document. All prospective bidders/tenderers are requested to attend the pre-bid conference. In order to facilitate CUTN for proper conduct of the pre-bid conference, all prospective bidders/tenderers are requested to submit their queries with envelope bearing the tender number and date on top and marked “**Queries for Pre-Bid Conference**” so as to reach CUTN well before the date for Pre-bid Conference or by email to purchase@cutn.ac.in with subject “**Queries for pre-bid Conference**”. CUTN will answer the queries during the pre-bid conference, which would become a part of the proceedings of the conference. All the participating bidders/tenderers shall sign the proceedings. These proceedings will become a part of clarifications/amendments to the bidding documents and would become binding on all the prospective bidders/tenderers. These proceedings will also be published in CUTN website for the benefit of all the prospective bidders/tenderers. Before submitting the bids, all prospective bidders/tenderers are advised to go through the CUTN website after the pre-bid conference, in order to enable/make cognizance of the changes made in the bidding document.

Important Dates:

Events	Date	Time	Venue
Date of Commencement of Sale of Tender Document	19.01.2017 (Thursday)	09:30 Hrs. onwards	-
Pre-bid Conference	30.01.2017 (Monday)	11.00 Hrs.	Conference Hall, Administrative Block, Room No. F1-02, (First Floor), CUTN
Last date of sale of Tender Document	03.03.2017 (Friday)	15:00 Hrs.	-
Last date of submission of tenders	06.03.2017 (Monday)	16:00 Hrs.	-
Opening of Technical Bids	06.03.2017 (Monday)	17:00Hrs.	Conference Hall, Administrative Block, Room No. F1-02, (First Floor), CUTN

Date: **19/01/2017**

Registrar
Central University of Tamil Nadu

Instructions to Bidders including Terms and Conditions of Contract

1. Scope of Bid

1.1. Central University of Tamil Nadu (CUTN), Thiruvarur, hereinafter called “**Purchaser**”, invites bid for supply, installation and commissioning of laboratory equipment, including critical spares and warranty for three years after validation and subsequent maintenance for five years after the expiry of warranty for its Life Sciences laboratory at its campus in Thiruvarur.

2. Cost of Bidding

2.1. The Bidder shall bear all costs associated with the preparation and submission of its bid and the Purchaser shall in no case be responsible or liable for those costs regardless of the conduct or outcome of the bidding.

3. Tender Document

3.1. The Tender Document is not transferable.

3.2. The bidder shall make a copy of the tender document before submitting the same to the concerned office. No requests will be entertained for making a copy after the submission of the document.

4. Clarifications in Tender Document

4.1. The Purchaser will respond to any request for clarification or modification of the Tender Document that are received up to **FIVE** (05) days prior to the deadline for submission of bids prescribed by the Purchaser. For this purpose, the prospective Bidder(s) requiring clarification in the Tender Document shall notify the Purchaser in writing at the Purchaser’s address.

4.2. Written copies of the Purchaser’s response including the explanation of the query raised by the Bidders will be sent to all the Bidders who have purchased the Tender Document. Further, it will be assumed that the Bidder has taken into account such clarifications/explanations while submitting the bid.

5. Amendment of Tender Document

5.1. At any time prior to the deadline for submission of bids, the Purchaser may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the Tender Document by way of amendment(s).

5.2. Amendments will be intimated in writing to all Bidders who have received the Tender Document and shall be binding on them. Further, it will be assumed that the Bidder has taken into account such amendments while submitting the bid.

6. Language of Bid

6.1. The bid prepared by the Bidder and all correspondence and documents related to the tender exchanged by the Bidder and the Purchaser shall be in English and the Contract shall be construed and interpreted in accordance with that language.

6.2. If any of the brochures, leaflets or communication is prepared in any language other than English, a translation of such document, correspondence or communication shall also be provided at the cost and risk of the bidder. The translation so provided shall prevail in matters of interpretation. The bidder, with respect to such documents, correspondence, and communications, shall bear the costs and risks of such translation.

7. Documents Comprising the Bid

7.1. All bids must be substantially responsive and shall comprise the following:

- a. Earnest Money Deposit (EMD);
- b. Separate envelopes for technical as well as commercial bid sealed and put together in a sealed cover along with EMD;
- c. Documents establishing conformity of the Equipment to the Tender Document;
- d. Bidder's company related information. The bidder should furnish photocopies of the PAN and TIN.
- e. Copy of Tender Document marked "Original" with each page signed and stamped to acknowledge acceptance of the same;
- f. Any other information, which the Bidder wishes to provide;
- g. Users list of same or at least closely similar equipment supplied for similar purpose;
- h. Supporting documents mentioning the address of the service centers with telephone and Fax numbers should be attached with the bid;
- i. The bidder should have consistent annual turnover of at least **Rs. 3 Crore** during the last THREE financial years (2013-2014, 2014-2015 & 2015-2016) and should produce audited statement of accounts or statement of turnover certified by Chartered Accountant for the above mentioned financial years. However a reduction of requisite annual turnover to **Rs.2 Crore** per annum may be considered, if the total value of the quoted items is less than Rs.50 Lakhs and **Rs.1 Crore** per annum may be considered, if the total value of the quoted items is less than Rs.25 Lakhs. Such bidder has to declare in the technical bid that their total value of items quoted in the bid is less than Rs.50 Lakhs (or) Rs.25 Lakhs. The technical clearance shall be conditional subject to verification of their total quotes.
- j. The bidder should have supplied similar equipment to at least three reputed central government educational/research institutions. Supporting documents such as purchase orders, work completion certificates should be attached with the bid. An undertaking to provide comprehensive onsite maintenance during the warranty and AMC periods for the equipment should be given by the bidder.
- k. The bidder should be a reputed manufacturer or an authorized suppliers of reputed manufacturers for the equipment quoted in the tender; a certificate to this effect should be attached with the bid.

8. Format and Signing of Bid

8.1. The bid shall be typed or written in indelible ink and shall be signed by the Bidder or a person or persons authorized. All pages of the bid shall be numbered and except for unamendable printed literature, shall be initialed by the person or persons signing the bid.

8.2. The bid shall not contain any interlineations, erasures, or overwriting, except to correct errors made by the Bidder, in which case the person or persons signing the bid shall initial such corrections.

9. Sealing and Marking of Bids

9.1. The Bidder shall seal the bid in an envelope.

9.2. The envelope shall

(a) be addressed to **The Registrar, Central University of Tamil Nadu, Neelakudi Campus, Thiruvarur – 610 005.**

(b) bear the reference number, the title of the Tender Document (**Tender Notice No. 29/2016-17**), and

(c) bear the name and address of the Bidder so that the bid can be returned unopened in case it is declared late.

9.3. If the outer envelope is not sealed and marked as required above, the Purchaser will assume no responsibility for the bid's misplacement or premature opening.

9.4. Cable/Facsimile or Fax/conditional Bids shall be rejected.

10. Bid Prices

10.1. Prices must be quoted separately for each equipment/item identified.

10.2. Price quoted for equipment must include all costs associated with packing, transportation, insurance, all duties and levies, delivery of equipment, loading and unloading on DOOR DELIVERY basis to the university at Neelakudi Campus, Thiruvarur 610 005 including its installation, commissioning, integration and validation.

10.3. In case of equipment originating in other countries, prices shall be quoted both on FOB (port of shipment) and CIF (Port of Destination) and CIP (Carriage and Insurance Paid). The comparable prices will be arrived at based on CIP basis.

In the case equipment originating in other countries, the bidder shall provide the following at the time of supply, within 24 hours of dispatch:

- a) Supplier's Invoice giving full details of the goods including quantity, value, etc.;
- b) Packing list;
- c) Certificate of country of origin;
- d) Manufacturer's guarantee and Inspection certificate;
- e) Inspection certificate issued by the Purchaser's Inspector;

- f) Insurance Certificate;
- g) Name of the Vessel/Carrier;
- h) Bill of Lading/Airway Bill;
- i) Port of Loading;
- j) Date of Shipment;
- k) Port of Discharge & expected date of arrival of goods and
- l) Any other document(s) as and if required in terms of the contract.

10.4. Price of Annual Maintenance Contract (AMC) for **FIVE** years after the warranty period shall be quoted separately for each equipment in the format provided in Annexure-II. Purchaser reserves the right to negotiate on AMC.

10.5. Prices quoted by the Bidder shall be firm during the validity of the bid.

11. Bid Currency

11.1. Prices of indigenous equipment/items shall be quoted in Indian Rupees.

11.2. Prices of equipment/items originating in other countries shall be quoted in the currency of country of origin and the portion of allied work and services, which are to be undertaken in India, are to be quoted in the Indian Currency. The comparison of financial bids would be done after converting the currency value in INR based on RBI rates applicable on the date of opening of the tender.

12. Conformity of the Tender Document

12.1. The Bidder shall furnish, as part of its bid, documents establishing the conformity of the Equipment that the Bidder proposes to supply under the Contract to the requirements of the Purchaser, as given in the Tender Document.

12.2. The documentary evidence of conformity of the Equipment to the Tender Document may be in the form of written descriptions supported by literature/diagrams/certifications, including:

- (a) A detailed description of the essential technical, functional and performance characteristics of the Equipment that the Bidder is proposing to supply;
- (b) Technical details of the major subsystems/components of the Equipment;

13. Earnest Money Deposit (EMD)

13.1. The Bidder shall furnish, as part of its bid, an **EMD @ 2.5%** on estimated value and that shall be interest free. The amount of EMD is mentioned at **Annexure-V**.

13.2 The firms who are registered with National Small Industries Corporation (NSIC) / or Small Scale Industrial (SSI) are exempted to furnishing the EMD and tender fee. Self-attested photocopy of valid registration certificate issued by competent authority for supply of laboratory equipment must be enclosed with the technical bid.

13.3. The EMD shall be in the form of a demand draft drawn in favour of **Central University of Tamil Nadu** and payable at **Thiruvarur**. The EMD may also be in the form of Bank Guarantee (**ANNEXURE-VI**).

13.4. Any bid not accompanied with the EMD shall be rejected by the Purchaser as non-responsive.

13.5. The bid security of the Bidders will be returned as promptly as possible, but not earlier than fifteen (15) days after the successful Bidder has furnished the required performance security.

13.6. The EMD may be forfeited under the following circumstances:

(a) If a Bidder:

(i) Withdraws its bid during the period of bid validity specified on the Bid Form or

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

(i) Sign the Contract or

(ii) Furnish performance security.

14. Period of Validity of Bids: Bids shall remain valid for a period of **180 days** after the date of deadline for submission of bids prescribed by the Purchaser.

15. Deadline for Submission of Bids

15.1. Bids must be received by the Purchaser at the address specified not later than the time and date as stated. In case this date happens to be a declared holiday for the office of the Purchaser or happens to be a holiday declared incidentally, the Bids shall be received up to the appointed time on the next working day.

15.2. The Purchaser may, at its discretion, extend this deadline for submission of bids in which case all rights of the Purchaser and all obligations of the Bidders will thereafter be subject to the deadline as extended.

16. Late Bids: Any bid received by the Purchaser after the bid submission deadline prescribed by the Purchaser, shall be rejected and returned unopened to the Bidder.

17. Modification and Withdrawal of Bids

17.1. The Bidder may modify or withdraw the bid after submission, provided a written notice of the modification or withdrawal is received by the Purchaser prior to the deadline prescribed for bid submission.

17.2. The Bidder's modifications shall be prepared, sealed, marked and dispatched as follows:

(a) The Bidders shall provide the modification to its bid, clearly identified as such, in an envelope duly marked **BID MODIFICATION**.

17.3. A Bidder wishing to withdraw the bid shall notify the Purchaser in writing prior to the deadline prescribed for bid submission. The withdrawal notice shall:

(a) be addressed to the Purchaser at the specified address and

(b) bear the reference number and the title of the project, and the words **BID WITHDRAWAL NOTICE**. Bid withdrawal notices received after the bid submission deadline will be ignored and the bid submitted prior to that will be deemed to be a valid bid.

17.4. No Bid shall be modified subsequent to the deadline for submission of Bids.

17.5. No bid shall be withdrawn in the interval between the bid submission deadline and the expiration of the bid validity period. Withdrawal of a bid during this interval may result in the forfeiture of the Bidder's EMD.

18. Opening and Examination of Bids

18.1. The Technical bids will be opened on the prescribed date and time as mentioned in the Bid document. Bidder or their authorized representative may be present during the opening of technical bid, if they wish.

18.2. The purchaser will evaluate the technical bids. Those tenders, whose technical bids fulfill the technical requirements and responsive to the tender requirements will be considered for the next stage. Those bids which found to be either non-responsive, not satisfying the technical requirements or both will not be considered and will be rejected.

18.3. The Price bids of the successful bidders on the basis of evaluation as mentioned in 18.2 will be considered for the next stage for opening.

18.4. The Purchaser will examine the bids to determine whether they are complete, whether any computational errors have been made, whether required security has been furnished, whether the documents have been properly signed and whether the bids are generally in order.

18.5. Arithmetical errors will be rectified on the following basis: If there is a discrepancy between the unit price and the total price, which is obtained by multiplying the unit price and quantity, or between subtotals and the total price, *the unit or subtotal price shall prevail* and the total price shall be corrected. If there is a discrepancy between words and figures, *the amount in words shall prevail*. If a Bidder does not accept the correction of errors, the bid will be rejected and its EMD is liable to be forfeited.

18.6. Prior to the detailed evaluation, the Purchaser will determine whether each bid is complete and is substantially responsive to the Tender Document. For purposes of this determination, a substantially responsive bid is one that conforms to all the terms, conditions and specifications of the Tender Document without material deviations, exceptions, objections, conditionality or reservations. A material deviation, exception, objection, conditionality, or reservation is:

(a) One that limits in any substantial way the scope, quality, or performance of the Equipment;

OR

(b) One that limits, in any substantial way that is inconsistent with the Tender Document, the Purchaser's rights or the successful Bidder's obligations under the Contract; and

(c) One that the acceptance of which would unfairly affect the competitive position of other Bidders who have submitted substantially responsive bids.

18.7. If a bid is not substantially responsive, it shall be rejected by the Purchaser and may not subsequently be made responsive by the Bidder by correction of the nonconformity. The Purchaser's determination of bid responsiveness will be based on the contents of the bid itself and any written clarifications submitted by the Bidder.

19. Clarification of Bids: During the bid evaluation, the Purchaser may, at its discretion, ask the Bidder for a clarification of its bid. The request for clarification and the response shall be in writing, and no change in the price or substance of the bid shall be sought, offered or permitted.

20. Evaluation of Responsive Bids: The Purchaser will evaluate the bids that have been determined to be substantially responsive.

21. Contacting the Purchaser

21.1. 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 bid, it shall do so in writing.

21.2. If a Bidder tries to directly influence the Purchaser or otherwise interfere in the bid evaluation process and the Contract award decision, its bid shall be rejected.

22. Award Criteria

22.1 Purchaser will award the Contract to the Bidder whose bid has been determined to be substantially responsive and the Lowest Evaluated Bid.

22.2 The University reserves the right to buy different items/quantity from different bidders considering price of individual/group of equipment or any other factors as decided by the committee.

23. Purchaser's Right to Accept/Reject/Modify Bids

23.1. The Purchaser reserves the right to accept or reject any bid or to annul the bidding process and reject all bids at any time prior to Contract award, without thereby incurring any liability to the Bidders.

23.2. The Purchaser reserves the right to negotiate with the Bidder having the Lowest Evaluated Bid.

24. Award of Purchase Order

24.1. Prior to the expiration of the period of bid validity, the Purchaser will issue the Letter of Intent / Purchase Order to the successful Bidder in writing.

24.2. The Purchase Order will constitute the foundation of the Contract.

24.3. Upon the successful Bidder's furnishing of the copy of the Purchase Order duly signed on each page and the performance security, for the equipment ordered in foreign currency, the Purchaser will open a letter of credit (LC) at the State Bank of India or any other convenient Scheduled Bank in India. For opening of LC necessary arrangements shall be provided by the supplier or its authorized agents.

25. Contract Agreement

25.1. Within fifteen (15) days of receipt of the Purchase Order, the successful Bidder shall sign and date its copy on each page and return it to the Purchaser, along with the Performance Security.

25.2. Copy of Purchase Order duly signed and dated by the successful Bidder on each page shall constitute the Contract Agreement.

26. Performance Security

26.1. Within fifteen (15) days of receipt of notification of award from the Purchaser, the successful Bidder shall furnish the Performance Security equal to 10% of the Contract value (excluding the value of annual maintenance charges). **The Performance Security will be valid all along the warranty period and shall extend upto sixty (60) days after the date of completion of warranty period.**

26.2. The security shall be in one of the following forms:

(a) A bank guarantee (in the format as provided in **Annexure-VII** of the bidding documents) issued by the Indian Scheduled bank acceptable to the Purchaser.

(b) A Demand Draft favouring **Central University of Tamil Nadu** payable at Thiruvavarur.

26.3. The security shall automatically become null and void once all the obligations of the Supplier under the Contract have been fulfilled, including, but not limited to, any obligations during the Warranty Period and any extensions to the period. The security shall be returned to the Supplier not later than fifteen (15) days after its expiration.

26.4. Failure of the successful Bidder to comply with the requirements shall constitute sufficient grounds for the annulment of the award and forfeiture of the EMD, in which event the Purchaser may make the award to the next lowest evaluated bid submitted by a qualified Bidder or call for new bids.

27. Contract Documents

27.1. All documents forming part of the Contract (and all parts of these documents) are intended to be correlative, complementary and mutually explanatory. The Contract shall be read as a whole.

27.2. The order of precedence of the Contract documents will be as follows:

- (i) Contract Agreement
- (ii) All other Forms
- (iii) Equipment and their Requirements
- (iv) Supplier's Bid
- (v) Tender Document

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

29. Supplier's Responsibilities

29.1. The Supplier's obligations involve:

- (a) Supply of Equipment/items given in Tender Document.
- (b) Making operational the Equipment (installation, commissioning & validation of Equipment).
- (c) Development of test methods & applications.
- (d) Training, at the cost of Supplier, of personnel in operation, day-to-day maintenance and troubleshooting of the Equipment.

(e) Supply of Material (instruction/operation/service/maintenance manuals including drawings & circuit diagrams and application notes), Calibration Certificates (where applicable, traceable to national/international standards) and any other documents specified in the Contract.

(f) Maintenance of the equipment during and after the warranty period (Five Years of AMC after the warranty of three years).

29.2. The Supplier shall, unless specifically excluded in the Contract, perform all such work and/or supply all such items, services and materials not specifically mentioned in the Contract but that can be reasonably inferred from the Contract as being required for installation & commissioning, integration & validation of Equipment as if such work and/or items and Materials were expressly mentioned in the Contract.

29.3. The Supplier shall comply with all laws in force in India. The laws will include all national, provincial, municipal or other laws that affect the performance of the Contract and are binding upon the Supplier. The Supplier shall indemnify and hold harmless, the Purchaser from and against any and all liabilities, damages, claims, fines, penalties and expenses of whatever nature arising or resulting from the violation of such laws by the Supplier.

30. Time for Supply, Installation, Commissioning and Validation of the Equipment

30.1. The Supplier shall supply the Equipment within the period specified in the tender document i.e. **within FOUR weeks of signing the purchase order or within the period mutually agreed between purchaser and supplier.**

30.2. The Supplier shall thereafter proceed with the installation & commissioning, integration and validation and demonstrate operational acceptance of the Equipment within the period specified, unless it is mutually agreed.

31. Terms of Payment

31.1. For the **indigenous equipment**, 90% payment will be released after satisfactory delivery, installation of the equipment and remaining 10% will be released on submission of a Bank Guarantee for equivalent value (10%) as performance security as per Clause 26 to cover the warranty period (36 months).

31.2. For the **imported equipment**, normally a letter of Credit will be opened for 100% CIP price on receipt of order of acknowledgment. However, 90% of the LC amount **only** will be paid on proof of the shipment of the consignment with necessary documents to be detailed at the time of placing of the purchase order. Balance of 10% of the LC amount shall be released after receipt of a performance bond of 10% of the total contract/purchase value in the form of bank guarantee covering the period till successful installation, obtained from a bank which has its office in India.

31.3. For equipment ordered in foreign currency, opening of LC, Payment of Customs Duty and clearance of goods shall be done/assisted by the supplier or its authorized Indian agent. The custom duty as applicable after considering eligible concessions based on DSIR exemption etc. will only be paid by the purchaser. The

University can provide the copy of the DSIR customs and excise duty exemption certificate upon request.

31.4. Payment for annual maintenance contract after the warranty period shall be released at the end of six month/1 year after the expiry of warranty period, subject to Government of India norms.

31.5. If any time before the delivery of the equipment, it is found that the same equipment have been offered to another party in India at a lower rate, payment shall be restricted to the extent of such lower rate and the Supplier shall be liable to pay the Purchaser the difference in two rates i.e. excess charged over such lower rate. The University will look into a reasonable past period to ensure this.

32. Taxes and Duties: Unless specifically mentioned in the Bid and provided in the Contract, the Supplier should ensure for payment of all taxes, duties, levies and charges assessed by all municipal, state or national government authorities, in connection with the Goods and Services supplied under the Contract.

33. Product Upgrades: The Supplier shall continue to support and maintain the version/model of the Equipment supplied by upgrading the software and the hardware as and when amendments are carried out in the existing version or the product is upgraded. Whereas upgrades to the software shall be supplied free of cost, the Supplier may charge for upgrade in hardware provided it is of major nature. An upgraded higher version of the instrument and software related with the instrument shall be supplied.

34. Penalties

34.1. If the Supplier fails to complete any of the activities in accordance with the time specified for it, or any extension of the time granted by the Purchaser, the Supplier shall pay to the Purchaser penalties at the rate specified in the Tender document.

34.2. The Purchaser reserves the right to terminate the contract if the Supplier defaults on any of the time limits by more than **FOUR** weeks.

35. Defect Liability

35.1. The Supplier warrants that the Equipment, including all sub-assemblies and components provided, shall be free from defects in the design, engineering/manufacturing, workmanship and performance that prevent the Equipment and/or any of its sub-assemblies and components from fulfilling the Equipment Requirements or that limit in a material fashion the operation, reliability, accuracy, sensitivity and precision of the Equipment, its sub-assemblies and components. Commercial warranty provisions of products supplied under the Contract shall apply to the extent that they do not conflict with the provisions of this Contract.

35.2. The Warranty Period shall commence from the date of validation of the Equipment and shall extend for the length of time specified in the tender document supra.

35.3. If during the Warranty Period any defect found in the Equipment, the Supplier shall promptly, at its sole cost, repair or otherwise make good such defect as well as any damage to the Equipment caused by such defect. Any defective Equipment, Sub assembly or component that has been replaced by the Supplier shall become the property of the Supplier and the new substituted/replaced equipment in good condition shall become the property of the purchaser.

35.4. Validation of the Equipment shall be carried out by the Supplier each time a major repair is carried out in the Equipment during the warranty period.

35.5. Response time for attending to defects shall be 24 - 48 hours after they are reported to the Supplier or its designated service agent. If the Equipment cannot be used for more than TWO working days by reason of such defect and/or making good of such defect, the warranty period for the Equipment shall be extended by a period equal to the period during which the Equipment could not be used by the Purchaser because of such defect and/or making good of such defect.

36. Intellectual Property Rights Warranty and Indemnity

36.1. The Supplier hereby represents and warrants that the Equipment as supplied, installed & commissioned along with its Application Software and copying of Manuals & other documents provided to the Purchaser in accordance with the Contract does not and will not infringe any Intellectual Property Rights held by any third party.

36.2. The Supplier shall indemnify and hold harmless the Purchaser from and against any and all losses, liabilities and costs (including losses, liabilities and costs incurred in defending a claim alleging such a liability), that the Purchaser may suffer as a result of any infringement or alleged infringement of any Intellectual Property Rights.

37. Effect of Force Majeure

37.1. If the Supplier is prevented, hindered, or delayed from or in performing any of its obligations under the Contract by an event of Force Majeure, then it shall notify the Purchaser in writing of the occurrence of such event and the circumstances of the event of Force Majeure within fifteen (15) days after the occurrence of such event.

37.2. The Supplier, when affected by the event of Force Majeure shall use reasonable efforts to mitigate the effect of the event of Force Majeure upon its performance of the Contract and to fulfill its obligations under the Contract, but without prejudice to Purchaser's right to terminate the Contract.

37.3. No delay or non-performance by the Supplier caused by the occurrence of any event of Force Majeure shall:

- (a) Constitute a default or breach of the Contract;
- (b) Give rise to any claim for damages or additional cost or expense occasioned by the delay or non-performance.

37.4. If the performance of the Contract is substantially prevented, hindered, or delayed for a single period of more than THIRTY days or an aggregate period of more than sixty (60) days on account of one or more events of Force Majeure, the

Purchaser shall have the right to terminate the Contract by giving a notice to the Supplier.

38. Extension of Time Limits for supply & making operational the Equipment

The time limit for supply, installation & commissioning, integration & validation shall be extended if the Supplier is delayed or impeded in the performance of any of its obligations under the Contract by reason of any of the following:

(a) Any occurrence of Force Majeure;

(b) Any other matter specifically mentioned in the Contract;

By such period as shall be fair and reasonable in all the circumstances and as shall fairly reflect the delay or impediment sustained by the Supplier.

39. Assignment: The Supplier shall not, without the prior written consent of the Purchaser, assign to any third party, the Contract or any part thereof.

40. Governing Law: The Contract shall be governed by and interpreted in accordance with the laws of India.

For tenders valuing ₹ 1.00 crore and above, the integrity pact document to be signed by the bidders in the format enclosed (**Annexure-VIII**). Submission of integrity pact document duly signed, stamped and accepted is mandatory for this tender. Therefore, the bidders are advised to submit the integrity pact document duly signed, stamped and accepted, mentioning the tender no. and date.

41. Settlement of Disputes : Any dispute or claim arising out of/relating to this Contract or the breach, termination or the invalidity thereof, shall be settled by the Hon'ble Courts of Justice at Thiruvavarur.

42. The page number should be marked in all pages serially (including all supporting documents enclosed with the tender document) and the declaration for the same shall be submitted by the bidder as **Annexure-IX**.

43. Central University of Tamil Nadu reserves the right to accept or reject any or all the tenders in part or whole or may cancel the tender at its sole discretion without assigning any reason whatsoever. No further correspondence in this regard will be entertained.

SUMMARY SHEET:

Purchaser	Central University of Tamil Nadu
Purchaser's address	Central University of Tamil Nadu, Neelakudi Campus, Thiruvarur-610 005.
Tender Document Fees	Rs.500/-
EMD	EMD @ 2.5% on estimated value and that shall be interest free. The amount of EMD is mentioned at Annexure – V .
Period of Bid Validity	The Bids shall be valid for a period of One Hundred and Eighty (180) days from the date of deadline for the submission of bids.
Pre-bid Conference	<u>Time:11:00</u> hours; <u>Date: 30.01.2017</u> ;
Deadline for the submission	<u>Time:16:00</u> hours; <u>Date: 06.03.2017</u> ;
Time Date and Venue for opening of Technical Bids	<u>Time:17:00</u> hours; <u>Date: 06.03.2017</u> ; <u>Venue: Administrative Building, Room No.F1-07.</u>
Performance Security	The Supplier shall provide a performance security equal to 10% of the Contract value (excluding the value of annual maintenance charges).
Deadline for the supply of the equipment	Four (04) weeks from date of signing of copy of Purchase Order by the Bidder.
Deadline for the Installation and Commissioning of equipment	Two (02) weeks from the deadline for supply of equipment.
Rate for Penalties	The Supplier shall pay the Purchaser Penalties at the rate of 1.0% per week of the Contract value (excluding the value of annual maintenance charges).
Warranty Period	The period of warranty shall be Thirty Six (36) months after installation and validation of the equipment.

Technical Bid
(To be enclosed in a separate sealed cover)

Company Profile	
Name	
Address of the registered office	
Name & Designation of CEO	
Contact numbers of CEO	
Nature of Business	
Years of operations in India	
Location of offices in India	
Alliances for the purpose of this Bid	
Details of alliance(s)	
Type of alliance(s)	
Experience/Credentials	
Number of similar units installed in India	
Number of similar units installed in Chennai/Trichy/ Tanjore/Kumbakonam or any other nearby city/town	
* List of satisfied customers in India	
Service Support in India	
Track record of service provided to clients with supporting documents for past three years	
Location of service centers	
Number of trained service engineers	
Number of trained service engineers exclusively dedicated to each equipment offered	
Number of trained service engineers for the equipments offered stationed in Chennai/Trichy/ Tanjore/Kumbakonam or any other nearby city/town	
Number of application specialists	
Whether the OEM makes available any service support in India	
Availability of spares in India	
Whether the service set up maintains stock of essential spares in India	
Lead time for supply of essential spares	

* Testimonials from three satisfied customers may be attached

- Compliance Statement to specifications of the equipment to be provided by the tenderer as in Annexure-IV
- All equipment must operate at 230V/50 Hz single phase and/or equivalent three phase electrical power.
- Quoted model shall be in accordance to the geographical location.

Signature _____

Name _____

Designation _____

Date: _____

Place: _____

Seal of Company _____

Other Details:

Name and Address of the bidder

Note: All the following details shall relate to the vendor for the items quoted for

1. Name of the Bidder
 - a. Full postal address
 - b. Full address of the premises
 - c. Telegraphic address
 - d. Telex number
 - e. Telephone number
 - f. Fax number
 - g. Type of firm: Propriety/ Private/ Private Ltd/ MNC/ Cooperative /Govt. undertaking
 - h. Name of the proprietor /Partners
 - i. Year of starting of manufacturing
 - j. PAN Number
 - k. TIN Number

1.Application fee of Rs. _____ DD No. _____ Dated _____

2.EMD of Rs. _____ DD No. _____ Dated _____

3.Total Annual Turn-over (value in Rupees) (2013-2014 & 2014-2015 & 2015-2016) –
(Proof from competent authority to be attached)

4.Has the firm ever been debarred/blacklisted by any Govt. Organization/Dept.?
If 'yes' the details thereof.
The terms and condition or acceptable to me/us.

Signature and seal of the bidder

Commercial Bid**(To be enclosed in separate sealed cover)**

1. The price of the Lab Equipment in the **Annexure-III** is to be given individually in the format mentioned below:

Sl. No	Name of the Equipment	No. of Units / Sets	Cost Per Unit/Set	Total Cost (Inclusive of all taxes & Delivery/Installation Charges)
1	Real Time PCR	1		
2	Fluorometer	1		
3	Automated Cell Counter	1		
4	Flow Cytometry	1		
5	Phase Contrast Microscope with Fluorescence	4		
6	Ultracentrifuge	1		
7	-86°C ULT Deep Freezer Upright model (700 ltrs and above)	2		
8	CO ₂ INCUBATOR	4		
9	Class II Biohazard Safety Cabinet	4		
10	Microtome	1		
11	Lyophilizer	1		
12	Liquid Nitrogen Tank (Storage)	5		
13	Deep Freezer(-25° C), Vertical; 300-400 Ltrs.	5		
14	Vertical Electrophoresis Apparatus with Wet Transfer Blot System (Trans-Blot Module)	5		
15	Dry block thermostat	4		
16	Power PC Basic Power Supply	5		
17	Hot Air Oven	5		
18	Laminar Airflow Bench	5		
19	Gradient Thermal Cycler (Five Single Block & One Dual Block)	6		
20	Gel Documentation System with Chemi-documentation Image System	1		
21	Automated Shakers	5		
22	Water Bath with Wide Temperature Ranges	5		
23	Shaking Incubator Combines Incubated temperatures with Orbital Shaker	1		
24	Shaker	5		
25	Horizontal Gel Electrophoresis	5		
26	Refrigerated Centrifuge for 1.5 ml	6		
27	Refrigerated Centrifuge	5		
28	Multimode Plate Reader	1		
29	Animal Cell Culture Facility	1		
30	Cold Room	1		
31	Dark Room	1		
32	Vortexer	5		
33	Spin Top Micro Centrifuge	5		

Sl. No	Name of the Equipment	No. of Units / Sets	Cost Per Unit/Set	Total Cost (Inclusive of all taxes & Delivery/Installation Charges)
34	General Incubator 37° C	5		
35	Ultra Purification System	1		
36	Magnetic stirrer with Hot Plate	5		
37	Electronic Balance	5		
38	pH Meter	5		
39	Autoclave (180L)	2		
40	Multi Frequency Ultrasonic Bath	1		
41	Ice Flaking Machine	1		
42	Micropipettes	6		
43	Plant Growth Chamber	1		
44	Ultrasonic Homogenizer, 230V/50Hz	2		
45	Compound Microscope	5		
46	Electroporator	1		
47	ELISPOT- Analyser	1		
48	Oxygen Electrode	1		
49	Photosynthesis System with Fluorescence and Oxygen System	1		
50	Automated Haematology Analyser	1		
51	Green House 12m x 24m side Height 3m	1		
52	Biolistic Particle Delivery System	1		
53	Trinocular Stereo Zoom (Parallel-optics Zoom System) with Epi-fluorescence attachment and Digital Color Camera	1		
54	Dissection Microscope	1		
55	Semi-automated Coagulometer	1		
56	Blood Culture Equipment	1		
57	Vertical Electrophoresis Unit (Tall)	1		
58	Horizontal Electrophoresis Unit (long)	1		
Grand Total				
(Inclusive of all taxes)		(In Words)		(In Figures)

2. The quote should include a warranty of **THREE** years from the date of commissioning/installation of the equipment and AMC for **FIVE** years. The format for AMC is provided below:

Sl. No.	Annual Maintenance Contract (AMC) after the Warranty Period					
	Name of the Equipment	4 th Year	5 th Year	6 th Year	7 th Year	8 th Year

3. Supplier should supply voltage stabilizer / power back (UPS) along with instruments as per compatibility.

4. Maximum educational discount as could be offered should be mentioned.

5. Price quoted for equipment must include all costs associated with packing, transportation, transit insurance, all duties and levies, delivery of equipment, loading and unloading on **DOOR DELIVERY** basis to the university at Thiruvarur including its installation, commissioning, integration and validation.

Signature and seal of the bidder

5. BID PROFORMA

Sl. No.	Name & Description of Item	Qty.	Unit Rate	VAT%/CST	Freight Charges upto University	Installation Charges	Customs Clearance Charges	Concessional Customs Duty	Excise Duty	TOTAL Price FOR at Central University of Tamil Nadu, Thiruvavur
1	Real Time PCR	1								
2	Fluorometer	1								
3	Automated Cell Counter	1								
4	Flow Cytometry	1								
5	Phase Contrast Microscope with Fluorescence	4								
6	Ultracentrifuge	1								
7	-86°C ULT Deep Freezer Upright model (700 ltrs and above)	2								
8	CO ₂ INCUBATOR	4								
9	Class II Biohazard Safety Cabinet	4								
10	Microtome	1								
11	Lyophilizer	1								
12	Liquid Nitrogen Tank (Storage)	5								
13	Deep Freezer(-25° C), Vertical; 300-400 Ltrs.	5								
14	Vertical Electrophoresis Apparatus with Wet Transfer Blot System (Trans-Blot Module)	5								
15	Dry block thermostat	4								
16	Power PC Basic Power Supply	5								
17	Hot Air Oven	5								

Sl. No.	Name & Description of Item	Qty.	Unit Rate	VAT%/CST	Freight Charges upto University	Installation Charges	Customs Clearance Charges	Concessional Customs Duty	Excise Duty	TOTAL Price FOR at Central University of Tamil Nadu, Thiruvavur
18	Laminar Airflow Bench	5								
19	Gradient Thermal Cycler (Five Single Block & One Dual Block)	6								
20	Gel Documentation System with Chemi-documentation Image System	1								
21	Automated Shakers	5								
22	Water Bath with Wide Temperature Ranges	5								
23	Shaking Incubator Combines Incubated temperatures with Orbital Shaker	1								
24	Shaker	5								
25	Horizontal Gel Electrophoresis	5								
26	Refrigerated Centrifuge for 1.5 ml	6								
27	Refrigerated Centrifuge	5								
28	Multimode Plate Reader	1								
29	Animal Cell Culture Facility	1								
30	Cold Room	1								
31	Dark Room	1								
32	Vortexer	5								
33	Spin Top Micro Centrifuge	5								

Sl. No.	Name & Description of Item	Qty.	Unit Rate	VAT%/CST	Freight Charges upto University	Installation Charges	Customs Clearance Charges	Concessional Customs Duty	Excise Duty	TOTAL Price FOR at Central University of Tamil Nadu, Thiruvavur
34	General Incubator 37° C	5								
35	Ultra Purification System	1								
36	Magnetic stirrer with Hot Plate	5								
37	Electronic Balance	5								
38	pH Meter	5								
39	Autoclave (180L)	2								
40	Multi Frequency Ultrasonic Bath	1								
41	Ice Flaking Machine	1								
42	Micropipettes	6								
43	Plant Growth Chamber	1								
44	Ultrasonic Homogenizer, 230V/50Hz	2								
45	Compound Microscope	5								
46	Electroporator	1								
47	ELISPOT-Analyser	1								
48	Oxygen Electrode	1								
49	Photosynthesis System with Fluorescence and Oxygen System	1								

Sl. No.	Name & Description of Item	Qty.	Unit Rate	VAT% /CST	Freight Charge s upto University	Installatio n Charges	Customs Clearanc e Charges	Concessio nal Customs Duty	Excis e Duty	TOTAL Price FOR at Central University of Tamil Nadu, Thiruvapur
50	Automated Haematology Analyser	1								
51	Green House 12m x 24m side Height 3m	1								
52	Biolistic Particle Delivery System	1								
53	Trinocular Stereo Zoom (Parallel-optics Zoom System) with Epi-fluorescence attachment and Digital Color Camera	1								
54	Dissection Microscope	1								
55	Semi-automated Coagulomete r	1								
56	Blood Culture Equipment	1								
57	Vertical Electrophores is Unit (Tall)	1								
58	Horizontal Electrophores is Unit (long)	1								

Note: This proforma will be the part of commercial Bid Proforma.

Signature and seal of the bidder

TECHNICAL SPECIFICATIONS

Equipment Specifications with Cost (Department of Life Sciences)		
Sl. No	Name & Description	Qty
1	<p><u>Real Time PCR</u></p> <ul style="list-style-type: none"> ➤ Format: 96-well plate ➤ Block format: 96-well block ➤ Sensitivity: 1 copy of Rnase P Gene (human genomic DNA) ➤ Throughput: 4 to 5-96-well plates per 8-hr day ➤ Precision: 99.7% confidence (5000 & 10000 copies) ➤ Dynamic range: 9 logs, ➤ The built-in emission filters to readily support broader range of fluorophores with a greater sensitivity for longer wavelength (red) dyes. The system should be readily configured and optimized for use of any of the following dyes or a combination thereof at any time, without any change in the hardware. Calibrated dyes: NED™, SYBR® Green i, CY5™, CY3™, JOE™, FAM™, TAMRA™, TEXAS RED®, VIC™, ROX™ ➤ Minimum Reaction volume range 15-20 µl ➤ High throughput compatibility: Multiplexing ➤ Optics: tungsten-halogen lamp, 5 excitation filters, ➤ Excitation source -LED ➤ CCD camera, 5 Emission filters. CMOS camera for detection ➤ Ramp rate: ± 1.1°C/sec, peak @ 2.5°C/sec ➤ Temperature accuracy: 0.25°C (35°C to 95°C after 3 min) ➤ Temperature uniformity: 0.50°C (after 30 sec) ➤ Temperature range: 4-100°C ➤ Thermal cycling system: Peltier-based system ➤ Passive reference dye: No ROX, ROX (pre-mixed), Rox (separate tube) ➤ Software compatibility: 21 cfr part 11 module (optional), ➤ Primer express, system software (RQ included) ➤ External computer: notebook: intel core 2 duo t5500 (1.66 ghz), ➤ 80 GB HD, 1.0 G DDR2-533 MHZ SDRAM, 8x DVD ➤ Power limit: 950 W ➤ Real time PCR with block of 96 x 0.2 ml tubes or plate to run typical 0.2ml tubes, strips, and plates. . ➤ The base thermal cycler should be able to be used for standard PCR ➤ Conventional PCR can run in Real-Time PCR Machine ➤ Gradient capacity in Real-time to support optimization of Protocols. ➤ Detection of minimum five different fluorescent reporters in the same tube and supporting international publications. ➤ Six excitation and six emission channels and each filter should correspond to one dye that ensures smooth differentiation of even dyes having high degree of spectral overlap. ➤ Should be capable of Detecting commercially available universal dyes ➤ Maximum Ramping speed not less than 5 °C per sec ➤ Peltier Cooling & Heating for uniform temp control 	1

- Channel dedicated for FRET experiments is preferred
- Excitation –Emission range: 450- 730nm
- Six different LED excitation source with six Photodiode detector
- Dynamic range of 9 orders or above.
- Open system capable of running various chemistries, reagents and plastic ware so that different chemistries using TaqMan, SYBR green etc. all can be performed.
- Temperature range 0– 100 °C with accuracy of ± 0.2 °C and uniformity of ± 0.4 °C within 10 sec of arrival at 90 °C
- System must be capable of working with minimum sample volume: 1µl to 10 µl is also preferred.
- Should have multiple scan modes with a FAST scan option for reading all wells in 3 seconds
- Automatic allelic discrimination by end point fluorescence or threshold cycle.
- Gene expression analysis by relative quantity (ΔCt) or normalized expression ($\Delta\Delta Ct$).
- End point analysis for minimum 5 fluorophores
- Should have mode for Melt curve analysis.
- Software to express base lining Amplification Data to be supplied with proof.
- User interchangeable facility to be available to perform normal PCR with 48well dual blocks.
- Software should show statistically linear Data and should be demonstrated.
- HRM Software to be supplied along with the machine.
- Software should have express load feature which allows entry of data after experiment.
- And one additional software to be supplied for exporting data from other real-time PCR machines and also which can give ready to publish data as per MIQE guidelines should be supplied free of cost.
- Real time PCR should be licensed for Research applications and license copy must be provided.
- Email Notification facility with data file after the run is complete is needed.
- to support: a. Gene-Expression analysis, b. Pathogen Quantitation, c. SNP Genotyping, d. Plus/Minus Assays that utilize internal positive control, e. Dissociation Curve Analysis, f. Multiplexing and complete End-Point Assays.

Application software like dedicated primer and probe design software as well as relative quantitation analysis software to analyze multiple 96-well-plates of data simultaneously must be included as standard supply in the quoted price.

A complete line of reagents including universal PCR Master Mixes and disposables including tubes and 96-well plates for use with the system must be quoted. The manufacturer should quote a choice of ready-made assay kits or ready-to-make assay kits for Gene Expression as well as SNP analysis. 9. The installation specifications must demonstrate the ability of the system to distinguish between samples containing 5,000 and 10,000 template copies with a confidence level of 99.7% using an RNaseP instrument verification plate or alike. The system must be calibrated optically for the pure dyes during installation at sight.

Computer: A business line computer (either notebook or tower) should be

	<p>provided with the system. The supplier should be able to supply all the reagents and consumables for the operation of the system.</p>	
2	<p><u>Fluorometer</u></p> <p>It is the next generation of the popular bench top fluorometer that accurately measures DNA, RNA, and protein using the highly sensitive quantitation assays. The concentration of the target molecule in the sample is reported by a fluorescent dye that emits a signal only when bound to the target, which minimizes the effects of contaminants—including degraded DNA or RNA—on the result. The easy-to-use touch screen menus make it easy to select and run the assays you need, with results displayed in just a few seconds.</p> <p>Key features to include:</p> <ul style="list-style-type: none"> ➤ Powerful, dual-core processor quickly and accurately quantifies DNA, RNA, and protein, in <5 seconds per sample ➤ Uses as little as 1 µL of sample ➤ Stores up to 1,000 sample results ➤ Large 5.7-inch state-of-the-art color touch screen for easy workflow navigation <p>Instrument dimensions : 5.4 in (w) x 10 in (l) x 2.2 in (h) : (13.6 cm x 25 cm x 5.5 cm) Weight 743 g</p> <p>Dynamic range 5 orders of magnitude</p> <p>Processing time : ≤5 seconds/sample</p> <p>Light sources : Blue LED (max ~470 nm) Red LED: (max ~635 nm)</p> <p>Excitation filters : Blue 430–495 nm Red 600–645 nm Emission filters Green 510–580 nm Red 665–720 nm</p> <p>Detectors Photodiodes: measurement capability from 300–1,000 nm</p> <p>Warm-up time : <35 seconds</p> <p>USB drive : 4 GB</p> <p><u>Technical Specifications:</u></p> <ul style="list-style-type: none"> ➤ Quantification should be compact, easy to handle and with two LEDs - Blue LED (max ~470 nm) and Red LED (max ~635 nm) for fluorescence based quantification of ➤ DNA/RNA/mircoRNA/primers/ NGS library and Protein. ➤ System should have large 5.7-inch state-of-the-art color touch screen for easy workflow navigation. ➤ Pre-saved programs for quantification of DNA, RNA and Proteins. ➤ System should have the sensitivity to measure picogram concentration of nucleic acids. ➤ System should utilize sample volume as low as 1ul. ➤ Stores up to 1,000 sample results on-board and more on given USB stick. ➤ Compatible plastic ware and standard needs to be provided for the calibration of the system. ➤ System should work as mini-fluorometer to generate and displays raw fluorescence (RFU) ➤ Values for each sample. 	1

	<ul style="list-style-type: none"> ➤ System should have 5 orders of magnitude ➤ System should have the below excitation and emission filters ➤ Excitation - Blue 430–495 nm, Red 600–645 nm ➤ Emission - Green 510–580 nm, Red 665–720 nm ➤ Vendor should have compatible high sensitivity fluorescent dyes for quantification of samples. ➤ Three Years standard warranty from the date of installation. 	
3	<p><u>Automated Cell Counter</u></p> <p>Automated Cell Counter is a benchtop assay platform equipped with state-of-the-art optics, full autofocus, and image analysis software for rapid assessment of cells in suspension. With three-channel flexibility—brightfield and two optional fluorescence channels—researchers can count cells, monitor fluorescent protein expression, evaluate apoptosis, and measure cell viability.</p> <p>Cell Counter to eliminate the subjectivity of manual cell counting and user-to-user variability.</p> <p>Automated Cell Counter provides a total cell count, reports viability, and measures average cell size in as little as 10 seconds. Counting speed is identical when using fluorescence channels.</p> <p>Automated Cell Counter requires no cleaning or routine maintenance.</p> <p>A capacitive touchscreen and simple user interface provides quick startup and requires minimal training.</p> <p>The Automated Cell Counter comes with:</p> <ul style="list-style-type: none"> • Countess USB drive for storing and transferring data to your computer • Disposable slide holder • Reusable slide holder • Light cube removal tool • Power cord and 4 plug adaptors to accommodate most countries • Quick reference card (QRC) • A free box of 50 disposable slides <p>Field: 2.15 mm x 1.62 mm (3.48 mm²)</p> <p>Weight: 8 lbs</p> <p>Capacity: One 2-chamber disposable or 2-chamber reusable slide</p> <p>Cell Size: 4-60 μm (detection), 7-60 μm (viability)</p> <p>Dimensions: 9 in (228.6 mm) W x 5.5 in (139.7 mm) D x 9 in (228.6 mm) W</p> <p>Product Size: 1 instrument</p> <p>Concentration: 1x10⁴-1x10⁷ cells/mL</p> <p>Input Voltage: 100-240 VAC</p> <p>Green Features: Fewer resources used, Less waste</p> <p>Detection Method: Brightfield& 2 user-definable FL channels</p> <p>Display Interface: 7" Capacitive touch screen</p> <p>Instrument Memory: USB Stick</p> <p>Shipping Condition: Room Temperature</p> <p>Technical specifications:</p> <p>Optics: 3 channels (bright-field and 2 slots for EVOS LED light cubes)</p> <p>Slides: Countess II FL Reusable Slide or Countess Cell Counting Chamber Slide (disposable)</p> <p>Processing time: As little as 10 seconds</p> <p>Required sample volume: 10 μL</p> <p>Sample concentration range: 1 x 10⁴–1 x 10⁷ cells/mL</p>	1

	<p>Particle/cell diameter range: Particles: ~4 – 60 µm/Cells: ~7 – 60 µm Objective: 2.5x Total magnification: ~55x Illumination: LED (50,000 hours) Camera: 5 megapixels Instrument dimensions: 9 x 5½ x 9 in; 228.6 x 139.7 x 228.6 mm (W x D x H) Weight: 8 lb Operating power: 100–240 VAC, 0.58 A max. Frequency: 50/60 Hz Electrical input: 12 V DC, 2 A</p>	
4	<p><u>Flow Cytometry</u> Bench Top Flow cytometer System(3 Laser)</p> <ul style="list-style-type: none"> ➤ Bench top flowcytometer with 3 solid state lasers with minimum of 8 colors; 488 nm laser (4 colors), 640 nm laser (2 colors), and 405 nm laser (2 colors). All lasers & their excitation and collection optics should be fixed aligned. ➤ The system should have fixed optical assembly of laser upon the cuvette flow cell to ensure fixed alignment. ➤ The system should be able to do automated compensation calculation and inter-beam compensation. ➤ The instrument should be able to set threshold (discriminators) on any parameter and should have ability to set multiple thresholds. ➤ The instrument should have a single tube automated setup and compensation matrix upto for clinical applications like cd4 monitoring, tbnk, cd34 and hla b27. ➤ The instrument should be able to analyse samples with a minimum volume of 50 ul. ➤ The system software should be capable of establishing baseline settings of system performance and be able to adjust for instrument variability thereby automating instrument setup leading to consistent & reliable results. ➤ The system should be able to acquire data from samples with minimum speed of 10000 events/second. ➤ The system should have the capability of at least 08 fluorescence & 2 scatter (10 parameters) measurement with minimal compensation requirements. ➤ The system should have a fluorescence sensitivity of less than 100 mesf for fitc and less than 50 mesf for pe so as to detect even dimly stained cell populations. ➤ The system should have robust fluidics with carry over of less than 0.1% to ensure reliability of results. ➤ The system should have built in greater than 30 tube carousel sample loader with barcode reader to avoid sample mix up. The system software should be compatible with lis for bi-directional information exchange. 	1

	<ul style="list-style-type: none"> ➤ The system should be validated for pediatric use under us fda rules. ➤ The automatic loader carousel should automatically load tubes in the machine system without operator intervention. The automatic loader carousel should automatically load tubes in the machine system without operator intervention. Plate based loader attachments for future ELISA plate based tests (optional). ➤ Data management system: pc workstation with at least 3.0 ghz processor, 2gb ram, 160 gb hard drive, dvd/cd-rom read/write combo drive, 19" lcd monitors and color laserjet printer. ➤ The company should have minimum of 150 installations in the country providing with list of installations, full address & contact details ➤ Company should have full fledged flowcytometry training centre in india providing regular training courses on clinical and research applications with document proof of providing such trainings in the past frequently. ➤ Flowcytometer should be clinical flowcytometer with all its FL Channels validated for IVD use. Ie., covering analysis for all kind of patient samples including paediatrics and research samples. ➤ System: PC workstation with at least Intel Xenon more than 6 core processor, >3.0 GHZ processor, 8 GB RAM (≥DDR3), 1TB Hard drive; LCD: minimum of 20" TFT with licensed windows OS. ➤ Online UPS (Pure sine wave output voltage with +/- 1% regulation) with minimum of 1 Hr backup. ➤ Appropriate air-conditioner should be provided. Start-up reagents must be included. 	
5	<p><u>PhaseContrast Microscope with Fluorescence</u> Microscope Frame with LED transmitted illumination Inverted frame, Resolving nosepiece: Minimum five objectives should be mountable with observation tube and 10X wide field eyepieces (22mm; Field of view). 4000K colour temperature LED light illumination with Voltage / Power 2.25V / 2.8W, Lifetime 20,000hours, including, L-wrench GA4720, clamp for camera cable DO123600 (2pcs) and AB4x8SA screw (2pcs) WEEE regulation. Inverted frame integrated trinocular tube , Aperture diaphragm, Filter holder, observation tube with stroke for interpupillary width 48mm~75mm, Angle at eye point 45° , Inner diameter of ocular sleeve 30mm, Diopter alignment available at eyepieces., Light intensity ratio observation : Camera port 100:0 / 0:100, Fine and Course handle, Stroke 20mm (Up 18.5mm, Down 1.5mm, Stroke per round (Fine) 0.3 mm , Stroke per round (Course) 36.8 mm, Scale mark 2.5um/one mark, Plain stage 200 mm (L) X 252 mm (W). Condenser with numerical aperture: 0.3 Working distance: 72mm, applicable objective magnification from 2X, to 40X. Up to 190mm height tissue flask can be loaded on the stage. Green Filter: Interference green contrast filter 45mm dia. Mechanical XY stage with clear stage insert & built in Micro plate holder: Attachable mechanical stage with right-hand vertical low drive controls. acrylic clear stage circular insert, XY handle, Handle position Right side, Stroke 10mm(X)×74mm(Y) , Stroke per round 36mm, Scale mark for 96 well micro-plate position, Lifting type Micro plate holder for flexibility of Using Different</p>	4

Containers.

Petridis Holder: Petri-dish holder (65mm dia. hole) for IX-MVR, including adapters with 54mm dia.hole and 35mm dia. Hole

Slide glass Holder: Slide glass holder for IX-MVR

Terasaki Plate Holder: Terasaki-plate holder (72-well/60-well) for IX-MVR, including position scales.

Pre-center iPC PH Slider: Phase contrast slider for CKX53 IPC observation, pre-centered. For ne slit ring for 4x to 40X objectives for faster cell culture operations.

- 4X objective : Plan achromat objective 4X/0.1, WD 18.5
- 10X objective : Acromat phase (pre-center) objective 10X/0.25, W.D. 8.8mm
- 20X objective : Long working distance achromat phase contrast (pre-center) objective 20X/0.4, WD 3.2
- **40X objective : Cover glass correction; Long working distance achromat phase contrast (precenter) objective 40X/0.55, WD 2.2**
- C- Mount adapter

Fluorescence Illuminator with Blue & Green Excitation Filters (for GFP, Alexa Fluor 488 / GFP / FITC & Rhodamine / TRITC):

Reflected light fluorescence illuminator equipped with field stop, 3-position fluorescence slider and 3-position (Light balance filter, empty and shutter) Light balance slider, including Shield unit AW3961, B excitation filter set AW3963 & G excitation filter set AW3964, Dummy mirror unit AW2178, L-wrench GA3720, Filter fixing tool AD5544 and AB4X10SA (4pcs) (ND, empty and shutter) ND slider, including UV shield plate AV7728, operation knob AE1678, allen wrenches AC7359 (2 pcs) and AB4X10SA screws (3 pcs) . “Umbra Shield” Room light blocking plate is attachable to the condenser.

Fluorescence 100W Mercury Lamp / Fluorescence LED Source illuminator with blue and green excitation filters (For GFP/Alexa Fluor). 3 positions for fluorescence fields and 1 position for bright field/phase contrast application.

Lamp house for 100W mercury burner with collector lens and connecting cable
100W HG power supply: 100watts Power supply unit for Mercury lamp meeting the RoHS regulation

100W mercury burner: 100W mercury burner

Power cord

UV Mirror unit. For DAPI / Hoechst

Color Cooled Five Mega Pixel Camera with Software:

Features: - • Resolution: 5.01 Megapixels • Resolution up to 2560 x 1920 Pixel in 10bit per RGB color channel • Peltier Cooled upto -10 degree. • Exposure Time: 1.6ms to 17.9 min • Binning Mode: 2x2, 3x3, 4x4 • Digital Interface: IEEE FireWire Cable

Applications: - • Brightfield Imaging, DIC. • Phase Contrast Applications • Darkfield Imaging • Fluorescence Imaging • Publications & Documentations

Image Analysis Software:

Features:• Basic acquisition functions• AVI recording• Basic file handling functions• Basic editing functions• Static annotations• Image navigator• Gallery view• Morphometry Analysis• Annotations• Advanced acquisition control Snapshot, Time lapse• Interactive measurements• Extended Image processing filter, convert, geometry, extract• Data export and statistics• Report Generator Facility.

- The preparative floor model ultracentrifuge should be capable of going to speeds of 100,000 RPM and forces up to approximately 802,000 x g.
- Speed control accuracy of +/- 2 RPM and temperature control of +/- 0.5oC.
- Minimum heat generation.
- Imbalance tolerant drive to +/- 5 ml or 10% of sample volume, whichever is greater.
- Moisture purging vacuum system.
- Maintain set rotor temperature at ambient temperatures up to 40oC.
- Ability to accept Near Vertical Tube Rotors.
- Availability of conical tubes for density gradient centrifugation in swing out rotor.
- Flexibility to run smaller volumes in Fixed-Angle, Vertical-Tube and Swinging Bucket Rotors with no reduction in g-force and at lower k factors to achieve separations in much shorter run times
- Multiple levels of Biosafety from Labware Sealed tubes , Biosafety rated rotors
- On-board option to print the run record automatically
- On-board references include: Rotor Catalogue, Rotor Library, Tube Catalogue, & Chemical
- Resistance Chart
- Selectable run methods:
 - ❖ Step program run
 - ❖ RCF Run
 - ❖ W2t run
 - ❖ Substitute rotor run
 - ❖ Auto pelleting run
 - ❖ Auto rate-zonal run
- Efficient Sedimentation Programs (ESP) for optimizing and simulating separations: Pelleting Run,
- Rate Zonal Run, Plasmid Run, RNA Run (Best), RNA Run (Fast)
 - ❖ Runs customized to user-selected rotor and tube combination
 - ❖ Simulation estimates particle location in tube
 - ❖ Can print ESP run setup parameters and simulations
- On-board calculation features:
 - ❖ Pelleting time
 - ❖ Concentration Measures
 - ❖ Refractive Index / Density
 - ❖ Rotor speed reduction for dense solutions
 - ❖ Rotor speed reduction for precipitating solutions
 - ❖ Sedimentation Coefficient from run data
 - ❖ Sedimentation Coefficient from molecular mass
- Constant display of actual and set parameters on full colour touch screen interface
- Multi sequential step automatic operation & five-step sequential user - defined program
- operation & three levels of security (Administrator, Supervisor & Operator)
- Remote control of instrument from multiple sources including computer by cell phone or other electronic gadgets etc.,
- Increased tolerance of voltage from approx. 185 – 260V AC

	<ul style="list-style-type: none"> ➤ Fixed angle rotor capable of going up to 1,00,000 RPM (about 802,000 g, volume per tube 48 ml approx, approx K factor 15) along with necessary tubes and adapters to run smaller volume of 2 ml, 3.5 ml & 5.1ml in the same rotor at 1,00,000 rpm without reduction in g force of 802,000 g force. ➤ Fixed angle rotor capable of going up to 70,000 RPM (about 500,000 g, volume per tube 39 ml approx, approx K factor 44) along with necessary tubes and adapters to run smaller volume of 27 ml & 15ml in the same rotor at 70,000 rpm without reduction in g force of 500,000 g force. ➤ Swing bucket rotor capable of running up to 32,000 RPM (about 175,000 g, volume per tube 38 ml approx,(and approx K factor 200) along with tubes for 38ml and adapters and accessories to run smaller volume of 27 ml & 15ml in the same rotor at 32,000 rpm without reduction in g force of 175,000 g force ➤ 23. Suitable voltage stabiliser should be provided 	
7	<p><u>-86°C ULT Deep Freezer Upright model (700 ltrs and above)</u></p> <ul style="list-style-type: none"> ❖ Centralized information centre with programmable controls, displays and an optional built-in recorder is located at a convenient height for easy use and monitoring ❖ RTD control monitor probe works with the Controller to maintain a stable freezer temperature that can be set in 1°C increments ❖ Tamper- resistant controller prohibits accidental set point alteration. Setpoints above or below the freezer’s Operating range are prohibited ❖ Stainless steel interior simplifies cleaning ❖ Three fully adjustable solid stainless steel shelves ❖ Four interior compartment doors are standard, five door option is available ❖ Optional built-in chart recorder or data logger is mounted at a convenient height for easy readability and maintenance ❖ UL Listed and CE Marked <p><u>Specifications</u></p> <p>Temperature range : -50°C to -86°C</p> <p>Capacity cu ft/liters : 13.0/368</p> <p>Refrigeration HP : Two 1 HP (2545)</p> <p>Similar technology to BTUH each</p> <p>Cryobox capacity 2in : 240</p> <p>Max.Shelf weight : 125 lbs (57 kg)</p> <p>Amps/Breaker : 12/16 European</p> <p>Voltage : 230V, 50 Hz</p> <p>Minus 80 Deg Celsius Freezer should Feature a state-of-the-art refrigeration system, rugged construction</p> <p>Minus 80 Deg Celsius Freezer Eye-level, easy-to-use microprocessor control panel</p> <p>Minus 80 Deg Celsius Freezer Stainless steel interior should be 368L Capacity to accommodate 240 Cryo Boxes of 2” Box Capacity</p> <p>Minus 80 Deg Celsius Freezer should have Four interior compartment doors to reduce cold air loss and improve temperature recovery after door closings</p> <p>Minus 80 Deg Celsius Freezer should have Heavy gauge, cold-rolled steel</p>	2

	<p>exterior construction with a powder coat paint finish that resists chipping and rust</p> <p>Minus 80 Deg Celsius Freezer should have 5“(127mm) foamed-in-place, polyurethane insulation</p> <p>Minus 80 Deg Celsius Freezer should have one 1" (2.5cm) or more access ports enable use of inexpedient probes.</p> <p>Minus 80 Deg Celsius Freezer should have Optional CO2 or LN2 safety back-up system for additional protection in the event of a power or mechanical failure</p> <p>Minus 80 Deg Celsius Freezer should have Optional, data logger for continuous monitoring.</p> <p>Minus 80 Deg Celsius Freezer should have Sturdy, solid, stainless steel shelving to support a full product load.</p> <p>Minus 80 Deg Celsius Freezer should have Vacuum relief port or equivalent technology which permits easy access for frequent door openings.</p> <p>Minus 80 Deg Celsius Freezer should have Ergonomic, lockable door handle</p> <p>Minus 80 Deg Celsius Freezer should have Power Management System with low voltage surge protection and buck/boost</p> <p>Minus 80 Deg Celsius Freezer should have Certifications: cULus, CE listed</p>	
8	<p><u>CO₂ INCUBATOR</u></p> <p>Range 5C above ambient to 50°C</p> <p>Temperature Uniformity ±0.2 oC @ 37 oC</p> <p>Interior Volume : Minimum 150-200 litres</p> <p>CO₂: 0-20%. Control, Range Better than ±0.1%, measures with T/C sensor or IR sensor</p> <p>Readability and Setability 0.1%</p> <p>Humidity : around 95% @ 37 oC (98.6F)</p> <ul style="list-style-type: none"> ❖ Sturdy stainless steel shelves and supports should be readily removed without tools for easy cleaning, autoclaving or adjustment ❖ Heat Sterilization cycle of 120°C and above for 12 hours to safely kills all organisms within the chamber, including mold, yeast, mycoplasma, bacteria, and even difficult to eliminate spores. ❖ Audible alarm should activates if the outer door is opened during the cycle and the temperature is 60°C (140°F) or greater to ensure safety in the lab ❖ System should require access code to initiate decontamination cycle thereby preventing accidental initiation of the cycle. ❖ The Microprocessor Control System should give clear cut written message for the errors, should guide through the cycle with start-up and cycle status messages during decontamination phase. ❖ Post decontamination process the system should return to normal operating status without the need for manual cleaning ❖ Class 100 HEPA filtered chamber airflow 	4

- ❖ -100% filtration of chamber air every 60 seconds to clean room particulate and air borne contamination to class 100 air quality standards thereby providing constant protection against contaminations.
- ❖ -Class I00 standard reached in under 5 minutes from door closing - air quality recovery provides near immediate protection against particulates
- ❖ The system should have Built-in preventive maintenance system with adjustable timeframe to notifies user when it's time to replace the filter
- ❖ Snap fit in-chamber HEPA filter should be easily removed without tools.
- ❖ System should have good quality inner door air tight gasket which should be removable and cleanable, and adjusts continually to ensure a tight seal.
- ❖ All claims should be 3rd party tested and valid table with white papers available for both Class 100 and chamber
- ❖ Sterilization claims.
- ❖ Unique Filtered Air Exchange system - Minimizes the risk of condensation in the unit, even in hot humid ambients.
- ❖ Chamber condensation heightens the risk of contamination.
- ❖ 100% coved chamber corners to eliminate the corners and crevices that are difficult to clean and harbour contamination.
- ❖ Polished stainless steel chamber to provide a smooth, easy to clean surface
- ❖ Uniform direct heat surrounds sides, back, top, and bottom of chamber - Total coverage of chamber walls eliminates cold spots that can reduce temperature uniformity and produce condensation.
- ❖ Microbiological filters on all gas inlets and outlets and sample ports - Potential contamination sources are reduced
- ❖ Microprocessor control/monitoring system with displays for temperature and CO2. and alphanumeric message centre which is easy to read, and easy to program with constant display of operating parameters and alphanumeric status messages
- ❖ Automatic electronic start up and automatic CO2 auto zero on a incubators to simplify procedures for easy start-up
- ❖ and use
- ❖ Programmable tracking alarms for temperature and CO2. Alarms should be custom configurable.
- ❖ All probes and sensors located inside the chamber for faster recovery than with remote located sensors
- ❖ Field reversible inner and outer doors so that the unit can be easily configured for use anywhere in the lab

	<ul style="list-style-type: none"> ❖ Dual—directed air flow to provide quicker temperature recovery and better uniformity ❖ Units should be stackable with stacking brackets included to maximize lab space. ❖ System should have option of humidity monitoring, antimicrobial solid copper interiors , automatic gas tank ❖ switchers, data output ports ❖ Incubator is UL listed, CSA Certified and CE Marked 	
9	<p><u>Class II Biohazard Safety Cabinet</u></p> <ul style="list-style-type: none"> ❖ Size 1.2 X 0.6 X 0.6 metres ❖ EN 12469 Certified ❖ Recirculation 70% & Exhaust 30% ❖ Average Air Flow Velocity ❖ Inflow : 0.45 m/s (90 fpm) at initial setpoint, audible/visual alarm should activate at 0.40 m/s (80 fpm) ❖ Downflow : 0.30 m/s (60 fpm) at initial setpoint with uniformity of better than +/- 20% ❖ Noise Level <62 dBA according to EN 12469 ❖ Fluorescent Light Intensity At Zero Ambient >1280 Lux (>119 foot candles) ❖ Cabinet Construction ❖ Main Body: 1.2 mm (0.06") 16 gauge electrogalvanized steel with white oven-baked epoxy antimicrobial powder coated finish/Galvanised Iron/SS. ❖ Work Zone: 1.5 mm (0.06") 16 gauge stainless steel, type 304, with 4B finish ❖ Side Walls: UV absorbing tempered glass, 5 mm (0.2"), colourless and transparent ❖ ULPA/HEPA filters with efficiency greater than 99.999 % for superior operator and product protection ❖ Standard Compliance ❖ Filter performance: IEST-RP-CC034.1, IEST-RP-CC007.1, IEST-RP ❖ Electrical safety: IEC 61010-1 / EN 61010-1 / UL 3101-1 / CSA C22.2 No. 1010.1-92 ❖ ISO Class 3 air cleanliness in work zone. ❖ Glass sides to increase visibility. ❖ Multi-piece work surface which can be removed for autoclaving ❖ Negative pressure plenum should surround contaminated positive pressure plenum for quiet, uniform airflow ❖ Microprocessor Control with temperature compensated airflow sensor for supervising all cabinet functions. ❖ Antimicrobial coating on all painted surfaces to protect against surface contamination ❖ Should utilize an extremely efficient backward curve fan, allowing for exceedingly low levels of cabinet power consumption. ❖ Advanced separatorless mini-pleated ULPA filters tested to > 99.999% efficiency for 0.1 - 0.3 micron particulates. ❖ Digital read-out with alpha-numeric display should indicate all input, status and alarm functions. 	4

	<ul style="list-style-type: none"> ❖ An administrator controlled PIN (Personal Identification Number) which can be set to restrict access to main menu ❖ The cabinet work zone should not have welded joints to collect contaminants or rust. ❖ A recessed central area and stainless steel drain pan channels for preventing liquids from entering the lower filtration and blower systems ❖ Angled viewing window and narrow profile front grille to improve reach into the work area ❖ Front armrest raised above the work zone to improve comfort and to ensure no airflow blockage ❖ Frameless, shatterproof sash for easier cleaning, and for larger, unobstructed viewing area ❖ The Biohazard Safety Cabinet Should be individually tested, documented by serial number and validated with the following test methods. Inflow / downflow velocity ❖ PAO Aerosol challenge for filter integrity ❖ Light, noise and vibration ❖ Airflow pattern visualization ❖ Electrical safety to IEC61010-1 ❖ Electrical 220-240V, AC, 50Hz, 1ø ❖ Warranty 3 Years 	
10	<p><u>Microtome</u></p> <p>Selection Range : 0.5 to 100 µm Time Section Resolution : 5 to 100 µm Vertical Cutting Stroke : 72 µm Retraction : 40 µm Total Specimen Advance : 28 µm Max. Advance Speed : 400mm/sec. Section Counter : Standard Weight (English) : 77lb. Weight (Matric) : 35kg Includes :HM 355S Rotary Microtome Depth (English) : 20.5 in. Depth (Matric) : 52cm. Height (English) : 11in. Height (matric) : 28 cm. Hertz : 60Hz Voltage : 115V Width (English) : 16in. Width (English) : 41cm. Item Description : HM 355S Rotary Microtome Electrical Requirements : 115V 60Hz</p>	1
11	<p><u>Lyophilizer</u></p> <ul style="list-style-type: none"> ➤ Litre Bench top Freeze Dry System with Teflon-Coated Collector ➤ Upright stainless steel collector coil capable of removing 1 liter of water in 24 hours and holding 1 liter of ice before defrosting ➤ Operating Voltage: 220-240 V, 50 Hz ➤ Cold trap temperature -50 °C or below. ➤ 8- 12-Port Drying chamber ➤ HCFC/CFC-free refrigeration system to cool collector to -50° C 	1

	<ul style="list-style-type: none"> ➤ Rotary Vane Vacuum Pump, 77/92 litre/min, 1×10^{-3} mbar, 220-240V, 50/60Hz ➤ Free service Vacuum pump (After 1000 hours of vacuum use) and free replacement of moisture collector within first year ➤ LCD for display of set up and operating parameters. ➤ Controls: Refrigeration on/off, Vacuum on/off ➤ Fast-Freeze 45° Adapter (Stainless Steel) 3/4" flask top to 3/4" valve ➤ 3/4" OD vacuum connector, three feet of 3/4" ID vacuum hose and two clamps. ➤ 120 ml Complete Fast-Freeze Flask 3/4" flask top Adapter Diameter ➤ Vacuum Level: Up to 0.001 mbar or more ➤ Side-mounted, retractable, collector drain hose ➤ Portable Table with wheels ➤ Should be imported with 3 Years warranty. 	
12	<p><u>Liquid nitrogen tank (Storage)</u></p> <p>Cryocan a synonym of liquid nitrogen container is used for ultra-low temperature presentation of semen for artificial insemination of cattle, storage of biological samples for medical research applications as well as low volume transportation of liquid nitrogen and is available in wide range of capacities and modules .</p> <p>Liquid nitrogen tank (Storage)</p> <ul style="list-style-type: none"> • Capacity of the tank should be 20 -50 ltr with canister system to store samples. • Number of cane should be ≥ 4 with capacity to store minimum of 100 vials in each. • Static evaporation rate should be less than 0.2 L/day • Inside neck diameter should not be less than 5cm. • Static holding time should be more than 150 days. <p>Should have manual filling and Dewar for Liquid N2.</p>	5
13	<p><u>Deep Freezer (-25° C), Vertical; 300-400 Ltrs</u></p> <ul style="list-style-type: none"> ➤ Capacity : 300-400 Ltrs ➤ Temp : - 17°C ~ -24°C ➤ Dimension (inches) : Width:23 ➤ Depth :23 ➤ Height :73 ➤ No. of baskets / Shelves : 8 ➤ No. of lids/ doors :1 ➤ Digital Indicator cum controller :Yes ➤ WHEELS : Yes (Rear) ➤ Lock : Yes <p>It should be imported with ISO 9001 certification.</p> <p>Should have CFC and frost free refrigeration system.</p> <p>Should include suitable online UPS (sine wave) with internal battery system which can provide minimum of 60 min power backup to the freezer</p>	5
14	<p><u>Vertical Electrophoresis apparatus with Wet transfer blot system (Trans-Blot Module)</u></p> <p>Mini Protein Tetra Cell Electrophoresis system, 10 well, 1 mm thickness, 2 gel system includes 5 combs, 5 sets of glass plates, 2 casting stands, 4 casting frames, Sample Loading Guide and electrode assembly, companion running module,</p>	5

	<p>tank, lid with power cables, mini cell buffer dam) Number of gels 1–2</p> <ul style="list-style-type: none"> ➤ Gel size (W x L) Precast : 8.6 x 6.8 cm; ➤ hand cast : 8.3 x 7.3 cm ➤ Glass plate size (W x L) ➤ Short plate : 10.1 x 7.3 cm ➤ Spacer plate : 10.1 x 8.2 cm ➤ Total buffer volume for 2 gels 700 ml ➤ Total buffer volume for 4 gel 1,000 ml ➤ Typical run times for SDS-PAGE 35–45 min (at 200 V constant) ➤ Dimensions (W x L x H) :12 x 16 x 18 cm <p>System should run 2-4 mini gels of 8.6 cmx6.8cm simultaneously in less than hour</p> <p><u>Mini Trans-Blot Module</u> Without lower buffer tank and lid - includes 2 gel holder cassettes, 4 foam pads, modular electrode assembly, blue cooling unit.</p> <ul style="list-style-type: none"> • System should provide rapid, high quality western transfer • Must accommodate at least two mini gels of size at least 10*7.5cm • Transfer time for both gels must be supported in a time frame of One hour • Overnight transfer must also be taken care • Preferably with a cooling unit to take care of heat generated • Buffer requirement should not exceed 450 ml – 500ml per run • Modularity of same tank to run PAGE gels must be provided • System should run 4 mini gels Of 8.6cmx6.8cm simultaneously in less than hour. • Should be compatible with both precast and hand cast gels. • Same system should be upgradable to Western blotting also. • System should come with casting stand and casting frames with cam closer for precision alignment and casting. • System should come with Glass plates with permanently bonded Spacers for leak free casting. • System should have sample loading guide to prevent skipped or repeated loading lanes. • The apparatus to have a buffer volume of 700 to 1000ml. <ul style="list-style-type: none"> • Cooling apparatus for wet blot system 	
15	<p><u>Dry block thermostat</u> Temperature – Control range of block : -10 °C to 99° C Range of possible temperature : From (30° C below RT) to 99° C Accuracy of temperature : at 0° C+- 1.0° C at 37° C+-0.5° C at 90° C +-1.0° C</p> <p>Adapters: 0.2 to 0.5ml, 1.5 ml and 2.0 ml micro tubes Heat up speed : Approx. 5° C/min Cool-down speed :6° C/min between 99° C and 25° C :1.5° C/min between 25° C and -5° C</p> <p>Range of time phase : 0.01 to 99:59 hours Power supply : 100-240V, 50-60Hz Requirement : As per standards. Interface : RS232 interface</p>	4

	Dimensions(WXDXH) : 22x25x12xcm	
16	<p><u>PowerPC Basic Power Supply</u> Output range: 10-300V, fully adjustable in 1 V steps 4-400 mA, fully adjustable in 1mA steps 75W maximum Type of output: constant voltage, constant current with automatic cross over Output terminals: 4 pair recessed banana jacks floating in parallel Timer: 1-999 min, fully adjustable Pause/resume run function: yes Dimensions: 21x24.5x6.5cm (WxDxH) Power PC Basic Power Supply with safety provisions</p>	5
17	<p><u>Hot Air Oven</u> Chamber volume: Above 220 ltrs Hot air Oven (Memert type) this is made of thick mild steel, double walled construction. There is gap of about 21/2” between the walls for insulation, filled with best quality glass wool. Outside finished in textured siemens paint. The door is fitted with chromium plated lock hinges heating elements are connected from there side of the inner chamber. The temperature is controlled by digital temperature controller cum indicator from room temperature from room temperature to 250° C. accuracy is about +-1o C. this is suitable for 230 volts AC, single phase Size: 405X405X405 Walts:1000</p>	5
18	<p><u>Laminar Airflow Bench</u> Working Size – Feet (WxDxH) : 4 X 2 X 2 Horizontal Laminar Airflow system allows operation in sterile and particle free conditions because the continuous flushing of the working area by a unidirectional and Horizontal and ultra filtered airflow, it assures a full product protection. Cleanliness ISO Class 5 as per ISO 14644-1 Direction of Flow Horizontal Particle Retention 0.3 Micron & Above Noise Level 65 decibel on “A” scale ± 5 Velocity 90 Feet / Minute ± 20 Worktable By IS 304 Grade Stainless Steel surface Front door by 5 mm thick Polycarbonate – Folded Type U V lamp Make – PHILIPS Illumination Fluorescent tubes with diffusers Pressure (ΔP) Inclined Manometer 0 –25 mm range Other accessories 5/15 Amp power point, Gas inlet & Castor Wheels Power Supply 230V, Single phase, 50 Hz HEPA Filter: Media Ultra clean glass fiber paper – imported Type Mini-Pleat HEPA Filter, Separator less Retention 0.3 Micron, Efficiency 99.97%, Grade H13 rating PRE Filter: Media Synthetic, non-woven polyester fibers Casing GI with PU coated frame Retention 5 Micron & above Efficiency 95 % <u>Material of construction:</u> Galvanized Iron sheet with complete polyurethane paint coated finish <u>Blower Assembly:</u> DIDW type blower system, which consists of dynamically & statically balanced aluminum centrifugal impeller driven by an single phase, 1440-</p>	5

	RPM motor, enclosed in an PU coated GI casing suitably suspended in a pair springs & connected to the filter chamber through flexible canvas duct.	
19	<p><u>Gradient Thermal Cycler</u></p> <ol style="list-style-type: none"> 1) 2 x 48, 3x 32 or 32: 64 modes for 0.2 ml tubes (well plates) to be accommodated in the thermal block. For performing two different PCR experiments invariable of time. 2) Upgradeable options for the mentioned block formats to be available in the system: 96 x 0.2ml well blocks or 96 deep well for 0.5ml tubes or 384 well block options is needed when more sample load to be tested. 3) Gradient function for optimization of protocols is necessary with atleast eight different temperatures in both the 48 well blocks and in other available thermal blocks also. 4) Thermal Gradient differential range with 1-24⁰ C would be ideal. 5) Mass sample reduced block design to provide quick time to target for fast protocol runs. 6) Fully adjustable heated lid is necessary. 7) Settling time of 10 seconds would be ideal for the block. <p>8) Upgradeable to Realtime PCR would help for future applications (Optional).</p> <ol style="list-style-type: none"> 9) Software support for generating an optimal protocol based on the polymerase, primers and product length is needed for optimizing long range PCR experiments. 10) Maximum Ramp rate of 4⁰ C /Sec and average ramp rate of 3⁰ C /Sec. 11) Temperature range of 0-100⁰ C /Sec. 12) Temperature accuracy $\pm 0.2^{\circ}\text{C}$ of programmed target at 90⁰C. 13) Touch screen/Feather touch will be an added advantage for user friendly operation 14) Temperature uniformity $\pm 0.4^{\circ}\text{C}$ well-to-well within 10 sec of arrival at 90⁰C.. 15) Email Notification of run completion (Optional).. 16) Temperature control modes as both as Calculated and block mode. 17) Gradient accuracy $\pm 0.2^{\circ}\text{C}$ of programmed temperature at end rows. 18) Row uniformity $\pm 0.4^{\circ}\text{C}$ well-to-well (within row) within 10 sec of arrival at target temperature. 19) Input power of Up to 700 W, maximum. 20) Ports 1 USB B. 21) The system should be able to support plates which can be used for low reaction volumes as low as 5ul to 120ul. And minimum 50 plates to be supplied along with the machine. 22) And a minimum of 25 reactions c DNA Synthesis kit to be supplied along with the machine. <p><u>96 Well Gradient PCR Machine:</u></p> <ol style="list-style-type: none"> a) The system to have 96 well block with peltier based heating and cooling. b) The system to accommodate 96 x .02ml PCR tubes, PCR Plates and strips. c) The system to have a reaction volume of 1ul to 10ul. d) The system should have ramp temperature range of 3- 4 degree/sec. e) The system to have Gradient function with 25 degree of gradient range. f) The system to come with touch screen and graphical programming. 	6 (Five Single Block & One Dual Block)

	<p>g) The system to have USB flash drive for transfer of protocols. h) The system to have both calculated and block temperature control modes. i) The system to have instant incubation mode. j) The system to have minimum memory of 500 typical programs onboard. k) The system must be supplied with three years warranty.</p>	
20	<p><u>Gel documentation system with Chemi-Documentation Image System</u></p> <p>Specifications</p> <ul style="list-style-type: none"> • The Chemidoc system to address western blot imaging and fluorescent western blotting, chemiluminescence detection and general gel documentation and stainfree imaging applications. • System to have High resolution CCD with 4 or more Megapixel image resolution. • Cooled CCD with cooling range of -28°C absolute/regulated temperature using peltier cooling system. • System with dynamic flat fielding technology for getting accurate Quantitation with CV < 5 %. • Multi-colour image target with multi-channel image display for study of more than 2 dyes at a time for differential expression. • System should have 8 different modes of illumination – Trans-UV, epi-white, no illumination for chemiluminescence, trans-white, epi-red, epi-green, epi-blue, trans-blue. All LEDs should be integrated and should come with system for proper imaging of multi target with reproducibility. • Instrument should have a large transillumination area of which is capable of taking sample of more than 20x20 cm and should have a minimum imaging area of 26 x 35 cm • Instrument should have auto focus technology. • Pixel size should be 6.45 µm x 6.45 µm or bigger. • Dynamic range should be >4 orders of magnitude for good quantification. • System should offer various binning options with minimum of 2x2, 3x3 and 4x4 for customized sensitivity. • Upgradable to Plant/Animal imaging (Optional) • Upgradable to EP/IR. <p><u>Software for Image acquisition and 1-Dimensional Analysis:</u></p> <ul style="list-style-type: none"> • Automatic generation of customizable reports • Snapshot tool to copy images, lane profiles, and graphs • Complete flexibility with automatic and manual detection of lanes and bands, using several algorithms. • Should have tri-plex image capture and analysis capability. • Easy copy/paste functionality, crop, 3D viewer, and colors. • Publishing resolution (dpi) and publishing dimension can be specified with a one-click image export for publication. Mac and PC compatible software. • 16-bit and 8-bit tiff images with a one-click export option. • The Software should automatically select the appropriate filters, light sources, and camera settings for all applications. • Software should have automated multi-channel image view and color-coded analysis. 	1

- **Software should have Signal Accumulation Mode (SAM)/ Serial Mode for easy optimization of exposure time for chemiluminescent detection.**
- Software should produce customizable reports with data organized as desired, including, Lane and band identification, molecular weight or band pair evaluation. Band sizing and quantification are based on a reference band or quantity standards.
- Multiple copies of licensed software should be provided at no extra cost
- The Chemidoc system to address western blot imaging and fluorescent western blotting, chemiluminescence detection and general gel documentation and stainfree imaging applications.
- System to have High resolution CCD with 4 Megapixel image resolution
- Cooled CCD with cooling range of -28°C absolute/regulated temperature using peltier cooling system.
- System with dynamic flat fielding technology for getting accurate Quantitation with CV < 5 %.
- Multi color image target with multi-channel image display for study of more than 2 dyes at a time for differential expression.
- System should have 8 different modes of illumination – Trans-UV, epi-white, no illumination for chemiluminescence, trans-white, epi-red, epi-green, epi-blue, trans-blue. All LEDs should be integrated and should come with system for proper imaging of multi target with reproducibility
- Instrument should have a large transillumination area of which is capable of taking sample of minimum 28x36 cm and should have a minimum imaging area of 26 x 35 cm.
- Instrument should have auto focus technology.
- Pixel size should be 6.45 µm x 6.45 µm or bigger.
- Dynamic range should be >4 orders of magnitude for good quantification
- System should offer various binning options with minimum of 2x2, 3x3 and 4x4 for customized sensitivity.

Software for Image acquisition and 1-Dimensional Analysis:

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	band or quantity standards.	
21	<p><u>Automated Shakers</u> Speed Range 20 to 400 ±1rpm and above Temperature Range (Metric) Ambient+5° to 60°C and above Orbit 1.9cm (0.75 in.) and above Holders for test tube stands, 15 ml, 50 ml, 100ml, 250ml, 500ml and 1Litre flasks (at least 3 each) Length (English) Platform 18 in. Width (English) Platform 18 in. Length (Metric) Platform 45.7cm Width (Metric) Platform 45.7cm Capacity Six 2L Flasks Hertz 50/60Hz Load Bearing Capacity 50 lb. (22.7kg) Motor Type Large Incubated High Temperature Temperature Accuracy +/- 0.1°C Voltage 240V Description Large Incubated Type Shakers Certifications/Compliance UL, cUL, CE Electrical Requirements 240V 50/60Hz Speed 15 to 500rpm</p>	5
22	<p><u>Water bath with wide temperature ranges</u> <u>Specifications:</u> Tank :High grade SS tank Capacity 10ltr -20ltr Litres Hinged gable cover will be preferable Viewing the sample through the cover will be preferable. Temperature range : Ambient to 99° C Temperature accuracy: ± 0.2° C Temperature control : Digital PID control Timer : 0.1 Hour to 99.9 Hours & continuous Safety protection : User settable and fixed thermal cut-out Display : Digital display of temperature Alarm : Low level water alarm, safety shut down audible/visual alarm Operating voltage: 230 ±10VAC, 50 Hz. Tank design for easy cleaning and draining Steel holder for tubes (1.5/2 ml, 5ml, 15 ml) and Flasks (50, 100 & 250 ml) Comprehensive warranty for three years After Sale, Service should be available promptly.</p>	5
23	<p><u>Shaking Incubator Combines Incubated temperatures with Orbital Shaker</u> View speed, time and temperature simultaneously on three individual LED displays Choose from three temperature ranges. Spacious chamber holds six two-liter flasks. Clear lid allows sample viewing without disturbing chamber temperature Three year warranty on parts and one year on labor Operation Triple eccentric drive handles heavy loads, provides uniform agitation and continuous 24-hour operation, even at high speeds Monitor and control chamber temperature range with +/- 0.1°C accuracy at 37°C Digital Operating System Variable speed control from 15 to 500 rpm</p>	1

	<p>Continuous/timed operation from 0.1 hour to 999 hours or 0.1 minute to 999 minutes.</p> <p>Visual/audible alarms alert you if temperature deviates +/- 1°C of set point.</p> <p>Shaker shuts down and visual/audible alarms signal if unit operates +/- 10% offset speed, preventing shaker from walking.</p> <p>User adjustable speed calibration can be performed using a digital hand held Tachometer, where verification is required and protocols can be standardized.</p> <p>Unbalanced load sensor stops platform motion when excess vibration is detected and visual/ audible alarms signal until condition is corrected.</p> <p>Soft start feature eliminates sudden starts and stops, splashing of vessel contents or wetting of flask closure.</p> <p>Retains parameters during power failure and restarts automatically after power is restored.</p> <p>Safety</p> <p>Over-temperature safety feature with independent thermostat provides additional backup by controlling heat if main temperature controller fails.</p> <p>Safety interlock stops platform motion when lid is opened.</p> <p>Specifications:</p> <p>Variable speed control from 20 to 400 rpm and above</p> <p>Orbit Diameter In.(cm) : 0.75 (1.9)</p> <p>Maximum Load : 22.7 Kg</p> <p>Temperature range: 10°C above ambient to & Accuracy 60°C: +/-0.1°C at 37°C in Flask.</p> <p>Overall Dimensions. In (cm) : 32 (81.3)</p> <p>Length 22.5 (57.2)</p> <p>Width 22 (55.9)</p> <p>Height</p> <p>Power : 240V,50/60 Hz</p>																																							
24	<p><u>Shaker:</u></p> <table border="0"> <tr> <td>Speed Range</td> <td>25 to 400 ±1rpm</td> </tr> <tr> <td>Temperature Range (Metric)</td> <td>Ambient+10° to 60°C</td> </tr> <tr> <td>Orbit</td> <td>2.5cm (1 in.)</td> </tr> <tr> <td>Capacity</td> <td>Five and above</td> </tr> <tr> <td>Erlenmeyer flasks</td> <td></td> </tr> <tr> <td>Depth (English) Interior</td> <td>23.8 in.</td> </tr> <tr> <td>Depth (Metric) Interior</td> <td>60.5cm</td> </tr> <tr> <td>Height (English) Exterior</td> <td>25 in.</td> </tr> <tr> <td>Height (English) Interior</td> <td>11.8 in.</td> </tr> <tr> <td>Height (Metric) Exterior</td> <td>63.5cm</td> </tr> <tr> <td>Height (Metric) Interior</td> <td>30cm</td> </tr> <tr> <td>Hertz</td> <td>60Hz</td> </tr> <tr> <td>Length (English) Exterior</td> <td>33.3 in.</td> </tr> <tr> <td>Length (Metric) Exterior</td> <td>84.6cm</td> </tr> <tr> <td>Motor Type</td> <td>1/3hp DC brushless</td> </tr> <tr> <td>Shipping Weight (English)</td> <td>658 lb.</td> </tr> <tr> <td>Shipping Weight (Metric)</td> <td>298.5kg</td> </tr> <tr> <td>Temperature Accuracy</td> <td>±0.15°C at 37°C</td> </tr> <tr> <td>Timer</td> <td>Continuous or timed from 1 min. up to 199 hr. and min</td> </tr> </table>	Speed Range	25 to 400 ±1rpm	Temperature Range (Metric)	Ambient+10° to 60°C	Orbit	2.5cm (1 in.)	Capacity	Five and above	Erlenmeyer flasks		Depth (English) Interior	23.8 in.	Depth (Metric) Interior	60.5cm	Height (English) Exterior	25 in.	Height (English) Interior	11.8 in.	Height (Metric) Exterior	63.5cm	Height (Metric) Interior	30cm	Hertz	60Hz	Length (English) Exterior	33.3 in.	Length (Metric) Exterior	84.6cm	Motor Type	1/3hp DC brushless	Shipping Weight (English)	658 lb.	Shipping Weight (Metric)	298.5kg	Temperature Accuracy	±0.15°C at 37°C	Timer	Continuous or timed from 1 min. up to 199 hr. and min	5
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	<p>Voltage 100V to 240V</p> <p>Width (English) Exterior 46.5 in.</p> <p>Width (English) Interior 33.4 in.</p> <p>Width (Metric) Exterior 118.1cm</p> <p>Width (Metric) Interior 84.6cm</p> <p>Cabinet Heavy-gauge cold-rolled steel</p> <p>Chamber Material Type 304 stainless steel</p> <p>Display LED: Time, Speed, Temperature include run and setpoints</p> <p>Type Shakers</p> <p>Certifications/Compliance UL, cUL, CE</p> <p>Dimensions (L x W x H) Exterior 33.3 x 46.5 x 25 in. (84.6 x 118.1 x 63.5cm)</p> <p>Dimensions (D x W x H) Interior 23.8 x 33.4 x 11.8 in. (60.5 x 84.6 x 30cm)</p> <p>Electrical Requirements 120V 60Hz</p> <p>Speed 25 to 400rpm</p>	
25	<p><u>Horizontal gel electrophoresis</u></p> <ul style="list-style-type: none"> • Quick Snap* electrodes are easy to remove, simplifying cleaning • Arrow on the side of the base indicates the direction of the run and ensures proper orientation of the gel. • Color-coded, labeled electrodes and labeled base guarantee correct positioning of the lid on the base. • Tabs on the base permit easy removal of the lid, reducing buffer spillage, and also prevent incorrect lid positioning. • Reverse-compatible design allows the cells to be used with components from older models. • Clear plastic construction for easy sample visualization. • UV-transparent gel trays with fluorescent ruler** • Gel-casting gates to cast your own gels right in the cell, or optional caster for tape-free casting** • Combs to fit every need (fixed-height drop-in combs, adjustable-height combs, and preparative combs) • Cell size (W x L x H): 9.2 x 25.5 x 5.6 cm. • Gel tray sizes (OD) (W x L): 7 x 10 cm • Base buffer volume: 270ml approx. • No Buffer recirculation. • Bromophenol blue migration: ~4.5 cm/hr (at 75 V). 	5
26	<p><u>Refrigerated Centrifuge for 1.5 ml</u></p> <ul style="list-style-type: none"> • Compact in size and refrigerated. • Max capacity 44× 1.5/2.0 mL and above • Should show both g value and RPM. • Max RCF: 28,000g and above • Max speed: 17,500 rpm • Acceleration time: ≤14 s • Deceleration time: ≤15 s • Timer with 30 s to 99:59 h, with continuous run function. • Should have SOFT brake function. • Automatic imbalance detection. • Programing only during standstill. 	6

	<ul style="list-style-type: none"> • Should have 5 program keys for easy access to routine programs. • Should have up to 50 user-defined programs saving capacity. • Temperature control range: -11 °C to 40 °C. • Fast Temp function for fast pre-cooling. • Quiet operation <58 dB (A). • ECO shut-off engages after 8 hours of nonuser to reduce energy consumption (37 % overnight) and extend compressor life (can be deactivated in menu) • Continuous cooling maintains a constant temperature after the run has been completed. • Built-in condensation drain to eliminate water accumulation • Should be certified with ISO 9001 and should submit photocopy for the same. 	
27	<p><u>Refrigerated Centrifuge</u></p> <ul style="list-style-type: none"> • Should show both RPM and G force. • It allows for molecular applications in tubes up to 250 mL. • Should offers additional swing–bucket and fixed–angle rotors as well as deep well plate capacity for increased versatility. • Swing-bucket rotors and adapters accommodate tubes and bottles from 2 mL to 250 mL • Plate rotor for centrifugation of all types of MTP, PCR, cell culture, or Deep well Plates. • Fixed-angle rotors for high-speed applications in tubes from 0.2 mL to 85 mL. • High centrifugation speed of up to 20,913 × g (14,000 rpm). • Centrifuge lid with soft-touch lid closure. • Low access height less than 40cms for easy loading and unloading of samples • Quiet operation < 58 dB (A). • Fast Temp function for fast pre-cooling. • Temperature range -9 °C to 40 °C. • Continuous cooling maintains a constant temperature after the run has been completed. • ECO shut-off engages after 8 hours of non-use to reduce energy consumption and to extend compressor life. • Dynamic compressor control (DCC) technology for optimized cooling performance. • Should be certified with ISO 9001 and ISO 13485 and should submit photocopy for the same 	5
28	<p><u>Multimode Plate Reader</u></p> <p>Detection method: Absorbance</p> <p>Wavelength Selection : Monochromator, selectable in 1 nm or greater increments</p> <p>Read method : Endpoint, kinetic, spectral scanning and well area scanning Microplate types : 6- to 384-well plates Temperature control : 4°C above ambient to 65°C; ±0.5°C at 37°C Shaking : Orbital, double orbital and linear Light source : Xenon flash lamp Wavelength range : 200 - 999 nm Bandpass : 2.4 nm</p>	1

	<p>Dynamic range : 0 - 4.0 OD Resolution: 0.0001 OD Monochromator wavelength accuracy: ± 2 nm Monochromator wavelength repeatability: ± 0.2 nm OD accuracy : 0 to 2.0 OD + 1% + 0.010 OD 2.0 to 3.0 OD + 3% + 0.010 OD OD linearity : 0 to 2.0 OD + 1% + 0.010 OD 2.0 to 3.0 OD + 3% + 0.010 OD OD repeatability : 0 to 2.0 OD + 1% + 0.005 OD 2.0 to 3.0 OD + 3% + 0.005 OD Reading speed 96 wells: 8 seconds 384 wells: 13 seconds Power: 100 - 240 Volts AC 50/60 Hz Software: For complete Reader control. Read methods: Kinetic, Endpoint, Well Area Scanning and spectral scanning</p>	
29	<p><u>Animal Cell Culture Facility</u></p> <ul style="list-style-type: none"> ➤ Animal Cell Culture room ➤ Conversion of animal Cell culture room with Class II Facility with Positive Pressure ➤ Air Flow capacity- 1000 CFM in GI construction with ➤ PU coated finish. ➤ Epoxy Coating for Floor, Window for Easy Cleaning. With Pass Box and Air ➤ Curtain, Anti Room for Pre Screening. ➤ Pass Box Specification ➤ Static Pass Boxes: ➤ Clean air Pass through box is designed to minimize traffic and ➤ contamination entry into the clean room, enables parts, tools and other ➤ Work items to be passed to room and from the room. Unit acts as an air ➤ lock device preventing ambient air from entering, or clean air from ➤ Exiting the clean room. Static Pass Box, Model CPB 180 S ➤ Working Size: W 450 x D 450 x H 450 mm ➤ Overall Size: W 530 x D 500 x H 550 mm ➤ Material of Construction: The complete cabinet made of IS304 SS ➤ constructions with Satin finish, double layered Work Plat Form IS 304 Grade ➤ Stainless Steel, satin finish U V lamp Illumination: LED Fitting ➤ Power Supply 230 volt, single phase, 50 cycle Doors 1.2mm thick Swing type door made of GI with PU coated or stainless steel respectively with clear Acrylic 	1
30	<p><u>Cold Room</u></p> <p>Height should be 8 ft</p> <p><u>A. CONDENSING UNIT</u></p> <p><u>1. Air Condensing Unit</u></p> <p>Supply and installation of air cooled condensing units with scroll type compressor complete with copper piping, R-22 refrigerant gas, HP and LP cutouts, control cabling etc, Thermostatic expansion valves/ capillary tubes, thermostats for tripping the compressors after reaching the temperature in</p>	1

conditioned areas and with insulation of the suction line. Air cooled condensing coil with fan motor along with angle frame for mounting the unit.

Capacity: 5.5 TR

B. HVAC SYSTEMS

2. Recirculation Air handling units

Supply, Installation and commissioning of DOUBLE SKIN FLOOR MOUNTED AIR HANDLING UNITS. Constructed out of 24 G pre-coated GI sheet as outer skin, 24G plain GI sheet as inner skin with 23+/-2mm. Thickness PUF section of density 36+/-2kg/m³ in between and comprising of following sections: Pre-filter section with 20 micron, 5 micron filters, cooling coil section with chilled water coil, blower section with DIDW blower with TEFC non flame proof motor with fan and driver set with pulley. Fine filter section with 5 micron filters in the supply air side, other accessories like mixing box with fresh air, supply air and return air dampers, common base frame with vibration isolator pads, suitable inspection doors for filters, coil and blower sections are provided with heater.

AHU -1 of Capacity 2700 CFM at 125mm WG SP, 5.5 TR

3. DUCTING

Supply and Installation of ducting made out of GI sheet with proper gasketing, Supports, rods, angle frames etc and fabricated as per IS Standards.

24G

4. DUCT INSULATION

Supply installation of Cross linked PE foam insulation material with self adhesive and metalized foil on top.

13 mm

9 mm

5. HEPA MODULES

Supply installation of supply air module made out of power coated CRCA construction with filter fixing and damper arrangements for air flow balancing. The module shall be complete with HEPA filter fixing arrangement, suitable HEPA filter with GI powder Coated grills at the discharge side

610 x 610 x 150

610 x 305 x 150

6. RETURN AIR GRILLS

Supply and installation of return air riser grill in GI powder coated construction with GI powder coated damper suitable to be mounted in the risers of classified areas.

7. VOLUME CONTROL DAMPER

Supply and installation of VCD's with GI powder coated damper suitable to be

mounted in the duct branches.

8. FIRE DAMPER

Supply installation of fusible link type fire damper suitable for being mounted on the supply stream.

C. ELECTRICAL SYSTEMS

9. ELECTRICAL PANEL

Supply Installation, testing and commissioning of MCC panel as per technical specifications for the AHUs/ Condensing units.

10. LIGHTING PANEL

Supply, installation of lighting distribution board.

11. CABLES

Supply installation of cables, Laying, fixing testing commissioning of 1100 V grade PVC insulated PVC sheeted Al/Cu conductor, armoured Cables laid in built up trenches, cable trays, cleated to wall, including supply of clamp, cleats, spacers, hardware, PVC conduits etc, all of zinc coated iron but excluding supply fabrication and painting of structural steel and excavation of earth and back (100 m single core 2.5 Sqmm, 100 m Single core 4 sq mm, 20M 3 core 4 Sq mm).

12. CABLE AND TERMINATIONS

Cables with double compression brass cable glands and crimping type lugs including supply of glands and lugs, ferrules, insulation tape etc, Fixing of colored ferrules on individual core, dressing of cables etc, Lugs shall be heavy duty, long barrel type.

13. CABLE TRAY

Supply installation of trays, constructed out of 2mm thick GI including the angle iron supports in wall/ceiling/structure etc. complete with GI hardware.

14. POINTS WIRE

Supply and installation of wiring for mm thick PVC conduit, using 1.5 Sqmm PVC insulated multi strand Copper wires for phase, neutral and earth with modular type switches and all accessories: Average length 25 Mtrs.

15. LIGHT FIXTURES

Area

2 x 36 W CFL Type.

D. CLEAN ROOM FINISHES AND ACCESSORIES

16. MODULAR WALL PANELS

Supply installation of wall panels 80mm thick made up of pre coated GI sheet of .5mm thick on both sides with PUF sandwiched tongue and groove between sheets, including bottom runner, with silicon sealant and other accessories.

	<p><u>17. MODULAR WALL PANEL WITH RAISERS</u></p> <p>Supply , installation , of wall panels with inbuilt risers 80 mm thick made up of powder coated GI sheet of 0.5mm thick on both sides with PUF 40kg/M3 density sandwiched between sheets, including bottom runner, interconnecting profiles, fixing arrangements with silicon sealant and other accessories.</p> <p><u>18. NON WALKABLE CEILING PANEL</u></p> <p>Non walkable false ceiling with pre – coated GI sheet of 0.5mm thick on one sides 30mm thick panel with PUF 40 kg/m3 density sandwiched between sheets and craft paper on the other side. Including hanging arrangements, all cut outs for light and filters and ceiling with silicon sealant after fitment.</p> <p><u>19. EPOXY FLOORING</u></p> <p>Supply and installation of EPOXY flooring of thickness 2mm for the following areas.</p> <p><u>20. EPOXY PENCIL COVING OF 50 MM X 50MM</u></p> <p>Following areas</p> <p><u>21.DOORS</u></p> <p>Modular sandwiched doors with both side GI powder coated sheet construction of 0.8mm thickness, with 45 mm thick EPS insulation sandwiched between sheets, including flushed hinges, view panels, SS304 handles, push plate, suitable gasket for sealing and provision for door interlocking Sheet thickness :0.8mm Insulation : EPS Frame: Powder Coated GI Hinges: SS butt hinges Handle: SS”D” type single side handle Door View panel: 450 x 600 mm Sealant : Silicon Finish GI Sheet: Powder coated 80 microns</p> <p>Double Leaf door: 1000 mm x 2100 mm.</p> <p><u>22. COVING</u></p> <p>Supply and installation of aluminium coving on the sides of the walls and roof.</p> <p><u>23.COLD ROOMS</u></p> <p>Cold Room – (4.8 m x 3.6 m) – 2 to 8 deg C.</p>	
31	<p><u>Dark Room</u></p> <p><u>Dark Room Furniture Specification</u></p> <p>ITEM NO.1 – Table– 1 No.</p> <p>SIZE:1500L x 750W x 900H mm</p> <p>‘C’ FRAME :</p> <p>* Worktops shall be supported by heavy duty steel frame work.</p>	1

	<ul style="list-style-type: none"> * The frame shall be of rectangular box with a wall thickness of 16 gauge or better, degreased and powder coated for smooth finish and protection. * The dimensions details of frame work is vertical member of minimum 60x40mm, Horizontal top member 50x40 mm & horizontal bottom member 80x40mm * The frame work shall have adjustable threaded foot of nonabrasive material such as tough plastic / nylon * The frame design shall be of cantilever type with sliding facility or cabinets. <p>UNDER BENCH CABINET:</p> <ul style="list-style-type: none"> * In zero galvanized iron (GI) construction, duly finished with epoxy powder coating of 60-80 microns. Door hinges shall be in CED (Cathode Electro deposition) construction of Hettich/Hafele make. Shutter shall have 90° Deg. Opening cabinet shall be provided with one adjustable shelf. Drawer shall be provided with telescopic channels slide rails with ball bearings Hettich/Hafele make. All fastners shall be in nickel plated steel / SS construction. <p>CABINET SHUTTERS & DRAWER FRONTS:</p> <p>The shutters and drawers fronts will Have chemical resistant PVC THERMOFOIL face E1/E2 grade core material the Urethane acrylic coating on top of thermo foil is resistant to deformation and scratches</p> <p>GRANITE WORKTOP:</p> <ul style="list-style-type: none"> * Worktop shall be made of Jet granite of minimum 18±1 mm thickness * The exposed edges shall be rounded molded <p>PLYBACK:</p> <ul style="list-style-type: none"> * 9 mm thick BWP (Boiled Water Proof) Ply back will be provided 	
32	<p><u>Vortexer</u></p> <p>Max RPM: 4500 Orbital Diameter: 4.5mm Motor Type: Brushless DC Speed Setting: Yes Timer Setting: No Max. tube diameter: 30mm Max. Load Capacity: 500gm Press activation: Yes Continuous Mode: Yes Protection class: IP40 Dimensions (WDXH): 100X100X67 mm Weight: 0.55kg.</p>	5
33	<p><u>Spin top Micro Centrifuge</u></p> <p>Power requirement : 30W Max. rotational speed : 6,000rpm</p>	5

	<p>Relative Centrifuge force (RCF) : 2,000 X g 6X1.5/2.0ml angle rotor 2X8X0.2ml strip rotor Rotor for slide</p> <p>Dimensions(WXDXH) : 175X148X118mm</p>	
34	<p><u>General Incubator 37 °C</u></p> <p>Temperature- Natural Convection/Forced air circulation Volume range: 65 litres and above Temperature range should be: ± 5-70°C</p> <p>Temperature Sensor: Fe-Const Control System: PID Programmable Microprocessor Temperature set & display sensitivity temperature variation(up to 40o C): <+- 0.5oC Temperature fluctuation: +-0.1o C Timer: 1min – 100 hrs+ hold position Useful volume litres: 20-25 No. of Shelves: 2/6 (standard/max.) Should include shelf carrier. Internal material electro acid: Anodic Oxidated Al External material : Epoxy – Polyester painted steel Internal Dim. (WxDxH)cm 30x24x30 Net/packed: 23/31 to</p>	5
35	<p><u>Ultra Purification System</u></p> <ul style="list-style-type: none"> • Should be imported. • High ultrapure water quality is required. • It should be integrated with high efficiency RO filtration with 1 micron, 5 micron and activated carbon filter UV lamp (185 254 nm) and hollow-fiber ultra-filter module to not only prevent microbiological growth and reduce the TOC content to <2 ppb, but also to remove endotoxins, microorganisms, RNA DNA and DNasesandRNases. • Should be ideal for all critical applications in the laboratory such as – HPLC, GC-MS, AAS, ICP-MS, Ion chromatography, TOC analysis, PCR, Electrophoresis, Endotoxin analysis, • Immunocytochemistry, Nutrient media for cell culture, Production of monoclonal antibodies, Photometry. • Water Quality • --Type I- 1.5 ltrs /mints • --Type II- Flow rate should 15 ltrs/hr and above • Electrode ionization • 0.2µs/cm conductivity of Type II water • Source of feed water is tap water. • --Chamber size – 60 liters • – Conductivity: 0.055 µS/cm (≅18.2 MO+cm) • --TOC content: <2 ppb • – Endotoxins: <0.001 EU/ml • – RNases: <0.004 ng/ml • – DNases: <0.024 pg/µl • – Microorganisms: <1 CFU • – Particles: <1/ml • *Suppliers may visit the lab in CUTN to test the quality of feed water 	1

	<p>before quoting the product</p> <p>External Pre Filtration assembly with RO system</p> <p>Flow rate: 50 litre/hour</p> <p>Prefiltration should include 1 micron, 5 micron and activated carbon (Additional 3 sets of spun should be supplied along with the system)</p> <p>24 volt pump with Float switch facility for automatic Cut-Off</p> <p>100 Litre storage tank</p>	
36	<p><u>Magnetic stirrer with Hot Plate</u></p> <p>Max .Stirring quantity(H₂O):15</p> <p>Motor rating input/output:15/1.5W</p> <p>Speed range:100-1500rpm</p> <p>Speed display :Scale</p> <p>Heat output:1500W</p> <p>Temperature range:50-500oC</p> <p>Max.Stirring bar length:80mm</p> <p>Adjustable safety circuit:550oC</p> <p>Control accuracy with sensor:+-0.5K</p> <p>Set-up plate material :Ceramic</p> <p>Set up plate dimensions:260x260mm</p> <p>Weight:6kg</p>	5
37	<p><u>Electronic Balance</u></p> <ul style="list-style-type: none"> - Capacity : 220 g - Readability : 0.1 mg - Tare range (subtractive) : 220 g - Response time (avg.) : 2.5 s - Repeatability : <=± 0.1 mg - Linearity : <=± 0.2 mg - Pan (diameter) : 90 mm - Weighing chamber (WxDxH) : 185x182x230 mm - Standard features/Equipment supplied - Monolithic Weighing Technology - Balance incorporates patented monolithic weighing cell. - This weighing cell is robotically etched from a single block of a special, highly resilient aluminum alloy using the high speed cutting techniques. This monolithic weighing cell technology offers unbeatable advantages such as fast response time, high degree of reliability and long service life. - Motorized calibration weight(Internal Calibration) - Bidirectional RS-232 data interface port - ISO/GLP-compliant printing/recording of weighing and - Calibration data when connected with the printer YDP20-0CE. - Hanger for below-balance weighing - Overload protection - Lug for anti-theft locking device 	5

	<ul style="list-style-type: none"> - Levelling feet; level indicator is positioned directly next to the display for fast and easy levelling. - Following Applications programs are Integrated mass unit conversion by toggling, counting with automatic reference sampling updating, weighing in percent, net-total formulation (totalizing) animal weighing, - calculation: multiplication, division - Complete with Instructional Manual 	
38	<p><u>pH meter</u></p> <ul style="list-style-type: none"> • pH range : -2.00 to 20.000ph • Resolution : 0.1, 0.01, 0.001 • Accuracy (pH) : ± 0.002pH • Range (mV) : ± 2000.0mV • Range (Relative mV) : ± 2000.0mV Optional • Range (ORP) : ± 2000.0mV • Resolution (mV): 0.1mV • Accuracy (mV): ± 0.2 mV or $\pm 0.05\%$ of reading whichever is greater • Calibration: pH with calibration editing option, relative mV (RmV), ORP and temperature • Calibration Points (pH): 1 to 5 or 1 to 3 • Calibration Points: 1 point relative mV (RmV) mode, 1 point ORP mode • Isopotential Point: 7.000pH • Range (Temperature): -5.0° to 105.0° C, 22.0° to 221.0° F • Resolution (Temperature): 0.1°C, 0.1°F • Accuracy (Temperature): $\pm 0.1^{\circ}$C • Temperature Selectio: Manual or automatic with ATC temperature probe • Temperature Probe Calibration: 1 point temperature offset calibration • Channels: 1 • Display Type: Graphic LCD with backlight • Backlight Option: optional • Keypad: Comprehensive with menu-specific function keys and dual purpose scroll/shortcut keys • Measurement Modes: pH, mV, relative mV (RmV) or ORP with temperature • Stability: Selectable fast, medium, slow or Smart Stability setting; Selectable off or Automatic Smart averaging setting • Log Function Type: Automatic data logging with Auto-Read and Timed measure modes; manual data logging with Continuous measure mode • Memory: Non-volatile memory preserves data log, calibration log and meter settings • Alarm Output: High/low limit alarm, calibration due alarm (Preferable) • Languages: English • Inputs: BNC (pH or ORP electrode), pin-tip (reference electrode), 8 pin MiniDIN (ATC temperature probe), stirrer input (stirrer probe) • Outputs: USB, RS232 • Probe Type: pH electrode, ORP electrode, reference half-cell electrode, ATC temperature probe, stirrer probe. • Power Supply: Universal AC adapter (included) or 4 AA batteries • AC Adapter: Universal 50-60 Hz, 100-240 VAC power adapter • IP Rating: IP-54 	5

	<ul style="list-style-type: none"> • Certifications/Compliance: CE, TUV 3-1, FCC Class A • Temperature (English) Operating: 41° to 113°F (ambient) • Temperature (Metric) Operating: 5° to 45° C (ambient) • Relative Humidity Range: 5 to 85 %, non-condensing • Weight (Metric): ≤0.9kg • Warranty: 3 year meter warranty • Calibration solution for each calibration point should be included 	
39	<p><u>Autoclave (180L)</u></p> <ul style="list-style-type: none"> • The Vertical Autoclave should have usable Chamber Capacity of 170ltr to 190ltr ltr/ size and should including carrier/ drum. • Autoclave chamber should be manufactured as per ASME standard. • The Autoclave's all joints should be smooth finished for crevice free internals. • Autoclave chamber should be hydro statically tested at 1.5 times of its working pressure. • The unit's internal chamber, cover lid and all wetted parts should be fabricated from stainless steel of 304 grade. • The lid should be equipped with single lever lock mechanism and lever handle molded from industrial plastic. • Autoclave should have Panel Mounted Stainless steel pressure gauge with dual range in kPA (0 ~ 415) and psi (0 ~ 60) along with a correlated temperature scale for steam autoclave in degree Celsius. • Autoclave should be equipped with Solenoid valve for efficient purging & exhaust. • Unit should be equipped with Quick release coupling of stainless steel body for online calibration of pressure gauge. • Autoclave should have ball design Manual exhaust valve for steam release on rear side. • Unit should be supplied with carboy for Exhaust. • The unit should have safety valve to protect the equipment in case of over pressurization. • Unit should have ball design drain valve for cleaning, on rear side. • The operations of the unit should be controlled by a programmable logic controller with dual LED display. • The user should be able to set the temperature up to 122.0°C(minimum)in steps of 0.1°C each. • Timer range should be up to 99 min. (sterilization and Drying). • Equipped with positive pulsing facility for better steam penetration in load. • Equipped with drying facility, post sterilization. • The Lid should be equipped with pressure interlock device. Also the heater should not start if the Lid is open. • The unit should be equipped with Low Water Detection unit and should give Audio- Visual alarm in case of Low Water in the chamber and cut off the supply to the heater. • The unit should be provided with independent safety cut-out for high temperature. • The unit should give indication by audio-visual alarm on completion of set autoclave cycle. • The electrical safety should be ensured by inbuilt MCB. • Manufacturer shall be ISO 13485 certified & should submit photocopy for 	2

	<p>the same.</p> <ul style="list-style-type: none"> Local Service Setup for prompt and efficient post-sales support. Calibration reports with NABL traceability. 	
40	<p><u>Multi Frequency Ultrasonic Bath</u></p> <ul style="list-style-type: none"> Ultrasonic tank made of cavitation-proof stainless steel Casing made of stainless steel, hygienic and easy to clean Sandwich-type performance transducer systems two ultrasonic frequencies, switchable in one unit: 37 kHz und 80 kHz 37 kHz: for the removal of coarse contaminations and for mixing, dissolving, dispersing and degassing 80 kHz: perfect for the cleaning of capillaries and fort he use in quiet work areas, prolonged cleaning period automatic frequency switch-over for simultaneous coarse and fine cleaning activatable Sweep mode for an optimised sound field distribution within the cleaning bath activatable Pulse mode for an intensified ultrasonic cleaning power, additional ultrasonic power up to 20% activatable Degas mode for the quick degassing of HPLC samples or solvents and of fresh cleaning liquids Auto Degas mode for an automatic degassing cycle, e.g. for fresh cleaning liquids ultrasonic power variable for sensitive surfaces temperature-controlled ultrasonic operation: ultrasound starts automatically as soon as the preset temperature is reached indication of unit settings (e.g. set and actual values) by alphanumerical display saving of the last unit settings at switch-off electronic turning knobs rain duct mounted to the unit rear, operation of the drain duct on the unit side automatic stirring during heating-up process pluggable mains cable automatic safety switch-off after 12 h operation to prevent unintended permanent operation automatic safety switch-off at 90 °C to protect the cleaning items against excess temperatures Ultrasonic Frequency (kHz): 37 to 80 Power Consumption Total (W): 320/300 Mains Voltage (Vac): 100-120/220-240 Unit Outer Dimensions W/D/H (mm): 300/179/221 Unit Outer Dimensions W/D/H (mm): 240/137/100 Basket Inner Dimensions W/D/H (mm): 198/106/50 Tank Capacity (l.): 2.75ltr Weight (kg): 3.3kg 	1
41	<p><u>Ice Flaking Machine</u></p> <p>Production Capacity: 200 Kg/24 hrs</p> <p>Bin Capacity: 100-150kg</p> <p>Dimension: Variable</p> <p>Type ofIce : Flakes</p> <p>Compressor: Hermetically sealed</p>	1

	<p>Refrigerant: R-404a CFC Free refrigerant gas Condensation/Cooling: Air Cooled Freezing Cylinder: Stainless Steel I Cabinet: Stainless Steel, corrosion free with PUF insulation Exterior (Chamber) : Stainless Steel Noise Level: Very Low Noise Level Alarms Indications: Visual LED Hardness: 70% Control: Microprocessor Control Power Consumption: 760 Watts Power Requirement: 220-240V /50Hz Operating Temp. : 10 to 38 deg.C Safety control: Microprocessor control against failure of refrigerant & water. Machine should shut off when water is not available in line and resumes when water is available. Machine should stop when the Bin is full and resumes when sufficient ice is taken from the Bin. An out let should be provided to drain water from the Bin to protect it from contamination. Machine should shut off and indicate if the Refrigerant is not sufficient to produce Ice. Adjustable legs to keep the machine in level. Machine should AgION Silver Antimicrobial product protection Machine should CE, VDE and GS approved and IS09001 certified. Net Weight of the Machine: 49 Kg. Dimension of the Machine (WxDxH) : 560 mmx 533 mm x 525 mm Dimension of the Storage Bin (WxDxH) : 620 mm x 870 mm x 1050 mm</p>	
42	<p><u>Micropipettes</u></p> <ul style="list-style-type: none"> • A set of three pieces pipette (Imported) of range 0.5-10µl, 10-100µl and 100-1000µl. • For 0.5-10µl systemic error for volume 0.5µl should be ±0.04 µl. • For 10- 100µl, systemic error for volume 10µl should be ±0.3 µl. • For 100-1000 µl, systemic error for volume 100 µl should be ±3.0 µl. • Application include: Pipetting liquids, Mixing liquids, Filling of plates, gels, and reaction vessels, Phase extraction and removal of supernatants • Ultra- light weight and fully Autoclavable. • Piston System: Ultra-light system made of Forton. Highly resistant to heat, acids and alkalis, mildew, bleaches, aging, sunlight and abrasion • Control Button: Very low operating force, Colour indicates pipette volume, Positioned for perfect Ergonomics. • Volume Display: Four digit display and 2 Button operations. • Volume adjustment: Only few turn to reach from maximum to minimum volume. • Secondary adjustment display and opening: To adjust pipette to a liquid very different than water. • Spring loaded tip cone: Improved ergonomics to reduce stress without sacrificing tightness. • Ejector: Very low ejection force 3.6 N, positioned for perfect ergonomics. 	6

	<ul style="list-style-type: none"> • Quick connection clip: Remove lower part easily. • Viable calibration seal to indicate factory calibration not changed. • Each Micropipette should have autoclavable tip Box with 96 tips. • Each pipette should be supplied with 1000 nos of tips with bags. • Should give pipette holding strand/ carousel with minimum holding capacity 5 numbers of pipette. 	
43	<p><u>Plant Growth Chamber</u></p> <p>INTERNAL VOLUME: Minimum 1050 liters and above either as single or two separate chambers with growing height of more than 105 cm in each chamber.</p> <p>SHELVES: Minimum of three well insulated shelves which can be removed and fitted back easily as per the needs. Minimum height between shelves 31 to 40 cm and above. The height of shelves should be adjustable.</p> <p>INTERIOR: Should be of corrosion proof material.</p> <p>DOOR: Door/s should be front opening with locking system/s.</p> <p>INSIDE CHAMBER TEMPRETURE: should be programmable between +10°C to 44°C with lights ON.</p> <p>TEMPRETURE ACCURACY: ±0.5C or less at all temp.</p> <p>TEMPRETURE CONTROL: Cooling and heating should be compressor based.</p> <p>LIGHTING: Fluorescent white lamps/ tubes and incandescent lights. light intensity in each shelf should be minimum of 320-400 µmoles/m2/s and above. Intensity should be adjustable between zero to maximum at +10°C +40°C. provide three shelves with same light intensity</p> <p>HUMIDITY: maintainable in the range of upto 60-80% RH. Separate tank for storing demineralized water for Continues supply to humidifier.</p> <p>AIR FLOW: Either vertically/horizontal/ any other possible direction to maintain air quality</p> <p>PROGRAMMABLE OPTIONS: temperature humidity and light requirements should be programmable as per the needs with settings for day and night timing. Facility to program and store 25-30 program conditions. Arrangements for setting upper and lower temperature limits with alarm system. Auto restart, delay timer for power on, ambient temp monitor, dual experiment protection via integrated yet independent temp limit shutdown, auto-restart when temp inside is normal. Two power receptacle inside the chamber. Castor for easy movement. Lock and key for door.</p> <p>DISPLAY: Digital display of actual and set temperature and humidity of the chamber.</p> <p>ADDITIONAL REQUIREMENTS: bidding documents should include the original brochure of the quoted product/model. The list of users with contact details and performance certificate in India who are using similar models for Arabidopsis application from starting to maturity. ISO Certificate.</p> <p>WARRANTY:Three years warranty from the date of installation.</p> <p>OTHER OPTION QUOTE (OPTIONAL extended): dehumidification, ultrasonic humidification & dehumidification, observation window, PAR Sensor, CO2 addition & removal, extended temperature quot. Upto 60°C, email alert and phone dialer, software & hardware for internet connection.</p>	1

Volume

Minimum volume required is 1100-1200 liters or more.

Lighting

Each tier of shelves lighted by properly placed Fluorescent lamps to have uniform light distribution over entire shelf.

Intensity programmable minimum 350-400 $\mu\text{moles}/\text{m}^2/\text{s}$ of light irradiance measured @ 6" from lamps on 2 on/off light events.

Programming and control of the lighting is done via single controller.

Three Tiers , to have minimum 350-400 umole light in each tier

Controller Feature

Controls temperature, lighting, humidity (optional) and CO2 (optional)

Single-board electronic solid-state design. 10 Key industrial Keypad with VFD display and LED indicator

Programs can be configured to run in real time or elapsed time. Continuous, Diurnal and multi-step program feature. Memory of minimum 50 or more programs storage with multistep feature.

Ramping and non-ramping program methods.

Multiple programs can be linked creating complex sequence to simulate natural conditions.

The number of output channels used for control of lighting events, convenience outlets etc., minimum 23 channels.

Trouble shooting with on board diagnostics

Dual experiment protection via integrated yet independent temp limit shutdown. Auto-restart when temp inside is normal.

Temp low and high deviation alarm.

Ambient temp monitoring.

Alarm (audio and visual)

24 hour chamber monitoring

Power failure event logging.

Auto restart in case of power failure

Two Calibrations offset per input channel. One for Lights ON and another for lights OFF

Cabinet construction

Interior constructed of 22-gauge electro-zinc plated steel

Exterior constructed of 18-gauge exterior electro-zinc plated steel

Welded seams and joints on outer and inner shells

Inner shell supported by non-compressing/non-thermal conducting material locking inner liner in place without a metal-to-metal bond to outer case

Chamber is completely self-contained.

Overall wall thickness is 2" (5.1 cm).

	<p>Interior and exterior to be painted with highly reflective, high temp baked white powder coating for good light distribution.</p> <p>SS Floor drain</p> <p>Growing height: Should have a minimum plant growth height of 12-15 inch per tier</p> <p>Temperature 10°-44°C (±0.5°C) lights ON and 4°-44°C (±0.5°C) lights off The temperature setting accuracy 0.1°C In case of safety alarm, the controller should shut down the chamber and restart when the temp returns to normal. The system should restart automatically when internal temp is normal</p> <p>Insulation Woodless construction using CFC free insulation (overall wall thickness is 2" [5.1 cm], ample insulation for maintenance of stated temperature range)</p> <p>Door One door opening Provides full access to the chamber interior (magnetic gasket provides a tight seal to door frame)</p> <p>Interior space Work floor area of 20-25 ft²</p> <p>Shelving Three Tier of white epoxy coated steel wire shelving of 27" x 28.8" Shelves can be moved up and down in ½ increments.</p> <p>Refrigeration Self-contained air-cooled condensing unit with hot gas bypass system for continuous compressor operation, extended life and close temperature control. Used for cooling and heating. NO Heater to be used for heating. Solenoid valves have an extended stem for quiet and long life operation Rear chamber wall mounted evaporator coil incorporates an air circulation fan for uniform air distribution inside the chamber. Air Diffusers on the rear wall. Two power receptacle inside the chamber to connect any small equipment. Door lock with key, Delay timer to delay the start of the unit in case of power failure. Floor drain at the bottom, 220 volts operation, Service wiring diagram and spare parts list to be provided for the unit, Four level password protection for controller operation/ safety & security, Status LED in front to display mode of operation (Heat/Cool and other options), Light life time alarm, RH:Up to 60-80% with PAN Type humidifier (lights OFF) with RH SENSOR. Imported equipment.</p>	
44	<p><u>Ultrasonic Homogenizer, 230V/50Hz</u></p> <p>Delivers up to 300 Watts of ultrasonic power to the Titanium Tip with precision control from a microprocessor and a graphical user interface displayed on a large bright 5.7" (145 mm) LCD display. The integrated Sound Abating Chamber</p>	2

	<p>reduces cavitation sound emitted during processing. Recommended sample volume range from 200 µL to 3 L. Select a Tip from the list below based on your processing volume. Includes: Microprocessor Controlled Ultrasonic Generator with Sound Chamber, Transducer, and Pin Wrenches)</p> <p>TECHNICAL SPECIFICATIONS Power Output : 0 – 300 Watts Processing Volume : 250µl to 3000ml Output Frequency : 20 kHz Automatic Tuning : Yes Microprocessor Control : Yes Duty Cycle (Pulsing) : 10 – 90% Timer : 1 sec, – 99 hours Display : 5.7" (145mm) GLCD Temperature Control: 0 to 100 deg C. Sound Abating Chamber : Yes</p> <p>DIMENSIONS Generator : 12.0 in W x 10.0 in D x 4.0 in H 30.5 cm W x 25.4 cm D x 10.2 cm H Transducer : 3.5 Dia. X 4.0 in L 8.9 cm Dia. 10.2 cm L</p>	
45	<p><u>Compound Microscope</u></p> <ul style="list-style-type: none"> • Should have Plan Achromatic objective with anti-fungus treatment 4x, 10x, 40x (spring) & 100x (oil & spring). • With a CMOS 5 MP CAMERA (Optional). • The optical system should consist of UIS 2 (Universal Infinity System) and have a built-in transmitted illumination system 6V 20W halogen bulb (100-240V 50/60Hz universal voltage or LED). • Anti-fungus treated 10x paired eyepiece with F.N 20. • Should have Siedentop observation Binocular head for individual choice of adjustment. • SMPS circuit for constant voltage output. • Reckless stage for durability and easy of use, Focus lock for mechanical stage, High performance. • Frame should be Ergonomic & compact design for user convenience. • Should have Stage height movement (Coarse movement stroke 20mm) Fine focus graduation: 2.0µm. • Fixed quadruple nosepiece. • Stage have Wire movement mechanical fixed stage: 120 x 132mm Travelling range: 76mm (X) x 36mm (Y) and Single specimen holder. • Observation butte should be 30° inclined Binocular tube, Inter pupillary distance adjustment range 48-75mm. • Objective lenses should be antifungal and with configuration for 4x N.A: 0.10, W.D: 18.5 mm, 10x N.A: 0.25, W.D: 10.6 mm, 40x N.A: 0.65, W.D: 0.6 mm. • Should be CE certified. • CMOS 5 MP CAMERA with specification as bellow: • High resolution CMOS Camera with more than 5 Mega pixel for excellent image contrast and Optically corrected C-mount adapter, 1/2" Sensor, 	5

	<p>pixel size: 2.2 x 2.2 micron, Resolution: 2592 x1944, Frame rate 5 @ 2592 x 1944 / 18 @ 1280 x 960 / 60 @ 640 x 480, Exposure time 0.29 ms to 2000 ms, Spectral range 380 -650 nm with IR filter, Operating system, WinXP/ 7 /8 /10, Image format JPG / TIF / BMP / PNG, Measuring software.</p> <ul style="list-style-type: none"> • Should include Computer system (Desktop) with minimal requirement As; Intel core I processor, 2GB ram, 500GB ROM, 15’’ monitor, UPS, mouse and keyboard. 	
46	<p><u>Electroporator</u></p> <ol style="list-style-type: none"> 1) Universal electroporation system to transfect cell types, bacteria, yeast and primary and stem cells. 2) System to have preset protocols includes the most common mammalian and bacterial cell types. 3) System to have protocol library for collection of electroporation protocols for every cell type including primary, immortal and bacterial cells. 4) Recall of parameters used in the previous 100 experiments which will be helpful in trouble shooting. 5) Arc protection features to ensure reproducibility and sample protection. 6) System to be compatible with any electroporation buffer and system to have compatible cuvettes with 0.1cm, 0.2cm, and 0.4cm gap. 7) The system to have output voltage of 10-3000 V. with exponential or square waveform. 8) The system to have capacitance of 10-500V, 25-3275µf in 25 µf increments. 9) The system to have resistance parallel of 50-1000 Ω in 50 Ω increments, plus infinity. 10) The system to be supplied with ten packs of 1.5ml electroporation buffers. And 3 packs of cuvettes of 0.1cm, 0.2cm and 0.4cm each pack to have 5 numbers each. <p>The square timing as follows: 10-500V, 0.05 – 10ms in 0.05 ms increments, 10-100ms pulse in 1 ms increments, 1-10pulses, 0.1-10 sec interval. 500 – 3000V: 0.05-5ms in 0.05ms increments, 1-2 pulses, 5 sec minimum interval.</p>	1
47	<p><u>ELISPOT- Analyser</u></p> <p>Multicolor elispot analyzer for analysis of T & B cells</p> <p>A state of the art design with better esthetics (integrated computer and monitor) to provide the most efficient footprint (75cm x 65cm x 85cm or lesser) and designed for work in a primary tissue culture laboratory as well as in an office environment.</p> <p>To recognize spot morphologies (without the need of adaptation or adjustments) for determination of quantity, size and intensity of the spots even with stored image series and scientifically validated for measuring the production of various cytokines at single cell resolution with automatic gating (higher and lower).</p> <p>Light Source: An array of min 100 LED in ring and flat panel with top and back light illumination</p> <p>A non-fluorescent Multicolor (capable of three color) analysis – measuring two substrates at a time individually, as well as double producing cells as the third color.</p>	1

	<p>Imaging: an ultra-high resolution with 10 megapixels images, quality camera (with optical zoom) enabling 24-bit color fidelity for well images to recognize over 3,200 spots per well.</p> <p>Optical Configuration should have a long focal depth to accommodate well to well variations of membrane bulging on a plates –permits scanning 60mm and 90mm perti, from 6 ,12,24,48 and 96 well plates and to visualize spots/objects in the microscopic range (as small as 20 micrometer in diameter). An automated encoder controlled ball bearing stage that homes and auto centers (including image analysis-based automatic fine adjustments) on each well</p> <p>Computer: Intel core i5, 2100 GB hard disk, 4 GB RAM, integrated fire wire host adaptor, 1 GB onboard LAN, DVD RW,4-front panel USB2.0 ports, 22” flat monitor with front audio speakers and microphone headset.</p> <p>Software features:</p> <ul style="list-style-type: none"> • Should comply to GLP, 21 CFR PART 11 requirements, • Should automatically store - the raw data, results of the automated count with overlays of spots counted (providing full transparency of what the software counted automatically), any revision that needs to be done in the quality control step – e.g., excising a part of the membrane that was damaged or contains an artifact • Should have advanced Quality Control features – including recounting batches of wells with revised parameters while annotating and saving all such modifications made to the automated count • Plate reading in less than 60 seconds per plate for a 96 well plate • Should auto centre fine centers on each well to enhance the precision for capturing the image for the entire membrane bottom. • Ability to establish spot size distributions in single well, or to cumulate it in any number of wells, and to automatically plot the distribution into a spot size distribution curve and to directly export it into Excel. • Ability to direct export functions into PowerPoint to display wells side by side for visual comparison. • Should be able to use the system for bioassays 	
48	<p><u>Oxygen Electrode</u></p> <p>Measuring range: Oxygen: 0 - 100% pH: 0 - 14pH Aux: 0 - 4.096V Signal inputs: Oxygen electrode (SMB) pH/ISE (BNC) Auxiliary (8 pin Mini Din)</p> <p>Resolution: Oxygen: 0.0003% (24 bit) pH: 0.0006pH (16 bit) Aux: 62.5µV/bit (16 bit)</p> <p>Polarising voltage: +700mV</p> <p>Input sensitivity: 0 - 9000nA</p> <p>Magnetic stirrer: Software controlled between 150 - 900rpm in % steps</p> <p>Sampling rate: 0.1 - 10 readings/s</p> <p>Electronics: Microcontroller: 16 bit high performance CPU running at 32 MHz ADC: Dual, Low power, 16/24 Bit Sigma Delta Communications: USB2.0</p>	1

	<p>Analogue output: 0 - 4.5V O₂ signal Dimensions (HWD): 60 x 203 x 111mm Weight: 0.45 Kg Power: 12V dc @ 100mA 90Vac – 264Vac @ 1A</p> <p><u>Oxygen electrode chamber</u></p> <p>Suitability: Liquid-phase respiration/ photosynthesis</p> <p>Construction: Clear cast acrylic</p> <p>Sample chamber: Precision bore, borosilicate glass tube</p> <p>Sample volume: 0.2 - 2.5ml</p> <p>Temperature control: Water jacket connected to thermo regulated circulating water bath</p> <p>Dimensions (DH): 65 x 105mm Weight: 100g</p> <p>Plunger: Variable plunger assembly with central bore for sample additions</p> <p><u>Oxygen Electrode Disc</u></p> <p>Electrode type: Clark type polarographic oxygen sensor Electrode output: Typically 1µA at 21% O₂</p> <p>Residual current: Typically 0.02µA in 0% O₂</p> <p>Response time: 10 - 90% typically < 5 seconds</p>	
49	<p><u>Photosynthesis system with fluorescence and oxygen system</u></p> <p>Chlorophyll fluorescence and Photosynthesis parameters should be simultaneously measured</p> <p>Measuring (Modulated) Light: Red LEDs, 630 nm, modulation frequencies of 0.25, 1, 10 and 20 kHz</p> <p>Actinic Light: Blue and Red LEDs, 470 and 630 nm, respectively. Independent control of blue and red intensity, 0 to 100 µmol m⁻² s⁻¹ PAR for the blue LEDs, 0 to 3000 µmol m⁻² s⁻¹ PAR for the red LEDs Saturation Light: Blue and Red LEDs, 470 and 630 nm, respectively, intensities, 0 to 7000 µmol m⁻² s⁻¹ PAR Far-Red Light: Far-Red LED, 740 nm Fluorescence Signal Temperature Dependence: < 1% drift with 10 °C change in temperature User Interface: LI-6400 console or remote Windows® and Macintosh® interface F Data Output (Analog): ±5V analog output for external data acquisition Power Consumption: < 6W during saturation pulse Leaf Area: 2.0 cm² Operating Temperature Range: 0 - 50 °C Dimensions: 6H × 6W × 8D cm Weight: 0.4 kg *</p> <p>Highly accurate 4-channel infrared gas analyzer (2 x CO₂ and 2 x H₂O abs., 20 cm optical path)</p> <p>CO₂ Control: Integrated CO₂-control via thermal valve, range 0 to 2000 ppm, CO₂ supply via CO₂ cartridges (8 g CO₂, provide more than 48 h continuous supply at 350 ppm) or via CO₂ cylinder with pressure reducer.</p> <p>H₂O Control: Integrated H₂O control range 0 to nearly 100% r.h. (noncondensing)</p> <p>Temperature control: Three modes of temperature control: tracking ambient temperature, set value for cuvette temperature and set value for leaf temperature</p> <p>Leaf temp. Measurement: Thermocouple, range -10 to +50°C, accuracy ±0.2 °C. 4</p>	1

	<p>temperature sensors (2 for upper and lower leaf surface, 1 for cuvette air temperature and 1 for external air temperature)</p> <p>Internal light sensor: Selective PAR measurement, range 0 to 2500 $\mu\text{mol m}^{-2} \text{s}^{-1}$ PAR, accuracy $\pm 10\%$, three sensors, (one in the upper and one in the lower part of the cuvette and 1 on the measuring head)</p> <p>Cuvette ventilation system: Two frequency controlled impellers, one each in upper and lower part of the cuvette, speed adjustable.</p> <p>Mass flow measurement: Thermal mass flow meter, range 0 to 1500 $\mu\text{mol s}^{-1}$, accuracy $\pm 1\%$</p> <p>Leaf area: interchangeable adapter plates from 1 to 8 cm^2, flexible shape</p>	
50	<p><u>Automated Haematology Analyser</u></p> <ul style="list-style-type: none"> • The instrument must meet or exceed the following requirements: • Must be an open vial sampling management system. • Should preferably have a positive tube identification (tube bar-code read at time of aspiration) • Should support manual input of patient Identification in case bar code reader is not operational • Should be capable of operating by a touch screen • Should perform and display a hematology profile consisting of at least the following 20 parameters: • White Blood Cell Count, Lymphocyte %, Monocyte %, Neutrophil %, Eosinophil • Basophil %, Lymphocyte #, Monocyte #, Neutrophil #, Eosinophil #, Basophil #, • Red Blood Cell Count per, Hemoglobin, Hematocrit %, MCV, MCH, MCHC, Red • Cell Distribution Width CV% & SD, Platelet Count, MPV • Must be capable of performing CBC or CBC/Diff in whole blood and pre-dilute modes of operation • Must automatically execute a secondary dilution of 1:10,000 dilution ratio for RBC estimation • Weight of analyzer must not exceed 14 kgs. • Must use only 3 reagents for obtaining 5 part differential analysis • Must employ blue LED light for WBC estimation • Must employ dual counting cycles for all samples (RBC, PLT and WBC) • Must analyze leucocytes in their near-native state so as not to physically or biochemically Alter their morphology. • Should be capable of operating at atmospheric pressures between 800 – 1000 mbar and Altitude up to 3000 meters • Should have low power consumption of less than 120 W • Must employ flags, codes and messages to meet the labs individual laboratory needs. • Information Management System must provide 2 different levels of 	1

	<p>User Access for security of data and system configuration.</p> <ul style="list-style-type: none"> • Should be capable of storing at least 20,000 patient results including graphic results. • Should be capable of storing upto min. 10 nos. of control files with 90 data points each. • Should record Reagent Information Lot numbers etc. • Should be capable of transmitting patient results, control results, numeric and graphic to host computer. • Must provide short term storage for: Startup log, Reproducibility, Carryover, Maintenance, System Events etc. • Should support Inter laboratory Quality Assurance Program • Should have a throughput of up to 60 samples per hour when processing normal samples in any mode for CBC or CBC//Diff. • Should not require more than 14 µl for whole blood analysis and not more than 22 µl Sample in pre-dilute mode. • Must support multiple bar code readers and labels : • Code 39 / NW7 / Codabar / Interleaved 2 of 5 / Code 128 • Should have Zero Routine Daily Maintenance which includes utilization of the following • Self-cleaning blood sampling valve • Must have bi-directional communication capability with laboratory information system • Must be able to edit results and add appropriate comments • Must provide alerts for low reagents. • Manufacturer must provide commercial control materials for routine quality control of CBC and differential parameters • Should not require more than three reagents including cleaning agent in order to minimize • Inventory, lot-to-lot quality control, maintenance and calibration. • Should be imported • Must include one set of start-up reagents 	
51	<p><u>Green House 12m × 24m side Height 3m</u></p> <p>Specification Structural Construction: All pipes and mild steel structures to be 90 micron to 120 micron Galvanized pipe Steel Construction with structural stability of 36m/sec and a hanging load of 2 KN will be considered and entire structure is made in modular complete knock down mode which to be fitted with HT TVS nut bolt system with aluminum locking profile to fix covering materials with structure. Opening and closing of side wall system to be fixed in Bottom track system to have the maximum operable area at any point.</p> <p>Covering: HDPE roof and wall installation fabric to be 100% recyclable and 97% UV stabilized with Lead and Pthalate free yarns and constructed in monofilament & tape method with lock stitch knitting pattern.yarn to withstand the temperature variance of -30 degree to 75 degree Celsius.Yarn to carry nominal fabric mass of</p>	1

	<p>350 GSM (+/- 10%) and to have approximate thickness of 1.5mm. Fabric to carry warp tensile strength of 635N/50mm while having a elongation break of 96% and Weft tensile strength to be 2950 N / 50mm while the elongation break to be 70.4% as per AS 2001.2.3.1 and wing tear warp (mean to be 187 N and wing tear weft to be 359N as per AS 2001.2.10 while bursting pressure to be 3500 kPa at mean level as per AS 2001.2.4 and Bursting Force to be 2145N as per AS 2001.2.19. while the flammability to stand at index 14 as per AS 1530.2 and 3 and yarn to block UV of 97%. Shade fabric to have Oeko-Tex® 100 and Green guard Certification</p> <p>Air circulation Fans : The fans should deliver the required air at 15mm static pressure. The maximum center to center spacing between the two fans should be of 7.5m. The height of the fans is to be determined based on the plant height which is proposed to be grown in the greenhouse. The fan blades and frame are to be made of non-corrosive materials like aluminium/stainless steel.</p> <p>Co2 generators : Co2 generator to cover the maximum area of 4800 sft while 72 cubic feet per hour generation @60 degree and 8.25 pounds of generation per hour to fetch. the burner range BTU per to be 20000 – 60000 ,the dia of the generator not to be more than 20 “ and height not to exceed 24”.</p> <p>Dripping System: Watering system Micro irrigation system is the best for watering plants in a greenhouse. Micro sprinklers or drip irrigation equipments can be used. Basically the watering system should ensure that water does not fall on the leaves or flowers as it leads to disease and scorching problems. In micro sprinkler system, water under high pressure is forced through nozzles arranged on a supporting stand at about 1 feet height. This facilitates watering at the base level of the plants. Equipments required for drip irrigation system include i) A pump unit to generate 2.8kg/cm² pressure ii) Water filtration system – sand/silica/screen filters iii) PVC tubing with dripper or emitters Drippers of different types are available i) Labyrinth drippers ii) Turbo drippers iii) Pressure compensating drippers – contain silicon membrane which assures uniform flow rate for years iv) Button drippers- easy and simple to clean. These are good for pots, orchards and are available with side outlet/top outlet or micro tube out let v) Pot drippers – cones with long tube Water output in drippers a. 16mm dripper at 2.8kg/cm² pressure gives 2.65 litres/hour (LPH). b. 15mm dripper at 1 kg/cm² pressure gives 1 to 4 litres per hour</p>	
52	<p><u>Biolistic Particle Delivery System</u></p> <ol style="list-style-type: none"> 1) The System to use Helium accelerated nucleic acid –coated micro particles to penetrate target cells, tissues and organelles. 2) System should be efficient in transforming Plant leaves (thin and thick). Recent publications with Leaf bombardment citing the equipment should be provided. 3) The System to be compatible with insect and fish embryos, cultured plant and animal cells, pollen, algae, fungi, bacteria, intact plant tissues, animal tissues, mitochondria and chloroplasts. 	1

	<p>4) The system should be able to use in situ, in vivo, ex vivo and invitro.</p> <p>5) The system should use biologically inert, spherically shaped gold micro particles available in a range of accurately sized diameters (0.6, 1.0 and 1.6µm)</p> <p>6) The system should use helium gas with high pressure for penetration within a pressure range of 600 psi and 2400 psi.</p> <p>7) The system should have up to sample cartridges each containing 500ug of micro carrier.</p> <p>8) Sample Cartridges to be stable for upto 1 year when stored at 4 degree Celsius.</p> <p>9) The System to be supplied with Hepta adaptor to enable 7 to 10 times more cells to be transformed.</p> <p>10) The Hepta adaptor should double the target area from 40cm² to ~ 70cm²</p> <p>11) The Hepta adaptor with high pressure Helium should split into seven ways for making maximum bombardment with less force for plants and cell cultures.</p> <p>12) The dimensions of the system to be 29 X 25.5 X 47.5 cm.</p> <p>13) The manufacturers should supply necessary consumables, coated microparticles and suitable ruptured discs.</p> <p>The operating temperature to be 0-35 degree Celsius</p>	
53	<p><u>Trinocular Stereo Zoom (Parallel-optics Zoom System) with Epi-fluorescence attachment and Digital Color Camera</u></p> <p>Magnification Range up to 80X times using 1X Plan Apo objective (W.D. 70mm) with standard 10X Eyepieces</p> <p>Apochromatic Zooming Body with zooming Ratio 8:1 or more (Preference will be given to highest Zooming ratio)</p> <p>Highest magnification using 10x eyepiece and 1x objective should be obtained..</p> <p>Binocular Eyepiece Tube with 20 Degree and Light Path Selection (Eyepiece: Port 100:0 / 0:100)</p> <p>Total magnification range from 4X to 450X or more (depending upon eyepieces and Objectives used).</p> <p>Eyepieces 10X FOV 22mm or more with Diopter Adjustment on both the eyepieces.</p> <p>Plan Apo Objective 1X with N.A 1.00 or more.</p> <p>Transmitted LED base with bright adjustment. Image contrast under OCC illumination can be easily adjusted for enhance the contrast of uneven surfaces.</p> <p>Epi-Fluorescence attachment with four filter cubes mounted, fly eye lens built in for bright and uniform illumination, High S/N ratio for crystal-clear fluorescent images. HG Pre-centered Fibre Illuminator Intensilight (130W) with Filter Blocks. Filter cubes, GFB</p> <p>5 Megapixel Digital color camera or more for capturing all images, 12 bit camera and C- mount adapter 0.55X , QE more 60% in green, Exposure 100 microseconds to 30 Seconds, Live display 25 FPS or more, USB 3 interface. Camera Control Unit-</p>	1

	<p>Software for image acquisition. Software- Image analysis Acquisition, Documentation, 3D capability, Time lapse imaging, Z stack annotations, Report Generator, Multidimensional file format and viewer.</p> <p>Branded PC should be provided.</p> <p>Optional Epi Illuminator with LED source Flexible Double Arm Fiber Illuminator set with the direction and angle of illumination can be changed to suit the sample. Provision for double nosepiece with two-objective switchover and teaching head.</p> <p>Microscope, Digital Camera and Image Analysis Software are to be quoted from same manufacture only for better synchronizations and support</p>	
54	<p><u>Dissection Microscope</u></p> <p>Main Body: Microscope Zoom body with a zoom ratio of 7:1 or more The minimum magnification using 1X objective and 10X eyepiece should be 6.7 times or lesser (there should be an option to provide minimum magnification of 2 times) and Maximum magnification using 1X objective & 10X eyepiece should be 45 times working distance 110mm, Zoom adjustment knob is left/ right single – shaft horizontal knob, Built in 1X objective and built in C-mount adapter, mounting arm. Standard stand Black and white reversible plate. With fibre optic illuminator/LED for cold light - including double interlock light guide, 12V 22W light guide illuminator, AC adapter and standard bulb, Power cord, Collector lens, 12V 22W bulb with mirror reflector and (With all accessories items)</p>	1
55	<p><u>Semi-automated Coagulometer</u></p> <p>Specifications</p> <ul style="list-style-type: none"> ➤ Photometrical Source solid state - using opto-electronic devices wavelenghts 630 nm (2 channels) and 405 nm (1 channel) ➤ Pre-programmed Tests PT APTT & TT for 2-channel operation using clotting test procedures at 630 nm ➤ FIBRINOGEN-Clauss for 1 channel use with clotting procedures at 405 nm ➤ ANTITHROMBIN & D-DIMER for 1 channel operation using chromogenic and immunologic test procedures photometrically, using fixed time kinetics at 405 nm ➤ Data Base Test result storage of up to 100 test results, based on patient code numbers, date time, results in secs, D abs and relative conversions per analysis run. Program with automating updating feature “first in - first out”. User defined viewing, editing and printing possibility. 	1

	<ul style="list-style-type: none"> ➤ Quality Control Program for the storage of up to 20 normal and abnormal QC results for each parameter. <p>Updating via “first in - first out” principle. Shown in display: lot number, sample number, sample Mean, sample SD and sample CV values ,and Printout: lot number,</p> <ul style="list-style-type: none"> ➤ Target mean, Target SD, sample number, sample Mean, sample SD and sample CV values”, moreover Levey-Jennings plot and single data are shown. In order to review single results go to samples selection. ➤ Photometrical Calibration automatically performed during instrument's self-testing procedure by request of the analyzer during operation and at any change of method ➤ Linearity Control instrument indicates an "out of linearity status" ➤ Drift Compensation automatically. ➤ Photometric range: 0,0 - 2,3 ABS (amplified range) : 0,0 - 4,0 ABS ➤ Photometric Resolution A = 0,001max ➤ Accuracy: +/- 3 % ABS (medium value) ➤ Start-up Control System self-diagnostics with information on the display, via LEDs and beeper ➤ Print-out of calibration data date/time, lot. No., m-slope, q-intercept, r2-linearity coefficient, values of cal points or values of ABS points used for calibration ➤ Incubation Control System accuracy +/- 0,3 C ➤ Macro Methods minimum fill volume for cuvette: 300 uL max: 1.000 uL ➤ Required Measuring Time method dependent: min 5 secs, max 90 secs ➤ Cuvette Light Pass 6 mm ➤ Weight: Less than 3.0 kg ➤ Should be imported ➤ Start-up reagents for the analysis of PT, TT and aPTT ➤ Environmental operational temberature:15 to 35 C 	
56	<p><u>Blood culture equipment</u></p> <ul style="list-style-type: none"> • Position: 40 and above • Capacity: 240-300 sam • ples per month (with 5 Days Negative Protocol) • Technology: Fluorescence/ calorimetry and better • Advanced Algorithm- more than 16 Growth Curves • Media Specific Algorithm • Continuous Monitoring • Continuous Agitation • Auto-QC with In-built Calibrator • External Bar code Scanner 	1

	<ul style="list-style-type: none"> • In-Built Liquid Display Screen • Antibiotic Neutralization Devices- RESIN Media • Delayed Vial Entry (up to 48 Hours) • Patented Resin Media • Exclusive media for both bacterial and Fungal Culture from Blood Specimen <p>Dedicated and Compatible online UPS System should be provided with minimum 60 min battery backup (pure sine wave with output voltage with ± 1 % regulation.</p> <p>Should provide minimum of 100 vials (Each) of higher model aerobic and anaerobic blood culture.</p> <p>Should include computer system with minimal features as bellow:</p> <p>Intel core I processor , ≥ 2 GB (\geqDDR 3) RAM, ≥ 500 GB Hard disk , CD-DVD writer, ≥ 15” LCD monitor, mouse and 101 number key board, UPS, licenced windows OS and Microsoft office, Printer , software for data acquisition/ analysis and storage from the equipment.</p>	
57	<p><u>Vertical Electrophoresis Unit (Tall)</u></p> <p>Specifications</p> <p>Glass Plate Size (w x h) 18 x 24 cm</p> <p>Spacers 0.75 mm, 1.0 mm, 1.5 mm</p> <p>Maximum Power Settings 500 V, 60 mA, 20 W</p> <p>Maximum Temperature 45°C</p> <p>Indoor Use 4-40°C</p> <p>Humidity Up to 80%</p> <p>Unit Dimensions (w x h x d) 24 x 36 x 15 cm</p> <p>Safety Certifications EN61010-1, UL3101-1, CSA C22.2 1010.1, CE</p> <p>Must include:</p> <ul style="list-style-type: none"> • Lower Buffer Chamber/CastingStand on Leveling Base with HighVoltage Leads. • Upper Buffer Chamber • Safety Lid with Electrodes • Glass Plates, 18 x 24 cm–2 pcs • Clamp Assemblies, 8 cm–2 pcs • Clamp Assemblies, 16 cm–2 pcs • Cams–2 pcs • Slotted Gasket for Upper Buffer Chamber • Bubble Level • Laminated Gasket for Casting Stand • Spacer-Mate–Alignment Template • Wonder Wedge–Plate Separation Tool • Gel Seal • Comb, 15-well, 1.5 mm thick • Spacers, 1.5 mm thick (2 cm wide)–2 pcs 	1
58	<p><u>Horizontal Electrophoresis unit (long)</u></p> <ul style="list-style-type: none"> ➤ Should able to run as many as 60 samples at once with a minimum of 15cm X 20cm (w/L) gel. ➤ Should come with a power pack unit suitable for this unit. ➤ Multichannelpipettor-compatible combs should available. ➤ Should be ideal for any molecular biology lab. 	1

	<ul style="list-style-type: none"> ➤ Should compatible with Cast gels 15 cm wide × 10, 15, or 20 cm long, with one or two combs. ➤ Should have facility to control the depth of sample wells. ➤ Should have seamless moulded high impact plastic buffer tray. ➤ Plugs should be safe from corrosion. ➤ Should have a rugged moulded lid with safety guards to protect against electrical hazard. ➤ Should have a large diameter bubble level and levelling feet. ➤ Strain-relieved high voltage power cords; and red and black details on running trays and buffer chamber for orientation. ➤ The running trays should be thick UVT acrylic; self-locating/centring guides to prevent tray floating or sliding; tray handles that align combs squarely at either end or the center of the gel; and flush tray ends for foam seal, or taping if you wish. ➤ Running trays seat snugly into the casting tray where the ends are sealed by closed-cell foam strips. ➤ Should include casting tray. 	
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Vendors should provide Voltage Stabilizer and Power back up where ever it is applicable for all the above Instruments mentioned in this tender document.

Compliance Statement to specifications of the equipment

(Compliance with specification column is to be filled up by the bidder stating YES/NO as the case may be)

Sl. No.	Specifications	Requirements	Compliance with Specifications (Y/N)

List of Equipment to be supplied

Sl. No.	Name of Equipment	No. of Units.	Estimated Value (In Rs.)	EMD Amount (In Rs.)
1	Real Time PCR	1	20,00,000	50,000
2	Fluorometer	1	2,60,000	6,500
3	Automated Cell Counter	1	3,50,000	8,750
4	Flow Cytometry	1	90,00,000	2,25,000
5	Phase Contrast Microscope with Fluorescence	4	40,00,000	1,00,000
6	Ultracentrifuge	1	81,00,000	2,02,500
7	-86°C ULT Deep Freezer Upright model (700 ltrs and above)	2	16,00,000	40,000
8	CO ₂ INCUBATOR	4	20,00,000	50,000
9	Class II Biohazard Safety Cabinet	4	16,00,000	40,000
10	Microtome	1	6,00,000	15,000
11	Lyophilizer	1	5,00,000	12,500
12	Liquid Nitrogen Tank (Storage)	5	5,00,000	12,500
13	Deep Freezer(-25° C), Vertical; 300-400 Ltrs.	5	5,00,000	12,500
14	Vertical Electrophoresis Apparatus with Wet Transfer Blot System (Trans-Blot Module)	5	4,50,000	11,250
15	Dry block thermostat	4	8,00,000	20,000
16	Power PC Basic Power Supply	5	3,40,000	8,500
17	Hot Air Oven	5	2,80,000	7,000
18	Laminar Airflow Bench	5	3,50,000	8,750
19	Gradient Thermal Cycler (Five Single Block & One Dual Block)	6	30,00,000	75,000
20	Gel Documentation System with Chemi-documentation Image System	1	35,00,000	87,500
21	Automated Shakers	5	1,70,000	4,250
22	Water Bath with Wide Temperature Ranges	5	4,60,000	11,500
23	Shaking Incubator Combines Incubated temperatures with Orbital Shaker	1	5,00,000	12,500
24	Shaker	5	1,80,000	4,500
25	Horizontal Gel Electrophoresis	5	2,25,000	5,625
26	Refrigerated Centrifuge for 1.5 ml	6	15,00,000	37,500
27	Refrigerated Centrifuge	5	25,00,000	62,500
28	Multimode Plate Reader	1	10,00,000	25,000
29	Animal Cell Culture Facility	1	5,00,000	12,500
30	Cold Room	1	18,00,000	45,000
31	Dark Room	1	3,00,000	7,500
32	Vortexer	5	60,000	1,500
33	Spin Top Micro Centrifuge	5	65,000	1,625
34	General Incubator 37° C	5	5,00,000	12,500
35	Ultra Purification System	1	10,00,000	25,000
36	Magnetic stirrer with Hot Plate	5	1,50,000	3,750
37	Electronic Balance	5	5,00,000	12,500

Sl. No.	Name of Equipment	No. of Units.	Estimated Value (In Rs.)	EMD Amount (In Rs.)
38	pH Meter	5	2,50,000	6,250
39	Autoclave (180L)	2	6,00,000	15,000
40	Multi Frequency Ultrasonic Bath	1	1,00,000	2,500
41	Ice Flaking Machine	1	2,30,000	5,750
42	Micropipettes	6	2,70,000	6,750
43	Plant Growth Chamber	1	19,00,000	47,500
44	Ultrasonic Homogenizer, 230V/50Hz	2	30,000	750
45	Compound Microscope	5	10,00,000	25,000
46	Electroporator	1	6,60,000	16,500
47	ELISPOT- Analyser	1	50,00,000	1,25,000
48	Oxygen Electrode	1	3,00,000	7,500
49	Photosynthesis System with Fluorescence and Oxygen System	1	10,00,000	25,000
50	Automated Haematology Analyser	1	7,50,000	18,750
51	Green House 12m x 24m side Height 3m	1	21,00,000	52,500
52	Biolistic Particle Delivery System	1	36,00,000	90,000
53	Trinocular Stereo Zoom (Parallel-optics Zoom System) with Epi-fluorescence attachment and Digital Color Camera	1	13,00,000	32,500
54	Dissection Microscope	1	25,00,000	62,500
55	Semi-automated Coagulometer	1	2,00,000	5,000
56	Blood Culture Equipment	1	7,50,000	18,750
57	Vertical Electrophoresis Unit (Tall)	1	1,00,000	2,500
58	Horizontal Electrophoresis Unit (long)	1	3,00,000	7,500

MODEL BANK GUARANTEE FORMAT FOR FURNISHING EMD

Whereas
(hereinafter called the “tenderer”) has submitted their offer dated.....for
the supply of
(hereinafter called the “tender”) against the purchaser’s tender enquiry No.....
..... KNOW ALL MEN by these presents that WE
.....of having our registered office at
..... are bound unto
(hereinafter called the “Purchaser) in the sum of
for which payment will and truly to be made to the said Purchaser, the Bank binds
itself, its successors and assigns by these presents. Sealed with the Common Seal
of the said Bank this..... day of2017.

THE CONDITIONS OF THIS OBLIGATION ARE:

- (1) If the tenderer withdraws or amends, impairs or derogates from the tender in any respect within the period of validity of this tender.
- (2) If the tenderer having been notified of the acceptance of his tender by the Purchaser during the period of its validity:-
 - a) If the tenderer fails to furnish the Performance Security for the due performance of the contract.
 - b) Fails or refuses to accept/execute the contract.

WE undertake to pay the Purchaser up to the above amount upon receipt of its first written demand, without the Purchaser having to substantiate its demand, provided that in its demand the Purchaser will note that the amount claimed by it is due to it owing to the occurrence of one or both the two conditions, specifying the occurred condition or conditions.

This guarantee will remain in force upto and including 45 days after the period of tender validity and any demand in respect thereof should reach the Bank not later than the above date

.....
(Signature of the authorized officer of the Bank)

.....
.....
Name and designation of the officer

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

FORM OF PERFORMANCE SECURITY (GUARANTEE) BY BANK

1. This deed of Guarantee made this day of _____ between Bank of _____ (hereinafter called the "Bank") of the one part, and Central University of Tamil Nadu, Thiruvavur (hereinafter called "the Purchaser") of the other part.
2. Whereas the Purchaser has awarded the contract for Supply, Installation, Commissioning, Integration and Validation of _____ (name of the equipment) (hereinafter called the contract) to _____ (hereinafter called the Supplier); (Name of the Supplier)
3. AND WHEREAS the Supplier is bound by the said Contract to submit to the Purchaser a Performance Security for a total amount of Rs. _____ (Amount in figures and words).
4. Now, I/we the undersigned, being fully authorized to sign and to incur obligations for and on behalf of and in the name of _____ (Full name of Bank), hereby declare that the said Bank will guarantee the Purchaser the full amount of Rs. _____ (Amount in figures and words) as stated above.
5. After the Supplier has signed the aforementioned Contract with the Purchaser, the Bank is engaged to pay the Purchaser, any amount up to and inclusive of the aforementioned full amount upon written order from the Purchaser to indemnify the Purchaser for any liability of damage resulting from any defects or shortcomings of the Supplier under the Contract mentioned above, whether these defects or shortcomings are actual or estimated. The Bank will deliver the money required by the Purchaser immediately on demand without delay without reference to the Supplier and without the necessity of a previous notice or of judicial or administrative procedures and without it being necessary to prove to the Bank the liability or damages resulting from any defects or shortcomings of the Supplier. The Bank shall pay to the Purchaser any money so demanded notwithstanding any dispute/disputes raised by the Supplier in any suit or proceedings pending before any Court relating thereto and the liability under this guarantee shall be absolute and unequivocal.
6. This Guarantee is valid for a period of thirty six months from the date of signing. (Initial period for which this Guarantee will be valid must be for at least thirty (30) days longer than the anticipated expiry date of warranty period).
7. At any time during the period in which this Guarantee is still valid, if the Purchaser agrees to grant a time extension to the Supplier or if the Supplier fails to complete the work within the time of completion as stated in the Contract, or fails to discharge himself of the liability or damages as stated under Para 5 above, the Bank shall extend this Guarantee under the same conditions for the required time on demand by the Purchaser and at the cost of the Supplier.

8. The Guarantee hereinbefore contained shall not be affected by any change in the Constitution of the Bank or of the Supplier.

9. The neglect or forbearance of the Purchaser in enforcement of payment of any moneys, the payment whereof is intended to be hereby secured or the giving of time by the Purchaser for the payment hereof shall in no way relieve the bank of its liability under this deed.

10. The expressions "the Purchaser", "the Bank" and "the Supplier" hereinbefore used shall include their respective successors and assigns.

In witness whereof I/We of the bank have signed and sealed this guarantee on the _____ day of _____ (Month & Year) being herewith duly authorized.

For and on behalf of the _____ Bank.

Signature of Authority

Bank official Name: Designation:

Stamp/Seal of the Bank:

Signed, sealed and delivered for and on behalf of the Bank by the above named _____ in the presence of:

Witness 1

Signature

Name

Address

Witness 2

Signature

Name

Address

INTEGRITY PACT

The Integrity Pact is applicable against this tender. Therefore, please attach the Integrity Pact document duly signed along with your tender. The name of the CUTN Independent External Monitors shall be intimated shortly.

BID REJECTION / BID EVALUATION CRITERIA

The following clause will be applicable against this tender.

CUTN, Thiruvavur shall be entering into an Integrity Pact with the BIDDERS as per format enclosed vide **Annexure VIII** of the tender document. The proforma has to be returned by the BIDDER (along with the technical bid) duly signed by the same signatory who signed the bid, i.e., who is duly authorized to sign the bid.

Any bid not accompanied by Integrity Pact Proforma duly signed by the BIDDER shall be rejected straightway.

PRE CONTRACT INTEGRITY PACT

The specimen of the Pre-Contract Integrity Pact which is part of tender documents is as follows:-

INTEGRITY PACT

This pre-bid pre-contract Agreement (hereinafter called the Integrity Pact) is made on ____ day of the month of _____ 2017 between the Central University of Tamil Nadu, **Neelakudi Campus, Thiruvarur-610 005** (herein after referred to as 'PURCHASER'), which expression shall mean and include, unless the context otherwise requires, his successors in office and assigns) of the First Part and M/s _____ represented by Shri _____ Chief Executive Officer (hereinafter called the " BIDDER / Seller", which expression shall mean and include, unless the context otherwise requires, his successors and permitted assigns) of the Second Part.

WHEREAS the PURCHASER proposes to purchase lab equipment to the University and the BIDDER / Seller is willing to offer / has offered the services and

WHEREAS the BIDDER is a private company/public company/partnership/registered export agency, constituted in accordance with the relevant law in the matter and the PURCHASER is a Autonomous Organization of the Government of India under Ministry of Human Resources Department.

Now, therefore,

To avoid all forms of corruption by following a system that is fair, transparent and free from any influence/unprejudiced dealings prior to, during and subsequent to the currency of the contract to be entered into with a view to:

Enabling the PURCHASER to obtain the desired said stores/equipment at a competitive price in conformity with the defined specifications by avoiding the high cost and the distortionary impact of corruption on public procurement and enabling BIDDERS to abstain from bribing or indulging in any corrupt practice in order to secure the contract by providing assurance to them that their competitors will also abstain from bribing and other corrupt practices and the PURCHASER will commit to prevent corruption in any form by its officials by following transparent procedures.

The parties hereto hereby agree to enter into this Integrity Pact and agree as follows:

1. Commitments of the PURCHASER

1.1 The PURCHASER undertakes that no official of the PURCHASER, connected directly or indirectly with the contract, will demand, take a promise for or accept, directly or through intermediaries, any bribe, consideration, gift, reward, favour or any material or immaterial benefit or any other advantage from the BIDDER either for themselves or for any person,

organization or third party related to the contract in exchange for an advantage in the bidding process, bid evaluation, contracting or implementation process related to the Contract.

1.2 The PURCHASER will, during the pre-contract stage, treat all Bidders alike, and will provide to all Bidders the same information and will not provide any such information to any particular Bidder which could afford an advantage to that particular Bidder in comparison to other Bidders.

1.3 All the officials of the PURCHASER will report to the appropriate Government office any attempted or completed breaches of the above commitments as well as any substantial suspicion of such a breach.

2. In case any such preceding misconduct on the part of such official(s) is reported by the Bidder to the PURCHASER, with full and verifiable facts and the same is prima facie found to be correct by the PURCHASER, necessary disciplinary proceedings, or any other action as deemed fit, including criminal proceedings may be initiated by the PURCHASER and such a person shall be debarred from further dealings related to the contract process. In such a case while an enquiry is being conducted by the PURCHASER the proceedings under the contract would not be stalled.

3. Commitments of BIDDER

3. The BIDDER commits himself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of its bid or during any pre-contract or post-contract stage in order to secure the contractor in furtherance to secure it and in particular commits himself to the following:

3.1 The BIDDER will not offer, directly or through intermediaries, any bribe, consideration, gift, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the PURCHASER, connected directly or indirectly with bidding process, or to any person, organization or third party related to the contract in exchange for any advantage in the bidding, evaluation, contracting and implementation of the Contract.

3.2 The BIDDER further undertakes that he has not given, offered or promised to give, directly or indirectly any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the PURCHASER or otherwise in procuring the Contract or forbearing to do or having done any act in relation to the obtaining or execution of the Contract or any other Contract with the PURCHASER for showing or for bearing to show favour or disfavour to any person in relation to the Contract or any other Contract with respect to the PURCHASER's Organisation.

3.3 BIDDERS shall disclose the name and address of agents and representatives and Indian BIDDERS representing foreign principals or associates shall disclose their aforesaid details.

3.4 BIDDERS shall disclose the payments to be made by them to agents/brokers on any other intermediary, in connection with this bid/contract.

3.5 The BIDDERS further confirms and declares to the PURCHASER that the BIDDER is the original manufacturer/ integrator/ authorized Govt. sponsored Export entity of the stores and has not engaged any individual or firm or company whether Indian or foreign to intercede, facilitate or in any way to recommend to the PURCHASER, or any of its functionaries, whether officially or unofficially to the award of the contract to the BIDDER; nor has any amount been paid, promised or intended to be paid to any such individual, firm or Company in respect of any such intercession, facilitation or recommendation.

3.6 The BIDDER, either while presenting the bid or during pre-contract negotiations or before signing the contract, shall disclose any payments he has made, is committed to or intends to make to officials of the PURCHASER or their family members, agents, brokers or

any other intermediaries in connection with the contract and the details of services agreed upon for such payments.

3.7 The BIDDER will not collude with other parties interested in the contract to impair the transparency, fairness and progress of the bidding process, bid evaluation, contracting and implementation of the contract.

3.8 The BIDDER will not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.

3.9 The BIDDER shall not use improperly, for purposes of competition or personal gain, or pass on to others, any information provided by the PURCHASER as part of the business relationship, regarding plans, technical proposals and business details; including information contained in any electronic data carrier. The BIDDER also undertakes to exercise due and adequate care lest any such information is divulged.

3.10 The BIDDER commits to refrain from giving any complaint directly or through any other manner without supporting it with full and verifiable facts.

3.11 The BIDDER shall not instigate or cause to instigate any third person to commit any of the actions mentioned above.

3.12 If the BIDDER or any employee of BIDDER on any person acting on behalf of BIDDER, either directly or indirectly, is a relative of any of the officers of the PURCHASER, or alternatively, if any relative of an officer of the PURCHASER has financial interest/stake in the BIDDERS firm, the same shall be disclosed by the BIDDER at the time of filling of tender.

3.13 The BIDDER shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any employee of the PURCHASER.

4. Previous Transgression

4.1 The BIDDER declares that no previous transgression occurred in the last three years-immediately before signing of this Integrity Pact, with any other company in any country in respect of any corrupt practices envisaged herein or with any Public Sector Enterprise in India or Autonomous Body or any Government Department in India that could justify BIDDER's exclusion from the tender process.

4.2 The BIDDER agrees that if it makes incorrect statement on this subject, BIDDER can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

5. Earnest Money/Security Deposit

5.1 While submitting the bid, the BIDDER shall deposit an amount * _____ as Earnest Money/Security Deposit with the PURCHASER through any of the following instruments:

- (i) Bank Draft or a Pay Order in favour of the PURCHASER payable at location of/specified by the PURCHASER.
- (ii) A confirmed guarantee by an Indian Nationalized Bank, promising payment of the guaranteed sum to the PURCHASER, on demand within three working days without any demur whatsoever and without seeking any reasons whatsoever. The demand for payment by the PURCHASER shall be treated as conclusive proof for payment.

5.2 The Earnest Money/Security Deposit shall be valid upto a period till the successful bidder executes performance guarantee.

5.3 In the case of successful BIDDER a clause would also be incorporated in the Article pertaining to Performance Bond in the Purchase Contract that the provisions of Sanctions for Violation shall be applicable for forfeiture of Performance Bond in case of a decision by the PURCHASER to forfeit the same without assigning any reason for imposing sanction for violation of this pact.

5.4 No interest shall be payable by the PURCHASER to the BIDDER(s) on Earnest Money/ Security Deposit for the period of its currency.

6. Sanctions for Violation

6.1 Any breach of the aforesaid provisions by the BIDDER or any one employed by him or acting on his behalf (whether with or without the knowledge of the BIDDER) shall entitle the PURCHASER to take all or any one of the following action, wherever required:

(i) To immediately call off the pre-contract negotiations without assigning any reason or giving any compensation to the BIDDER. However the proceedings with the other BIDDER(s) would continue.

(ii) The Earnest Money (in pre-contract stage and/or/Security deposit/Performance Bond (after the contract is signed) shall stand forfeited either fully or partially, as decided by the PURCHASER and the PURCHASER shall not be required to assign any reason therefore.

(iii) To immediately cancel the contract, if already signed without giving any compensation to the BIDDER.

(iv) To recover all sums already paid by the PURCHASER, and in case of an Indian BIDDER with interest thereon at 2% higher than the prevailing Prime Lending Rate, while in case of a BIDDER from a country other than India with interest thereon at 2% higher than the LIBOR. If any outstanding payment is due by the PURCHASER to the BIDDER in connection with any other contract for any other stores, such outstanding payment could also be utilized to recover the aforesaid sum and interest.

(v) To encash the advance bank guarantee and performance bond/warranty bond, if furnished by the BIDDER, in order to recover the payments, already made by the PURCHASER, along with interest,

(vi) To cancel all or any other Contracts with the BIDDER. The BIDDER shall be liable to pay compensation for any loss or damage to the PURCHASER resulting from such cancellation/rescission and the PURCHASER shall be entitled to deduct the amount so payable from the money due to the BIDDER.

(vii) To debar the BIDDER from participating in future bidding process of the PURCHASER for a minimum period of five years, which may be further extended at the discretion of the PURCHASER.

(viii) To recover all sums paid in violation of this pact by the BIDDER(s) to any middleman or agent or broker with a view to securing the contract.

(ix) In cases where irrevocable Letters of Credit have been received in respect of any contract signed by the PURCHASER with the BIDDER, the same shall not be opened.

(x) Forfeiture of Performance Bond in case of a decision by the PURCHASER to forfeit the same without assigning any reason for imposing sanction for violation of this Pact.

6.2 The PURCHASER will be entitled to take or any of the actions mentioned at para 6.1 (i) to (x) of the Pact also on the Commission by the BIDDER or any one employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER), of an offence as defined in Chapter IX of the Indian Penal Code, 1860 or Prevention of Corruption Act 1988 or any other statute enacted for prevention of corruption.

6.3 The decision of the PURCHASER to the effect that a breach of the provisions of this Pact has been committed by the BIDDER shall be final and conclusive on the BIDDER. However, the BIDDER can approach the independent Monitors appointed for the purpose of the Pact.

7. Fall Clause

7.1 The Bidder undertakes that he has not supplied/is not supplying the similar systems or subsystems at a price lower than that offered in the present bid in respect of any other Public Sector Undertakings/Autonomous Body and if it is found at any stage that the similar system

or sub-system was supplied by the BIDDER to any other Public Sector Undertaking/ Autonomous Body at a lower price, then that very price, with due allowance for elapsed time, will be applicable to the present case and the difference in the cost would be refunded by the BIDDER to the PURCHASER, if the contract has already been concluded.

8. Independent External Monitor(s)

8.1 The PURCHASER will appoint Independent Monitors (herein after referred to as Monitors).

8.2 The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this Pact.

8.3 The Monitor shall not be subject to instructions by the representatives of the parties and performs their functions neutrally and independently.

8.4 Both the parties accept that the Monitors have the right to access all the documents relating to the project/procurement, including minutes of meetings.

8.5 As soon as the Monitor notices, or has reason to believe, a violation of this Pact, he will so inform the Authority designated by the CUTN.

8.6 The BIDDER(s) accepts that the Monitor has the right to access without restriction to all project documentation of the PURCHASER including that provided by the BIDDER. The BIDDER will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his project documentation. The same is applicable to subcontractors. The Monitor shall be under contractual obligation to treat the information and documents of the BIDDER(s)/ Contractor(s)/Subcontractor(s) with confidentiality.

8.7 The PURCHASER will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the PURCHASER and the Contractor. The parties offer to the Monitor the option to participate in such meetings.

8.8 The Monitor will submit a written report to the Registrar, CUTN, Thiruvarur within 8 to 10 weeks from the date of reference or intimation to him by the PURCHASER and BIDDER and should the occasion arise, submit proposals for correcting problematic situations.

9. Facilitation of Investigation

In case of any allegation of violation of any provisions of this Pact or payment of commission, the PURCHASER or its agencies shall be entitled to examine all the documents including the Books of Accounts of the BIDDER and the BIDDER shall provide necessary information and documents in English and shall extend all possible help for the purpose of such examination

10. Law and Place of Jurisdiction

This Pact is subject to Indian Law. The place of performance and Jurisdiction is Courts of Thiruvarur.

11. Other Legal Actions

The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of the extant law in force relating to any civil or criminal proceedings.

12. Validity

12.1 The validity of this Integrity Pact shall be from date of its signing and extend up to 5 years or till the complete execution of the contract to the satisfaction of both the BIDDER and the PURCHASER, whichever is later.

12.2 Should one or several provisions of this Pact turn out to be invalid, the remainder of this Pact remains valid. In this case, the parties will strive to come to an agreement to their original intentions

13. The Parties hereby sign this Integrity Pact at _____ on _____

PURCHASER

BIDDER

Name of the Officer

Designation

CUTN, Thiruvarur

Witness:

Witness:

1. _____

1. _____

2. _____

2. _____

Declaration

We hereby undertake that there are _____ pages, serially numbered, in the submitted tender including the supporting documents.

(Please number all the pages including blank page, if any)

Signature and seal of the bidder