भाकृअनुप - राष्ट्रीय अजैविक स्ट्रैस प्रबंधन संस्थान
ICAR - NATIONAL INSTITUTE OF ABIOTIC STRESS MANAGEMENT
भारतीय कृषि अनुसंधान परिषद, कृषि अनुसंधान एवं शिक्षा विभाग
Indian Council of Agricultural Research, Department of Agricultural Research & Education
कृषि एवं किसान कल्याण मंत्रालय, भारत सरकार
MINISTRY OF AGRICULTURE & FARMERS WELFARE, GOVERNMENT OF INDIA
मालेगांव, बारामती, पुणे - 413 115, महाराष्ट्र, भारत
Malegaon, Baramati- 413115, Pune, Maharashtra, India

Open Tender Documents for purchase of following scientific equipment/instruments at NIASM, Baramati

F. No: 4-6/2016-17 Date: 22.11.2016

Tender Notice

The Envelopes:

Sl. No.	Schedule	Bids	Particular
1	Schedule-I	Technical Bid	Envelope-I (Technical Bid) All Papers must be numbered and page no. must be mentioned in the checklist accordingly
2	Schedule-II	Financial Bid	Envelope-II (Financial Bid) Envelop-III (EMD and Tender Fee)
3	Schedule-III		Envelope-IV (Envelope I,II & III) General Instructions/terms & conditions, specific terms & conditions and scope of work. Every page should be signed by the tenderer and kept in Envelope-IV and envelope should be marked as **"DO NOT OPEN BEFORE 16.12.2016 14:30 Hrs"**

The closing and opening dates of the bidding documents will be as per schedule given as under:

Last date of issue of tender form	Date & time for submission of tender form	Date & time for opening of tender (Technical Bid)
16.12.2016 upto 12.00 noon	16.12.2016 upto 1.00 PM	16.12.2016 at 2.30. PM
Pre-bid meeting for LC-MS, Tissue culture laboratory (plant and animal)	As per schedule given on page no 11	

Sd/-

I/c. Senior Administrative Officer

Signature of the Bidder
(with firm seal)

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INVITATION FOR BIDS

Sealed tenders are invited by the Director, ICAR-National Institute of Abiotic Stress Management, Malegaon kh, Baramati for an on behalf of Secretary, ICAR for the supply of following equipments from manufacturers/firms/authorized dealers of Indian/foreign manufacturers **on FOB, CIF ,CIP and EX-works basis for Imported equipments** and **FOR basis for Indian Make equipments**.

Sr. No	Name of Equipment	Quantity	EMD
1	Viscosity Meter	1	Rs. 9000/-
2	BOD/Microbiological Incubator	1	Rs.9000/-
3	Gel Doc System	1	Rs.12000/-
4	Laminar Airflow System	1	Rs.8000/-
5	Light Microscope	1	Rs.9000/-
6	Rotary Evaporator	1	Rs.10000/-
7	Vacuum Concentrator	1	Rs.9000/-
8	DSLR Camera	1	Rs.8000/-
9	Digital Cone Penetrometer	1	Rs.14000/-
10	Rotary Microtome	1	Rs.20000/-
11	Automated Blood Analyzer	1	Rs.10000/-
12	Microscope Fluorescent	1	Rs.20000/-
13	(Comet) Software with Dongal	1	Rs.7000/-
14	Microscope: Confocal Laser Scanning	1	Rs.240000/-
15	Sap Flow Sensors	45	Rs.80000/-
16	Soil Tensiometer System	1	Rs.10000/-
17	Water Activity Meter	1	Rs.15000/-
18	Urea Briquetting Machine	2	Rs.7500/-
19	Mini tractor with accessories & attachments	2	Rs.26000/-
20	Power tiller with accessories	1	Rs.6500/-
21	Refrigerator	3	Rs.5000/-
22	Micropipette Set	2	Rs.4000/-
23	pH/Conductivity/Temperature Meter	2	Rs. 3000/-
24	Magnetic Stirrer	2	Rs.2000/-
25	Laminar Airflow	2	Rs.4000/-
26	Electronic Weighing Balance	2	Rs.3000/-
27	Orbital Shaker	1	Rs.2000/-
28	BOD Incubator	1	Rs.2000/-
29	Gel Blotting Apparatus	1	Rs.1000/-
30	Infrared Thermometer	1	Rs.1000/-
31	Air Temperature & Humidity Sensors with data logger	2	Rs.1500/-
32	Hedge Cutter	2	Rs.2000/-

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33	Centrifuge	1	Rs.9000/-
34	Ice Flaking Machine	1	Rs.6500/-
35	Deep Freezer	1	Rs.12000/-
36	Nanodrop Single Probe	1	Rs.10000/-
37	Spectrophotometer	2	Rs.18000/-
38	Inverted Microscope	1	Rs.9000/-
39	Deep Freezer	1	Rs.9600/-
40	Gel Documentation System	1	Rs.15000/-
41	Deep Freezer	1	Rs.9600/-
42	SPAD Chlorophyll Meter	2	Rs.10000/-
43	Tissue Culture Laboratory*	1	Rs.95000/-
44	Tissue Culture Laboratory*	1	Rs.95000/-
45	LC-MS*	1	Rs.280000/-
46	Centrifuge	1	Rs.9000/-

***pre-bid meeting will be held as per schedule given on page no 11**

**** Firms who have submitted bids earlier for "Microscope: Confocal Laser Scanning" need not to submit again, however if anyone want to revise their earlier bids they can submit as per their requirement.**

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(with firm seal)

Terms and Conditions:

The interested firms must submit *Technical* and *Financial bids* for the purchase of equipments separately and simultaneously in different sealed cover superscribed "**Technical Bid**" and **Financial Bid**" respectively both these sealed covers shall then be placed in a separate cover sub-scribed as "**Tender for "SUPPLY, INSTALLATION, COMMISSIONING & DEMOSTRATION OF LABORATORY AND FIELD EQUIPMENT"**. The Director, NIASM reserves the right to increase/decrease the quantity of equipment/item(s) as per requirement. Blank tender form for each item along with the details of specifications can be obtained from the office of the Store & Purchase Officer, NIASM, Malegaon kh, Baramati on any working day between 10.00 A.M. to 4.30 P.M. only from the date of publication of tender to **22.12.2016** on payment of Rs. 1000/- (for each) as DD/Cash in form of demand draft in favour of "ICAR Unit NIASM" payable at "Baramati". ICAR-NIASM will not be responsible for any postal delay in receipt/sending the tender documents. The complete tender form along with all relevant documents with specified EMD can be submitted to NIASM, Malegaon kh, Baramati (by post or hand) on or before **16.12.2016** up to 01.00 PM. However, if a bidder so desires, the bidding documents can also be downloaded from our website (http://niam.res.in) and the applicable non-refundable fee (Rs 1000/- only) must be included along with the technical bid in the form of Demand Draft/Bankers Cheque.

The closing and opening dates of the bidding documents will be as per schedule given as under:

Last date of issue of tender form	Date & time for submission of tender form	Date & time for opening of tender (Technical Bid)
16.12.2016 upto 12.00 noon	16.12.2016 upto 1. PM	16.12.2016 at 2.30. PM

Other terms and conditions:

1. Validity of tenders should be 180 days from the date of opening of the tenders.
2. **All the tenderers should give an undertaking that they would render after sales service of the equipment/machine and will supply all spares/consumable for at least 5 years from the date of installation of the same.**
3. Full bidding/tender document attached herewith must be signed by bidder.

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4. Warranty/guarantee period of the equipment/machine should invariably be specified separately as per specifications of equipment.

5. Technical literature/brochure (Original copy), etc. of the equipment/machinery offered by the firm and list of customers/user with their detailed addresses including telephone no./e-mail ID to whom such machine has been sold/supplied **in last three years** in India should be sent along with the tender form.

6. The firm qualifying technical specification may be asked to demonstrate the performance/working of the quoted model of the equipment/machinery, if needed.

7. The tenderers should quote their rates of imported equipments/machine on **FOB, CIF, CIP basis and Ex-works basis**. If tender quotes some parts made in India, their rates should be quoted in Indian Rupees.

8. Indian Agency Commission (IAC) may be quoted as certain percentage (say 5% to 10%) of the price of imported component of goods & quoted on CIP (Mumbai) basis.

9. Price schedule must be properly filled in for each equipment based on its Foreign/Indian components/parts & related service, otherwise bid may be rejected.

10. The inferior supply not meeting the prescribed Technical Specifications will be rejected at no cost to this centre.

11. Qualification Criteria:

i. No Blacklisted firm from any Govt. department/organization during last 5 years
ii. Copies of satisfactory Performance certificate for minimum last 2 years for minimum 2 units of equipment in India from 2 different reputed end-users.
iii. Three purchase orders received during last 3 years for similar items with copies of purchase orders.
iv. Minimum Annual turnover Rs.50.00 lakh during each of Last 3 years along with copies of financial statement.

12. Delivery Schedule:

i. Within 90 days from the date of opening of clear and acceptable Letter of Credit for imported goods/components.
ii. Within 60 days from date of issuing of purchase order for Indian goods/components.

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14. Terms of Delivery and Destination:

i. C.I.P. (Destination: Mumbai) and FOB for port of shipment (price may be quoted for F.O.B. and C.I.P. for imported goods/components).

ii. F.O.R. for NIASM, Baramati for Indian goods.

15. A valid certificate of authorization from the Principal firm must be enclosed by the Indian agents/firms quoting rates on behalf of their Principal. ***One agent cannot represent two suppliers***.

16. In case of imported equipment, Principal firm should give guarantee for after sales service of their equipment through their agent/authorized dealer located in India.

17. If the Indian agent is changed, it would be responsibility of the Principal firm to ensure to intimate the NISAM office about their changed agent in India and ensure after sale service through him.

18. If handling of the equipment requires training of the lab technician/scientist, the same will have to be provided in India either at the Institute or their Indian establishment, as the case may be, free of cost.

19. The tenders received late will be rejected. Check list (attached with tender document) should be filled & signed by the tenderer.

20. Other terms and conditions, if any, will be supplied along with the tender forms.

21. The Director, NIASM, Baramati reserves right to accept/reject any or all the tenders without assigning any reasons.

22. Firms registered under NSIC are exempted from the payment of tender fee and EMD.

23. Any tender not accompanied by Earnest Money will be straight way rejected.

24. **Performance Security:**

i. Within thirty (30) days, the successful tenderer shall furnish to the purchaser the Security Deposit equivalent to 10% of the purchase value.
ii. The Security Deposit shall be in one of the following forms: (a) Bank Guarantee, issued by a reputed bank or a FDR/Demand Draft payable to “ICAR Unit NIASM, Baramati”.
iii. Failure of the successful Tenderer/bidder to sign the contract and/or furnish the Security Deposit shall constitute sufficient grounds for the annulment of the

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award and forfeiture of the Earnest Money, in which event the Purchaser may make the award to the next lowest evaluated Tenderer or call for new tenders.

iv. The Security Deposit will be discharged by the purchaser and returned to the Supplier following the date of completion of the Supplier's performance obligations under the contract, including any warranty obligations after receiving agreement letter.

25. **Incidental Services:**

i. The supplier may be required to provide any or all of the following services, including additional services, as specified in Technical Specifications:

ii. Performance or supervision of on-site installation, etc. of the system. b) Furnishing of tools required for assembly and/or maintenance of the System.

iii. Furnishing of detailed operations and maintenance manual for each appropriate unit of system.

26. **Transportation:**

The transportation costs etc. to transport the equipment to the consignee's place shall be borne by the tenderer.

27. **Dispute Resolution Mechanism**: If any dispute or difference arises between the purchaser and the supplier relating to any matter connected with the contract, the parties shall make every effort to resolve the same amicably by mutual discussions. However, if the parties fail to resolve the dispute or difference by such mutual discussion within 30 days, either the purchaser or the supplier may give notice to the other party of its intention to refer the same to arbitration. The arbitration shall commence thereafter. The arbitration shall be conducted by a sole arbitrator, who will be appointed by the Secretary, ICAR and the procedure to be followed in this respect will be as per the Indian Arbitration and Conciliation Act, 1996. The venue of the arbitration shall be the place from where the contract is issued.

28. **You are also required to fulfil the following conditions and furnish the details as indicated in subsequent paragraphs**.

a) At the time of awarding the contract/order, the purchaser reserves the right to increase or decrease the quantity of goods, without any change in the unit price or other terms & conditions.

b) Please indicate if you are currently registered with any Govt. organization and if registered, furnish all relevant details.

c) Please states whether business dealings with you presently stand banned by any Government organization and if so, furnish relevant details.

d) A supplier/ manufacturer shall not submit more than one quotation for the same set of goods.

e) The supplier shall at all times indemnify the purchaser, at no cost to the purchaser, against all third party claims of infringement of patent, trademark or

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industrial design rights arising from the use of the goods or any part thereof, with respect to the goods quoted by the supplier in its offer.

f) The quotation (s) as well as the contract shall be written in Hindi/English language.

g) The contract shall be governed by the laws of India and interpreted in accordance with such laws.

h) The Director, NIASM, Baramati reserves the right to reject any tender in part or full without assigning any reason thereof.

29. Contract: The technically qualified vendor who is awarded the order will have to submit acceptance letter within 15 days of issue of order and will supply material within the stipulated time given in purchase order as per the quoted specifications.

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Questionnaire

BIDDERS SHOULD FURNISH SPECIFIC ANSWERS TO ALL THE QUESTIONS GIVEN BELLOW. IN CASE A QUESTION DOES NOT APPLY TO ABIDDER, THE SAME MAY PLEASE NOTE THAT IF THE ANSWERS SO FURNISHED ARE NOT CLEAR AND/OR ARE EVASIVE, THE BID WILL BELIABLE TO BE IGNORED.

1. Bid No…… date for bid opening on ……..

2. Offer is open for acceptance:

3. Brand of goods offered:

4. Name & address of manufacturer:

5. Station of Manufacturer:

6. What is your permanent Income Tax A/C/ N. (PAN No.)

7. Confirm whether you have attached your

Latest/current ITCC or certified photocopy

thereof.

8. Status:

a) Are you currently registered with the Directorate General of supplies & Disposals (DGS&D) for the items(s) quoted? If so, Indicate the date up to which you are registered and whether there is any monetary limit on your registration.

b) Are you a small scale unit currently? Registered with the National Small Industries Corporation (NSIC) under Single Point Registration Scheme for the Items (s) quoted? If so, indicate the date up to which you are registered and whether there is any monetary limit on your registration.

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c) If you are not registered either with NSIC or DGS&D, please state whether you are ANNEXURE I to Tender Document No.4-6/16-17

currently registered with Directorate of industries of the State Government concerned. If so, indicate the date up to which you are registered and whether there is any monetary limit on your registration.
d) Are you registered under the Indian Companies Act. 1956 or any other Act.? Please attach certified copy (copies) of the Relevant registration certificate (s) in Confirmation to your above answer(s).
9. Please indicate:-

Whether you are:
i) Manufacture of the goods quoted; or
ii) Manufacture's authorized agent for those goods.

10. State whether business dealings with you have been Currently banned by any Ministry/Dept. of Central Govt. or any State Govt.

Signature of Witness

Name & address of Witness

Full name, designation & Address of the person signing above For and on behalf of M/s

(Name and address of the bidding firm)

Signature of the Bidder (with firm seal)

Check list for Tenderer

The tenderer is requested to kindly submit the check list alongwith the tender failing which tender will not be consider.

Sl. No.	Documents should attached	Page no. where document Attached
1	Technical Literature/Broacher	
2	Minimum turn over 50.00 lakhs during last 3 years	
3	Certificate of authorization (Manufacturers)	
4	List of Customers	
5	Bid Security/EMD	
6	Questionnaire filled in all respect	
7	Bid form and Price Schedule	
8	Technical Bid	
9	Warranty Obligation (as per specifications)	
10	Certificate of Regd., Taxes & duties	
11	Bid Validity (minimum 180 days)	
12	Under taking after sale service	
13	Under taking of Black Listing	
14	Technical specifications Compliance Statement	

Signature of the Bidder
(with firm seal)

PRE BID MEETING

It is proposed to convene a pre bid conference as per schedule given below:

S. No	Name of Equipment	Date and time
1	LC-MS	01.12.2016 at 10.00 AM to 12.00 noon
2	Tissue Culture Laboratory (Animal)	02.12.2016 at 10.00 AM to 12.00 noon
3	Tissue Culture Laboratory (Plant)	02.12.2016 at 3.00 PM to 4.30 PM

Prospective bidders are advised to submit their doubts. Questions/ clarifications, if any, through Mail (Mail ID: niasmao@gmail.com) before the date of pre bid conference. Subsequently on the date of the conference, the questions should be given in writing. Bidders can raise supplementary questions during the course of the conference. From our side we would like to seek advice/ suggestions from the bidders about the specification, working of instruments. Minutes of the Meeting, including the text of the clarifications sought and the response given by the NIASM will be notified in the NIASM website. Any Modification in the Bidding document which may become necessary as a result of the pre bid meeting shall be made known to all the bidders by the NIASM through a notification of the amendment in the website of the NIASM.

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Annexure- I: Technical Specifications

Item No 1: Viscosity Meter

Specification:

A viscosity meter is required for viscosity measurement of microbiological samples at different shear rates. The equipment should have following options

1. It should utilize very small amount of sample less than 1 ml
2. The equipment should able to measure the viscosity of samples both at low and high temperature i.e. below 0^0C to 100^0C or better range.
3. It should be compatible with highly corrosive samples
4. It should be supplied with appropriate software for automated determination of molar mass, intrinsic viscosity, relative viscosity and other polymer-specific parameters
5. The speed range minimum 5 rpm and maximum 1000 rpm or better to determine the viscosity of samples at variable rpm
6. Viscosity range should be minimum 0.2 poise or less to 10000 poise or better
7. The shear rate should be minimum10 Sec^{-1} and maximum to 10000 or better
8. It should be supplied with the set of necessary accessories e.g. spindles/piston, etc.
9. It should have CE or equivalent certification
10. The vendor should ensure at least 36 months warranty w.e.f date of installation
11. The vendor should provide a specifications compliance sheet clearly mentioning for the deviation if any.
12. The vendor should submit the entire technical document related to the equipment or model quoted for cross confirmation of specifications compliance sheet provided by the vendor.
13. The vendor should provide the user list to ensure about the performance of the equipment.

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Item No 2: BOD/Microbiological Incubator

Specification:

Cooling incubator for bacteriological research, highly suitable to culture the bacteria and fungi the Incubation temperature ranges from 0-60°C or wider temperature range is required. It should be supplied with following specifications:

1. Chamber volume: Minimum 400 liters or more
2. Inner doors should be made of tempered safety glass
3. Safety features should be available for over temperature protection and over electric power protection.
4. Option for adjusting the fan's speed should be available to ensure the even heat distribution throughout the inner chamber
5. It should have at least three no of racks to partition the incubating materials
6. It should be easy-to-clean and interior construction should be corrosion-resistant
7. A suitable voltage stabilizer should be supplied to control the power fluctuations during the operation
8. The vendor should provide a specification compliance sheet clearly mentioning for the deviations if any
9. The vendor should submit the entire technical document related to the equipment or model quoted for cross confirmation of specification compliance sheet provided by the vendor.
10. The vendor should ensure at least three years warranty w.e.f date of installation
11. The vendor should provide the user list to enquire about the performance of the equipment
12. Vendor should ensure the CE certification for the quoted model to ensure the quality of the product

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Item No 3: Gel Doc System

Specification:

1. A Gel-Doc system with high end imaging software able to provide automated and reproducible results for image acquisitions and analysis
2. It should able to autofocus at any required zoom levels to get high quality image
3. It is able to provide publication ready image
4. System should have high end camera.
5. It should able to image protein and DNA gel imaging for stain free and dyed gels
6. It should able to image and analyse film and protein gel.
7. All the accessories related to user safety must be supplied with the system.
8. The vendor should ensure at least 36 months warranty w.e.f date of installation
9. The vendor should provide a specifications compliance sheet clearly mentioning for the deviation if any.
10. The vendor should submit the entire technical document related to the equipment or model quoted for cross confirmation of specifications compliance sheet provided by the vendor.
11. The system should be supplied with accessories for user safety including U.V protection helmet and safety goggles, apron etc.
12. The system should be supplied with PC of minimum specifications given as : RAM16 GB, HD-2TB, monitor 21 inches, corei7 processor, graphics card 2GB , data transport device 1 TB and software friendly windows verson.

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Item No 4: Laminar Airflow System

Specification:

Laminar flow (vertical flow) is requiredfor microbiological, biotechnological, and biochemical research with following specifications

1. Workstation should able to provide uniform airflow
2. The workstation should be turbulence free to avoid the occasional spills of liquid materials
3. The equipment should contain a replaceable pre-filter to remove large particles; required for extending the life of HEPA filter
4. The HEPA Filter System should be 99.99% efficient for removal of all aerosol particulate contaminants and should be at least 0.3 microns.
5. The Vertical Flow Workstation should contain fluorescent lamps hidden from direct operator view
6. The equipment should have an Instrument Panel with provisions of On/Off Switch for Motorized Impeller ; On/Off Switch for Fluorescent Lights and optional UV Lights and gauge to monitor filter loading
7. The workstation should meet Mechanical integrity requirements of country like U.S. and Canada and Germany, Australia and India for Electrical
8. The workstation finish should be textured, baked white coating for easy cleaning and the work surface should be white made up of stainless steel
9. The Work zone should be enclosed with clear polycarbonate side panels with gasketed service ports; clear polycarbonate hinged viewing window and white polycarbonate back wall.
10. The vendor should provide a specification compliance sheet clearly mentioning for the deviations if any
11. The vendor should submit the entire technical document related to the equipment or model quoted for cross confirmation of specification compliance sheet provided by the vendor.
12. The vendor should ensure at least three year warranty w.e.f date of installation.
13. The vendor should provide the user list to enquire about the performance of the equipment

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Item No 5: Light Microscope

Specification:

1. A Research Upright light Microscope with transmitted light LED / halogen with long durability is needed for analysis o specimens including microbial samples
2. It should have at least 3-step focus drive including coarse, medium & Fine adjustment
3. The Objective nosepiece for 6/7 or better objectives should be provided
4. The microscope should have Polarization contrast DIC mode, Bright filed, dark field and phase contrast operation
5. X/Y mechanical stage should be worked as right hand operation and left hand operation.
6. Eyepiece pair should be 10x/20 or better
7. It should have Infinity corrected Objectives to be 4x, 10x, 20X, 40x &100x (oil). Immersion Oil.
8. Model should be upgradable for fluorescence.
9. It should have a dedicated HD CCD or CMOS or better camera with resolution capabilities of minimum 10mp
10. Suitable interactive device (Camera and microscope) controlling software allowing user friendly analysis and scientific interpretation of captured images and videos should be supplied. It should also be ensured that microscope, camera and software are high quality for better synchronization.
11. Accessories including Data transfer device(SD Cards), dust protective cover and those
12. Required for routine operations of the equipment should be provided.
13. A high end PC with windows compatible for uploading the controlling software with minimum specs like monitor 21 inches, RAM 8 GB, HDD 1TB, i7 processor with graphics cards of at least 1 GB should be provided.
14. The vendor should provide a specification compliance sheet clearly mentioning for the deviations if any
15. The vendor should submit the entire technical document related to the equipment or model quoted for cross confirmation of specification compliance sheet provided by the vendor.
16. The vendor should ensure at least three year warranty
17. The vendor should provide the user list to enquire about the performance of the equipment

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Item No 6: Rotary Evaporator

Specification:

A high end rotary evaporator is needed for solvent evaporation at controlled temperatures during extraction of biomolecules with the following specification.

- It should have chemical resistant vacuum seal longevity of operation and to reduce spare parts requirement.
- The flange should be made of chemical resistant PPS to reduce corrosion, maintenance and spare parts cost to a minimum
- It should have non- sticking vapor tube with clamping sleeve to eliminate broken glass and reduces spare parts cost significantly.
- The clip should be easy removal option for sticking flasks and it should not be lost due to the direct connection to the drive.
- The safety bath should be power off if temperature overshoots by 50 C or runs dry
- It should have more than 2000 C heating bath with safety handles and pour spout able to accommodate at least 1-5 liter flasks.
- It should have a metal support between the heating bath and the base unit to prevent bath instability.
- It should have a separate on/off switch for heating to prevent unintentional heat up the button and illuminated for visual control.
- It should able to continuous unattended evaporation without limits.
- The detachable panel should allow for the highest operational safety from outside closed fume hoods.
- It should supply with suitable vacuum pump and chiller and different size of flask holders and three year warranty.

Vendor should supply all the technical documents and user list for cross confirmation of performance of quoted model

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(with firm seal)

Item No 7: Vacuum Concentrator

Specification:

1. A Vacuum concentrator should able to fast, efficient and moderate vacuum concentration of biological and DNA/RNA, nucleotides, proteins, liquid or wet samples is required. The system should have facility for vacuum concentration at low temperature should be available.
2. The system should be a complete with integrated solvent resistant, maintenance and oil free pump and condensation trap.
3. System and pump should be made of noncorrosive material and should be highly resistant for mineral acids and organic solvents
4. System should have at least three operational modes for Aqueous, Alcohol and Highly Volatile solvents.
5. System should possess at least four temperature selections (room temperature, 30 °C, 45° C, and 60 °C) to allow safe and efficient concentration of biological samples and additionally 4oC for concentrating the samples at low temperature is required.
6. System should support Centrifugation and Desiccator function
7. It should have a rotational Speed at least 1,400 rpm or more.
8. System should have imbalance detection function
9. System should support multiple lab ware formats including 0.2 ml. 0.5ml, 1.5ml, 2 ml, 15ml falcon tubes, 50 ml falcon tubes, 96 well PCR plates, MTP and Deep well plates with different rotors. Allthe required rotors to fix all above mentioned wares should be supplied.
10. System should able to concentrate samples volume up to 300 ml or more.
11. All the rotors and adapters to be supplied must be autoclavable.
12. Vacuum generated should be a minimum of 20 hPa (20 mbar) or more
13. System should have an emission condenser to purify outlet air.
14. The system should be supplied with a suitable cold trap
15. Rotor for 1.5/2ml with 48 positions and 0.2 ml, 0.5ml, 1.5 ml, 2 ml, 15ml falcon tubes, 50 ml falcon tubes, 96 well PCR plates, MTP and Deep well plates 15 ml and 50 ml falcon tubes should be supplied.
16. 16. The vendor should submit the entire technical document related to the equipment or model quoted for cross confirmation of specification compliance sheet provided by the vendor.
17. The vendor should ensure at least three year warranty

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18. The vendor should provide the user list to enquire about the performance of the equipment
19. Vendor should ensure the CE certification for the quoted model to ensure the quality of the product
20. Supply of all the required tool kits (spanner for changing and tightening of rotors) is compulsory

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Item No 8: DSLR Camera

Specification:

A high end DSLR camera is needed for quality picture for documentation of microbial culture and experiment observations with following features.

1. It should have resolution at least 36 mega pixels or higher

2. A good quality vibration reduction lens for better image capture should be quoted as optional item

3. It should have custom picture control facility covering maximum diverse modes of imaging

4. It should have at least two card slots for backup and storage of data

5. It should be compatible with divers type of lenses

6. It should have inbuilt flash and additional compatible flash may be supplied as an optional accessories

7. It should have inbuilt display of minimum 8 cm or above

8. It should have inbuilt USB port (USB 3.0 or better along with the connector)

9. It should supplied with one additional rechargeable battery for emergency backup

10. It should have inbuilt GPS sensing ability or an external high-end compatible GPS sensing Unit should be supplied

11. Camera should be supplied with a good quality dust protective cover, Battery Charger with either an AC wall adapter or power cable of a type and shape that is compatible to India, USB Cable Clip, and HDMI Cable Clip, USB Cable and other necessary accessories and software CD etc.

12. A tripod stand for holding the camera should be quoted as an optional item

13. All necessary accessories should be supplied with the camera

14. Vendor should ensure at least 2 years onsite warranty w e f date of installation.

15. All the technical documents should be supplied with technical bid

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Item No 9: Digital Cone Penetrometer

Specification:

1. The digital cone penetrometer must be suitable for continuous in situ measurement of the resistance to penetration of the soil at a selected site and depth.
2. The device should be a combination of an electronic penetrometer and a data logger for storage and processing of measurements.
3. The instrument should be capable of continuous measurements of soil compaction at least up to 60 cm soil depth.
4. Reading can be viewed directly on LCD Screen in Numeric or in Graphical format.
5. It should display readings on the LCD instantly in standard unit e.g. MPascals or Newton etc.
6. It should record depth as well as resistance at that particular depth and should be able to display the graph on the LCD and the same can be downloaded on a PC for further analysis.
7. Consists of penetration cones of 60° angle of sizes 1-3 cm2 , probing rod, load cell/force sensor, depth reference plate and data logger for measuring penetration resistance of soil.
8. Penetration force: at least 800 N
9. Force resolution: 1 N or better
10. Data output: .txt or CSV format
11. Probing rods of appropriate diameter for different cones
12. Guides/Checks for detection of cone wear
13. Capacity to store at least 1000 readings.
14. Interface Cable and Software for downloading data to PC
15. It should have powerful rechargeable battery for in-field operations and to be supplied complete with a sturdy carrying case and necessary tools.
16. Optional: The equipment should also have a provision of attaching an external soil moisture sensor and its reading can also be simultaneously recorded with the measurements. The soil moisture sensor/probe should have a measuring range of at least up to 50% volumetric soil moisture content, accuracy < +/- 5%.
17. Quote for Soil Moisture Probe / sensor separately.
18. Quote for spare cones separately as accessories,
19. All standard accessories to be included.
20. A standard factory calibration certificate should be provided.
21. The firm shall submit necessary catalogues, list of customers and product data sheets along with the offer.
22. Warranty: minimum 2 year after installation.

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Item No 10: Rotary Microtome

Specification:

1. Rotary Microtome designed for all applications of paraffin and hard specimens in research.

2. Consistent sectioning speed.

3. sectioning of super mega cassettes and should supports safer specimen changing.

4. Knife holder accepts either high or low profile disposable blades.

5. Calibrated controls for precise specimen orientation.

6. Disposable Blade carrier universal cassette clamp.

7. Sectioning range: 0.5 to 100µm trim.

8. Trimming increment: 10u, 50u or more.

9. Section resolution 5 to 500 µm.

10. Electrical requirements 100-240 V 50-60 Hz.

11. Digital display to monitor a range of functions including cutting speed section count section thickness and advance distance.

12. There should be a warranty period of two years for repair and maintenance from the date of installation.

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Item No 11: Automated Blood Analyser

Specification:

Convenient and safe to use: Fully automatic integrated self-cleaning system for minimum maintenance. Cyanide free reagents to avoid environmental risks.

1. Compact size requiring small bench space. Large colour display.

2. High reliability and accuracy: Independent counting system for each species to ensure high accuracy

3. Fully integrated calibration and quality control programs for at least following parameters: WBC, RBC, HGB, HCT, MCV, MCH, MCHC, PLT.

4. Multispecies additional parameters for other species also.

5. Histograms for WBC, RBC and PLT.

6. Principles should include electrical impedance method for counting or other advance methods.

7. Sample Volume: minimum.

8. Throughput: High.

9. Display: Colour LCD/LED display

10. Input /Output: RS232 X 2, 1parallel printer, 1 keyboard and their interface.

11. Printer: With various printout formats along with printer.

12. Operating environment: Temperature: 150 C-400 C

13. Power Requirement: 100-250V ~ 50/60 Hz

14. The machine should accompany UPS (for at least 1 hr) in case of power interruptions.

15. There should be a warranty period of two years for repair and maintenance from the date of installation.

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Item No 12: Microscope Fluorescent

Specification:

1. Research Microscope stands for Biology with transmitted light LED at least 4W illumination with long life of more than 1, 00,000 hours.

2. 3-step focus drive coarse, medium & Fine adjustment with focus torque adjustment

3. Objective nosepiece for 6/7 or better objectives

4. DIC turret to be available with empty DIC slots.

5. Infinity corrected / Harmonic Corrected (HC) Optical System

6. Universal Condenser 0.90/1.25 Oil, Colour Coded with Condenser lens & accommodation for DIC prism, Phase rings with rotatable Polarizer & analyzer.

7. X/Y mechanical stage either for right hand operation or for left hand operation

8. Trinocular phototube with beam splitter. Provision to adapt two cameras simultaneously.

9. Eyepiece pair 10x/22 or better

10. Immersion Oil - 20ml

11. Infinity corrected Objectives suitable for DIC, Phase & Fluorescence: Fluorite / Semi Apo 4x, 10x, 20X, 40x & 100x (oil). objectives should be with fluorescence or better

12. Dust cover for the complete set

13. Ultra high pressure Hg-Lamp, HG 100W, Fluorescence Filter turret should be at least 5- positions or more. Along with 5 or more position.

14. Neutral Density filters to control Fluorescence Intensity to be incorporated into the microscope. 15. Fluorescence zero pixel shift free filters for DAPI, FITC and TRITC with band pass.

16. High sensitive and high speed Monochromatic cooled digital camera with a CCD sensor of minimum 1.3 / 1.4 mPixel resolution. Speed shall be 22 fps or higher in full frame or better Peltier cooling shall be available. The camera should be controllable from Komet assay software.

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17. Digital USB Colour digital camera for on-screen microscope image display; 2048 x 1536 with 3.1 M Pixels, Exposure time 2 m sec- 2 sec, A/D converter 10 bit, dynamic range >45dB, Max.15 frames per sec, Gain 1x - 20x, shading correction, CMOS sensor progressive scan, Pixel Size – 3.2 um x 3.2 um, Colour depth 24 bits Colour filter RGB,

18. Software should meet wide variety of multidimensional imaging requirements like multi-channel acquisition, time lapse imaging, basic analysis to capture uneven surface, feature like annotations and labeling, distance measurement, area, and perimeter.

19. A latest configuration computer system with 2 TB hard drive, core i7 processor, frequency 3.6 GHz. Or better, at least 8 GB RAM memory and Monitor 27” should be provided.

20. Compatibility with comet assay procedure

21. Warranty should be at least 3 years (All vendors are requested to attach original technical literature/ catalogue in support of the mentioned specifications & highlight the above features.)

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Item No 13: (Comet) Software with Dongal

Specification:

1. Comet Assay kinetic imaging software system to be provided.

2. Branded PC/ work station with i7 Processor and Hard disk 2TB and 8 GB Ram.

3. 24-30" LED Monitor.

4. 19” Square Monitor and 3-4 GB Graphics card extra.

5. Large Field of View options – score several cells per image.

6. Databases include all comet images, parameters and audit trails.

7. Supplied with Database Viewer for Data audit, archive and summary for reporting and statistical significance testing.

8. Software should scores live images from any camera.

9. Fully automatic or interactive computation of Head/Tail %DNA, Tail Length, Olive Tail moment, etc.

10. Scoring can be suspended and resumed in multiple sessions.

11. 2 years warranty for software and dongle.

(All vendors are requested to attach original technical literature/ catalogue in support of the mentioned specifications & highlight the above features.)

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Item No 14: Microscope: Confocal Laser Scanning

Specification:

The Laser Scanning Confocal system should have optical slicing capabilities and suitable for fixed and live cell sample imaging. The system should be capable of spectrally resolve auto fluorescence and generate images of the fixed tissue samples. System should be of high sensitivity detection capability to meet various challenging imaging needs of multi-fluorescence, FRET, FRAP, FLIP, photo activation, spectral imaging and conversion experiments.

The system should include the following configuration:

A. Fully Motorized & Computer Controlled Upright/inverted Fluorescence Research Microscope:

1. Bright field, fluorescence and DIC observations with Motorized Z-focus drive with step size of 10-30 nm.

2. Fluorescence filter cube turret with motorized 8-10 position turret with narrow band pass interference type filter blocks for FITC/GFP dyes, DAPI/Hoechst, TRITC/Rhodamine, CFP, YFP and RFP/Texas Red.

3. Six position motorized DIC nose piece. XY motorized stage with universal sample holder for slides and 35 mm petri dish.

4. 12V/100w halogen/High power LED illumination for BF & DIC and 120/130W metal Halide Illuminator with long lifetime of 1500-2000 hours for fluorescence. Motorized 7/8 position condenser with motorized polarizer and analyzer. Quote for two additional spare bulbs.

5. Motorized DIC Optics for all the objectives.

6. Wide field eyepieces 10X paired with FN 22 mm or better

7. High Resolution Confocal Grade objectives: Plan Apochromat Objectives: 20/25X water / NA 0.7-1 or better and working distance 0.25 mm or better, 40X water immersion/ N.A. 1.1 or better and working distance 0.25 mm or better, 40X oil / N.A 1.30 or better, 60/63X water immersion / N.A. 1.20 or better and working distance 0.2-0.3 mm. 13

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8. All objectives should be corrected from UV, Visible to IR. Band Pass fluorescent filters for DAPI, FITC/GFP& TRITC/Rhodamine.

9. Digital cooled monochrome CCD digital camera with 1.4 million pixel chip resolution, 2/3" CCD chip, FireWire IEEE 1394 connectivity controlled by software for high resolution fluorescence/DIC digital imaging for Z stack, time lapse and multi-channel Fluorescence. 20 FPS or better.

10. The system should be supplied with latest integrated computer system of latest configuration tried & tested for system, directly from the manufacture. Hard drive: 2 TB, Large 30" LCD TFT monitor and 32 GB Ram memory.

11. An anti-vibration table for the complete microscope, laser scanning system and work station (computer system) table should also be supplied.

B. Spectral Confocal Laser Scan head with built-in detectors:

1. The scan head should have independent port for UV and visible light lasers. Galvo scanner should have highest reflectivity (>90%) from 400-1000 nm for detection of faint signal.

2. High sensitivity confocal laser point scanning and detection unit with built-in spectral detectors for high efficient fluorescence signal collection. Capable of conventional intensity & spectral based confocal imaging for complete visible range.

3. System should have minimum two high sensitivity built-in fluorescence GaAsP spectral detectors or array GaAsP detector and spectral 2 PMT detectors.

4. Spectral detectors with a resolution of 2-5 nm throughout the visible spectrum. Confocal detection should include simultaneous spectral detection and separation of 4 Fluorophores. Each detector should have independent intensity, gain and offset control. A spectral GaAsP or array GaAsP detector must be included for high sensitive imaging with quantum efficiency of 45%.

5. All the fluorescence detectors should directly be coupled to the scan head without any optical fibres for efficient signal collection and higher sensitivity.

6. All the spectral detectors should have spectral resolution of 2-3 nm or lower throughout the visible spectrum (400-800 nm) through a reflection grating/Prism.

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The system should be supplied with an independent transmission light detector for generating confocal DIC images in bright field mode for studying localization of proteins/molecules of interest.

7. The spectral detector should be capable of generating spectral profiles from 400-800 nm range and generate spectrally unmixed images to avoid auto fluorescence.

8. Should be capable of imaging 4 fluorophores simultaneously and at least 6 in sequential mode.

9. Spectral dispersion of the emission light should be of latest technology with highly efficient spectral separation.

10. Motorized & computer controlled continuously variable confocal pinhole with software control. High speed XY Galvo scanner with 180/360 degree scan rotation with total scan flexibilities of Line, free hand curved line, XY, XYZ, XYZT and XYZt,λ combinations.

11. Scan resolution 4K x 4K or better for all channels. Scan Zoom range 1.0X to 40X or more.

12. Scan speed of minimum 4-8 fps @ 512x512 pixel resolutions and shall increase 110 FPS or better at 512/16.

13. Data acquisition and digitization capability with 8, 12 and 16 bit should be available. An additional transmitted light detector should be offered for bright field and DIC imaging

14. The system should be offered with the following combination of laser lines (diode lasers, multiline Argon and HeNe Lasers) to excite the respective fluorochromes:

Diode lasers: 405 nm. Laser violet 445/448, Laser blue 488, laser green 552/559/555 and laser red 638/640 with complete power supply and AOTF control, or suppliers can offer gas and other laser combination, Diode lasers: 405 nm. multiline Argon lasers: 458 nm, 488 nm, 514-515 nm with 35mW or higher, DPSS 561/559 nm, HeNe 633 nm or laser diode 635 nm, with complete power supply and AOTF control.

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15. All the lasers should be connected to the scan head through fibre optic cable. All the laser lines should be computer controlled for fast laser switching and attenuation in synchronization with the scanner.

C. System control and imaging software

1. Software should be capable of controlling motorized functions of microscope, scan head control, laser control, scanner control, and image acquisition & processing. Software for all applications should be provided. Saving of all system parameters with the image for repeatable/reproducible imaging. Capability of line, curved line, 15 frame, Z-stack, time series imaging. Photo-activation/conversion, FRET, FRAP imaging capabilities and physiology applications. Ion imaging with online ratio metric imaging and analysis.

2. Standard geometry measurements like length, areas, angles etc. including intensity measurements. 3D image rendering, reconstruction and navigation. Co-localization and histogram analysis with individual parameters.

3. High Dynamic Range Imaging, real time ratio imaging, channel un-mixing, direct hard drive recording, spectral un-mixing/finger printing to separate the auto fluorescence with fluorescence signal and separation of overlapping dyes such as GFP / YFP. Online spectral un-mixing for separation of overlapping emission spectra of fluorochromes with all the detectors

4. System should have laser intensity stabilization / feedback feature so that there is no intensity variation during long hours imaging experiments.

5. The system should be capable of real-time Ca++ imaging / ratio imaging of two colours with visible range of dyes using same detectors.

6. Objective inverter attachment should be offered according to offered microscope. The objective inverter attachment should be quoted as optional item.

D. Installation and service support.

1. Bidders should clearly specify the after sales service and application support capabilities. Should provide all pre-installation requirements to have the system installed in ideal room conditions.

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2. Provide a detailed list of users of the quoted system in India with contact details.

E. i. Electrical: 220-240 VAC

ii. A suitable online UPS with 60 min backup should be provided.

iii. Warranty: Two years warranty including lasers must be offered.

Note: The price of individual laser offered should be quoted separately.

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Item No 15: Sap Flow Sensors

Specification:

1. The Sap Flow Sensors/System should measure the sap flow from roots to shoot, reverse sap flow, low sap flow and zero sap flow in an effective way through varied range of stem diameters of three years old fruit crops viz. Sapota, Pomegranate, Guava, Grape, Papaya, Nagpur Mandrain, Sweet Orange, Acid lime etc.

2. The sensor length/diameter can be used for varying stem diameters of fruit crops should be same and sensors can be easily installed in fruit trees. It should not disturb the bark of stem in fruit trees.

3. Principle of measurement should be well defined and should be advanced, reliable and acceptable (supported with references in high impact journals).

4. The 45 minimum numbers of sensors considering varied range of stem diameters of fruit crops will be required. The rates should be quoted as per unit cost of sensor including data logger and essential accessories i.e. tool kit for fixing sensors. The rates should also be quoted for additional sensors, data logger and accessories/spare parts if needed. Accordingly, the rates for extension cables and necessary accessories should also be quoted. The carrying case should be provided for sensors and all necessary accessories.

5. Data logger should have continuous logging, storing and retrieving of stored information. The data can be easily transferred from data logger to portable data analysis system (Laptop/Note pad) through USB/Micro SD card for further analysis. Sap Flow tool software will be compatible with windows 7 and above. Data logger should be portable and battery powered. Remote data/wireless downloading system to be provided with storage for unattended operation in the data logger.

6. Portable data acquisition system (Laptop/Note pad) for onsite data loading, data retrieval, transfer and processing should be supplied.

7. All the essential accessories including tool kit for fixing the sensors and data logger, carrying case should be supplied with the system.

8. Supply for alternate source of energy like solar panel/external batteries/charger to be supplied for the system or data logger.

9. Installation, Training and Demonstration at site to be provided.

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10. Warranty – Two years after installation. The post warranty service like Annual Maintenance Contract (AMC) should be quoted for next three years.

11. Original brochure mentioning detailed technical specification should be enclosed with the quotation.

12. List of users since last five years to be provided.

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Item No 16: Soil Tensiometer System

Specification:

i. Tensiometer tubes : UV resistant plastic tubes 15 cm depth 30 cm depth 45 cm depth 60 cm depth 75 cm depth

ii. Computer gauge: for reading and storing soil moisture tension readings from all tubes. • Measuring unit : KPa • Measuring range : 0-100 Kpa • Accuracy :<=1 % • Portable and battery operated • Display : LCD which displays Date, Time, Tube Number and reading in kPa • Software: Software which is compatible with Windows 7 and above for downloading readings and easily plotting graphs on computer.

iii. Accessories: Auger for installing tensiometer tubes in soil.

iv. Warranty: Two years from the date of installation.

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Item No 17: Water Activity Meter

Specification:

1. Water Activity Range: 0.035 − 1.000
2. Water Activity Accuracy: ±0.015 to 0.0035
3. Water Activity Resolution: ±0.0001
4. Read Time ≤ 0-6 min.
5. Sample Temperature Range: 16 to 50 ◦C
6. Sample Temperature Accuracy: ±0.2 ◦C
7. Sample Dish Capacity: ≥10 ml
8. Full Operating Environment: 4 to 50 ◦C; 0 to 85% RH
9. Weight: ≤ 5 Kg
10. Digital display
11. Graphical Data Communications: USB and RS 232
12. Power: 110 to 220 VAC,
13. Warranty: Two years from the date of installation.

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Item No 18: Urea Briquetting Machine

Specification:

1. Capacity: 200 to 300 kg briquettes/hrs

2. Size and shape: Uniformity in size and shape of the briquette.

3. Power source: (1) 5-7 hp electric motor (2) can operate with power tiller.

4. Weight: 300 to 400 kg.

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Item No 19: Mini tractor with accessories & attachments

Specification:

1. Mini tractor 24 to 30hp, liquid cooled 3-cylinder diesel engine, four wheel drive with integral power steering and variable PTO speed with accessories.

2. Equipped with following attachments;

a. Rotavator with tilling width 1 to 1.2mt, L-shaped blades not less than 20 Nos.

b. Cultivator

c. Plough

d. Seed drill

e. Mini trailor

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Item No 20: Power tiller with accessories

Specification:

1. Power tiller with 10 to 15hp4-stroke, water cooled, direct injection, diesel engine.

2. Equipped with following accessories/ attachments;

a. Rotavator

b. Plough

c. Ridger

d. Reaper/ Grass cutter

e. Seat for power tiller

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Item No 21: Refrigerator

Specification:

1. Capacity: 500L or more
2. Digital invertor technology and compressor with 10 years warranty
3. Frost free freezing technology
4. Multi air flow type
5. Side by side door type
6. 4 and above star rating

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Item No 22: Micropipette Set

Specification:

1. Single channel Micropipettes kit (Tissue culture purpose):
   - The pipettes should be fully autoclavable to prevent growth of bacteria, microbes and fungus.
   - Should have appropriate accuracy for molecular biology work
   - Capacity: 0.2-2 µl 2-20 µl, 20-200 µl and 100-1000 µl.
   - To be provided with stand and user brochure

2. Multichannel (8 channels) Micropipette set
   - The pipettes should be fully autoclavable to prevent growth of bacteria, microbes and fungus
   - Capacity: 30-300 µl (N=2) and 5 to 50 µl (N=1).
   - To be provided with user brochure

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Item No 23: pH/Conductivity/Temperature Meter

Specification:

Measure pH from 0-14 with resolution of 0.001 pH and accuracy of ± 0.002 pH with tris compatible pH electrode. Temperature measurement with resolution on 0.1°C, accuracy of 0.3°C, conductivity measurement in the range of 0.00 µS to 500 mS, TDS in range of 0- 500 ppm with resolution of 0.01 ppm, salinity measurement from 0-80 ppt resolution of 0.01 ppm. Probes for temperature and conductivity measurement.

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Item No 24: Magnetic Stirrer

Specification:

Magnetic stirrer with the following specifications:

- Multispin with minimum 4 position motorless magnetic stirrer.
- Should have digital control of speed, reverse stir.
- Stirring speed: 100-1200 RPM.
- Stirring volume: Upto 1000ml.
- Power Rating: 5/10/15/20 Watts.
- To be provided with autoclavable round magnetic stirring bar with pivot ring (assorted sizes 10 nos.)

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Item No 25: Laminar Airflow

Specification:

1. Vertical laminar air flow.
2. Size: 4 feet x 2 feet; Stand to be provided.
3. Particle retention: 0.3 micron & above; Cleanliness level: CLASS 5.
4. Front: Sash type, UV resistant, Glass/Transparent polycarbonate.
5. Interior: Work tray and all three interior walls of SS 304 steel. Removable work tray.
6. Exterior: PU coated GI.
7. Digital display and soft touch controls.
8. Factory installed germicidal UV light & white/fluorescent light.
9. Power: 230V, 50/60 Hz

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Item No 26: Electronic Weighing Balance

Specification:

1. Electronic precision balance with built-in, motorized calibration weight, backlit 14 segment display, two TARE keys, stability indicator, 4 user selectable filter levels.
2. Weighing capacity up to 420 g, readability 0f 0.001 g, tare range 420 g. pan diameter of 115 mm, with housing. Bidirectional RS-232 data interface port, hanger for below balance weighing, overload protection.

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Item No 27: Orbital Shaker

Specification:

1. Type of movement: orbital.
2. >2 kg load capacity.
3. 100-300 rpm speed.
4. Digital display showing rpm and time.
5. Timing Range: 1min ~99hmin.
6. Power: 230V, 50/60 Hz
7. To be provided with Universal platform.

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Item No 28: BOD Incubator

Specification:

1. Capacity: 90-150 litres.
2. Temperature range: 5°C - 50°C.
3. Stainless steel interior and powder coated exterior.
4. Digital display with temperature control.
5. Power: 230V, 50/60 Hz

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Item No 29: Gel Blotting Apparatus

Specification:

400-450 ml tank of high quality acrylic and platinum electrodes, gel holder cassettes with latch, fast transferring of protein to membrane, simple design with ease for insertion and removal of the gel holder cassettes from electrode assembly.

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Item No 30: Infrared Thermometer

Specification:

1. Should be simple to use and take temperature from the animal skin surface.
2. Should have unit reads both Fahrenheit and Celsius of any surface.
3. Should provide temperature range from –76 to 1022°F or –60 to 550°C.
4. Accuracy is ± 2% of the reading.

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Item No 31: Air Temperature & Humidity Sensors with data logger

Specification:

- Stand-alone Air temperature & humidity sensors unit with data logging capabilities.
- RH: 0-90%, 0.1% resolution.
- Temperature: 0-50°C, 0.1% resolution, ±1°C accuracy.
- Should have capability to records readings according to set time intervals.
- Should be compatible for data export to windows based computer. Report includes date/time-of-day and temperature and humidity readings.
- Product should be NABL or similar agency certified.

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Item No 32: Hedge Cutter

Specification:

Hedge cutter/brush cutter/weed cutter machine

Petro engine driven with 3-way metal blade and nylon rope tape

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Item No 33: Centrifuge

Specification:

1. Centrifuge should have maximum capacity of 4×100 mL or more with operating temperature range of -10°C to 40°C and maximum noise level ≤ 60dBA.
2. It should provide maximum speed of 17,000 rpm or more and maximum RCF of 23,000g or more.
3. It should have backlit digital display with control panel having key pad/soft touch buttons.
4. Certifications/compliance: UL or CSA listed or CE marked and In-vitro diagnostics (IVD) compliant.
5. Following rotors to be provided:
    - Fixed angle rotor accommodating at least 24 x 1.5/2.0 mL tubes.
    - Fixed angle rotor accommodating at least 6 x 50 mL tubes.
    - Swinging bucket rotor along with round buckets (minimum 4 buckets). Suitable bucket adapters for 50 mL conical tubes (4 or more nos.), 15 mL conical tubes (8 or more nos.), 5/7 mL tubes (24 or more nos.), 3/5 mL tubes (8 or more nos.).
    - Original rotors with covering lids to be provided.
6. The equipment should be suited to Indian system of electrical inputs (220-240V/ 50/60Hz).
7. Branded UPS sufficient to provide minimum 30 min backup to centrifuge to be provided.
8. Warranty 3 years from the date of installation

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Item No 34: Ice Flaking Machine

Specification:

An ice flaker is required for rapid ice preparation for routine molecular biology experiments

1. It should be able to produce ice 175 kg or more/24 hour.
2. The construction material must be stainless steel.
3. It should have collection bin capacity of 60 kg or more.
4. The cooling system should be air-type.
5. The CE/cUL/NSE certification must be for quoted model.
6. Refrigerant R404A type
7. Electric supply: 220-230V/50 Hz.
8. Warranty at least two years from date of installation.

Note: A detailed original technical literature and catalogue in support of specifications and features must be provided.

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Item No 35: Deep Freezer

Specification:

1. Automatic defrost, temperature range -20 to -30°C, 750-850 liters or more, 26.5 to 30.0 cubic feet, 230 volt, upright, single door, with four adjustable shelves.
2. Key-operated triple position switch for main power and alarm; locks in temperature and alarm set points to minimize set point error and prevent tampering
3. Graphic Thermometer for easy viewing, exhibiting normal, high or low temperature condition, steady green for normal, flashing top bar for over temperature, flashing bulb for under temperature
4. Illuminated when main power is interrupted
5. Increases or Decreases set point values in programming mode using touchpad data entry
6. Interior Light Switch for interior lighting system
7. Automatic Defrost System with sensor, Heat-free defrost for maximum uniformity
8. Illuminated when door is open
9. Battery Backup for full alarm function in case of power failure
10. Temperature Alarm Test for over temperature and under temperature condition and activation of audible and visual alarms with display of flashes momentarily on completion of test
11. Forced air circulation for uniform temperature and fast recovery on door opening
12. Solid doors, Four casters with two lockable, adjustable, epoxy-coated wire shelves with 40-50 nos. of vessels to store reagents
13. Electric supply: 220-230V/ 50 Hz
14. Suitable high quality voltage stabilizer with one hour power backup
15. Environmentally safe refrigerant mixtures CFC-FREE, HCFC-FREE non-flammable refrigerants
16. Freezer to meet UL or CE standards for safety.
17. Warranty and free service for 3 years.

All vendors are requested to attach original technical literature/catalogue in support of the mentioned specifications and highlight the above features.

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Item No 36: Nanodrop Single Probe

Specification:

1. Single probe reader with a minimum sample volume for analysis not more than 2.0 µl to be provided.
2. Path length for measurement should range from 1 mm to 10 mm.
3. Wavelength range of measurement of protein and DNA to be provided.
4. Wavelength Accuracy must vary by ± 1nm
5. Absorbance precision should be 0.002 to 0.005 with absorbance range to be included: 0.04 – 200.
6. Detection Limit for measured samples to be less than 3 ng/µl (dsDNA) and less than 0.20 mg/mL (BSA)
7. Should accompany compatible operating softwares for the machine and enable applications for nucleic acid quantification (DNA and RNA) and protein quantification
8. Measurement Time should not be more than 10 seconds.
9. The machine should confirm CE and UL or CSA standards.
10. As an interface to run the measurement operations, a dedicated personnel computer with suitable operating system should be provided.
11. One year warranty period for any operational repairs/ maintenance of the machine.
12. Electric supply requirements: 220-230V/ 50-60 Hz.

Note: Vendors are requested to attach original technical literature/catalogue in support of the mentioned specifications and highlight the above features.

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Item No 37: Spectrophotometer

Specification:

UV/Vis Spectrophotometer should have following features:

1. Double beam optical system.
2. Wavelength range: 190- 1100 nm.
3. Spectral bandwidth: 1 nm.
4. Wavelength accuracy: 0.1 to 0.5 nm.
5. Wavelength reproducibility: 0.05 to 0.1 nm.
6. Light source: Xenon lamp/ halogen-deuterium/tungsten lamp.
7. Detector: silicon photodiode/Photo diode array detector/PMT.
8. Power requirements 100–240 V, 50/60 Hz.
9. Cuvette: quartz cuvettes (1 set of 1 ml). Additional quartz and glass cuvettes (0.5 ml, 1 ml, 3 ml, 5 ml) should be quoted separately as optional item.
10. Photometric range: -3 or lower to +3 or higher Absorbance.
11. Noise level: Not more than 0.0002 A.
12. Photometric accuracy: 0.001 to 0.006 A.
13. CE certification / IEC61010 Compliance/certificate of analysis (COA) should be specific for quoted model.
14. Warranty: One year from the date of installation. Also should be quoted additional one and two years warranty separately as optional.

Note: User list should be provided. Original technical literature/catalogue in support of technical specifications/features should be provided.

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Item No 38: Inverted Microscope

Specification:

1. Basic stand with LED illumination, four nosepiece with 20-25 mm field of view.
2. Should include objectives namely, 4x, 10x, 20x, 40x.
3. Should have side/back/front port for camera.
4. Should include phase contrast mode besides bright-field illumination mode.
5. Numerical aperture 0.3-0.45 and working 70-80mm condenser.
6. Fixed stage with XY object guide/knob with universal specimen holders. Should have C-Mount 0.5x - 0.6x.
7. Should be supplied with scientific HD digital color camera. Camera and microscope should be from same manufacturer for better integration and live image display on PC.
8. Camera attachments with CMOS sensor, software for micron bar and point to point measurement. Camera: 3-megapixel or better. Camera should enable HD live image/movie clips recording directly to memory card.
9. Warranty: one year from the date of installation.
10. Should be provided with compatible software for attaching microscope to personal computer, software should allow live imaging, image and movie-clip capture.
11. For data recording All-In-One Computer to be provided with following specifications: 19-21 inch display, minimum 2GB RAM, minimum 500GB disk capacity, 64-bit system, Windows 8 or above OS, Keyboard, Mouse.
12. High quality branded 2 KVA online UPS with at least 60 minutes of power back to be supplied.

All Vendors to provide original technical literature / catalogue for the quoted model in support of the specifications.

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Item No 39: Deep Freezer

Specification:

1. Upright type model with capacity of 450 litters or more.
2. Temperature range: -10ºC to -30ºC.
3. Should have manual/automatic defrosting. However, automatic version should have provision of changing to manual defrost mode at user end.
4. Solid single door model with casters for easy movement.
5. Quoted model should be CE/UL/cULus/TUV/ISO International Standards marked/certifications.
6. Removable washable filter for dust protection.
7. Padlock-compatible door handle with integrated key lock for sample security.
8. Freezer cabinet to be made of scratch and rust resistant steel.
9. Should have digital temperature display.
10. Should have minimum three standard internal shelves. Additional two shelves to be provided at installation.
11. Electric supply: 220-230V/ 50 Hz.
12. Warranty 2 years from the date of installation.

Vendors should provide original technical literature/catalogue for the quoted model in support of the specifications.

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Item No 40: Gel Documentation System

Specification:

1 Gel Documentation System should have Image resolution ≥4 mega pixels for resolving closely spaced bands on a gel or blot.
2 Imaging system should have automatic capabilities with application driven, user selected or recalled by a protocol.
3 Should have 100 % repeatability via recallable protocols.
4 System should have pre-calibrated focus for any zoom settings & sample height.
5 Should have appropriate flat fielding correction automatically & consistently applied to image data for every application.
6 Versatile system to support wide range of applications like- Fluorescent dye like Sybr green, Sybr safe, Western blotting, 2-D, 1-D, Dot Blotting, Nucleic acid detection , Quantitation etc.
7 Should have 12 bit CCD camera or better
8 System can take max. Sample size 28 X 36 cm or more
9 System should have pre calibrated & optimized dynamic image flat fielding
10 It should universal dark hood & upgradeable to chemilumnescence.
11 Should have motorized zoom lens- f/1.2, 12-75mm with numerical feedback value to reduce the experimental variation -Capable of Optimizing, saving, and quickly recalling the imaging acquisition settings
12 Safe DNA Imaging without UV exposure- using the Blue Conversion screen to prevent damage from UV and preserve samples for downstream protein production.
13 Reproducibly position or center the sample on the image platen by using gel alignment templates.
14 Should come with 1 D analysis software with following features, Single mouse click from image capture to results and reports, very fast and efficient. Should have comprehensive automated quantitative analysis of proteins & DNA samples in seconds. Intuitive and well organized (efficient) selection of workflows based on applications. 3D viewer. Should calculate precisely continuous focus curves that are consistently and automatically applied for every zoom position and sample height. No user intervention for focusing. All calculations are done at setup, once and for all image captures. Software is capable to load in multiple PC for use of multiple users.
15 System should provide along with branded Desktop PC with specifications: Core 2 duo processor,4 GB RAM, 1 TB GB HDD, mouse keyboard, windows 7 professional operating system, DVD R/W combo drive,18.5” TFT Monitor
16 System should provide along with 1.0 KVA online UPS with 20 min backup.

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17 2 years guarantee with free service.

All Vendors to provide original technical literature / catalogue for the quoted model in support of the specifications.

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Item No 41: Deep Freezer

Specification:

1. Upright type model with capacity of 450 liters or more.
2. Temperature range: -10ºC to -30ºC.
3. Should have manual/automatic defrosting. However, automatic version should have provision of changing to manual defrost mode at user end.
4. Solid single door model with casters for easy movement.
5. Quoted model should be CE/UL/cULus/TUV/ISO International Standards marked/certified. Should comply with minimum two international standards/certifications.
6. Removable washable filter for dust protection.
7. Padlock-compatible door handle with integrated key lock for sample security.
8. Freezer cabinet to be made of scratch and rust resistant steel.
9. Should have digital temperature display.
10. Should have minimum three standard internal shelves. Additional two shelves to be provided at installation.
11. Electric supply: 220-230V/ 50 Hz.
12. Warranty 2 years from the date of installation.

Note: Vendors to provide original technical literature/catalogue for the quoted model in support of the specifications.

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Item No 42: SPAD Chlorophyll Meter

Specification:

1. Equipment should be suitable for the measurement of chlorophyll content or greenness of plant leaves.

2. Measurement area: 2mm X 2mm or more.

3. It should be suitable for leaves having thickness of 0.8-1.0 mm or greater range.

4. Accuracy: ±3% within 0-100 SPAD units.

5. Display: LCD panel with minimum 3-digit measurement value.

6. Display range: 0-100 SPAD units or better.

7. Operating temperature: 30 to 50 ^{0}C or greater range.

8. with warring buzzer or alternative warning indicator.

9. A standard factory calibration certificate should be provided.

10. The firm shall submit necessary catalogues and product data sheets along with the offer.

11. Equipment should be provided with all the standard accessories, optional quote for accessories may be provided if required.

12. Warranty: minimum 2 years.

13. Optional: data logger facility to store at least 3000 measurements.

(All vendors are requested to attach original technical literature/ catalogue in support of the mentioned specifications & highlight the above features.)

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Item No 43: Tissue Culture Laboratory

Specification:

S. No	Product technical details
1	**Animal Tissue Culture Laboratory should have following components:** Tissue culture rooms (2 nos.), Microscopy room, Media preparation room, Incubation room and Changing room. The approx. dimensions of the room are as follows: • Tissue culture rooms (2 nos.): 13 ft x 11 ft each • Microscopy room: 10 ft x 7 ft • Media preparation room: 10 ft x 9 ft • Incubation room: 10 ft x 8 ft • Changing room: 10 ft x 8 ft
2	**ROOM PARTITIONING: (Approx. 2200 sq. ft.)** • Partitioning using standard aluminum-glass partitioning from floor to roof. • Partitioning height should be divided as: lower 40% aluminum partitioning, middle 50% made of 12 mm thick clear toughened glass and upper 10% aluminum partitioning.
3	**DOORS (Single Door): 7 quantity** • Aluminium-glass partitioning with necessary door assembly. • The doors should have hydraulic door closure for self-closing when released. • All the doors should have integrated locks. Minimum 3 keys per door to be provided. • The doors should gaskets along the periphery to avoid gaps when closed.
4	**AIR SHOWER (Through Entry & Exit)** **SIZE**: EXTERNAL -1800[W] x 1000 [D] x 2165 [H] MM INTERNAL - 750[W] x 750 [D] x 2000[H] MM Air Velocity: - 22-25 m/sec (By U- tube meter) MOC:- MS CRCA POWDER COATED Main Door MS CRCA POWDER COATED Matt Finished with Glass • 1.0 mm Thk Without puff 1) 0.3 Micron Hepa Filters (Delivery Filter) : • Size:- 610 x 875 x 150 mm; Qty-04Nos 2) Pre Filter (Suction filter) : • 10 Micron, HDPE Washable; Qty-04 Nos 3) Hindustan or Crompton Greaves makes Blower Motor: • 3-Phase; 0.75/1 HP Blower Motor Assembly with Rexene Bellow, Qty-04 Nos. each 4) Fluorescent Tube Light: 20Watts, Size – Qty-01Nos. 5) Nozzle 32 No. 6) Noise Level: 75 db +/- 5. 7) Door close: 2 no

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	8) Bottom with grill - 1 no (Of 40 mm Depth)
5	**EPOXY FLOORING (Approx. 300 sq ft)** • Thickness:- 3 mm, Anti Bacterial & fungicidal. • Should provide seamless surface including base floor levelling in appropriate sand.
6	**PERIPHERAL LIGHTS & ELECTRICAL PLUG POINTS:** • LED Lights approx. 15 Nos; 2'X 1' ft, 18 w; Germicidal UV lamps in both culture rooms. • Light on/off points/Electrical plug points: A set of 20 electrical points (6A, 15A and 30A) must be provided via appropriate feed through. The sources for these points should be from UPS units or direct lines already present in the room.
7	**AIR CONDITIONING UNITS:** • 1.2 Ton split air conditioner from reputed manufacturer (*Total: 4 nos.*) to be fitted in tissue culture rooms, media preparation room and incubation room.
8	**WATER PURIFICATION SYSTEM** • Capacity 6 LPH; Application: Tissue culture media preparation. • Input tap water; Output Type 2 water. • UV-Oxidation 185/254 nm; Resistivity at 25°C, MΩ-cm : 15 to 10. • Conductivity µS/cm: 0.067 – 0.1. • Position on laboratory bench or mount it on the wall; 230V AC single phase compatible. • CE/UL Certified.
9	**BIOSAFETY CABINET** • Cabinet class II type A2; Internal Dimensions (W x H x D): 4 ft x 2.5 ft x 2 ft approx. • Filter: MPPS >99.99%, H14 HEPA EN 1822. • Certifications: CE listed, NSF/ANSI 49 certified for Class II, Type A2 conditions. • Noise should not exceed 65 dBA. • Visual and audible alarm for indicating improper front window working position, and airflow restrictions. • Provision of interior lighting and at least one 230V plugs/receptacles on interior side. • Pressure sensors to detect changes in inflow/exhaust or downflow with alarm signals. • Should work on 230V AC single phase supply.
10	**REFRIGERATED CENTRIFUGE** • Refrigerated centrifuge with temperature range:- -10°C to +40°C • Centrifuge with fixed angle rotors for 24 x 1.5/2 ml tubes with 16,000-17,500 rpm speed. • Rotors 6 x 50 ml and adapters for 15 ml with 7,500-9,500 rpm speed. • Rotor lids should have a Lock-system for secure lid closing and opening. • Noise level should be less than 60 dBA. • Centrifuge must be CE/CSA/UL certified and IVD Compliant. • Microprocessor controlled with LCD display. • Should work on 230V AC single phase supply.

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11	**CO_2 INCUBATOR** • Bench top type with capacity: 150-200ltrs, LCD/LED display. • Construction: corrosion free resistant stainless steel. • Sealed inner glass door facility with appropriate closing system to minimize loss of gases. • Perforated shelf made up of stainless steel, 4-6 numbers of shelves along with fanless direct heating system and gentle convection air circulation. • Temperature range: 22°C – 50°C, Temperature uniformity ± 0.3 °C. • Provision of CO_2 range 0.2 – 20 % should be provided • CO_2 uniformity should not fluctuate beyond ± 0.1% • Incubator should have O_2 control option for hypoxic studies. • O_2 accuracy must be ± 1.0 % measuring range at constant temperature and pressure. • All control and measurement probes and sensors should be located directly inside the culture chamber to provide true and accurate process data and foster faster parameter recovery times. • Incubator should be equipped with programmable tracking alarms for critical temperature and CO_2 control parameters, which can be custom configured to meet the needs of changing research requirements. • The chamber should accompany two (2) CO_2 Cylinders, in-line two stage CO_2 gas regulators with auto-change over controllers and online HEPA filters. • The incubator should have the facility for security system from over temperature cut off. It should also have automatic re-setting of the pre-set parameters in case of power failure.
12	**VERTICAL AUTOCLAVE** • Capacity 100 Liters, Vertical model • Triple walled construction complete made of SS 304, lid made of SS 304 • Water level indicator with stainless steel guard, pressure gauge, steam release valve, spring loaded safety valve, Automatic Pressure Control Switch, automatic low water detection and alarm • The Unit should be fitted with Double safety radial locking system with paddle lifting device • Pressure adjustable from 5 psi to 20 psi with an accuracy of +/- 1 psi, with automatic pressure control switch. • Supply complete with stainless steel basket, cord and plug. • The pressure inside the chamber is variable from 5 psi. to 18 psi.. • Working Temperature : 121° C settable by digital PID temp controller with timer • Hydrostatic Pressure at 35 psi along with certificate. • Should work on 230V AC single phase supply, warranty :3 years
13	**FLUORESCENT INVERTED MICROSCOPE WITH PC** • Optics: Infinity corrected Plan/ Neo Fluor 4x, 10x Phase, 20x Phase & 40x phase extra Long working distance objective suitable for phase / Hoffman modulation & fluorescence.

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	• Objective Nosepiece: Quadruple or better revolving nosepiece • Transmitted-light illuminator: Minimum 5 watt white light LED or better minimum service life of 50,000 hours. • Condenser: Interchangeable condenser heads with minimum working distance of 75 mm or better with phase contrast accessories. • Stages: Stage 128 x 83 mm with object guide & Universal holding frame to accommodate Petri dishes, slides & Multi well plates. • Documentation Camera port: Trinocular tube with minimum 45° angle, light path 100% visual & 100% Photo. • Eyepiece: Eyepiece 10X with Field no. 20mm or better. • Dust Cover should be provided. • Minimum 3 position or more Fluorescence filter slot / turret with 100W Hg fluorescence illuminator, No overlapping of the filters to avoid loss of image quality, Filter for DAPI, GFP & RFP. <u>Digital Camera & Software</u> Scientific (dedicated for microscopy) Digital Color CMOS or better Camera & Resolution 3mp or better, with a provision for software interpolation, color filter RGB, and live image full display. Fire wire or USB connection to PC. Software for image acquisition and analysis. Microscope, Camera & Software should be from same manufacturer for Optimum synchronization and better performance. <u>Personal computer</u> • Type: All-in-one; Processor: Intel Core-i5, RAM: 4 GB or higher, HDD: 1TB, Monitor: LED 20-22 inch, Wireless Keyboard & mouse, Operating System: Windows 8 Professional or higher, Wi-Fi, DVD R/W, HDMI, Microphone-in, headphone-output, Ethernet jack.
14	**REFRIGERATED CIRCULATORY WATER BATH** • Capacity/ Volume (Metric): 6 liters • Maximum temperature: +100 ºC; Minimum temperature: -10 ºC. • Display: bright, user intuitive, digital, with °C/°F/K modes and English language support. • Temp stability: 0.02 to 0.05°C; Cooling capacity: 240-250 W • Interior depth: >5.8”; Max flow rate (Liters/min): 16-18 L/min • Stainless-steel bath for robust operation; Compliance/Certification: CE/cULus/ • Should have provision for excessive high temperature shutdown, liquid low-level shutdown and auto-restart after power failure and audible and visible alarms high temperature and refrigeration. • Electric supply: 220-230V/ 50-60 Hz.
15	**LABORATORY TABLES (5 nos.) and CHAIRS (3 nos.)** • Table (2 nos.) approx. dimensions: L= 8 ft, W= 2.5 ft, H= 3 ft. • Table (1 nos.) approx. dimensions: L= 7 ft, W= 2.5 ft, H= 3 ft. • L shaped Table (1 nos.) approx. dimensions: L= 10ft x 8ft x 2ft x 3ft. • L shaped Table (1 nos.) approx. dimensions: L= 10ft x 7ft x 2ft x 3ft. • Table Work top: Made of (17 to 19mm) thick Jet Black Granite Top. • Table Underlying Storage Units: Each unit should have two shutters with proper shelves (adjustable) and two drawers. Multiple storage units to be provided along the table length.

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	• The storage units to be made of corrosion resistant metal and should have powder coated surface/superior paint finish. • High quality laboratory chairs (3 nos.): foam based seat and backrest; pneumatic height adjustment; backrest tilt adjustment and lumbar support; 360 degrees rotation; polished aluminium base with castors.
16	**UPS:** UPS with batteries capable of providing atleast 1 hr backup for Biosafety cabinet (2 nos.), CO2 incubator (2 nos.), Microscope (1 nos.) and minimum lights in all rooms.
17	**Warranty:** One year warranty for the entire facility.
18	The firm will be responsible for transporting and installing all the equipment mentioned in the tender at NIASM, Baramati. The onsite commissioning of fully functional animal tissue culture laboratory including aluminium-glass partitioning will be done by the firm.

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Item No 44: Tissue Culture Laboratory

Specification:

Plant Tissue Culture Laboratory development including furniture and related works (as per the layout):

S. No	Product technical details
	Plant Tissue Culture Laboratory should have following components: Tissue Culture rack room, Aseptic Room, Microscope room, hardening room and Ante room
1	**Aseptic Room: 10 ft x 8 ft** • ISO Class 100000 or as per aseptic plant tissue culture lab standards of Biosafety. • Epoxy coated (insulated) ceiling roof and all walls.
2	**Microscope room: 8 ft x 7 ft** Epoxy coated (insulated) ceiling roof and all walls.
3	**Hardening Room: 8 ft x 7 ft** Epoxy coated (insulated) ceiling roof and all walls.
4	**Tissue Culture rack room: 18 ft x 11 ft** • ISO Class 100000 or as per aseptic plant tissue culture lab standards of Biosafety. • Epoxy coated (insulated) ceiling roof and all walls.
5	**PUFF DOOR (Single Door) : 4 quantity** • **Door thickness:- 50 mm** • **Door sheet thickness:- 20 Gauge powder coated. Powder Coated with 7 tank imported process** • **Frame thickness:- 1 mm powder coated** • **With Puff Insulation Puff Core 40 kg/m3** • **GI Powder Coated** • **SS 304 Push plate.** • **Dorma door closer** • **'D' type door handle** • **Stainless steel kick plate** • **Drop seal** • **Three side gasket for frame** • **Stainless steel ball bearing but hinges** • **Dual side glass (As Required)** • **Size Approx - (H) 2100 mm X (W) 1000 mm**
6	**CLEAN ROOM WALL PANELING: Approx. 160 Sq mtr** • Double Skin Panel thickness: - 50 mm • Both side pre-painted G I of 9002 shade • Panel Sheet Thickness: - 22 Gauge

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	• With Puff Insulation Puff Core 40 kg • GI Powder coated with 7 tank imported process coated with Colour choice • Electric power and utility outlets • Silicone each joint with of panels • Satisfying M-1 fire Rating (British Standard). • Wall Track System as per standard by • bottom adjusting with packing shims and a top with • Self taping screws to hold the panel complete
7	**VIEW PANELS – See Through Double Skin Glass:** 02 Quantity • View Panel Thickness: - 50mm • 4 mm Thickness thick float glass • Frame made of GI Powder Coated • High Density polymer gasket • Sealed with Silicon sealant • View Panel Size:- 1000 X 1000 X 50 mm
8	**Window Pass Box: 2 Nos** **SIZE: INTERNAL – 600 [W] x 600 [D] x 600 [H] mm** • MOC: - SS 1.2 mm thick (Matt finished and Leak tight double skin, opposite side open able with transparent glass fixed in both sides) • Door Gasket:-Silicon rubber food grade Gasket **Electronics Components:-** • **Interlocking- PLC based device with smart Electromagnetic Lock and programmable timer.** • **Power Supply 230 V AC Single phase** • **Panel light for illumination** • **UV light for sterilization**
9	**EPOXY FLOORING: 300 Sq mtr** • Self levelling epoxy flooring • Imported VIP blue colour shade • Thickness:- 3 mm • Anti bacterial & fungicidal • Recovering provide seamless surface including base floor levelling
10	**Coving Structure:** • Fully flush corner transitions wall-to-ceiling and wall-to-floor connections • Eliminating corners, the radius coving system allows for total clean ability. • Wall-to-wall and wall-to-ceiling junctions trimmed with an extruded coving that features a large 2” to 3" radius
11	**AIR SHOWER (Through Entry & Exit)** SIZE: EXTERNAL -1900 [W] x 1000 [D] x 2165 [H] mm INTERNAL – 800 [W] x 900 [D] x 2000 [H] mm Air Velocity: - 22-25 m/sec (By U- tube meter) MOC:- MS CRCA POWDER COATED Powder Coated with 7 tank imported process

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	Main Door MS CRCA POWDER COATED Matt Finished with Glass • 1.0 mm Thk Without puff 1) 0.3 Micron Hepa Filters (Delivery Filter) : • Size:- 610 x 875 x 150 mm, Qty-06 Nos 2) Pre Filter (Suction filter) : • 10 Micron, HDPE Washable , Qty-06 Nos 3) Hindustan or Crompton Greaves makes Blower Motor: • 3-Phase • 0.75/1 HP Blower Motor Assembly with Rexene Bellow, Qty-05 Nos. each 4) Fluorescent Tube Light: 20 Watts, Size – Qty-01Nos. 5) Nozzle 32 No. 6) Noise Level: 75 db +/- 5. 7) Door closer - 2 no 8) Bottom with grill - 1 no (Of 40 mm Depth) 9) PLC based Door inter locking System for smart operation and up gradation facility
12	**DOMESTIC AIR CURTAIN (3 ft): 1 No.** **Specification:-** • MOC :- MS CRCA Powder Coated • Aluminum Impellers, FRP Blower Casing • Branded MCB Fitting and with required cable • Crompton makes Motor 1/4 HP, 1 Phase, motor, Rubber Bush suspended - 1 no Per no • Air Velocity :- 12 -13 m/sec
13	**PERIPHERAL LIGHTS and fitting:** 15 Nos 2'X 1' ft, 18 w PAR Lights and fitting for Hardening Room Variable intensity of PAR light for plants
14	**CLEAN ROOM SYSTEM With HVAC for Class 100000:** 42 Nos. Filtration System with 0.3 Micron Hepa Filter Capacities. Capacity cooling coil without Condensing door unit (ceiling suspended) **Construction:** · Filter Housing SS 1.2 THK (18 SWG.). · SS Ducting – 24 SWG. With Thermal insulation · Return Air Riser G I Powder Coated 20 SWG sheet with Aluminum Grills. **DOUBLE SKIN CASING: For AHUs** Outer skin 0.6 mm (24G) Pre- coated GI Inner Skin 0.6 mm (24 G) SS Frame work Non Thermal Break AL profile Thickness of insulated panels 25 mm Thick, CFC Free PUF injected (Density: 40 kg/ /m3) Material of Drain pan S.S tray duly insulated with PUFF. Unit Base GSS

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	FILTERS: Efficiency of Pre-filters 90 % down to 10 micron Efficiency of Fine-filters 97 % down to 3 micron Features: · Inside Foam Insulated Filter Housing. · Positive Pressure System to supply 20% Fresh air with in unit. Return Air Riser G I. Powder Coated with 7 tank imported process · LAF Velocity- 0.4 to 0.45 m/sec. 90 fpm. & Minimum 30 air changes per Hours. · Minimum maintenance with easy servicing Free Servicing after every 4 months for a period of 1 year. · Minimum Noise level 60 T0 65 dbl. **AHU:-** • AHU (Air Handling Unit) Ceiling Mounted. • Capacity 2200 CFM with 125mm static pressure Blower with 5 HP Single Phase Crompton Make Motor Qty. 04 Nos. • Cooling Coil, SS Drain Tray • First Stage Filtration HDPE washable 10 Micron in AHU. • Filter section with pre filters of 10µ and 5µ mounted on common Filter frame • Fan section with DIDW centrifugal backward curved fan, motor, Drive set with **V** belt. • Fine filter section with filters of 5µ. • Manually operated Al Constructed SA damper • G.I. Ducting - 24 SWG In GT sheet, with – 9mm Thickness • Flux Aluminum Foil Insulation. • Air Condensing Unit. AC with Reciprocating Compressor. • Return Air Riser with Aluminum Grills. • Air Velocity near about Hepa Filter 0.45-0.50 msec / 90-110 FPM • UV ductwork sterilizer in HVAC returns. This fully automatic UV modules decrease germ loads on ceiling HEPA filters, minimize contamination of clean rooms.
15	**Fully automatic UV sterilization in room:** 01 No • Fully automatic operation mode • Manual operation mode • Continuous sterilization (User programmable) • 7 days of programming with various level of programming cycle • SAFETY - If room door is opened while UV light is already ON in room, it will automatically override UV light control and will turn OFF UV light source to avoid accidental contact with UV light.
16.	**Water Purification System** • Capacity 6 LPH • Application : Tissue culture media preparation

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	• Input tap water • Output Type 2 water • UV-Oxidation 185/254 nm • Resistivity at 25°C, MΩ-cm : 15 to 10 • Conductivity µS/cm : 0.067 – 0.1 • Position on laboratory bench or mount it on the wall. • **CE Certified**
17	**Laminar Air Flow Chamber: Qty 1** • Internal work area : 1185 x 625 x 575 mm • Average air flow velocity : 0.45 m/s (90 fpm) at initial set point • ULPA Filter efficiency : >99.999% at particle size between 0.1 to 0.3µm • NSF Certified/CE certified, EN 12469, ISO 14644.1, Class 3 • Class 100 air quality
18	**Vertical Autoclave: Qty 1** • Capacity 100 Liters, Vertical model • Triple walled construction complete made of SS 304, lid made of SS 304 • Water level indicator with stainless steel guard, pressure gauge, steam release valve, spring loaded safety valve, Automatic Pressure Control Switch, automatic low water detection and alarm • The Unit should be fitted with Double safety radial locking system with paddle lifting device • Pressure adjustable from 5 psi to 20 psi with an accuracy of +/- 1 psi, with automatic pressure control switch. • Supply complete with stainless steel basket, cord and plug. • The pressure inside the chamber is variable from 5 psi. to 18 psi.. • Working Temperature : 121° C settable by digital PID temp controller with timer • Hydrostatic Pressure at 35 psi along with certificate., • Should work on 230V AC single phase supply
19.	**Tissue Culture Rack: Qty 2** • Total no. of shelves - 5 • No of culture shelves- 4 • Rack made of MS Tubular frame duly powder coated • Distance between shelves to shelves is 16” approx. • Size of each shelf is 108” x 18” • Eight 36-watt flicker free fluorescent light per culture shelve. Total 32 Nos tube lights. • Automatic digital control timer for fluorescent light – 2 per rack **Tissue Culture Rack: Qty 2** • Total no. of shelves - 5 • No of culture shelves- 4 • Rack made of MS Tubular frame duly powder coated • Distance between shelves to shelves is 16” approx. • Size of each shelf is 108” x 24” • Eight 36-watt flicker free fluorescent light per culture shelve. Total 32 nos tube lights. • Automatic digital control timer for fluorescent light – 2 per rack

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20	**Upright fluorescence microscope facilitated with phase contrast, Bright field applications and DIC slot, There should be provision to mount camera with suitable adaptor 0.7X** • Light source: Transmitted pre-centered LED illuminator LED at least 5W illumination with long life of 50,000 hours or better. • Eyepiece: Paired wide-field eyepiece 10X with minimum 22mm. • Objectives: Automated objective turret N Plan/fluorite/Semi Apochromatic objectives 4X/5X, 10Xph, 20Xph, 40Xph, 100x oil objective • Observation tube: Trinocular tube, F.N. 22 or better, three position prism for selection of light path for 100% /50%observation • Revolving nosepiece: Interchangeable six fold revolving motorized nosepiece with DIC/analyzer slot. • Fluorescence filters (Band pass): All filters should be interference based and emission should not overlap with other filters (e.g. DAPI, TRITC, FITC etc.). A source of 100 W mercury or better should be provided. • Condenser: Universal automated condenser with automated switchable condenser top for Bright field and phase applications. • Mechanical stage: Rectangular XY stage with double slide holder suitable for analysis of thick tissue specimen. • Cameras: CCD Peltier cooled dual mode (colour and monochrome) camera with min. 5 MP resolution, 9 fps @ full resolution, FireWire / USB 3.0 Interface along with necessary 0.5x to 0.7x C-mount adaptor should be provided • Software: Imaging system automatically upgraded software that allows quantification of distance between two points and related morphometric measurements and intensity measurements, contrast and other adjustments and multichannel fluorescent merging. Microscope, camera and software should be provided from single manufacturer.

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Item No 45: LC-MS

Specification:

State of art LC MS/MS (s) system(s) for routine and comprehensive work flows for ultimate qualitative and quantitative applications with Front end HPLC is required-

Bidder should give compliance statement point wise showing/highlighting items part no/serial number as quoted in their quotation for comprehensive technical comparison. Proof of compliance should be mentioned point wise in the catalogue/specification sheet.

If vendor wishes to quote more than one mass analyzers to comply with the tender specifications then it must be quoted with front end as well.

1	**APPLICATIONS**	Rapidly screen samples for a large number of compounds Confidently detect and identities of unanticipated compounds that may not be on a pre-defined target list. The system should use for the analysis of Protein, Metabolomics and Small molecule identification and characterization.
2	**MASS ANALYZER**	High resolution mass analyzer Quadruples Time of Flight system with Mass range up to 10000 m/z or above
3	**INTERFACE**	Simple interface for maintaining cleanliness of ion optics and capable of handling large batches of complex samples. It should have a low maintenance inter face which should not require frequent cleaning. This should have advanced innovative technology that delivers a sensitivity and detection limit with High Mass Accuracy and High Resolution
4	**ACQUISITION RATE**	50 Spectra per second in MS and MS/MS mode
5	**RESOLUTION**	20,000 (FWHM).
6	**MASS ACCURACY**	Minimum 2 ppm
7	**MASS ACCURACY STABILITY**	Mass accuracy stability with varying ambient temperature must be specified
8	**SENSITIVITY IN ESI**	High sensitivity for qualitative and quantitative analysis. Supplied system should have pg level of sensitivity when the Reserpine standard injected on column.
9	**POLARITY SWITCHING**	A fully protected air cooled vacuum system using turbo molecular pumps and rotary pumps. Vacuum read backs and automated vent system.
10	**DYANAMIC RANGE**	At least Five orders of dynamic range.

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11	**ION SOURCE**	Choice of 2 Separate ionization sources to cover all areas of applications. 1. ESI Source 2. APCI Source The above ion sources should be easily inter-changeable by the user himself.
12	**HPLC SYSTEM**	The HPLC system with the following features & functions should be supplied: 1. Quaternary Pump with vacuum degasser. The pump must contain all the necessary accessories as solvent cabinet, solvent bottles, tubing, filters, connections etc. 2. Pressure operating range: -600 bar 3. Flow Rate Range: - From 0.001 to 5.0 ml/min, in 0.001 ml/ min increments 4. Flow Precision:< 0.07 % RSD Flow rate accuracy: - ± 1% 5. Autosampler should have Sample capacity of minimum 100 vials 6. Should have Injection volume of 0.1–100 µl in 0.1 uL increments. 7. Sample Cooler with temperature range of 4°C to 40°C.
14	**COMPUTER PLATFORM**	A standard branded PC and Printer along with all necessary hardware and operating software required to operate all the specified equipment with one TB hard disk.
15	**OPERATING SOFTWARE**	Operating Software and Compounds Database ✓ Automated calibration ✓ Automated MS to MS/MS ✓ Software with effective data mining tool ✓ Software should have accurate mass database and libraries ✓ Software for empirical formula calculation. ✓ Confirm contaminants using accurate mass databases and libraries ✓ Implement high-quality methods quickly which include on-site support ✓ Selectively remove interferences with sample preparation products ✓ Increase speed, resolution, and sensitivity by using HPLC columns. ✓ Qualitative, Quantative and Acquisition software ✓ Software for protein analysis like deconvolution, PTM, PMF etc ✓ Software for Metabolomics application with database and libraries ✓ Software for structure correlator.

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		✓ Software for Pesticide analysis.
15	**GAS GENERATOR WITH BUILT IN AIR COMPRESSOR**	A suitable gas generator capable of providing all the gases at the required purity, pressure and flow rate for the Mass Spectrometer must be quoted. The compressor should be noise-free. All the required accessories such as arrangement for gas supply through gas generator, compressor, and any other essential item for operation of the instrument should be supplied along with the instrument. -A 15 KV power back should be supplied with the system to ensure power supply at least 7 hrs in case of power cut.
16	**CALIBRANT DELIVERY SYSTEM**	Built-in calibrant delivery system for automated introduction of simultaneous reference masses enables achievement of very low mass accuracy without manual adjustments.
17	**MASS ACCURACY STABILITY**	Mass Accuracy temperature stability of 1 ppm for temperature variation of 15 to 35 °C
18	**AFTER SALES SUPPORT**	Suppliers must have any active support in Maharashtra and avoid instrument down time.
19	**WARRANTY**	Warranty: The complete instrument and accessories excluding consumable items should be under warranty period for a period of 3 year from the date of installation.
20	**MANUALS**	Operation and Service manuals (in English) should be provided.
21	**USERS LIST**	Vendor should provide us a list of installations in India
22	**SINGLE POINT OF CONTROL**	Both the instrument should be from same manufacture and instrument should have a single point of control for both the MS and the HPLC.

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Item No 46: Centrifuge

Specification:

Max. Speed (rpm) 10000-18000

Capacity (ml) Min 50 Min.

Temperature (°C) -15- (-10) to 40

Dimensions WxDxH (mm) 450-500x 550-600 x 500-550

Votlage Stabilizers Required Supply 220-240 Volts 40-50 Hz single Phase

Rotors/Adaptor 5, 15, 50 ml

Warranty 2 Years

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Annexure- II

PRICE SCHEDULE FOR DOMESTIC GOODS OR

GOODS OF FOREIGN ORIGIN LOCATED WITHIN INDIA

1	2	3 a	4 B	5 c	6 d	7 e	8 f	9	10	11
Item Description Country of origin	Accounting unit & quantity	Exfactory/ exware - House/ ex-showroom off the shelf	Excise duty if any	Packing and forwarding	Inland transportation	Insurance other duties and taxes, if any(other than sales tax and incidental costs) (e)	Incidental services (including supervision)	Overall unit price [a+b+c+d+e+f]	Total price 2X9	Sales tax payble if contract is awarded

Total bid price in Rupees :
(in figures) (in words)
……

Place :
Signature of bidder…….....

Date:

Signature of the Bidder
(with firm seal)

Name……
……

Business address……

Note :

I. In case of discrepancy between unit price and total price, the unit price shall prevail.

PRICE SCHEDULE FOR GOODS TO BE IMPORTED FROM ABROAD

1	2	3 a	4 b	5 C	6 d	7	8	9	10
Item Description Country of origin	Accounting unit & quantity	Unit price FOB port of lading or loading which is correct	Unit price CIF at port of entry	Inland transportation charges, insurance and other local cost incidental to delivery, if specified	Incidental services including supervision	Overall unit price [b+c+d or a+c+d]	Total price 2X7	Indian agent name	Indian agent commission as a% of FOB price included in the quoted price

Note :

II. In case of discrepancy between unit price and total price, the unit price shall prevail.

Signature of the Bidder
(with firm seal)