NORTH EASTERN HILL UNIVERSITY
Department of Biotechnology and Bioinformatics

Ref. No. : F.BTBI/NEHU/2017/480 **Date: 18.04.2017**

NOTICE INVITING QUOTATIONS

Sealed Quotations are invited from reputed manufacturers/authorized agents for supply and installations of the following equipments as per the specifications listed below

Name of the instrument/equipment

Equipments:
1. Refrigerated Orbital Shaking Incubator

Technical Specifications:

Temperature	Range	15° C below ambient to 60° C Minimum Set Point 4° C
	Accuracy & Control	± 0 1° C at 37 ° C, regulated by PI microprocessor feedback control
	Refrigeration	Hermetically- sealed compressor with CFC-free refrigerant
	Heaters	Low watt-density resistance-type heaters
Shaking	Range	50 to 400 rpm
	Control	± 2 rpm over entire speed range by means of PI microprocessor Controller.
	Drive Mechanism	Heavy- duty counterbalanced drive with DC brushless motors and permanently lubricated ball bearings
	Timer	Programmable shaking periods from 0.1 hr to 99.9 hrs. Shuts off agitation at end of period
Alarms		Visible warning signal when speed deviates more than 5 rpm and temperature more than 1° C from setpoints and when timer operation has expired
Electric	Service	230V, 50 Hz
	Power	1500 VA
Dimensions (W X D X H)	Platform	19” Wide x 18” Deep approx
	Overall	23” Wide x 30” Deep x 24” High approx
	Chamber	20” Wide x 21” Deep x 14” High approx

	Lid open	50” High approx
LED Display		Speed, temperature , running time and alarm conditions
Safety		Sensor stops shaker when lid is opened and shuts off temperature when high-temperature limit is exceeded
Setpoint Retention		Set points and operating status retained by non-volatile memory Automatic restart after power is restored (indicated by flashing display)
Ambient Operating Conditions		Temperature 10° C to 35 ° C Humidity 20% to 80 % RH non- condensing
Flasks Holder Provision		100 , 250 ml, 500 ml Ehrlenmeyer flask holders provision

2. Plant Growth Chamber (Walk-in type)

Technical Specifications:

Temperature Range: 4°C to 50°C ±1°C
RH range: 50-95% ±5%
Light Intensity –100-300 µmol/m^2 sec^{-1}
Ambient Temperature: 40-45 ºC
Temperature accuracy: ≤±1℃
Temperature uniformity: ≤2℃
Humidity accuracy: ±2%RH
Humidity uniformity: ≤±3%RH
Internal volume approx. 500-600 cu ft.
Size approx. 8’x 8’x 8’ (L x W x H)

Chambers should air-tight, hygienic, highly energy-efficient and built for a lifetime. CFC free rigid PUF panels, for low heat gain; Flush door design; Digital temperature indicator; rapid cooling, in-built heater, in coil for fast defrost, modular heavy duty rack system, standard pre-coated sheet for inside and outside, or one side stainless steel model. Modular construction and compact design, drainage to be provided for cleaning and maintenance. Wall to wall, wall to ceiling, wall to floor joinery with holes plug sealed with vinyl caps. Microprocessor-powered controllers: Remote monitoring facility, Display of all operating functions and parameters, Total control of light, temperature and humidity; Communication of all faults and alarms.

Chamber should be in modules and panels which are easily shifted and re-erected at any different palace. Exterior shell materials to be pre painted stainless steel plate/Rust free external GI Sheet. Interior shell material to be pre painted stainless steel plate. Thermal insulation material should be hard Poly Urethane foamed plastic of 4" thicknesshaving minimum density of 40-42 Kg/ cu. Mtr. Chequered Anti-Skid floor with polyurethane puff panel with appropriate drain facility. Internal and external Flashing is to be provided and fixed to show neat and clean room. Ceiling made up of PUF insulated panels with both side GI pre painted/stainless steel sheets. A single door with inner viewing window facility Swing type fitted with Imported Hinges. Door closer and door locking system is to be provided. A lock release knob is also to be provided inside

the door. This release knob will be used to open the door even if door is locked. Panel Joints should be Taflon Cam Lock system for leak proof insulation.

Coolant should be environment-friendly CFC freecoolant R404A with two branded hermetic compressors (440V /240V/3Ph./ 1Ph./50Hz) for each chamber. One Working and One Stand-by operated through a programmable Sequential Timer keeping one operational and one stand-by with air cooled condensing unit with Drier, LP/HP, Suction/Discharge valve, unit is completed with Rotor fan motors & drain pan.

Evaporating units must be compact, stainless steel body and excellent corrosion resistance; inner grooved copper tubes for superior heat transfer; in-built defrost heaters for low-temperature units; external rotor driven fans with low noise levels; Removable side panels for ease of service.

Condensing units must have high-efficiency heat transfer and low power consumption, UV- and corrosion-resistant; Inner grooved copper tubes and slit aluminium fins for superior heat transfer; Energy-efficient compressors; powder-coated weather-proof housing; safety and control devices built in; protection against common electrical failures; interlock of safety features.

Plant Growth Racks should be ISO & CE Certified
Total No.: 6
Approx. dimensions: 6', X 4.5' X 18" inches (HxWxD)
Total no. of shelves in each rack: 6
Shelf to shelf distance 16-18".
Racks are anti corrosive &humidity resistive material.
Firm holding support is provided on all sides of each shelf.

Lighting system should be individually operated with PAR Surface Mount Device (SMD) Type. LED tubes/lamps producing100-300 $\mu mol/m^2\ sec^{-1}$ in each rack. Frame mild steel, Pipe with anticorrosive, humidity resistant powder coating, directly connected to Photoperiodic Controller.
Castor –4 with break arrangements.
Wide operating Voltage Range : 100V – 277V AC, 50 Hz

Humidifier should be Ultra Foggers/UltraSonic Vapour Humidifier able to create the simulated natural humidity in Growth/Rooms/Chamber without disturbing the inside temperature. Optimum Utilization of water; Instant vaporization; No thermal losses; Stainless steel with automatic water feeding arrangements and fibre filter.; Auto off incase of non-availability of water and Low electrical consumption.
Ultrasonic Frequncy: 1700±40 KHz,Titanium Coated. Mist Generation > 900 ml/Hr.

Dehumidifier should be suitable for ambient temperature of 4ºC - 45ºC; Multi-directional air outlet and compact.
Power: 220-240V, 50Hz
Microcomputer humidity-level controls
Dehumidification capacity: 16L per day at 30ºC, 80% RH.
Power consumption: 420W, 2.6 A
Fan-Only mode provided

Auto pause when bucket is full

CONTROL PANEL

a. Microprocessor based Programmable Temperature Controller; Real time microprocessor based user programmable time proportional controller; Separate 4 digit LED display for displaying measured values and settings; Feathers touch operation; Platinum sensor probe Pt – 100; Set point lock within the setting panel to protect setting changes; Sensor failure indication; Selection of unit for °C, °F ; Display resolution 0.1°
   Accuracy ± 0.1°C.
   Automatic hysteresis control.
   Wide selectable temperature range, ranges from -5° to 100°C.
b. Programmable Photoperiodic Controller; Real time microprocessor based, Clock Accuracy ±2.5sec/day @20ºC
   1 Channel Week Program; 16 memory locations adjustable to the minutes Holiday programming1500 Hrs. running reserve
   Input- 200-240 VAC, 50 Hz. Single phase
   Ambient 5°-50°C, RH upto 90%.
c. Microprocessor based Humidity Controller
   Real Time microprocessor based.
   On/Off control for Humidifying / Dehumidifying.
   Hysteresis/ Differential 1% - 9%.
   Direct / Reverse selectable.
   Feather touch operation.
   Fast response sensor – line resistance < 10Ω
   Display Accuracy – indicating value ±0.2% ±1 digit.

Electrical Devices should be of high quality ISI approved fittings with copper multi strand twisted FR Grade cable and rigid Standards of safety with proper M.C.B .and Lamp operating switch.
Copper Cable Make :-Polycab/Finolex .
MCB Make :-Havells

SECURITY SYSTEM:

1. Over-temperature protection
2. Overload protection of motor
3. Over-pressure protection of cooling compressor
4. Over-current protection of cooling compressor
5. Fuse for control and lighting circuit
6. Flange Mount Disconnect for Power
7. Humidity water shortage protection;

ACCESSORIES

1. Suitable 10KVA Servo-Voltage Stabilizer
2. Suitable UPS for controller
3. Suitable RO System (25L capacity) and 50L capacity carboy (2 Nos.) one for each chamber

General Terms and Conditions

1) All interested suppliers/ vendors/manufacturers shall send their bids following address: Head, Department of Biotechnology & Bioinformatics, North-Eastern Hill University, Shillong 793022

2) The quotation should be submitted through post within 21 days of issue of this notice (18.04.2017). Bids received after due date by post will not be considered (the university shall not be responsible for any postal delay).

3) Separate technical and financial bids should be submitted in a sealed envelope.

4) The Department Purchase Committee (DPC) can accept or reject the quotations received without assigning any reasons to the bidders. No queries in this regard would be entertained.

5) No separate tender paper will be issued from the office: one should only download the specifications/list from the university website.

6) The rates should be quoted on FOR Head, Department of Biotechnology & Bioinformatics, North-Eastern Hill University, Shillong 793022 basis.

7) Items of foreign origin should have insurance up to installation on site.

8) The rates should be inclusive of all taxes, freight charges and applicable tax as per norms should be clearly indicated.

9) Quoted rates should be valid at least for a period of 6 months.

10) The rates should be quoted along with supporting documents of specifications and technical features.

11) Details of availability of after sales support and warranty period shall have to be furnished during application through post only to address mentioned below

12) The item should be delivered, installed and free training should be given without any additional costs.

13) Payment will be made to successful bidders only upon completion of supply and installation of the equipments and bills in triplicates have to be submitted for settling of payment.

Besides the above, additional Terms and Conditions for Plant Growth Chamber(Walk-in type)

1. The firm submitting the tender is completely liable for the installation and should visit the site before submitting the tender.

2. Firm should give us an offer for the all in all CAMC contract for at least seven years.
3. Firm should provide servicing bi-monthly and liable to visit unlimited break downs.

4. Break down should be attended within 24 Hours to prevent the high value research standard.
5. Only manufacturer or their authorized dealer may quote.
6. Firm should submit at least three working growth room performance certificates of India.