Guru Gobind Singh Indraprastha University

Dwarka, Sector-16C, New Delhi-110078

University School of Biotechnology

Dated: 18.03.2019

To,

M/s……..

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Sub: Inviting quotation for repair and renovation of USBT Green House Facility.

Respected Sir/Madam,

Please submit the quotation for repair and renovation of USBT Green House as per technical specification mentioned below, the same may be directly or speed posted in a sealed envelope on or before **25/03/2019 upto 1 pm.** in Room No AFR-206, A-Block, University School of Biotechnology, Guru Gobind Singh Indraprastha University, Dwarka Sector-16C, New Delhi-110078.

The company has to provide the following documents at the time of submission of the quotation:

1. The company has to provide the PAN & GST registration details.
2. The manufacturer must have an authorized service centre in Delhi/NCR to honour guarantee/warranty and other obligations.
3. Instrument-wise user list & proof of at least 3 installations.
4. Compliance report with the specifications.
5. **Payment Terms:** After satisfactory installation/repair of the Green House facility.
6. **Bid:** Vendors must submit technical cum financial bid.
7. **Final decision making authority:** The committee reserves the right to accept or reject any quotation and to annul the process and reject all quotations at any time, without assigning any reason or incurring any liability to the bidders. No claim whatsoever will be entertained/paid by the University to the bidder (s).
8. **Services during warranty period:**
   a) The maximum response time for maintenance complaint during warranty period i.e., time required for bidder's maintenance engineer to report at the installation site after a service call/email/letter shall not exceed 05 working days.
   b) The maximum period for repair and complete restoration during the warranty period shall be 30 calendar days from the date of service call/email.

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TECHNICAL SPECIFICATION FOR REPAIR AND RENOVATION OF GREEN HOUSE FACILITY

Product	Size	Qty
Green House	32 ft x 18 ft	01

A. Evaporative Cooling System (ECS)

S.No.	Description	Specification
1	Systems	Fan & Pad system
2	Tray	Aluminium
3	Water Distribution and return system	UPVC (Sintex/Prince) as per IS
4	**Cellulose Pad**	
4a	Make	**Celdek / HuTeck**
4b	Cooling Media Material	100 mm thick impregnated cellulose at 4c velocity of 1 to 3m/s to give efficiency from 60 to 95 %.
4c	Ambient conditions	25°C - 45 °C
4d	Estimated cooling load	101,520 BTUs/ Hrs
4e	Total water flow	7.56 LPM per sq. ft. of the top pad surface
4f	Bleed	10% of total water rate
4g	Pad size	18' x 5'x 100mm
CELDEK COOLING PAD ACCESSORIES		
1	Tray Material	18 ALUMINIUM Sheets
2	Over flow	20 mm PVC
3	Drain	32 mm standard PVC
4	Filtration	CALBA ISI 25 to 55 viscous filter for 30 µ efficiency
5	Fasteners	Galvanized
6	Rivet	Aluminium
7	Water Tank	PVC Tank 500 lit
8	Pump	½ Hp Monoblock (Crompton/Kiloskar make) 2 nos
9	Heavy Duty Axial Flow fan with Aluminium Louvers.	18" single speed exhaust fans , 220V, 50 cycles, 1 phase, CFM
10	18" slow speed Ex -Fan	4 Nos.
11	Air – Circulation Fan 12"	2Nos

B. Temperature Controller:

S.No.	Description	Specification
1	Controller.	Real time microprocessor based user programmable
	Preferably selecting	Cooling and Heating
2	4 digit LED display	Measured values ---1 No. settings---1 No.
3	Display resolution	0.1°
4	Accuracy	± 0.1°C
5	Units	°C
6	Temperature Range	0° to 99°C
7	operation	Feather touch
8	Locks	Set point Lock & Level lock
9	Features	Sensor failure indication. Automatic hysteresis control.
10	Input	200-240 VAC, 50 Hz. Single phase
11	Ambient	5°-50°C
12	RH	upto 90%
13	Sensor	Platinum
14	sensor probe	Pt- 100 (class A, SI sensor, cable 5 m, max var ± 0.20° C, resistance standard 100 ohms, self heating error in ° C /mW. 0.6 in flowing air V-1 m/s and 0.24 in still air, Response time in moving air 50 % response in 6 sec. And 80 % response in 5 sec)

(C). Programmable Photoperiodic Timer:-

S.No.	Description	Specification
1	Real Time	Microprocessor based
2	Clock Accuracy	±2.5sec/day@20°C
3	Channel	1
4	Program	Weekly
5	Memory	16, location adjustable to the minutes
6	Auto time changing	Summer and Winter
7	Running reserve	1500 Hrs.
8	Indication	RED LED for On operation
9	Program Saving	By EEPROM

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(D). Humidity Controller:-

S.No.	Description	Specification
1	Controller	Real time microprocessor based
2	Control for Humidifying/ Dehumidifying	On/Off
3	Hysteresis / Differential	1% - 9%.
4	Delay timer	0-240 sec
5	Input	200-240 VAC, 50 Hz. Single phase
6	Ambient	5°-50°C
7	RH	40- 90%
8	operation	Feather touch
9	Features	Direct / Reverse selectable Lock functions to prevent miss operating
10	**Sensor**	Fast response sensor – line resistance < 10ΩDisplay Accuracy- indicating value ±0.2% ±1digit

(E) Plitz Timer for Humidity:

S.No.	Description	Specification
1	Timer	ON: 0-999 min/sec OFF : 0-999 min/sec
2	Max. Driving Load	4.4 KVA
3	**Features**	Automatic cycling. quartz Accuracy
4	**Input**	200-240 VAC, 50 Hz. Single phase
5	Ambient	5°-50°C
6	RH	upto 90%

(F) Shading:

S.No.	Description	Specification
1	Energy Saving:	25%
2	Diffused light transmission	51-71%
3	Shade percentage	50-75%
4	Make:	Netlon
5	Material: -	UV resistant material.
6	Overhead shading arrangements 75%	manually rolling thermo-reflective screens
7	color	Green/Black
8	Protects against frost radiation,	provides uniform shade and reduced day temperature.
9	Shading Net	75%

(G) Humidification Systems:

S.No.	Description	Specification
	Fogger	
1	Humidity Range	50 % to 95 %.
2	Fogger discharge range	7.0 LPH
3	Operating Pressure	4.0 bar
4	Density of one fogger	4.0 m^2
5	Make	Neta Fim
6	Working pressure	4 bar
7	Average droplet size	50 to 100 µm
8	Density	One fogger to 0.3 m^2 – 0.4 m^2 for propagation
9	Pattern	Four way Nozzle , Hanging type.
10	Fogger discharge Range	7.0 LPH
11	No of fogger	24 nos. in four raw
12	Pipe	16 mm HDPE (>10 kg/cm^2) colour BLACK
13	Motor:-	1/2HP monoblock pump:- 2nos.
14	Filter (Screen) Line Filter	Filter 10 Kg ISI
15	Pressure meter	10 bar
16	Tank	500 lts (sintex) 1 No.
17	UPVC pipe	32 mm/ 25mm
18	Features	Leakage prevention device (LPD), one Return gutter, control valve assembly

Grow Light system:-

High Glow LED LIGHT 06 nos. in each units

Photosynthetically active radiation Lamp: - Intensity with fluorescent light and Photo synthetically Active Radiation lamps (PAcRa) W 1.7 to 2.6/60 are specific action spectra lamps for photosynthesis for research and commercial production . PAR with photo simulator are specific action spectra lamps for photosynthesis for research & commercial product .: (1) Night break technique (2) Day length manipulation. (3) Supplement the natural day light.(4) Higher rate of carbon fixation.

Electric Wiring : - Complete wiring in green house properly.

Warranty : - One year or more.