



উত্তরবঙ্গ কৃষি বিশ্ববিদ্যালয়
পুণ্ডিবাড়ী, কোচবিহার, পশ্চিমবঙ্গ-৭৩৬১৬৫
UTTAR BANGA KRISHI VISWAVIDYALAYA
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ডঃশুভেন্দু বন্দ্যোপাধ্যায়
নিয়ামক (ভারপ্রাপ্ত)
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Ref. No. UBKV/Est. (T&P-02)/05/2018-19

Date: 26/06/2018

NOTICE INVITING PRE-BID MEETING

A pre-bid meeting has been arranged for procurement of various types of Equipment/Instrument from reputed Manufacturers/Authorized Dealers.

Schedule of the pre-bid meeting given as follows:

- Date of notice publication: 26/06/2018
- Date of pre-bid meeting: 18/07/2018 at 11.00 a.m.
- Venue: Meeting hall adjacent to Hon'ble Vice Chancellor's Chamber.

Interested suppliers are requested to be present in the pre-bid meeting with PPT/Video, Presentation, Technical Catalogue of items, User list etc. Specification of the instruments may be modified depending upon the pre-bid meeting with PPT/Video, Presentation, Technical Catalogue, Queries (if any) of items.

Any type of request of suppliers for modification in Technical Specification will not be entertained by the University authority who will not be present in the pre-bid meeting.

University will not bear any fooding, lodging, convenience charges etc. for the participants.

Sd/-
Registrar (Actg.)

Encl: List of items with specification.

ANNEXURE -I

SPECIFICATION OF ATOMIC ABSORPTION SPECTROPHOTOMETER (AAS) – QTY : 2 NOS

Name of Equipment	Specifications
<p>Atomic Absorption Spectrophotometer</p> <p style="text-align: center;">Preferred Make/Model :</p> <p style="text-align: center;">Perkin Elmer / Thermo/GBC /Equivalent</p>	<p><i>Imported</i> make fully PC controlled Atomic Absorption Spectrometer along with essential accessories as follows:-</p> <ol style="list-style-type: none"> 1. Flame atomizer: AAS systems incorporate a true double-beam flame spectrometer 2. Monochromator /Optics: Should have Littrow or better design with motorized drive for automatic wavelength selection and peaking. Mirror free fiber optics light transmission for maximum light through put for best detection limit preferred. The system should be based on advanced latest Echelle Grating. Slit width should be auto selectable through PC. True Double beam optical design should be equipped. 3. Detector: Wide-range segmented solid-state detector, including a built-in low-noise. CMOS charge amplifier array preferred. 4. Wave length Range: 185 – 900 nm preferred. Reciprocal Linear Dispersion: 1.6 nm/mm or better. System should contain built in power supply for EDL/super lamps. All lamps should be coded. Instrument to have single lamp holder for lamps. Instrument to have touch screen display to set all parameters and work the system as standalone without computer. All the method parameters related with lamp selection, calibration, control of flow gases should be thru windows based. The instrument should have programmable and computer controlled gas controls for air /Acetylene. The AAS unit will be operated with windows software for controlling analyzer, setting up the method parameters, analyzing the samples, performing calibrations, etc. The unit shall have flexibility of purging the optics so as to operate in demanding atmosphere of laboratory. All the electronic boards included in a single box so that user can have flexibility to change for replacement. The nebulizer should be resistant to all sorts of acids and solvents. It should have a built nebulization device like flow spoiler and impact bead. Lamp should have built in code for current, slit width, wavelength and it should automatically optimize for energy. SI number and usage meter will be preferred for each lamp. 5. Background Correction: Should have built-in continuum source double-beam background correction using high-intensity deuterium arc lamp 6. Spectral Bandwidths: User selectable automatic slit widths of 0.2, 0.7 and 2.0 nm at their optimized slit height. 7. Automatic Lamp Selection: Minimum 8 lamps turret with built-in power supplies with built in slot for EDL/Super lamp use should be quoted. 8. Safety Functions: Interlocks to prevent ignition in absence of proper burner head, the nebulizer/end cap, or the burner drain system preferred. Following safety features must incorporate like burner head correctly installed, end cap or burner head not correctly installed, the level of the liquid in the drain vessel is incorrect, or gas pressure are too low , interlock will automatically shutdown the gases if a flame is not detected, the flame is automatically safety extinguished if the event of a power failure or when the emergency flame off button is used. <p>Automated flow injection Hydride system for hydride forming elements: Continuous Flow Injection Atomic Spectroscopy system with stepper-motor driven peristaltic pump for hydride/mercury vapour generation system is preferred forming elements like Hg, As, etc..</p> <p>The system should have following features :</p> <ul style="list-style-type: none"> • Automatic sequential multi element analysis capabilities. • Direct analysis of high matrix-content solutions without burner or nebulizer clogging • Low sample consumption (less than 1 ml required per determination). • On-line analyse pre-concentration. • On-line reagent addition.

9. In future, the system should have facilities to be upgradeable to Graphite Furnace with Auto sampler, Auto Dilution Accessory, Flame Auto Sampler etc.
10. To Supply:-
AAS main unit , as per the specification requirement- 1No
The following Electrode less Discharge Lamp (EDL lamps) must be quoted along with system
- a) Mercury(Hg)
 - b) Arsenic(As)
 - c) Cadmium(Cd)
 - d) Lead(Pb) – 1 each
- Following coded Hollow cathode Lamp (HCL) to be quoted as optional
- a) Copper(Cu)
 - b) Iron(Fe)
 - c) Manganese(Mn)
 - d) Zinc(Zn)
 - e) Chromium(Cr)
 - f) Selenium(Se)
 - g) Magnesium(Mg)
 - h) Nickel(Ni)
 - i) Silicon (Si)
 - k) Boron (B)
- All elements must be quoted with certified reference solution 1000 ppm, 500ml(single element solution and multi element solution)-1 each
11. The instrument should be quoted along with imported air compressor – 1 No
100 mm single slot air acetylene burner head-1 No
12. The instrument must be quoted along with imported air and acetylene filter assembly for additional safety-1No
13. Fume hood, latest configuration branded computer (Branded), Laser printer, Double stage gas regulators (s.s.) with key for Acetylene & Argon, UHP 99.995 % grade Acetylene gas filled cylinder, UHP 99.995% grade Argon gas filled cylinder, Acetylene cylinder with gas, Nitrous oxide cylinder with gas, Dual stage acetylene regulator, Argon gas cylinder with gas, Dual stage regulator for argon and Dual stage regulator for nitrous oxide gas. 6 KVA UPS with 100 Ah batteries must be quoted- 1 No
14. 2 Years warranty(Mandatory) and CMC for 3 years
15. Installation & demonstration free of cost by your trained engineers at site.
16. **Places of Installation: UBKV, Pundibari, Coochbehar and RRS-OAZ, Majhian, Balurghat.**

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ANNEXURE -II

SPECIFICATION OF GREEN HOUSE – 100M²– QTY: 2 NOS

Name of Equipment	Specifications	
Green House – 100M² Size: 54' (L) x 20'(W) x 12' (CH)x 9' (SH)	Structure	<p>A) I Structures, Rafters, Perlins, Trusses are hot dip galvanized and design A I to take a wind load up to 100 km/h and more. Complete structure design as per IS875 Standard.</p> <p>Specification :- Super Structure Module Aluminium anodized covering profile Structure Mainly GI square iron pipe thickness 47mm x 47mm and 38mm x 38mm and 32mm x 32mm ± 1mm.</p> <p>B) Nuts and other metallic parts: Includes all the elements required for joining and water tightens components (such as fittings, clamps, screws and nuts plated against corrosion).</p>
	Buffer Room	<p>A) Buffer room- Size 7' x 9' x 8' (L xWxH) covered with 6mm thick polycarbonate sheet. Partition will be provided in the buffer room as per user's requirement.</p> <p>B) Door – Double door size: 6.23' x 2.98' long & wide, normally lockable made with clear 6mm polycarbonate glazing, top & bottom tracks, jambs, flashings & installation hardware - 2 nos.</p>
	Cladding System	<p>Roof, end walls, & sidewalls for the Greenhouse 6 mm thick clear multiwall polycarbonate sheet, Aluminium Profile, EPDM gasket, Silicon sealant, and accessories.</p>
	Cooling & Heating System for Chamber A&B	<p>A.) EEVAPORATIVE COOLING SYSTEM: 5ft tall x 20ft long evaporative Cellulose CELDEC Complete set Cooling pad complete with all necessary framing material of Aluminium required supporting distribution &returning piping. Gutters down spout end caps & drip pan, plumbing kit, pump 220 volt - 1 phase 50 cycles, Drilled PVC piping cap. pad retainer, all suspension hardware. Metal flashings as required to seal pad to vent opening. 4" thick evaporative cooling pad material. Pad Area: 20ft x 5ft x 100mm (w x h x Thickness) <u>Construction Material</u> Aluminum Profiles: Tray Sides, Top Etc. Plastic Profiles: Water Distribution tray. Cooling Media: 100mm thick celdek 7090/500 At velocities of 1 to 3 M/s to give efficiency from 60 to 95%. <u>Filtration:</u> 25 to 55mm viscous filter for 30 m efficiency.</p> <p>Miscellaneous: Fasteners. Galvanized. Rivet- Aluminium Water storage Tank : capacity 2000 lit Pump: HP Mono block capacity as per required Crompton or approved equivalent) 40 Mesh Nylon: for extra protection from dust fitted behind the pad. Slow Speed Axial Flow Fan - 48" single speed belt driven exhaust fan 1 hp, 440V. 50 cycles. 3 phase) 24000 CFM.Qty. 01 B.) Heating system- 2.4 kw qty. 01</p>
	Shading System	<p>External shading system: 50% shading net (agro shade net) with rolling arrangement connecting pipe etc. can be rolled when not required.</p>
	Humidification	<p>fogging system for humidification</p>
Control Panel for Automation	<p>Microprocessor Monitor & Control Panel which includes Light, Temperature & Humidity Control System. For details of Microprocessor Photosynthesis Monitor Panel kindly see the below data-</p> <p>a) Technical feature of Temperature Control System</p>	

		<p>Temp. Range: 0.1 to 59.9°C. Accuracy: ±1°C. Hysteresis: 0.4°C with sensor probe Pt-100 Sensor cord 5 meters. Input: 200-240VAC (110 VAC available on demand), phase-single. Ambient: 5°C to 45°C, RH up to 85% normally. b) Relative Humidity Control System: It maintains RH in the range of ±4%. Range: 30% to 90%. Real RH: ±2%. ±1 digit (at 45%). Input: 220VAC (110VAC available on demand), phase- single. Ambient: 5° to 45°C, RH up to 95%.</p> <p>c)Plitz Timer</p>	
	Benching System	<p>TOP MOVABLE BENCHING SYSTEM: Top Moveable Bench: Size:4' wide x 46' long x 18" height Legs galvanized steel (legs base fixed in concrete) 2 Roller spacers (galvanized) Steel expended metal bench top approximate 3/4"- 1" diamond shape & G.I Supporting frame Benches, 3 bench in each chamber.</p>	
	Civil work	<p>A) Foundation wall for all sides of Green House along with the double door room. 9'' wide based 2' below earth's surface, 2' above earth's surface, as kick-board 9'' wide. Frame base block height 2'. B) Floor : Tiles flooring</p>	
	Electrical Wiring	<p>All wires will be of copper and desired load (Make-Kalinga/Plaza) and switches imported make, extra switches also provided as standby. Each feature has own electric line with MCB and will be underground in PVC pipe complete set with A grade work. Separate electrical work, panel board and main switches as well.</p>	
	Miscellaneous items	<p>Miscellaneous washbasin, aluminium ladder, plumbing polymer pipes etc. All fittings of ISI or equivalent material.</p>	

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ANNEXURE –III

SPECIFICATION OF PLANT GROWTH CHAMBER/HARDENING CHAMBER – QTY : 2 NOS

Name of Equipment	Specifications
Plant Growth Chamber/Hardening Chamber	<p> Chamber Capacity : 270 to 300 Liters Illumination : Upto 25000 Lux or above Cooling Device : Hermetically sealed Compressor (1/2 HP) Shelves : 4EA No. of Doors : Single </p> <p> <u>Temperature</u> Range : 0°C to 60°C (Light ON: 10°C to 60°C) Accuracy : ±0.1°C 10 step with 10 pre defined Controller : programmable Microprocessor PID controller with alarm system </p> <p> <u>Humidity</u> Range : 30% to 98% RH Accuracy : ± 1 % Controller : Microprocessor PID controller Sensor : Electronic Device </p> <p> <u>Construction</u> Interior Construction : Stainless Steel 304 Grades (Stainless Steel 316-optional) Exterior Construction : Stainless Steel 304 Grades or MS powder coated Insulation : PUF Insulation Interior Doors : Tempered Glass Door with Silicone Packing External Doors : Solid Doors with Magnetic Gum Packing Shelves' Construction : Stainless Steel </p> <p> <u>Other: -</u> Illumination Range : 25000 Lux @ 15-18 nos 40 W Fluorescent Lamp preferably LED with a option of up gradation upto 30000 LUX Refrigerant Gas : R-134a Eco-Friendly Gas </p> <p> Safety Device : - Leakage breaker for power supply - Over current protector - Overheat protector - Water - Level Monitoring Auto Control System </p>

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ANNEXURE –IV

SPECIFICATION OF GAS LIQUID CHROMATOGRAPHY – QTY: 1NO.

Name of Equipment	Specifications
<p style="text-align: center;">Gas Liquid Chromatography</p> <p style="text-align: center;">Preferred Make/Model :</p> <p style="text-align: center;">Agilent / Perkin Elmer / Thermo/Shimadzu/Equivalent</p>	<ul style="list-style-type: none"> • Microprocessor controlled GC with extensive self-diagnostic facility. • Intuitive touch screen graphical user interface for easy control of the system. • Advanced electronic flow control unit. • Pneumatic Control and monitors for all Carrier, Injector, Split Vent, Detector and Auxiliary gases electronically. • Dual channel, real time signal display on the Touch Screen. • Wide range FID detector • Wide range TCD detector • Auto ignition • Split ratio programming with battery protected memory • High speed / fast GC analysis • Self-diagnostic function • GLP/GMP support • Fast data transfer, acquisition speed 250Hz (4ms) -able to "catch" very sharp peaks • Fast oven cooling speed 450 deg to 50 deg within 6 minutes • Auto shut down of instrument in case of leaks in carrier gas. • Flame out test prevents injection by setting the GC to a 'not ready' state. • Auto adjustment of carrier gas flow to compensate for variations in ambient temperature and pressure. • Isolation mode allows septum change without interrupting carrier flow. • Option for upgrade with integrated Mass Spectrometry, Head Space or Thermal Desorption <p><u>OVEN</u></p> <p>Temperature 10°C above Ambient to 450°C</p> <p>Range :</p> <p> Cooling Rate : 250°C - 50°C in 4.8 minutes.</p> <p> Oven Rate : 0.1 - 45°C minimum increment 0.1°C.</p> <p> Column Overheat Protection : User settable up to 450°C</p> <p><u>BACKGROUND CORRECTION :</u> Should have dual channel background correction facility.</p> <p><u>PNEUMATICS :</u> Pneumatic Control for Injectors, Detectors and Auxillary gases to control and Monitor gas flow, pressure and linear gas Velocity.</p> <p><u>INJECTORS :</u></p> <p><u>Split/splitless Capillary Injector:</u></p> <ul style="list-style-type: none"> • Temperature range :Upto 450°C in 0.1°C increments. • Built-in Charcoal Trap in split vent. • Easy adjustment of split ratio. • Temp-programmable inlet. Three-ramps temperature program • Large volume injection of up to 50 µL with autosampler, 150 µL manually. • Oven tracking mode for simple operation with On-Column injection. • Split ratio easily adjustable for a wide range of analysis conditions • Charcoal trap in split vent prevents contamination of split valve and lab air • Temperature range : 50°C to 500°C in 1°C increments. • Cool down time : 380°C to 50°C in less than 5 minutes. <p style="text-align: center;">Heating rate: 1°C/min to 200°C/min or ballistic.</p>

- Independently temperature controlled injection ports
- Split/Split less injector for capillary columns with septum purge functions
- No syringe discrimination.
- Number of temperature and pressure programming steps: 7
- Dual injection capability for liquid and gas samples
- Integrated back flush ability

DETECTOR :
Flame Ionization
Detector (FID):

- • Wide range FID for GC with auto ignition and auto ranging facility
- • Operating Temperature Range ~ 4500C in steps of 0.1degC
- • Sensitivity :> 0.015 coulombs/g C
- • Detection Limit : 1.5pgC/s (dodecane)S/N = 2 to 1
- • Linearity :> 10⁶
- Dynamic Range : 10⁷
- Adaptable for both capillary and packed columns
- Make up gas: Not required.

Thermal
Conductivity
Detector (TCD)

-

- Operating Temperature Range ~ 4000C
- Sensitivity : 20000mVmL/mg(decane)
- Universal Detector
- Minimum detectable level 300pg tridecane
- Dynamic Range : 10⁵

DATA HANDLING
SOFTWARE :

- • 32-bit software should be Latest Windows operative.
- • Should have facility to connect maximum 6-8 Chromatographs
- • Should have interface with memory for data security
- • Should provide GC Control
- • All methods functions should have access through icons.
- • Software should have graphic method editor to optimize integrate parameters and to add component names to know peaks in a method.
- • Software should have audit trail facility for GLP/GMP requirements.
- • Should have custom report generator facility using Microsoft Word 7.0
- • Should have Real Time Display of all chromatograms.
- • Should have Dynamic data exchange facility.
- • User should have facility to login with a valid password and select analysis that software can take over.
- • Should have calibration options such as bracketing with overlap, bracketing without overlap and bracketing by grand average.

INDIGENOUS ITEMS

- Following indigenous item has to be quoted :
- : Suitable branded 6 KVA online UPS.
- : He Gas Cylinder with Regulator.
- : N2 Gas Cylinder with Regulator.
- : Branded PC for instrument operation.

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ANNEXURE –V

SPECIFICATION OF REFRIGERATED CENTRIFUGE – QTY: 2NOS.

Name of Equipment	Specifications
Refrigerated Centrifuge	<ul style="list-style-type: none">• High speed up to 30,000rpm/65,000g or above• Rotor Head : 6x50ml, 12x1.5-2.0ml• Fully Programmable, Single-knob control with LCD-display.• Efficient cooling system, pre-selection from -10⁰C to +40⁰C• Maintenance-free brushless drive motor• Magnetic rotor identification prevents over speeding rotors• Motorized (Soft close) lid lock system.• 2 Years warranty• Preferred Make / Model : Sigma 3-30K or Harmle Z36HK or Herolab UnicenMR or Equivalent

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ANNEXURE –VI

SPECIFICATION OF CONSTRUCTION AND INSTALLATION OF 10 MT SEED COLD STORAGE FACILITY FOR UTTAR DINAJPUR KVK , CHOPRA – QTY : 1NO.

Name of Equipment	Specifications	
Construction and Installation of 10 MT Seed Cold Storage Facility for Uttar Dinajpur KVK , Chopra Preferred Make/Model : Blue Star /Equivalent	Basis Of Design	
	Description	SEED COLD STORAGE - 10 MT
	Refrigerant	R – 22
	Nominal Room Size in FT[External]	19 x 10 x 10 (H) [External]
	Room Temperature	+10 Deg C to +12 Deg C
	Room RH	50% to 55%
	Ambient Temperature	38 – 45 Deg C [Max]
	Product	Pre-Dried Pulse Seeds in Bag
	Total Product Loading Capacity	10MT [1MT SEED WILL BE KEPT IN 150CFT AREA]
	Daily Product Load	1500 - 2000 Kg / Day
	Product Incoming Temp.	30 - 35 Deg C
	Wall and Ceiling Insulation	60 mm thk PUF Panel
	Floor Insulation	60 mm thick PUF Insulation with vapour barrier [3 - 3.5 inch PCC with Net Cement/Kota Stone Finish – Supplier’s Scope]
	Door Size	1200 x 2100 x 60mm Thk - Hinge Door Make – METAFLEX /EQUIVALENT
	No. of Machines / Room	ONE
	System Type	Air – Cooled
	IDU – Refrigeration Unit	Make - Blue Star /Equivalent IDU Dimension – 1560mm X 400mm X 450mm IDU Housing - Gi White Powder Coated IDU Fan – 120watt X 2 Nos – 1 Phase [Cfm 1200 Each] FPI – 6, Row – 3 Strip Heater 2.5 Kw/Each Copper Coil, Aluminium Fins
	CDU – Refrigeration Unit	Make - Blue Star/Equivalent Model – Ruahop 2012 /Equivalent CDU Dimension – 1020mm X 420mm X 660mm CDU Housing – Gi Powder Coated Compressor Model – Cr42 CDU Fan – 270watt X 1 Nos FPI – 14, Row – 2 Cdu Face Area - .55 Sq Mtr Copper Coil, Aluminium Fins With Hp/Lp Cut Out
	Controller	MODEL – Subzero /Equivalent With Following Features – Micro processor base Temp Display & Humidity Display Controller with Indicator
	Required Refrigeration Capacity	4.5KW

SCOPE OF SUPPLY

Refrigeration Capacity Offered	6 KW x 1SETS
Power Supply	415V/3Ph/50 Hz
Power Consumption	6KW/HR x 1SETS
Panel & Door Specification	
PANEL	
Make/Model	Blue Star Ltd /Equivalent
Insulation	CFC Free Foamed In-Place POLY URETHENE FOAM (PUF) CYCLOPENTANE GREEN PANELS With TUV Standards & CCOE [INDIA] Certifications.
Co-Efficient Of Heat Transfer	0.366 W/M-C
Density	40 +/- 2 Kg/M3
K-Value Of Insulation	< 0.02 Kcal/M2.Hr. C
Thermal Conductivity	< 0.02 Kcal/M2.Hr. C
Compressive Strength	1.9 Kg/Cm2 (Min)
Adhesion Strength(PUF To Steel)	150 PSI
Closed Cell Contents	95% (Min)
Fire Resistance	Will Not Sustain Fire In Absence Of Source
Water Absorption	2% (Max)
Vapour Permeability	Less Than 2%
Thickness Of Outer Sheets	0.5MM
Material Of Outer/Inner Sheets	Prepainted GI
Amount Of Zinc Coating	90 GSM Or Above
Type Of Camlock For Panel Locking	Metallic
Odp [Ozone – Depletion Potential]	0
Gwp[Global Warming Potential]	11
Structural Stability Within 2% After 48 Hrs. Of Foaming	Yes
Radiused Wall To Impede Bacterial Growth	Yes
Panel Joints	With Cam Lock (Pre-Fabricated With The Panels To Make Leak Proof Joints). On Floor, U-Profile Will Be Grouted For Holding Wall Panels And Ensuring Anti-Dampness
DOOR :	
Manufacturer	Metaflex /Equivalent
Size	1200 x 2100 x 60mm Thk PUF insulation
Other Features	Door Closure Positive Cam Lift Hardware Vinyl gasket on all sides & with SS brackets at the bottom of door Safety Release Exit Device for opening door from inside
Display	Digital Temperature Indicator with light switch

SCOPE OF SUPPLY : DESCRIPTION	QUANTITY
BLUE STAR / EQUIVALENT Air Cooled Condensing Unit with Scroll Compressor Refrigerant -- R - 22 Room Temp: +12 Deg C Model : RUAHOP 2012/Equivalent	1 Sets
BLUE STAR / EQUIVALENT Low RH Evaporator Unit with Strip Heater Refrigerant -- R - 22 Defrost type - Air Defrosting System Room Temp: +12 Deg C Make: Blue Star OR Equivalent	1 Sets
Blue Star /Equivalent Temperature and Humidity Controller	1 Sets
Pallet for Seed Bag Storage. Size - 1200mm x 1200mm	8 Nos
HYDRALIC STACKER	1 Sets
Blue Star /Equivalent make 60 mm thk Puf Panel for Wall and Ceiling of Seed Storage Rooms	1 Sets
Blue Star /Equivalent make Internal/External Flashing, U Profile & Hat Channel	1 Sets
Blue Star /Equivalent make 60 mm thk PUF Slab for Floor Insulation of Seed Storage Rooms	1 Sets
METAFLEX /Equivalent make 1200 x 2100 x 60mm Thk PUF insulation Hinge Door	1 Sets
ISI Marked Light Sets (Hevells / Philips/Equivalent)	4 Sets
Blue Star /Equivalent make Low Temp- High Temp Alarm	1 Sets
Blue Star /Equivalent make PVC Strip Curtains	1 Sets
Copper Refrigeration Piping and fittings with necessary supports	1 Sets
DANFOSS / Equivalent make Refrigeration Controls comprising of the following. Thermostatic Expansion Valves Solenoid Valves Filter Driers	1 Sets
First Charge of Comp Oil	1 Sets
First Charge of R-22 Gas	1 Sets
Complete Supports for Equipments	1 Sets
PVC Drain Pipes to drain out the Condensate from the Evaporator outlet to the nearest Drain Pit	1 Sets
Labour Charges for Installation of Puf Panel Room	1 Sets
Labour Charges for Installation of the Doors	1 Sets
Labour Charges for Floor Insulation	1 Sets
Labour Charges for Erection, Testing, Commissioning and Fine tuning the Refrigeration System	1 Sets
PCC & KOTA	16 Sq Mtr
CDU Base + Shed + Protection Grill	1 Sets
Electrical Wiring with DB & MCB	1 Sets
Warranty (Mandatory)	2 years

Freight should be Included upto Uttar Dinajpur Site

Registrar (Actg.)

ANNEXURE –VII

SPECIFICATION OF CONSTRUCTION AND INSTALLATION OF 30 MT SEED COLD STORAGE FACILITY FOR RRSS-OAZ, MATHURAPUR, MALDA – QTY : 1NO.

Name of Equipment	Specifications	
<p style="text-align: center;">Construction and Installation of 30 MT Seed Cold Storage Facility for RRSS-OAZ, Mathurapur, Malda</p> <p style="text-align: center;">Preferred Make/Model : Blue Star /Equivalent</p>	Basis Of Design	
	Description	SEED COLD STORAGE - 30 MT
	Refrigerant	R – 22
	Nominal Room Size in FT[External]	25 x 22 x 12 (H) [External]
	Room Temperature	+10 Deg C to +12 Deg C
	Room RH	50% to 55%
	Ambient Temperature	38 – 45 Deg C [Max]
	Product	Pre-Dried Pulse Seeds in Bag
	Total Product Loading Capacity	30MT [1MT SEED WILL BE KEPT IN 150CFT AREA]
	Daily Product Load	1500 - 2000 Kg / Day
	Product Incoming Temp.	30 - 35 Deg C
	Wall and Ceiling Insulation	60 mm thk PUF Panel
	Floor Insulation	60 mm thick PUF Insulation with vapour barrier [3 - 3.5 inch PCC with Net Cement/Kota Stone Finish –Dealer Scope]
	Door Size	1200 x 2100 x 60mm Thk - Hinge Door Make – METAFLEX /EQUIVALENT
	No. of Machines / Room	TWO
	System Type	Air – Cooled
	IDU – Refrigeration Unit	MAKE - BLUE STAR /EQUIVALENT IDU DIMENSION – 1560MM X 400MM X 450MM IDU HOUSING - GI WHITE POWDER CAOTED IDU FAN – 120WATT X 2 NOS – 1 PHASE [CFM 1200 EACH] FPI – 6, ROW – 3 STRIP HEATER 2.5 KW/EACH COPPER COIL, ALMINIUM FINS
	CDU – Refrigeration Unit	MAKE - BLUE STAR/EQUIVALENT MODEL – RUAHOP 2012/EQUIVALENT CDU DIMENSION – 1020MM X 420MM X 660MM CDU HOUSING – GI POWDER COATED COMPRESSOR MODEL – CR42 CDU FAN – 270WATT X 1 NOS FPI – 14, ROW – 2 CDU FACE AREA - .55 SQ MTR COPPER COIL, ALMINIUM FINS WITH HP/LP CUT OUT
	CONTROLLER	MODEL – SUBZERO /EQUIVALENT With Following Features – Micro processor based Temp Display & Humidity Display Controller with Indicator
	Required Refrigeration Capacity	10.5KW
	Refrigeration Capacity Offered	6 KW x 1SETS

Power Supply	415V/3Ph/50 Hz
Power Consumption	6KW/HR x 1SETS
Panel & Door Specification	
PANEL:	
Make/Model	Blue Star Ltd /Equivalent
Insulation	CFC Free Foamed In-Place POLY URETHENE FOAM (PUF) CYCLOPENTANE GREEN PANELS With TUV Standards & CCOE [INDIA] Certifications.
Co-efficient of Heat Transfer	0.366 W/M-C
Density	40 +/- 2 kg/m3
K-value of Insulation	< 0.02 kcal/m2.hr. C
Thermal conductivity	< 0.02 kcal/m2.hr. C
Compressive strength	1.9 kg/cm2 (min)
Adhesion strength(PUF to steel)	150 PSI
Closed Cell contents	95% (min)
Fire resistance	Will not sustain fire in absence of source
Water absorption	2% (max)
Vapour permeability	less than 2%
Thickness of outer sheets	0.5MM
Material of outer/inner sheets	Prepainted GI
Amount of Zinc Coating	90 GSM or above
Type of camlock for panel locking	Metallic
ODP [Ozone – Depletion Potential]	0
GWP[Global Warming Potential]	11
Structural stability within 2% after 48 Hrs. of foaming	Yes
Radiused wall to impede bacterial growth	Yes
Panel joints	With Cam Lock (Pre-fabricated with the panels to make leak proof joints). On floor, U-profile will be grouted for holding wall panels and ensuring anti-dampness
DOOR :	
Manufacturer	Metaflex /Equivalent
Size	1200 x 2100 x 60mm Thick PUF insulation
Other Features	Door Closure Positive Cam Lift Hardware Vinyl gasket on all sides & with SS brackets at the bottom of door Safety Release Exit Device for opening door from inside
Display	Digital Temperature Indicator with light switch

<u>SCOPE OF SUPPLY : Description</u>	Quantity
BLUE STAR /EQUIVALENT make Air Cooled Condensing Unit with Scroll Compressor Refrigerant -- R - 22 Room Temp: +12 Deg C Model : RUAHOP 2012/Equivalent	2 Sets
BLUE STAR /EQUIVALENT make Low RH Evaporator Unit with Strip Heater Refrigerant -- R - 22 Defrost type - Air Defrosting System Room Temp: +12 Deg C Make: Blue Star OR Equivalent	2 Sets
Blue Star /Equivalent make Temperature and Humidity Controller	2 Sets
Pallet for Seed Bag Storage. Size - 1200mm x 1200mm	25 Nos
HYDRALIC STACKER	1 Sets
Blue Star /Equivalent make 60 mm thk Puf Panel for Wall and Ceiling of Seed Storage Rooms	1 Sets
Blue Star /Equivalent make Internal/External Flashing, U Profile & Hat Channel	1 Sets
Blue Star /Equivalent make 60 mm thk PUF Slab for Floor Insulation of Seed Storage Rooms	1 Sets
METFLEX /Equivalent make 1200 x 2100 x 60mm Thk PUF insulation Hinge Door	1 Sets
ISI Marked Light Sets (Havells / Philips /Equivalent)	8 Sets
Blue Star/Equivalent Low Temp- High Temp Alarm	2 Sets
Blue Star /Equivalent PVC Strip Curtains	1 Sets
Copper Refrigeration Piping and fittings with necessary supports	2 Sets
DANFOSS / Equivalent make Refrigeration Controls comprising of the following. Thermostatic Expansion Valves Solenoid Valves Filter Driers	2 Sets
First Charge of Comp Oil	2 Sets
First Charge of R-22 Gas	2 Sets
Complete Supports for Equipments	2 Sets
PVC Drain Pipes to drain out the Condensate from the Evaporator outlet to the nearest Drain Pit	2 Sets
Labour Charges for Installation of Puf Panel Room	1 Sets
Labour Charges for Installation of the Doors	1 Sets
Labour Charges for Floor Insulation	1 Sets
Labour Charges for Erection, Testing, Commissioning and Fine tuning the Refrigeration System	2 Sets
PCC & KOTA	50 Sq Mtr
CDU Base + Shed + Protection Grill	2 Sets
Electrical Wiring with DB & MCB	2 Sets
WARRANTY	2Years
Freight should be Included up to Malda Site	

ANNEXURE: VIII

SPECIFICATION FOR SUPPLY & INSTALLATION OF TRINOCULAR STEREO ZOOM MICROSCOPE – QTY : 1NO.

Name of Equipment	Specifications
Trinocular Stereo Zoom Microscope	<ul style="list-style-type: none">➤ Trinocular Stereo zoom Microscope with transmitted and Incident light<ul style="list-style-type: none">• Microscope should be apochromatic greenough optical system.• Zoom 8:1 with switchable click stop 10steps.• Magnification 100x with 10x eyepiece.• Camera port 100%:0%:100% for switching 100% transmission to eyepiece or camera.• Ergonomic viewing angle 35Degree or lower, lower is better.• Microscope should be capable of examining 36.8mm object field without adding any supplementary lens.• Microscope stand column system should be capable of 10kg load.• Should be completed with large transillumination base minimum 32cm x 37cm or larger, larger is preferable.• White LED transmitted light.• Brightness knob and socket for footswitch .• 3 position turret for:1. Bright Field plus and oblique light contrast, 2. homogenous bright field and 3. all-side dark field.• LED double spot high power incident light illumination 5500K colour temperature.• Double goose-neck light branches, 57 cm or more lengthy with 2-channel control unit. ➤ Microscopy Camera with driver software and accessories<ul style="list-style-type: none">• Basic resolution: = 5.0 Megapixels or higher Pixel size: minimum 2.2 µm x 2.2 µm or larger The camera housing should be metallic, built from Aluminum, Magnesium, Stainless Steel• Driver and analysis software with dongle• USB 3.0 interface ➤ Warranty : 2 Years (Mandatory) ➤ Preferred Make/Model : Carl Zeiss Stemi 508 or Equivalent

Sd/-
Registrar (Actg.)

ANNEXURE : IX

SPECIFICATION FOR SUPPLY & INSTALLATION OF ICE FLACKING MACHINE – QTY : 1NO.

Name of Equipment	Make	Specifications
Ice Flacking Machine	Blue Star / Equivalen t	<ul style="list-style-type: none">• Air cooled system with CFC Free Refrigeration system• Minimum 25 Kg production per day• Built in visual alarm• Stainless steel insulated storage bin• Auto shut off when bin is full• Continuous crushed ice production facility• Electronic controlled system with auto cut in low or high voltage• Highly hygienic bin for storage of ice• Built- in cleaning system• Smooth running at an ambient temperature of 10⁰ C to 40⁰ C• Bin capacity should be minimum 12 kg
<ul style="list-style-type: none">• Supply complete with water filtrations facility , voltage stabilizer and copper coiled transformer• Warranty :- Two years		

Sd/-
Registrar (Actg.)