For Official Use Only

TENDER FORM

FOR SUPPLY OF

Scientific/Laboratory Instruments-Equipment, Chemicals-Reagents/Kits, CRMs, Plasticwares, Green House, Net House, NVPH, Farm Equipment, Roof Top Solar System & Drip Irrigation System

AT DIFFERENT COLLEGES / UNITS / RESEARCH STATIONS / DEPARTMENTS

OF

ANAND AGRICULTURAL UNIVERSITY, ANAND

Last date for online commercial bid submission **23-12-2019 before 6:00 pm**
Last date for physical submission of technical bid **27-12-2019 before 4:00 pm**
Date of Tender Opening (Technical Bid): **30-12-2019**

DEPARTMENT OF AGRICULTURAL BIOTECHNOLOGY
ANAND AGRICULTURAL UNIVERSITY
ANAND – 388 110 (GUJARAT)
PHONE: 02692 261134
E-MAIL: biotech.aau@gmail.com

- **Name of vendor / supplier / firm:**

- **Complete Postal address :**

- **Telephone Number :**

- **Fax Number :**

- **E-mail address :**

- **Details of the Tender Fee :**
  - DD number :
  - Amount :
  - Date :

- **Details of EMD:**
  - DD number:
  - Amount:
  - Date:

- **GST Registration No.:**

- **PAN No.:**

- **Any other details:**

We agree to abide by the terms and conditions of supply mentioned in this tender document.

Signature of Tenderer
(with stamp, Name & Designation)

On behalf of The Director of Research, Anand Agricultural University, Anand, The Chairman, E-Tendering Committee, AAU, Anand invite tender from Manufacturer or Authorized Distributor/Dealer through e-procurement portal for the purchase of following Scientific/Laboratory Instruments-Equipment, Chemicals-Reagents/kits, CRMs, Plasticwares, Green House, Net House, NVPH, Farm Equipment, Roof Top Solar System and Drip Irrigation System with given specifications, terms and conditions.

<table>
<tr><th>Sr. No.</th><th>Name of the Instrument and Tender Fee</th><th>Specifications</th><th>EMD (in Rs. Lakh)</th></tr>
<tr><td colspan="4">PART-I: SCIENTIFIC/LABORATORY INSTRUMENTS - EQUIPMENT</td></tr>
<tr><td colspan="4">Department of Agricultural Biotechnology, AAU, Anand.</td></tr>
<tr><td>1.</td><td>RT - PCR

(Tender Fee: Rs. 1,500.00)</td><td>A dedicated Real Time PCR system (excitation and emission) with latest generation Peltier-based 96-well plate and strip and tube in-built PCR to support: Gene-Expression analysis, Pathogen Quantitation, SNP Genotyping, Dissociation Curve Analysis, Multiplexing and complete End-Point Assays. The instrument should be equipped with all the basic instruments / equipment and /or accessories required for its optimum working and should meet below specifications:

A. Basic System Configuration
<table>
<tr><td rowspan="3">Block</td><td>The system should be capable for 96 x 0.2 ml tubes or plate so as to run any brand /manufacturer 0.2 ml tubes, strips and plates</td></tr>
<tr><td>The block should have gradient and similar technology for temperature settings.</td></tr>
<tr><td>The system be upgradeable to 384 well platform</td></tr>
<tr><td rowspan="3">Detection</td><td>The system should be capable for atleast five different fluorescent reporters in same tube.</td></tr>
<tr><td>Detection of Cy5, FAM/ Sybr Green, VIC/ JOE, TAMRA/Cy3, Texas Red, Quasar705.</td></tr>
<tr><td>Photodiodie / CMOS / CCD</td></tr>
<tr><td>Ramping Speed</td><td>5°C per sec or better</td></tr>
<tr><td>Excitation – Emission Range (nm)</td><td>460-700 or better</td></tr>
<tr><td>Internal Reference Dye</td><td>Preferably the system should be able to work without requirement of internal reference dye. (Note: If the system requires reference dye, then bidder should follow the below terms)
1. The duration of calibration required by the system should be mentioned.
2. The cost of calibration should be included in the final price of system for atleast two years post standard warranty.</td></tr>
<tr><td>Dynamic range</td><td>10 or better</td></tr>
<tr><td>Excitation source</td><td>LED based</td></tr>
<tr><td>Temperature control</td><td>Peltier based</td></tr>
<tr><td>Temperature Range, accuracy and uniformity</td><td>4 – 99^{O}C or better with accuracy of ±0.2^{O}C and uniformity of ±0.4^{O}C</td></tr>
</table></td><td>0.45</td></tr>
</table>

Sample Volume	10 to 25 µl
Detection threshold	≤ 10 fmol of fluorescein or better
Allelic discrimination	The discrimination should be automatic based on end point fluorescence or threshold cycle.
Gene expression	Relative quantity (ΔCt) or Normalized expression (ΔΔCt)
Melt curve analysis	The system should be capable for melt curve analysis
Software	Express load feature for entry of data after experiment.
	Should be Licensed for Research applications. Minimum 5 licensed copy should be included. The software should be full version with regular upgradation as and when required free of cost.
	The software preferably has various bio-informatics options like Primer and Probe design BLAST search, web integration with database.
	The system should be complaint with MIQE guidelines, RDML compliant.
	Software should be capable for analyzing data from any system/platform/chemistry.
	The software preferably has provision to start form the stop reaction upon power failure without losing the data
	Software preferably have grouping and interpretation of data by both technical replicates and biological groups.
	The results should be of highest quality grade, automatic p-value annotation and addition of arrows, circles etc. should be easily possible.

B. Accessories / Spares

1. Consumables required for carrying out 1000 reactions like plates, chemicals (Sybr green etc.), plasticwares (tips, tubes) should be supplied with the system at no extra cost.
2. Software for carrying out HRM analysis should also be included with no extra cost.
3. Data analysis and processing software with generation of report in article publishing format should also be included with a provision to use software in atleast 10 different computers / laptops.
4. The instrument must have possibility of being easily integrated with any laboratory information system (LIS) / Email notification / Cloud enabled platform.
5. System should be standardized for Taqman and SYBR Green Chemistry with pre-validated and functionally tested Taqman Gene Expression assays as well as Taqman SNP Genotyping assays or panels and kits for genetic screening and infections. The consumables should be readily available from the same manufacturer as that of main instrument. However, the system should also be able to give satisfactory and repetitive results even if the chemicals and plasticwares used were of different manufacturer other than the instrument.

		6. System should be supplied with automatic / digital control colored panel adjustable tip spacing 8 channel micropipette for RT PCR sample handling from any brand tip rack to PCR plates. **C. Other conditions** 1. Any upgrade in software should be freely available and information / confirmation should be provided / attached in the technical bid documents. 2. A 1.5 Ton air conditioner (Mitsubishi / Daikin / LG) should also be included. 3. Necessary UPS for atleast 30 minutes backup should also be provided alongwith the system. 4. Necessary computer / laptop of atleast i3 or higher configuration with system required minimum USB ports with all the genuine licensed softwares (Operating system etc.) should also be supplied with the system at no extra cost. **D. Note-** 1. Training is to be given onsite and which should be divided into two parts. First training at the time of installation for atleast three days period and second training schedule after four months of successful functioning of instrument for atleast two days. 2. Warranty of instrument will start only after the successful and satisfactory installation of the instrument and not after supply / delivery of instrument. 3. All the above information for **RT PCR** should be clearly mentioned on instrument brochure and / or a certificate from the manufacturing company is to be attached. 4. Any peripherals / spares other than above mentioned required for the system should be supplied along with the system. 5. A certificate from the original instrument manufacturer company will be required confirming about the availability of all essential spares / parts for at least 10 years after the expiry of standard warranty period. 6. The bidder may also visit the Department for room, power supply etc. requirement before submitting the instrument quote. **No modification or requirement will be provided for the system at the time of installation by the Department. If there is a need of any utilities during the installation of instrument, then the requirement has to be fulfilled / supplied by the bidder**.	
2.	**Ball Milling** **(Tender Fee: Rs. 2,500.00)**	**Applications:** We intend to purchase instrument capable of nano grinding, size reduction, homogenizing, mechanical alloying, colloidal milling, high energy comminution etc. The instrument should be equipped with all the basic instruments / equipment and /or accessories required for its optimum working and should meet below specifications: **A. Basic System Configuration** 1. **Material Feed Size:** <5mm 2. **Final Fineness (D_{90}):** <100 nm or better (A certificate / technical note / user certificate for the final size reduction should also be included)	**0.84**

		3. **Batch Size:** Minimum 50 ml capacity along with attachments 4. **Grinding jar sizes**: (a) Minimum 50 ml and (b) Maximum of 125 ml 5. **Grinding Process for Obtaining High Energy:** The ball mill must have three simultaneous grinding processes for obtaining high energy: (i) Planetary motion of the grinding bowls/Jars, (ii) Rotation or vibration of bowls/Jars during planetary motion and (iii) Either the speed of rotation about own axis during planetary motion or speed of planetary motion itself with vibration of Bowls/Jars at least 2000 RPM or higher for high energy impact. 6. **Heating protection:** Water cooled system with integrated controlled and the instrument should have plug-ins/attachments/ports for external chiller. **B. Grinding Jars** 1. The jars should be capable to withstand higher rpm coupled with longer duration grinding operational parameters. 2. The jars should have safety lids. 3. The jars should be easy to handle and should be re-usable with easy to clean procedure. 4. Tungsten carbide jars 50 ml, Zirconium Oxide Jar 125 ml – (**one each is to be supplied**) **C. Grinding tools / balls** 1. The tools/balls used for grinding should made up of tungsten carbide and zirconium oxide and the system should also have option for stainless steel jars. 2. The system should be provided with a) Tungsten Carbide balls: 5 mm diameter with minimum 150 pieces b) Zirconium oxide balls: 5 mm diameter with minimum 150 pieces 3. The system should be stand alone with a touch panel for easy operation and should have storage capacity of minimum 8 operational parameters for routine grinding process. **D. Other conditions / peripherals** 1. Suitable External Chiller should be quoted and supplied along with the system 2. The system should come with one-year standard warranty and one-year extended warranty at no extra cost. 3. A 1.0 Ton air conditioner (Mitsubishi / Daikin / LG) should also be included. **Note:** 1. Training is to be given onsite and which should be divided into two parts. First training at the time of installation for atleast three days period and second training schedule after four months of successful functioning of instrument for atleast three days. 2. Warranty of instrument will start only after the successful and satisfactory installation of the instrument and not after supply / delivery of instrument. 3. All the above information for **Ball milling** should be clearly mentioned on instrument brochure and / or a certificate from the manufacturing company is to be attached.	

		4. Any peripherals / spares other than above mentioned required for the system should be supplied along with the system. 5. A certificate from the original instrument manufacturer company will be required confirming about the availability of all essential spares / parts for at least 10 years after the expiry of standard warranty period. 6. The bidder may also visit the Department for room, power supply etc. requirement before submitting the instrument quote. **No modification or requirement will be provided for the system at the time of installation by the Department. If there is a need of any utilities during the installation of instrument, then the requirement has to be fulfilled / supplied by the bidder.**	
3.	**Gel Documentation System** **(Tender Fee: Rs. 1,500.00)**	**Applications:** The system should be capable of the following applications/dyes – Chemiluminiscence, Quantum dots, Silver stain, Ethidium Bromide, Coomassie Blue, Flamingo, Nano orange, Sypro ruby, Sypro orange, Sybr safe, Sybr gold, Oligree, Pico green, Texas red, Cy2, Pro Q emerald, FITC and other 1. System with true16 bit CCD (not A/D) camera; pixel density of 65,536 gray levels. 2. Pixel size should be at least 6.45 x 6.45 µm or bigger. 3. Image resolution > 4 megapixel or better. 4. Dynamic range should be at least 4 orders of magnitude. 5. The camera should have peltier based cooling of minimum -30°C Absolute or (-) 50°C from Room Temperature or better. 6. Motorized zoom lens with C-mount, f/1.2, 12-75 mm. 7. Light sources should include – Trans-UV, trans-white, epi-white and should have option for trans blue (for SYBR safe DNA application). 8. Should be possible to image samples with size 28x36 cm or more. 9. Should have Autofocus feature with pre-calibrated focus for any zoom setting or sample height. 10. System should have 100% automatic Iris adjustment for all compatible applications. 11. The system should have lens flat fielding and Dynamic image flat fielding with pre-calibrated and optimized settings for every image. 12. System should have automatic focus and iris adjustments for all compatible applications. 13. The imaging system must be capable of imaging stain free protein gels and stain free blots allowing users to image protein gels and blots without the need of staining/destaining post running the gels. (**Note: Supporting necessary document like technical notes, application notes on manufacturer's company document or published literature, article etc. for confirmation should also be supplied**). 14. Demonstration of total protein normalization should be perform at the time of installation and kit for 50 stain free gels should be provide with system. 15. The instrument should be supplied with an inbuilt UV transilluminator which can slide in and out of the darkroom hood for easy access. 16. System should have single software for image capturing to image analysis.	**0.30**

<table>
<tr><td></td><td></td><td>17. Software should generate the publication ready images with user defined dpi, dimension and format, with one click export option and should generate customizable reports.
18. Software should have Signal Accumulation Mode (SAM) for easy optimization of exposure time for chemiluminescent detection.
19. Software should not require any license registration with possibility to be installed in unlimited number of computers with complete analysis features.
20. System should be supplied with Gel kit for 12.5% 50 stain free gels, 2.5 ml dual color protein marker and 10X concentration 5L running buffer for proper demo of Total Protein Normalization.
21. Quoted model should have 10 minimum installations.
22. System should have EN61010-1 and CE (US/European) Certified
23. Necessary computer / laptop of atleast i3 or higher configuration with system required minimum USB ports with all the genuine licensed softwares (Operating system etc.) should also be supplied with the system at no extra cost.
Note:
1. Training is to be given onsite and which should be divided into two parts. First training at the time of installation for atleast three days period and second training schedule after four months of successful functioning of instrument for atleast three days.
2. Warranty of instrument will start only after the successful and satisfactory installation of the instrument and not after supply / delivery of instrument.
3. All the above information for Gel Documentation System should be clearly mentioned on instrument brochure and / or a certificate from the manufacturing company is to be attached.
4. Any peripherals / spares other than above mentioned required for the system should be supplied along with the system.
5. A certificate from the original instrument manufacturer company will be required confirming about the availability of all essential spares / parts for at least 10 years after the expiry of standard warranty period.
6. The bidder may also visit the Department for room, power supply etc. requirement before submitting the instrument quote.
No modification or requirement will be provided for the system at the time of installation by the Department. If there is a need of any utilities during the installation of instrument, then the requirement has to be fulfilled / supplied by the bidder.</td><td></td></tr>
<tr><td>4.</td><td colspan="2">Columns for LC-MSMS (Tender Fee: Rs. 1,500.00 for items 4.1 to 4.4)</td><td></td></tr>
<tr><td>4.1</td><td>Column C18
(2.1 mm X 50 mm)

Qty.: 5 Nos.</td><td><table>
<tr><td>Inner diameter</td><td>2.1 mm</td></tr>
<tr><td>Length</td><td>50 mm</td></tr>
<tr><td>Particle size</td><td>1.7 µm</td></tr>
<tr><td>Pore size</td><td>130Å</td></tr>
<tr><td>Carbon Load</td><td>18 %</td></tr>
<tr><td>Chemistry</td><td>C18</td></tr>
<tr><td>Silanol Activity</td><td>Low</td></tr>
<tr><td>Compatible for</td><td>UHPLC and UPLC System</td></tr>
<tr><td>pH range</td><td>1-12</td></tr>
</table></td><td>0.15</td></tr>
</table>

		Separation mode	Reversed Phase	
		Maximum Pressure	18000 psi (1240 Bar)	
		It should be competent for high sensitivity MS applications with ultra-low column bleed		
		It should be compatible with ABSCIEX QTRAP 4500 Mass spectrometer		
		Documents / research paper evidencing the application of this column for secondary metabolites must be submitted.		
4.2	**Column C18 (2.1 mm X 150 mm)** **Qty.: 5 Nos.**	Inner diameter	2.1 mm	**0.15**
		Length	50 mm	
		Particle size	1.7 µm	
		Pore size	130Å	
		Carbon Load	18 %	
		Chemistry	C18	
		Silanol Activity	Low	
		Compatible for	UHPLC and UPLC System	
		pH range	1-12	
		Separation mode	Reversed Phase	
		Maximum Pressure	18000 psi (1240 Bar)	
		It should be competent for high sensitivity MS applications with ultra-low column bleed		
		It should be compatible with ABSCIEX QTRAP 4500 Mass spectrometer		
		Documents / research paper evidencing the application of this column for secondary metabolites must be submitted.		
4.3	**Column C18 (2.1 mm X 100 mm) for Lipid Analysis** **Qty.: 2 Nos.**	Inner diameter	2.1 mm	**0.15**
		Length	100 mm	
		Particle size	1.7 µm	
		Pore size	130 Å	
		Carbon Load	15 %	
		Chemistry	C18	
		Silanol Activity	High	
		Compatible for	UHPLC and UPLC System	
		pH range	1-12	
		Separation mode	Hydrophilic Interaction	
		Maximum Pressure	18000 psi (1240 Bar)	
		It should be competent for high sensitivity MS applications with ultra-low column bleed		
		It should be compatible with ABSCIEX QTRAP 4500 Mass spectrometer		
		It should be competent enough to perform analysis of complex lipid.		
		Documents / research paper evidencing the application of this column for lipids must be submitted.		
4.4	**Column C18 (2.1 mm X 100 mm) for Amino Acid Analysis** **Qty.: 2 Nos.**	Inner diameter	2.1 mm	**0.15**
		Length	100 mm	
		Particle size	1.7 µm	
		Pore size	130 Å	
		Carbon Load	15 %	
		Chemistry	C18	
		Silanol Activity	High	
		Compatible for	UHPLC and UPLC System	
		pH range	1-12	
		Separation mode	Hydrophilic Interaction	
		Maximum Pressure	18000 psi (1240 Bar)	

		It should be QC tested. It should be competent for high sensitivity MS applications with ultra-low column bleed It should be compatible with ABSCIEX QTRAP 4500 Mass spectrometer It should be competent enough to perform analysis of amino acid Documents / research paper evidencing the application of this column for amino acids must be submitted.	
SMC College of Dairy Science, AAU, Anand			
5.	**Mass Flow Meter (Tender Fee: Rs. 1,500.00)**	The mass flow meter should be capable of measuring mass flow rate (kg/s), Density (0.5 g/cm^3 to 2 g/cm^3), temperature (0 ^{0}C to 150 ^{0}C) and Volume flow rate (0 to 7,500 LPH) at the same time at a maximum fluid pressure of 4 bar for dairy products like Cream, Milk, etc. Its body material measuring tube material should be of hygienic design suitable for dairy products, preferably SS304 or SS316. It should fit on a pipe size of 1inch SMS Union. It should have remote display with a cable length of 10 meter.	**0.12**
6.	**Digital Bomb Calorimeter (Tender Fee: Rs. 1,500.00)**	Measurement variables: heat of combustion, gross calorific value of solid, liquid fuels and propellants Scope of application: hydrocarbon liquid fuels, solid fuels, cellulosic fuels, biomass, plastics, propellants (example: HTPB + ammonium perchlorate, nitro-glycerine + nitrocellulose), laboratory education Analysis type: isoperibol, adiabatic or dynamic that allows measurements from equipment to conform to ASTM D240-02, D4809-00, E144-94, D5865 and other equivalent methods Measurement units: J/kg, cal/gm, BTU/lb Temperature resolution: 0.001°C or better Temperature Indicator: Microprocessor based Digital Temperature Indicator with Built-in Timer with Computer Interface & Software Combustion Bomb: Halogen and acid resistant stabilized stainless steel Resolution: 0.001 kcal/gm or better Relative standard deviation: 0.1% or better Measurement range: up to 40,000 J/gm Crucible type: corrosion resistant alloy or quartz **The equipment should also be compact table top, operable standalone. The equipment should have a display (touch screen is preferred) of results in standalone operation. In-built data storage capability for previous analyses and provision for transferring data to PC or media is preferred.** Analysis time per sample: 15 to 30 minutes or lower Power supply: 230 V, 50 Hz **Warranty** 1 year at the minimum from the date of successful installation	**0.03**
7.	**Pneumatic valve (Tender Fee: Rs. 1,500.00)**	Size: 50.8 mm Two way / Three way Material of Construction: SS-304 Air supply pressure: 6 bar (87 psi) Control and feedback system (Think Top) Actuator type: Pneumatic actuator air / spring Connection fittings: Welding end	**0.03**

8.	**Digital Tear Resistance Tester with accessories** **(Tender Fee: Rs. 1,500.00)**	An automatic, digital tear quipped with an optical encoder for measuring the angular position of the pendulum during tearing and converting this measurement to tear strength units. A large, full-colour touch screen display with intuitive, easy-to-software. **Features: It should have following features** • full-colour digital touchscreen display • Storage and editing of up to 200 readings • Universal pendulum with interchangeable weights • Pneumatic clamps and pendulum release • Automatic calibration of pendulum • Selectable units: grams-force, millinewtons, lbs-force, percentage of pendulum capacity • Clamp pressure in psi and kg/cm • Calculates force of multiple plies **Pendulums** • Universal pendulum 200, 400, 800 & 1600 gram (the required calibration weights are included) **Specifications** **Power Supply** : 120/240 VAC 50/60 Hz	**0.06**
COLLEGE OF AGRICULTURE, AAU, JABUGAM			
9.	**Mini Fermenter (Tender Fee: Rs. 1,500.00)**	• **Capacity**: 5 ltr. • **Working Capacity**: 3.5 ltr. • **FEATURES:** ❖ Culture Vessel made of SS 316 ❖ Autoclavable ❖ In-situ sterilizable ❖ Head plate made of SS 316 minimum 12mm thick ❖ Head plate detachable ❖ Various ports provided on the top of the head plate. ❖ Provision for additional port provided as per requirement ❖ Modular & detachable Control Panel for easy operation & maintenance. ❖ Built-in variable speed stirrer with Electronic Control ❖ Applicable type of Repeller ❖ Digital Auto Tune PID Temperature Control System ❖ Upgradable for PLC HMI with Data display ❖ Built-in various safety features. ❖ Design suitable for biofertilizer or Microbial Biomass or Microbiology or Pharmaceuticals or DNA proteins or Cell culture or Vaccine or Biopesticides as required. • **STANDARD SUPPLY** ❖ Motorized stirring system having variable speed ❖ Built-in Cooling coil for chilled water circulation ❖ Air inlet & outlet with sterilizable 0.3 micron filter. ❖ No. of ports 9 + 2 = 11 or more. ❖ Calibrated Pressure Gauge ❖ Steam Release Valve ❖ Safety Valve ❖ Calibrated PT-100 sensor	**0.12**

		❖ Suitable size & capacity of chiller for below ambient operation. ❖ Air Compressor oil free with FRL system ❖ Air pipe connection press fit type ❖ Insulated Silicone tube for water circulation ❖ Built-in Peristaltic Pump ❖ Built-in Timer ❖ Air Flow Indicator etc. • Manufacturer should be ISO & CE registered. • Optional: pH Display & Control System.	
COLLEGE OF AGRICULTURE ENGINEERING & TECHNOLOGY, AAU, GODHRA			
10.	**Chromameter** **(Tender Fee: Rs. 1,500.00)**	**Spectral Range**: 400 to 700 nm; **Colour space**: CIE Lab/ L*a*b*/ Hunters Lab; **Illuminants**: D65, A & C; **Additional facility / requirement**: UV-Visible optical system for measuring wavelength of 200-1000nm with software and compatible PC & OS (Hardware & software) and data printing facility	**0.21**
11.	**Solar Refrigeration System** **(Tender Fee: Rs. 1,500.00)**	Capacity: 160 litres Type: Top opening, Vapour compression refrigerator Compressor: Danfoss BD 50 °F Refrigerant: R – 134a (HFC) Operating voltage: 12 V / 24 V DC Refrigerator temperature: - 10 to 2 °C Thermostat: 3-5 settings Insulating material: 75 + 3 mm thick Polyurethane Foam at all the sides as well as at lid Body colour: Milky white Exterior cabinet: Painted or powder coated GI Solar photovoltaic modules: 350 + 20 Wp Battery bank: 24 V, 200 Ah, “no sun autonomy” of upto 4 days Charge controller: 24 V, 25A Safety devices: Ammeter (2 Nos.), Voltmeter and ON/OFF Switch	**0.09**
COLLEGE OF FOOD PROCESSING TECHNOLOGY & BIO-ENERGY, AAU, ANAND			
12.	**Ultrasonic Homogenization System** **(Tender Fee: Rs. 1,500.00)**	The system should be able to process fruit juice in continuous manner. It should be made up of stainless steel with vessel temperature sensor, convertor, sonotrode for generation of ultrasonic vibration with various ranges and power which can be controlled, with process inlet and outlet valve with agitation system controlled with VFD ranging from 40 to 400 rpm. The system should be able to withstand a maximum pressure of 5 bar. The system should also be provided with temperature regulation within the system with help of suitable chiller to control high and low temperature from -5°C to 80°C. The system should be available with suitable flow control devices to maintain the flow into the system. The system should have a processing capacity of 100 litre per hour and a vessel size of at least 10 litres. Parameters of the processing can be appropriately controlled with the help of suitable software with and should be provided with latest configuration i-5 laptop with licensed Winodws 10 and latest MS Office. The system should be complete and should be supported with on-site operational training and in-house application training; It should have onsite comprehensive warranty of 3 years. Single price quote in Indian rupees for above with accessories as specified is invited.	**0.72**

13.	**XRF System** **(Tender Fee: Rs. 2,500.00)**	The bench top system must allow the determination of elements in matrix of food, fruit and vegetable origin as well as feed matrices. The system should able to analyze bulk solid samples of irregular shapes. The equipment should be capable of precisely measuring the concentration of major elements (Si, Ti, Al, Fe, Ca, Mg, Na, K) at % level, and minor elements (S, P, Mn, Cr,V, Co, Ni, Cu, Pb, Zn, Sc, Rb, Ga, Sr, Nb, Zr,Y, Ba, Th etc.) at ppm level) and should the coverage from Sodium to Uranium. Detection range: Sodium to Uranium Small mass holder (SMH) cells for small mass cells holder for solid and liquids for both Peltier cooled, silicon drift detector (SDD) with resolution of ≤ 150 ev or better and can operate in air or helium or other mode The system should be equipped with a silver anode X-Ray tube with an excitation capability of at least 50 KV (power of 5 Watt) X-ray power unit: a. Voltage: at least 50 kV b. Current: at least 1 A The system should have appropriate software for selectable beam filters and a spillage protection. The filters are selected automatically through software The measurement time can be optimized depending upon choice of elements and the concentration range in which they need to be measured. **Software:** a. Qualitative Analysis: Measurement / analysis software b. Quantitative Analysis: Calibration-curve method, matrix correction etc. as a part of Basic software. Software should have international compliance. **Kits and consumables:** It should include 500 sample cells etc. for handling solid and liquid samples, as well as assembly tool and 500 pre-cut circles of polyester X-Ray film (for the analysis of liquids & loose powder). The system should be complete with latest configuration i-5 or better laptop with licensed Windows 10 and MS Office version (latest), multifunctional printer, 30 minutes UPS backup supplied locally. **The system should be complete and functional, if any accessory is required to make it functional it should be provided.** **It should be supported with on-site operational training and in-house application training.** **It should have onsite comprehensive warranty of 3 years.** **Single price quote in Indian rupees for above with accessories as specified is invited.** **Sufficient literature for its application in food system should be provided with the quotation**.	**1.05**

14.	**Refrigerated Centrifuge** **(Tender Fee: Rs. 1,500.00)**	**A) Refrigerated centrifuge** with following specifications: Max. speed: 6000r/min Max. RCF: 6680xg No 1 angle rotor: 6x500ml (6000r/min RCF: 6680xg) No 2 swing rotor: 6x1000ml (4200r/min RCF: 5100xg) Speed control accuracy: ± 50 rotation/min Acc/Dec rates: The Acc/Dec time can be set freely Temperature setting range: -20°C to 40°C Temperature control accuracy: ±1 °C Refrigeration:SysteR404a (Non-CFC Refrigeration System) Time setting range: 0-23h Sensors : Magnetic rotor identification & imbalance sensors **B) Refrigerated centrifuge** with following specifications: Max RPM : 8000 or better Min RPM : 100-500 Temperature range : -10 to +40 ºC with 1 ºC increment Timer : up to 100-180 min Operation : Single Nob Display : Microprocessor based controller with large LCD Refrigeration : CFC Free Sensors : Magnetic rotor identification & imbalance sensors Lid : Motorized lid lock & inter lock facility for automatic lid opening after the run Power supply : 220 V, 60 Hz Motor life : Indicator for end of rotor life Error diagnostic : Automatic indication of errors Noise level : ≤ 60 dB(A) at maximum speed Speed selection : Both in rpm and g-force, acceleration and Deceleration rate should be minimum 10 Rotor : Fixed angle, 6 x 50 mL Conical Bottom Certification : Should be CE Certified The system to be supported with on-site operational training and in-house application training; It should have onsite comprehensive warranty of 3 years. **Single price quote in Indian rupees for above with accessories as specified is invited.**	**0.27**
15.	**Hunter Lab** **(Tender Fee: Rs. 1,500.00)**	The instrument should be able to measure colour of food solids and liquids for properties. The system should conform to ASTM, ISO, CIE, DIN and JIS standards. It should have following features: **Complete with Ring & Disk set** as well as glass sample cup. Port insert for sample cup. Sample cup opaque cover. **Should have variable port inserts of 32mm, 25mm, 19mm & 13mm.** Glass Covered Port Insert **45°/0° Geometry for Visual Correlation. 45°circumferential Illumination using a cylindrical mirror & 0° viewing**. Should have large port diameter 1.25" for accuracy. Convenient Port Up configuration. Should provide Calibration standards Traceable to NIST **Should provide a calibrated diagnostic green tile for performance validation** Color Scales: CIE L*a*b*, Hunter Lab, CIE L*c*h, CIE Yxy, CIE XYZ	**0.54**

		Indices and Metrics: E313 Whiteness (C/2° or D65/10°), E313 Tint (C/2° or D65/10°), E313 Yellowness (C/2° or D65/10°), D1925 Yellowness (C/2°), Y Brightness, Z%, 457 nm Brightness, Opacity, Color Strength (Average and Single Wavelength), Gray Change, Gray Stain, Metamerism Index, Shade Number. Wavelength range of 400 to700 nm Wavelength Resolution < 3 nm Reporting Interval: 10nm **Detection: 2-channel polychromator with 256-element scanned array (half for sample channel, half for monitor)** Light Source: Pulsed Xenon lamp > 1 million flashes Standards Conformance**:** CIE 15:2004, ISO 7724/1, ASTM E-1164, DIN 5033, Teil 7 and JIS Z 8722 Condition C Built in software. Can be operated as standalone system. Measurement Storage Capacity 2000 readings & 250 product setups. Optional Easymatch QC Software for Data Acquisition System Data Views**:** Color Data, Color Difference Data, Tristimulus Color Plot, Spectral Data, Spectral Difference Data, Spectral Plot, Spectral Difference Plot USB Flash Drive Features**:** Backup of Setups and Data, Setup Transfer to Multiple Units, Data Export to Excel Illuminants**:** A, C, D50, D55, D65, D75, F2, F7, F11. **Kits and consumables:** One complete set of kits/ consumables in addition to those normally required for installation/commissioning. The system should be supplied with a latest configuration of note book at least with a processor of Intel Core i7 and 8 GB RAM. The system to be supported with on-site operational training and in-house application training; It should have onsite comprehensive warranty of 2 years. **Single price quote in Indian rupees for above with accessories as specified is invited.**	
16.	**FT-NIR System** **(Tender Fee: Rs. 2,500.00)**	System should be high performance high resolution FTNIR system and be fully external PC controlled through Windows 10 based software. It should be able to analyse various food samples in form of liquid, solid and powder form. **Interferometer:** should have Michelson interferometer for high energy through put. **Spectral range:** system should have NIR Range 2500-15500 cm^{-1} and up-gradable to extend the spectral range 50000 cm^{-1}. **Source:** system should have Tungsten halogen source, air cooled. Computer controlled eight position source aperture but also should have option for computer selectable dual source. It should be able to deliver >50 mW of infrared power at the sample. System should have beam splitter of NIR quartz. **Detector:** should be lead selenide (PbSe) or equivalent **Resolution**: system should have a resolution of better than 0.1cm^{-1} System should have a minimum S/N ratio of > 9500: 1, Peak to Peak with 5 second measurements, at 4 cm^{-1} resolution**.**	**0.90**

		Spectrometer: must be capable of mirror scan speeds of 1.6 mm/second to 63 mm/second. The spectrometer must have a software option to collect kinetic data at a rate of 65 spectra per second at 8 cm^{-1} data point resolution. Spectrometer enclosure should be sealed and desiccated or there can be option for purged enclosure. Spectrometer components, like source, detector, mirror etc should be recognized automatically and controlled via PC Communication from spectrometer to PC should be through USB ports. It should have accessories for solid, liquid, powders etc. **Sample compartment:** should have two access ports, one in the front and the other in the top for easy adjustment and change of sampling accessories. It should be large enough to accommodate accessories for different kind of experiments. It should be capable of measuring solid, liquid, paste, powder and related food sample in food matrix. System should have computer controlled external beam selection. The spectrometer should have capability to be up-graded for TGA/IR, IR microscope-Imaging system etc. System should have automatic internal spectrometer calibration and validation facility. **Software** Windows-10 based advanced software with search and quantitative functions. It should have diagnostics, validation program, with set of library for existing applications etc. and should be capable of displaying spectra in real time during data collection etc. The application support has to be provided by the company for the development of the methods and analysis of the sample at customer side. **Software should have inbuilt library for selected food samples with facility to create own library.** **Kits and Consumables:** One complete set of kits /consumables in addition to those normally required for installation/commissioning. This should also include all cables, cords, vials, petri plates and other glasswares etc. **Other Accessories:** A suitable PC based branded work-station of latest configuration loaded with licensed office, windows 10 software's, multipurpose document feeder type laser printer, a 10 KVA UPS with 30 min backup on full load, 1.5 ton branded split AC etc. **Onsite warranty:** Instruments should be covered under three years comprehensive warranty from the date of commissioning. **Training:** Supplier should provide hands on training on use of FTNIR system for food applications to two AAU staff persons at their facility whose total training cost be borne by the supplier and then refresh them with training for all the applications at AAU site. **Single price quote in Indian rupees for above with accessories as specified is invited.**	

17.	**Electronic Nose** **(Tender Fee: Rs. 2,500.00)**	It should be based on dual flash gas chromatography technology dedicated to smell and aroma analysis of various food products and samples **<u>Injection & sampling</u>** -Liquid & headspace injection modes -Manual injection -Integrated solid adsorbent trap (10mg Tenax adsorbent) thermo-regulated by Peltier cooler (5-280°C) **<u>Columns & Oven</u>** -2 metal capillary columns with different polarities (standard column: length 10 meter – internal diameter: 0.18mm) -Carrier gas: Hydrogen -Oven temperature: 35°C to 300°C -Heating rate up to 480°C/min **<u>Detectors</u>** -2 Flame Ionization Detectors (FID) -FID Ignition monitored by software -Operating temperature: up to 300°C FID -Sensitivity: 10^{-10} to 10^{-12} A/mV -FID dynamic linearity > 10^6 **<u>Performance</u>** -Start up in less than 20 minutes -RSD < 3% on peak areas -RSD < 0.3% on retention times -Sensitivity < 50pg of nC_{12} in liquid mode -Usual analysis cycle time: 8 minutes **<u>Maintenance</u>** -Fully monitored by software (FID ignition, pressure and flow rates settings temperature programs) -Easy daily maintenance (septum replacement) **<u>General Features</u>** -Voltage: 230 VAC -Consumption: Hydrogen: 100mL/min – Air: 500mL/min -Computer connection by USB port -Operating conditions: 0°C to 35°C - 0 to 90% humidity (non condensing) -Storage: -20°C to 60°C **<u>Software:</u>** Should be compatible with Windows® 10. The e-nose software should control and monitor the instrument: **<u>Acquisition:</u>** -Method/Sequence Monitoring -Data Acquisition parameter set up: control of GC Parameters -Application wizard for automated sequence and models **<u>Data Processing:</u>** -Data Pre-processing: Chromatograms loading, Chromatograms superimposition, reporting -Chromatographic data management: Libraries loading, retention times selection	**1.50**

		Maintenance tools: -System diagnostic: complete autotest, flow and temperature control, column diagnostic **Odour Database** Library of molecules and related sensory attributes for chemical and sensory characterization based on Kovats indices matching. -Integrated within E-Nose Software to help identify the chemical compounds corresponding to the integrated peaks -Kovats indices for nearly 99,000 or more compounds on several GC columns -Sensory features for 2,000 or more compounds -Human sensory odor thresholds for more than 1,800 compounds -Sorting of chemical compounds candidates with unique recognition accuracy index -Ability to enrich the database by including user's data and to extract tailored sub-library -Database split in various application areas or chemical families **Onsite warranty:** Instruments should be covered under three years comprehensive warranty from the date of commissioning. **Training:** Supplier should provide hands on training on use of E-nose for food applications to two AAU staff persons at their facility whose total training cost be borne by the supplier and then refresh them with training for all the applications at AAU site. **Single price quote in Indian rupees for above with accessories as specified is invited.**	
18.	**High Pressure Processing System** **(Tender Fee: Rs. 15,000.00)**	High pressure processing equipment for processing of liquid and semisolid food products with following specifications: • Working volume with at least 2.0 litre • Working pressure up to 600 MPa or better • Facility for temperature control in the range upto 120 °C with an accuracy of ±2 °C. • Complete automated system with data acquisition system • Software for real time display and control of process parameters using PLC. • Temperature sensors inside the vessel for measuring temperature of process fluid as well as inside the specimen sample • Controlled pressurization and depressurization • Heating System / Cooling system type - Circulated fluid • Vessel - compound barrel • Closure Handling - Fully hydraulically actuated remote operation. • Pressure Measurement - Transducer • Pressure Indicator/Controller - Digital with electronic control • Temperature measurement - 'T' Type thermocouple System quoted should be complete in all respect with test certificates, operation manuals, maintenance instructions, general assembly drawings, spares parts along with training at our laboratory. It should be provided with 14 or 13.5- inch Laptop of reputed brand (i-8 generation, 32 GB RAM, 1 TB SSD licensed Windows 10 and licensed MS Office), and having all in one multifunctional printer with auto feed scanning.	**4.50**

		Warranty: The quoted instrument should have a comprehensive warranty of at least 3 years from the date of installation. Documentation: All Claims made by the vendor with regards to the above specifications should be supported by specification sheets / brochures / data available on company website. No claims with regards to laboratory data will be accepted. **Single price quote in Indian rupees for above with accessories as specified is invited.**	
19.	**Design Expert Software** **(Tender Fee: Rs. 1,500.00)**	Floating license for Design Expert Version 12.0 complete with 5 seat floating license with following Maintenance Updates New Version Upgrades Email Support Phone Support The software should be complete with installation and commissioning, training and demonstration. **Single price quote in Indian rupees for above inclusive of all is invited.**	**0.06**
20.	**Sensory Analysis Software** **(Tender Fee: Rs. 1,500.00)**	We require software for conducting sensory and consumer tests at our sensory department as per the following specifications. The details of our requirement are as listed below: 1. We need User license for 1 Supervisor PC to run the tests on 10 judge stations, collect the answers, and supervise the test sessions. 2. The users should have access to all features (test creation, result analysis, judge and database management) except the functions specific to the Supervisor PC (test execution, answer collection, and session supervision). 3. Installation and training support to be provided 4. The Software will be used to do on-screen tests on networked computers for studies conducted in sensory and consumer test facilities. 5. The Software should provide full control to the user (supervisor) to allocate different tests to be run simultaneously in different booths or consecutively in the same booth, run several tests and either let the judge choose from the list of tests, force the judge to answer a sequence of tests, or send tests in a random order. The user (supervisor) should be able to stop the terminals independently if needed. 6. The software should have the power and flexibility for any kind of test: to select and combine all types of questions in the tests, from discrimination testing to multi-attribute time-intensity through to multiple choice questions, to use and customize any kind of scale, include multimedia (pictures, videos, sound recordings), free layout of the questionnaires in the panellists' language. 7. The software should have free questionnaire design with combinations of all types of questions like Descriptive profile tests, Choice between attributes, Hierarchical multiple-choice and scoring, Discrimination/Difference tests, Preference test, Ranking, Sorting, Napping, Open-ended questions, Temporal methods.	**0.54**

		8. The software should have various Presentation designs like Complete (Williams Latin Squares) or Incomplete designs (Balanced Incomplete Blocks (BIB)), Global randomisation, randomisation by blocks of samples or even, no randomisation, Possibility to use customised designs 9. The User (Supervisor) should have Control over questionnaire protocol like forced answers, timers to force waiting times, conditional questions, feedback (for example training or calibration compared with the panel),show previous answers for semi-monadic tests and even more advanced programming for very specific tests. 10. The programming module should allow possibilities to build any kind of questionnaire (conditional questions flow, flexible feedback and any advanced test ...) 11. The scanning report in software should provide the user to control missing or multiple answers, invalid entry, identification problems and so on. 12. The software should have advanced statistical tools with the corresponding presentation-ready graphs: descriptive statistics, interaction graphs, product comparison graphs, judge performance graphs and tables, frequencies, distributions (including custom classes), box and whisker plots, Analysis of variance with various post-hoc tests (LSD, Bonferroni, Scheffé, Tukey, Duncan, Newman-Keuls, Dunnett),1, 2 or 3-way analysis, with or without interactions, fixed, Random or Mixed models. Student T-test: paired or independent, also against fixed scores, Non parametric tests: Friedman, Wilcoxon, Mann-Whitney etc., Friedman and Page tests, Round Robin (multiple pairs), Counts, Frequencies, bar and pie-charts, Chi-square tests Binomial test against a target value Discrimination tests: difference (α risk), similarity tests (ß risk) and sensory difference (d-prime), Multivariate analyses, including Principal Component Analysis (PCA), cluster analysis, preference mapping (internal and external), Factorial Correspondence Analysis (FCA), horizontal PCA with Multiple Factor Analysis (MFA) and STATIS Penalty analysis 13. The software should have database management which should include of the tests output like characteristics of test (project, client,...), samples (production date, package, brand, ...), and the judges (gender, occupation, ...). 14. The Data Manager should be able to store information like a) Questionnaire/test like type, project, client, location b) Samples and products: Production date, location, batch, storage conditions and time, type, category, brand, related multimedia information (picture, video and sound recording) c) Judge data (panellists and consumers): Personal information: names, gender, birth date Contact data: address, phone numbers, e-mail ...Household: children, household members, pets ...Allergies/aversions, consumption and shopping habits ...Availability: days, hour ranges, available or not ...Judge group memberships d) All data collected during the tests: judge participation, samples tested, all the actual answers collected e) Performance data: Calculated judge performance indices from descriptive analysis profiles and discrimination tests	

		15. The software should offer flexibility to use scripts to quickly build reports with a series of analysis outputs and graphs. Raw data collected with software can also be exported automatically to the statistical package, or any type of spreadsheet (for example Excel). The User should be able to import external data into the software and do all the analysis within the Calculations module 16. The User (Supervisor) should be able to look at the data from all angles, and extract exactly the information needed: get activity statistics: judges' participation, test distribution by project or client ..., get data for specific time periods, follow changes over time: product scores or judge performance tracking, Select judges/consumers for new studies, combine results from different tests to analyse them together. **Single price quote in Indian rupees for above with accessories as specified is invited.**	
21.A	**ANSYS Latest Version** **(Tender Fee: Rs. 1,500.00)**	ANSYS Academic Teaching: Bundle of all CFD simulation technology including Multiphysics, Mechanical, CFD, Explicit simulation technology, includes BladeModeler, BladeGen, DesignModeler, DesignXplorer, Fluent & MCAD Geometry Interfaces, etc. or ANSYS Academic Research: Bundle of CFD simulation technology Multiphysics, Mechanical, CFD, Explicit simulation technology, includes BladeModeler, BladeGen, DesignModeler, DesignXplorer, Fluent & MCAD Geometry Interfaces, etc. without Node Limitation	**0.23**
21.B	**Simprosys latest version (Tender Fee: Rs. 1,500.00)**	The software should be able to simulate dehydration process with respect to food products. It should include various drying operations for modelling of typical dryers such as flash, fluidized bed, rotary dryers and other simulation and drying operations.	**0.05**
Medicinal Aromatic Plants Research Station, AAU, Anand			
22.	**SPICE COOLING GRINDER WITH ABRASIVE ACTION** **(Tender Fee: Rs. 1,500.00)**	Following are the specification in general for the Spice cooling grinder with abrasive action i. 3 HP; 3 phase motor with 1400- 1500 rpm ii. S. S. Sheet Cabinet with M.S. frame iii. 8 inch diameter grinder stone iv. Guaranty: 6-12 months v. Rotation: 960 rpm vi. Cool grinding	**0.03**
23.	**SOXHLET EXTRACTION WITH HEATING MENTAL** **(Tender Fee: Rs. 1,500.00)**	Following are the specification in general for the Soxhlet Extraction with Heating Mental i. 12 flasks with 2000 ml capacity ii. Heating mental unit heating box iii. Separate Energy regulator iv. Neon lamp v. Adjustable rods vi. Clamps vii. 220-224 volts A. C. viii. Power consumption 2400 watts with bosshead and glass parts	**0.05**

24. **Fermenter – 2 Nos. (2 Sets)**

(Tender Fee: Rs. 5,000.00)

Two Fermenters (200 L capacity) with following components

2.70

Sr. No.	Particulars	Quantity (Nos)
1	Fermenter vessel - 200 L capacity	2
2	Process vessel - 300 L capacity	1
3	Air compressor	1
4	Chiller	1
5	RO system – 1200L/day	1

1. Fermenter vessel

1. Main tank with in-built sterilization system, microprocessor controlled, top driven, floor type having facility for alcohol flame inoculation - 200 L capacity		
a	Filling volume	75-80%
b	Aspect ratio	2.5:1 (H:D)
c	Working pressure	3.5 kg/cm² at Full vacuum
d	Design pressure	4.0 kg/cm² at Full vacuum
e	Working Temp.	15 to 150° C
f	Design Temp.	0 to 170° C
2. Material of Construction		
a	Vessel shell	SS 316L
b	Jacket shell	SS 304L, 5 mm
c	Top plate	SS 316L
d	Air sparger (ring type)	SS 316L
3. Multi channel port		
a	Acid-alkali port, addition port, transfer port and air outlet port of 25 mm dia	SS 316
4. Light glass assembly		Size - 80 mm, Glass thickness - 40 mm
5. Sight glass assembly		Size - 100x200mm, Glass thickness - 8 mm, SS316
6. Side port		
a	Temp. sensor port	Size - 20mm, SS316
b	pH sensor, DO sensor, Foam sensor, Sample harvesting port	Size - 25mm, SS316
7. Bottom dish		SS316
8. Bottom flush valve		SS316L
9. Impeller and Baffles		
a	Impeller	Size should be of 40% of vessel diameter, ruston turbine type, 4 nos with 6 blades in each impeller
b	Baffles	Size should be of 10% of vessel diameter, 4 nos
10. Sampling device		Conventional metal type with diaphragm valve, complete contamination free
11. Air inlet and Air outlet filter		Filters of cartridge type, in-situ sterilizable, 0.2 micron PTFE, filter housing-SS316
12. Vessel mounting		Fermenter vessel should be mounted on floor and all piping in the utility panel with TC clamps
13. Skid piping		Entire system should having common skid piping which include chiller / air

		compressor / SIP / CIP / Water / RO piping with Diaphragm / Ball / Automatic valve. Automatic SS steam sterilizable transfer pump - Fermenter to Process vessel. Closed loop temperature controlled system.
14. Temp. control and Temp. sensor		
a	Temp. system	Automatic
b	Temp sensor	Pt 100
c	Connection	25 mm with SS 316 port
d	Temp indicator	0-170 ^{0}C
e	Type	PID
f	Range	0-170 ^{0}C
g	Measurement precision	±0.1 ^{0}C
h	Control precision	±0.2 ^{0}C
15. Sterilization control - in-built heating element, fully automatic		
a	Range	0-121 ^{0}C
b	Timer	0-90 min
16. RPM control		
a	**Type**	Top driven - fully automatic and programmable
b	**Motor**	Flanged (Direct drive, IP-65), variable speed
c	**RPM**	50-500 RPM
d	**Capacity**	1 HP
e	**Sealing**	Mechanical seal
f	**Ideal**	50-300L fermenter
17.	**pH control**	0-14 pH, Gel filled autoclavable, control by actuating peristaltic pump
18.	**Pressure control**	With pressure gauge and manual valve
19.	**Air flow control**	With rotor meter and manual valve
20.	**Aeration system**	Ring type (0.2 micron), in-let through 0.02 micron air filter
21.	**Agitation system**	Top driven agitation system - 1 HP

2. Process vessel

1. Process tank ideal for media preparation / formulation / downstream process- 300 L capacity		
a	Aspect ratio	1:1 (H:D)
b	Working pressure	3.5 kg/cm² at Full vacuum
c	Design pressure	5.0 kg/cm² at Full vacuum
d	Working Temp.	2 to 150° C
e	Design Temp.	0 to 170° C
2. Material of Construction		
a	Vessel shell	SS 316L
b	Jacket shell	SS 304L
c	Top plate	SS 304L
3. Multi channel port		
a	Acid-alkali port, addition port, transfer port and air outlet port of 25 mm dia	SS 316
4. Light glass assembly		Size - 80 mm, Glass thickness - 40 mm
5. Sight glass assembly		Size – 100 x 200mm, Glass thickness - 10 mm

6. Bottom dish		SS316
7. Bottom flush valve		SS316L
8. Sampling device		Conventional metal type with diaphragm valve, complete contamination free
9. Air inlet and Air outlet filter		Filters of cartridge type, in-situ sterilizable, 0.2 micron PTFE, filter housing-SS316
10. Vessel mounting		Fermenter vessel should be mounted on skid at floor and all piping in the utility panel with TC clamps
11. Temp. control and Temp.sensor		
a	Temp. system	Automatic
b	Temp sensor	Pt 100
c	Connection	25 mm with SS 316 port
d	Range	0-170 ^{0}C
e	Measurement precision	±0.1 ^{0}C
f	Control precision	±0.2 ^{0}C
12. Sterilization control - fully automatic ESIP/FSIP/Process SIP		
a	Range	0-150 ^{0}C
b	Timer	0-60 min
13.	**RPM control**	
a	**Type**	fully automatic and programmable
b	**Motor**	Flanged (Direct drive, IP-65), variable speed
c	**RPM**	0-500 RPM
e	**Sealing**	Mechanical seal
14.	**Agitation system**	Top driven agitation system -1 HP

3. Air compressor

a	Type	Fully automatic with safety valve and auto on/off switch, oil free air compressor, ideal for 50-300 L fermenter
b	Capacity	8.6 CFM (200 LPM), 7 bar pressure
c	Tank	90 L

4. Chiller

a	Type	Fully automatic with PLC controller, facility to control temperature -4 ^{0}C - 50 ^{0}C with accuracy of 0.5 ^{0}C, ideal for 50-300 L fermenter,
b	Capacity	70 L, 1.5 bar pressure

5. RO system

a	Capacity	1200 L, fully automatic, auto cleaning system comes with 1000 L water storage tank
b	pH	6-7.5
c	Conductivity	<20 µS/cm
d	TDS	<2500 or 20 ppm

Note:

1. Manufacturer must have CE, ISO 3690 & GMP certification. Enclose the documents
2. Manufacturer must have minimum 5 years of experience. Enclose the documents
3. Manufacturer must have service setup in Gujarat. Enclose the documents
4. Manufacturer must have installed minimum 10 nos. of fermenters / bioreactors for biofertilizers / biopesticides production purpose at any University / reputed research organizations in India. Enclose the documents

<table>
<tr><td>25.</td><td>Automatic Mixing and Packing Unit – 2 No.

(a. Solid based bio-pesticide
b. Liquid based bio-pesticide)

(Tender Fee: Rs. 1,500.00)</td><td>
a. For solid based bio-pesticide
<table>
<tr><td>Filling Heads</td><td>1 Head</td></tr>
<tr><td>Operating System</td><td>PLC integrated MMI screen or modular PCB controlling</td></tr>
<tr><td>Output/ Hr</td><td>800 to 1000 PPH Depends of fill volume and nature flow of carrier (powder based)</td></tr>
<tr><td>Power Characteristics</td><td>440v / 3 Phase 50Hz 4 Wire System</td></tr>
<tr><td>Air</td><td>6 to 8 cfm</td></tr>
<tr><td>Input Power consumption</td><td>3KW/hr</td></tr>
<tr><td>Filling System</td><td>Electro pneumatic filling device valve</td></tr>
<tr><td>Fill Range</td><td>500 ml 1000 ml (with half of change parts)</td></tr>
<tr><td>Filling Accuracy</td><td>± 1 to 3% Filling accuracy on single dose depends of the nature of carrier (powder based)</td></tr>
<tr><td>Tank Storage Capacity</td><td>Overhead tank of 25kg</td></tr>
<tr><td>Machine Construction</td><td>All Contact Parts Stainless steel SS 304</td></tr>
</table>
Make/ Model : with ISO 3690/CE/GMP certification

b. For liquid based bio-pesticide
<table>
<tr><td>Filling Heads</td><td>Four Heads</td></tr>
<tr><td>Operating System</td><td>Induction Motor With Cam System</td></tr>
<tr><td>Output/ Min</td><td>2-30Bottles /Hr of 500- 1000 ml Bottle</td></tr>
<tr><td>Power Characteristics</td><td>1 HP 440v 3 Phase 50Hz 3 Wire System</td></tr>
<tr><td>Air</td><td>N/A</td></tr>
<tr><td>Input (Container Dia/Height)</td><td>24mm Dia to 56mm Dia / Height 120mm Max</td></tr>
<tr><td>Filling System</td><td>Piston filling with Mechanical valve</td></tr>
<tr><td>Fill Range</td><td>500 ml to 1000 ml with Cam Follower Mechanism</td></tr>
<tr><td>Filling Accuracy</td><td>± 0.5 to 1% Filling accuracy on single dose</td></tr>
<tr><td>Tank Storage Capacity</td><td>N/A</td></tr>
<tr><td>Machine Construction</td><td>Stainless steel SS 304</td></tr>
<tr><td colspan="2">Skid mounted Fully Automated Bottle Filling/ Sealing/Capping Machine system for aseptically filling Fermented Sterile Broth</td></tr>
<tr><td>Liquid</td><td>Harvested Liquid Broth from Fermentor/ Bioreactor</td></tr>
<tr><td>Liquid Volume</td><td>250 Lits/ batch</td></tr>
<tr><td>Filling Time</td><td>6 hrs/day</td></tr>
<tr><td>Bottle Liquid fill size</td><td>500 - 1000 ml</td></tr>
<tr><td colspan="2">Bottle filling shall be done under LAF with a view to maintain aseptic condition.</td></tr>
</table>
Make/ Model : with ISO 3690/CE/GMP certification
</td><td>0.30</td></tr>
<tr><td colspan="4">Agricultural Meteorology, BACA, AAU, Anand</td></tr>
<tr><td>26.</td><td>Data logger

(Tender Fee: Rs. 1,500.00)</td><td>
<table>
<tr><td>Interface</td><td>Inbuilt keyboard and display</td></tr>
<tr><td>Operating Temperature Range</td><td>-25° to +50°C (standard)</td></tr>
<tr><td>Analog Inputs</td><td>6 single-ended or 3 differential (individually configured)</td></tr>
<tr><td>Pulse Counters</td><td>2</td></tr>
<tr><td>Voltage Excitation Terminals</td><td>2 (VX1, VX2)</td></tr>
<tr><td>Communications Ports</td><td>CS I/O and RS-232</td></tr>
<tr><td>Switched 12 Volt</td><td>1 terminal</td></tr>
</table>
</td><td>0.09</td></tr>
</table>

		Digital I/O	Certain digital ports can be used to count switch closures. 4 I/Os or 2 RS-232 COM I/O ports can be paired as transmit and receive for measuring smart serial sensors.	
		Input Limits	±5 V	
		Analog Voltage Accuracy	± (0.06% of reading + offset) at 0° to 40°C	
		ADC	13-bit	
		Power Requirements	9.6 to 16 Vdc	
		Real-Time Clock Accuracy	±3 min. per year (Correction via GPS optional.)	
		Internet Protocols	FTP, HTTP, XML POP3, SMTP, Telnet, NTCIP, NTP	
		Communication Protocols	PakBus, Modbus, DNP3, SDI-12, SDM	
		Warranty	3 years	
		Idle Current Drain, Average	1 mA (@ 12 Vdc)	
		Active Current Drain, Average	1 to 16 mA (1 Hz sample rate @ 12 Vdc) 16 mA (100 Hz sample rate @ 12 Vdc) 28 mA (100 Hz sample rate @ 12 Vdc with RS-232)	
		Dimensions	24.1 x 10.4 x 5.1 cm (9.5 x 4.1 x 2 in.)	
		Weight	0.7 kg (1.5 lb)	
27.	**Line Quantum Sensor** **(Tender Fee: Rs. 1,500.00)**	**Absolute Calibration**	± 10% traceable to National Institute of Science and Technology (NIST).	**0.06**
		Sensitivity	Typically 7 µA per 1,000 µmol s^{-1} m^{-2}	
		Linearity	Maximum deviation of 1% up to 10,000 µmol s^{-1} m^{-2}	
		Response Time	10 µs	
		Temperature Dependence	± 0.15% per °C maximum	
		Cosine Correction	Acrylic diffuser	
		Azimuth	< ± 2% error over 360° at 45° elevation	
		Operating Temperature Range	−40 °C to 65 °C	
		Relative Humidity Range	0% to 95% RH, Non-Condensing	
		Sensitivity Variation over Length	± 7% maximum using a 2.54 cm (1") wide beam from an incandescent light source	
		Sensing Area	1 m × 12.7 mm (39.4" × 0.50")	
		Detector	High stability silicon photovoltaic detector (blue enhanced)	
		Sensor Housing	Weatherproof anodized aluminum housing with acrylic diffuser and stainless steel hardware.	
		Cable Length	3.1 m (10.0 ft.)	

<table>
<tr><th colspan="4">PULSE RESEARCH STATION, MODEL FARM, AAU, VADODARA</th></tr>
<tr><td>28.</td><td>Water Distillation Unit

(Tender Fee: Rs. 1,500.00)</td><td>➢ The unit should be quartz double distillation consists of demountable upper and lower boiler.
➢ The lower boiler should have a built-in heater enclosed in a quartz boiler with a cup on top.
➢ The upper boiler should have a built-in quartz coil and condensing unit which is mounted on the boiler with the help of ball and socket joint.
➢ Double walled condenser should ensure separate condensation of vapors coming from the two boilers using a single cooling circuit.
➢ The unit should be mounted on a specially designed powder coated stand and is also provided with a safety control unit.
➢ Volume should be of approx. 5 L/hr. with Auto Thermal Sensor Cutoff Device.
➢ The unit should have easy cleaning of the first boiler by dismantling from the assembly.
➢ Specific Conductivity of 0.1-0.5µs/cm and pH should be 6.0-7.0
➢ Biological Activity should be Pyrogen Free

The unit should work on 220/440 volts, AC Mains, the line cord / Power cord supplied with the equipment shall be of acceptable durability, length, and current carrying capacity complying with Indian Standards.</td><td>0.06</td></tr>
<tr><th colspan="4">DEPARTMENT OF PLANT PHYSIOLOGY, BACA, AAU, ANAND</th></tr>
<tr><td>29.</td><td>Electrophoresis Unit with Power Pack Supply

(Tender Fee: Rs. 1,500.00)</td><td>Following are the specification in general for the electrophoresis unit with power pack supply
The instrument should have following features –

<table>
<tr><td colspan="3">1. Vertical Electrophoresis system</td></tr>
<tr><td>No. of Gel</td><td>:</td><td>2</td></tr>
<tr><td>Glass plate size</td><td>:</td><td>14-18 x 20-22 cm approx.</td></tr>
<tr><td>Total buffer volume</td><td>:</td><td>3000ml to 5000ml approx.</td></tr>
<tr><td>Unit dimension</td><td>:</td><td>32 x 23 x 14 cm. approx.</td></tr>
<tr><td colspan="3">It must be supplied with accessories and spares for the system like combs (various size), glass plates, casting stands, casting frames, sample loading guide, electrode assembly, tank, lid with power cables, buffer dam in addition to one extra universal clamp</td></tr>
<tr><td colspan="3"></td></tr>
<tr><td colspan="3">2. Horizontal electrophoresis system</td></tr>
<tr><td>Cell size/dimension</td><td>:</td><td>12-15 x 15-21 cm approx.</td></tr>
<tr><td>Gel tray size</td><td>:</td><td>21-25x30-35x5-7 cm approx.</td></tr>
<tr><td>Buffer volume</td><td>:</td><td>750ml - 1500ml approx.</td></tr>
<tr><td colspan="3">It must be supplied with accessories and spares for the system like caster minimum 2, UV-transparent plastic tray with compatible size, combs: at least with 10 & 20 well</td></tr>
<tr><td colspan="3"></td></tr>
<tr><td colspan="3">3. Power pack supply</td></tr>
<tr><td>Voltage</td><td>:</td><td>10 – 300 V</td></tr>
<tr><td>Current</td><td>:</td><td>4 – 500 mA</td></tr>
<tr><td>Power</td><td>:</td><td>90 W</td></tr>
<tr><td colspan="3">Output should be provided for 4 sets in parallel and LED display</td></tr>
<tr><td colspan="3">The power pack should have no load detection, sudden load change detection, over load and short circuit detection, over load protection.</td></tr>
<tr><td colspan="3">Constant voltage and constant current output. The capability to pause and resume the electrophoresis run.</td></tr>
</table></td><td>0.15</td></tr>
</table>

PART-II: CHEMICALS - REAGENTS, CERTIFIED REFERENCE MATERIALS ETC.

AINP on Pesticide Residue Lab, ICAU Unit-9, AAU, Anand

30. **Certified Reference Material for ICP-MS**

(Tender Fee: Rs. 1,500.00)

Certified Reference Material for ICP-MS

(NIST Traceable), expiry minimum two years from the date of supply, minimum quantity 250 mL required, if not available 100 mL can be quoted.

0.05

Sr. No.	Compound / Element	Required Specifications
1	Aluminum (Al)	1000 ppm, 100 mL/250 mL
2	Antimony (Sb)	1000 ppm, 100 ml/250 mL
3	Arsenic (As)	1000 ppm, 100 mL/250 mL
4	Cadmium (Cd)	1000 ppm, 100 mL/250 mL
5	Calcium (Ca)	1000 ppm, 100 ML/250 ML
6	Chromium (Cr)	1000 ppm, 100 mL/250 mL
7	Copper (Cu)	1000 ppm, 100 ML/250 ML
8	Iron (Fe)	1000 ppm, 100 ML/250 ML
9	Lead (Pb)	1000 ppm, 100 ML/250 ML
10	Magnesium (Mg)	1000 ppm, 100 ML/250 ML
11	Manganese (Mn)	1000 ppm, 100 ML/250 ML
12	Mercury (Hg)	1000 ppm, 100 ML/250 ML
13	Molybdenum	1000 ppm, 100 ML/250 ML
14	Nickel (Ni)	1000 ppm, 100 ML/250 ML
15	Potassium (K)	1000 ppm, 100 ML/250 ML
16	Selenium (Se)	1000 ppm, 100 ML/250 ML
17	Silver (Ag)	1000 ppm, 100 ML/250 ML
18	Sodium (Na)	1000 ppm, 100 ML/250 ML
19	Tin (Sn)	1000 ppm, 100 ML/250 ML
20	Titanium (Ti)	1000 ppm, 100 ML/250 ML
21	Zinc (Zn)	1000 ppm, 100 ML/250 ML
22	Scandium (Sc)	1000 ppm, 100 ML/250 ML
23	Germanium (Ge)	1000 ppm, 100 ML/250 ML
24	Rhodium (Rh)	1000 ppm, 100 ML/250 ML
25	Bismuth (Bi)	1000 ppm, 100 ML/250 ML
26	Indium (In)	1000 ppm, 100 ML/250 ML
27	Terbium (Tb)	1000 ppm, 100 ML/250 ML
28	Lutetium (Lu)	1000 ppm, 100 ML/250 ML
29	Gold (Au)	1000 ppm, 100 ML/250 ML
30	Iridium (Ir)	1000 ppm, 100 ML/250 ML

31. **Certified Reference Material for Antibiotics and Veterinary Drugs**

(Tender Fee: Rs. 1,500.00)

Certified Reference Material for Antibiotics and Veterinary Drugs

(NIST Traceable), expiry preferably two years form the date of supply, available quantity (10mg / 50mg / 100mg) should be quoted

0.30

Sr. No.	Compound / Element	Required Specifications
1	1-aminohydantoin (AHD) as metabolite of Nitrofurantoin	CAS No. 2827-56-7
2	3-amino 5-moropho linomehty-2-oxazolidinone (AMOZ) as metabolite of Furaltadone	CAS No. 43056-63-9

		3	4-epi chlortetracycline	CAS No. 101342-45-4
		4	4-Epioxytetracycline	CAS No. 14206-58-7
		5	4-Epitetracycline	CAS No. 23313-80-6
		6	Albendazol	CAS No. 54965-21-8
		7	Amoxicilline	CAS No. 26787-78-0
		8	Ampicillin	CAS No. 69-53-4
		9	Apramycin (sulfate)	CAS No. 65710-07-8
		10	Cefoperazone	CAS No. 62893-20-3
		11	Cefphactril	CAS No. 2386-53-0
		12	Ceftiofur (sodium	CAS No. 104010-37-9
		13	Chloramphenicol	CAS No. 56-75-7
		14	Chloramphenicol-d5	CAS No. 202480-68-0
		15	Chlortetracycline	CAS No. 57-62-5
		16	Ciprofloxacin	CAS No. 85721-33-1
		17	Cloxacilline	CAS No. 61-72-3
		18	Di-Cloxacilline	CAS No. 3116-76-5
		19	Diminazene	CAS No. 908-54-3
		20	Doramectin	CAS No. 117704-25-3
		21	Enrofloxacin	CAS No. 93106-60-6
		22	Erythromycin	CAS No. 114-07-8
		23	Febantel	CAS No. 58306-30-2
		24	Fenbendazol	CAS No. 43210-67-9
		25	Flumequine	CAS No. 42835-25-6
		26	Flunixin (megiumine)	CAS No. 67-45-8
		27.	furazolidone	CAS No. 67-45-8
		28	Internal Standards namely AMOZ-d5	CAS No. 1017793-94
		29	Internal Standards namely AOZ-d4	CAS No. 1188331-23-8
		30	Ivermectin	CAS No. 70288-86-7
		31	Lincomycin (hydrochloride	CAS No. 70288-86-7
		32	Meloxicam	CAS No. 71125-38-7
		33	Metronidazole	CAS No. 443-48-1
		34	Monensin (sodium salt)	CAS No. 22373-78-0
		35	Nalidixic acid	CAS No. 389-08-2
		36	Neomycin	CAS No. 1404-04-2
		37	Nitrofurans	CAS No. 609-40-5
		38	Nitrofurantoin	CAS No. 67-20-9
		39	Oxfendazol (sulfone)	CAS No. 54029-20-8
		40	Oxolinic acid	CAS No. 14698-29-4
		41	Oxyclozanide	CAS No. 2277-92-1
		42	Oxytetracycline	CAS No. 79-57-2
		43	Parbendazole	CAS No. 14255-87-9
		44	Penicillin G	CAS No. 113-98-4
		45	Phenylbutazone	CAS No. 50-33-9
		46	Praziquantel	CAS No. 55268-74-1
		47	Ronidazole	CAS No. 7681-76-7
		48	Semicarbazide (SEM) as metaboilite of Nitrofurazone	CAS No. 563-41-7
		49	Spectinomycin	CAS No. 1695-77-8
		50	Streptomycin	CAS No. 57-92-1
		51	Sulfa Chloropyrazine	CAS No. 14508-49-7
		52	Sulfadiazine	CAS No. 68-35-9
		53	Sulfadimethoxine	CAS No. 122-11-2
		54	Sulfadimidine	CAS No. 57-68-1
		55	Sulfamerazine	CAS No. 127-79-7
		56	Sulfamethaxazole	CAS No. 723-46-6
		57	Sulfamethazine	CAS No. 57-68-1

		58	Sulfamethizole	CAS No. 144-82-1
		59	Sulfamethoxypyridazine	CAS No. 80-35-3
		60	Sulfanilamide	CAS No. 63-74-1
		61	Sulfapridine	CAS No. 144-83-2
		62	Sulfaquinoxaline (sodium salt)	CAS No. 967-80-6
		63	Sulfathiazole	CAS No. 72-14-0
		64	Sulfdoxine	CAS No. 2447-57-6
		65	Tetracycline	CAS No. 60-54-8
		66	Thiabendazole	CAS No. 148-79-8
		67	Trimethoprim	CAS No. 738-70-5
		68	Tylosin (tartrate)	CAS No. 1405-54-5
		69	Virginiamycin	CAS No. 11006-76-1
32.	**Solvents for trace metal analysis using ICP-MS** **(Tender Fee: Rs. 1,500.00)**	**Sr. No.**	**Compound / Element**	**Required Specifications**	**0.45**
		1	High purity Nitric acid - concentrated (Purity: 67-70%, Sp. Gravity: 1.42) double distilled	As (≤0.5ppb), Cr (≤1.0 ppb), Cd (≤0.5 ppb), Hg (≤1.0 ppb), Pb (Hg (≤1.0 ppb), Se (≤1.0 ppb)
		2	High purity Hydrochloric acid - concentrated (Purity: 30 - 35 %, Sp. Gravity: 1.18) double distilled	As (≤0.5ppb), Cr (≤1.0 ppb), Cd (≤0.5 ppb), Hg (≤1.0 ppb), Pb (Hg (≤1.0 ppb), Se (≤1.0 ppb)
		3	Hydrogen Peroxide-Concentrated (Purity: 30%), High purity or Trace metal grade	As (≤0.5ppb), Cr (≤1.0 ppb), Cd (≤0.5 ppb), Hg (≤1.0 ppb), Pb (Hg (≤1.0 ppb), Se (≤1.0 ppb)
		4	Nitric acid (for cleaning) - concentrated (Sp. Gravity: 1.42) trace metal grade	
		Note: Vendor must quote price of 1 liter for above mentioned compounds / elements in price bid while bidding online.		
33.	**Volumetric flask Class-A with NS polypropylene stoppers** **(Tender Fee: Rs. 1,500.00)**	**Sr. No.**	**Volume / Capacity**	**Technical Specifications**	**0.06**
		1	10 mL	Material: PMP/PP confirming US FDA 21 CFR, Autoclavable
		2	25 mL	
		3	50 mL	
		4	100 mL	
DEPARTMENT OF AGRICULTURAL BIOTECHNOLOGY, AAU, ANAND					
34.	**cDNA Synthesis System** (Approximate Quantity: 4 Nos.) **(Tender Fee: Rs. 1,500.00)**	10 Reaction **Based on:** • Second stand enzyme bland (DNA polymerase, *E.coli* ligase, RNase H) • T4 DNA polymerase **Use**- synthesis of double-stranded cDNA from total RNA or mRNA			**0.10**
35.	**Agar Agar** **(Tender Fee: Rs. 1,500.00)**	**Agar Agar, Plant Tissue Culture Grade with High purity and Plant Culture Tested** Approx. quantity required: 150 Kg Individual Unit Packing Size: 2.5 Kg/5 Kg Brand: Sigma / Himedia / Duchefa / Merck Price should be quoted per Kg. including all taxes and charges FOR AAU, Anand Expiry date should be more than 3 years from purchase Manufacturer's / Authorized dealer's certificate must be enclosed along with tender documents			**0.07**

36.	**High Purity Standards (Chemicals) for LC-MSMS, HPLC etc.** **(Tender Fee: Rs. 1,500.00)**							**0.15**

Sr. No.	Name of Chemical / Standard	Grade	Assay/ Purity (%)	Suitability	Molecular Weight	Pack Size	Qty.
1	Methanol hypergrade for LC-MS	Hypergrade for LC-MS	99.9	LC-Mass spectrometry	32.04	2.5 L	10
2	Acetonitrile hypergrade for LC-MS	Hypergrade for LC-MS	99.9	LC-Mass spectrometry	41.05	2.5 L	10
3	Amino Acid Standard,	Analytical Standard	95-99	LC-Mass spectrometry	NA	5 ML	1
4	Stevioside	Analytical Standard	95-99	HPLC	804.87	10 MG	1
5	Zeaxanthin	Analytical Standard	95-99	HPLC	568.87	1 MG	1
6	Lutein	Analytical Standard	95-99	HPLC	568.87	1MG	1
7	Crocetin dialdehyde	Analytical Standard	95-99	HPLC	296.40	10MG	1
8	Rebaudioside A	Analytical Standard	95-99	HPLC/GC	967.01	10MG	1
9	Rebaudioside B	Analytical Standard	95-99	HPLC/GC	804.87	10 MG	1
10	Rebaudioside C	Analytical Standard	95-99	HPLC/GC	951.01	10 MG	1
11	Rebaudioside D	Analytical Standard	90-99	HPLC/GC	1129.15	10 MG	1
12	Citral	Analytical Standard	95-99	HPLC	152.23	1ML	1
13	(R)-(+)-Limonene	Analytical Standard	95-99	HPLC	136.23	1ML	1
14	(−)-β-Citronellol	Analytical Standard	95-99	HPLC/GC	156.27	1ML	1
15	Myrcene	Analytical Standard	90-99	HPLC/GC	136.23	100MG	1
16	Geraniol	Analytical Standard	95-99	HPLC	154.25	1ML	1
17	Sennoside A	Analytical Standard	95-99	HPLC/GC	862.74	5 MG	1
18	Sennoside B	Analytical Standard	95-99	HPLC/GC	862.74	5 MG	1
19	Sennoside C	Analytical Standard	95-99	HPLC/GC	848.76	5 MG	1
20	Sennoside D	Analytical Standard	95-99	HPLC/GC	848.76	10 MG	1
21	Anthraquinone	Analytical Standard	90-99	HPLC/GC	208.21	1G	1
22	Withanolide A	Analytical Standard	95-99	HPLC/GC	470.60	10MG	1
23	Withanolide B	Analytical Standard	95-99	HPLC/GC	454.60	10MG	1
24	Withaferin A	Analytical Standard	95-99	HPLC/GC	470.60	10MG	1
25	Citronellal	Analytical Standard	95-99	HPLC/GC	154.25	1ML	1
26	Nerol	Analytical Standard	95-99	HPLC/GC	154.25	1ML	1
27	Geranyl acetate	Analytical Standard	95-99	HPLC/GC	196.29	1ML	1
28	Neoandrographolide	Analytical Standard	95-99	HPLC/GC	480.59	5MG	1
29	Andrographolide	Analytical Standard	95-99	HPLC/GC	350.45	5MG	1
30	Curcumin	Analytical Standard	95-99	HPLC	368.38	10MG	1
31	Demethoxycurcumin	Analytical Standard	95-99	HPLC	338.35	10MG	1
32	Bisdemethoxycurcumin	Analytical Standard	95-99	HPLC	308.33	10MG	1
33	(Z)-Guggulsterone	Analytical Standard	95-99	HPLC	312.45	10MG	1
34	Guggulsterone E	Analytical / HPLC Grade	95-99	HPLC	312.45	10MG	1
35	Jatrorrhizine	Analytical / HPLC Grade	95-99	HPLC	338.38	10MG	1
36	Magnoflorine	Analytical / HPLC Grade	95-99	HPLC	342.41	10MG	1
37	Stigmasterol	Analytical / HPLC Grade	95-99	HPLC	412.69	1G	1
38	Berberine Chloride	Analytical / Reference grade	95-99	HPLC	371.81	50MG	1

DEPARTMENT OF ANIMAL BIOTECHNOLOGY, COLLEGE OF VS & AH, AAU, ANAND

37. **Illumina Sequencing Kit / Reagents**

(Tender Fee: Rs. 2,500.00)

1.00

Sr. No.	Cat. No.	Name of Kit / Reagent
1	FC-131-1024	Nextera XT DNA Sample Preparation Kit (24 samples)
2	FC-131-1096	Nextera XT DNA Sample Preparation Kit (96 samples)
3	FC-131-1001	Nextera XT Index Kit (24 indexes, 96 samples)
4	20027213	IDT® for Illumina Nextera DNA UD Indexes Set A (96 Indexes, 96 Samples)
5	FC-131-2001	Nextera XT Index Kit V2 Set A(96 indexes, 384 samples)
6	FC-131-2002	Nextera XT Index Kit V2 Set B(96 indexes, 384 samples)
7	FC-131-2003	Nextera XT Index Kit V2 Set C(96 indexes, 384 samples)
8	FC-131-2004	Nextera XT Index Kit V2 Set D(96 indexes, 384 samples)
9	20027213	IDT® for Illumina Nextera DNA Unique Dual Indexes Set A (96 Indexes, 96 Samples)
10	20027214	IDT® for Illumina Nextera DNA Unique Dual Indexes Set B (96 Indexes, 96 Samples)
11	20027215	IDT® for Illumina Nextera DNA Unique Dual Indexes Set C (96 Indexes, 96 Samples)
12	20027216	IDT® for Illumina Nextera DNA Unique Dual Indexes Set D (96 Indexes, 96 Samples)
13	20024144	Illumina Free Adapter Blocking Reagent (12 reactions)
14	20024145	Illumina Free Adapter Blocking Reagent (48 reactions)
15	20020495	AmpliSeq™ Custom DNA Panel for Illumina®
16	20020497	AmpliSeq™ Custom DNA Large Panel for Illumina®
17	20019101	AmpliSeq™ Library PLUS (24 Reactions) for Illumina®
18	20019102	AmpliSeq™ Library PLUS (96 Reactions) for Illumina®
19	20019103	AmpliSeq™ Library PLUS (384 Reactions) for Illumina®
20	20019104	AmpliSeq™ CD Indexes for Illumina® (24 Indexes, 24 Samples)
21	20019105	AmpliSeq™ CD Indexes Set A for Illumina® (96 Indexes, 96 Samples)
22	20019106	AmpliSeq™ CD Indexes Set B for Illumina® (96 Indexes, 96 Samples)
23	20019107	AmpliSeq™ CD Indexes Set C for Illumina® (96 Indexes, 96 Samples)
24	20019167	AmpliSeq™ CD Indexes Set D for Illumina® (96 Indexes, 96 Samples)
25	20031676	AmpliSeq™ CD Indexes Set A-D for Illumina® (384 Indexes, 384 Samples)
26	20019108	Ampliseq™ CD Indexes Large Volume for Illumina® (96 Indexes, 96 Samples)
27	20022654	Ampliseq™ cDNA Synthesis for Illumina®
28	20019162	AmpliSeq™ for Illumina® Sample ID Panel
29	20023378	AmpliSeq™ for Illumina® Direct FFPE DNA
30	20019171	AmpliSeq™ Library Equalizer for Illumina®
31	20018704	Nextera DNA Flex Library Prep (24 Samples)

32	20018705	Nextera DNA Flex Library Prep (96 Samples)
33	20018707	Nextera™ DNA CD Indexes (24 Indexes, 24 Samples)
34	20018708	Nextera™ DNA CD Indexes (96 Indexes, 96 Samples)
35	20027213	IDT® for Illumina Nextera DNA UD Indexes Set A (96 Indexes, 96 Samples)
36	20027214	IDT® for Illumina Nextera DNA UD Indexes Set B (96 Indexes, 96 Samples)
37	20027215	IDT® for Illumina Nextera DNA UD Indexes Set C (96 Indexes, 96 Samples)
38	20027216	IDT® for Illumina Nextera DNA UD Indexes Set D (96 Indexes, 96 Samples)
39	20018706	Flex Lysis Reagent Kit (96 reactions)
40	20025524	Nextera DNA Flex Pre-Enrichment Library Prep and Enrichment Reagents - 96 samples (8, 12-plex enrichment reactions)
41	20025523	Nextera DNA Flex Pre-Enrichment Library Prep and Enrichment Reagents - 16 samples (16, 1-plex enrichment reactions)
42	20025520	Nextera DNA Flex Pre-Enrichment Library Prep Reagents (96 samples)
43	20025519	Nextera DNA Flex Pre-Enrichment Library Prep Reagents (16 samples)
44	20025371	Illumina Custom Enrichment Panel (8 Enrichment Reactions)
45	20020183	Illumina Exome Panel - Enrichment Oligos only (8 or 12 Enrichment Reactions)
46	WG-321-1001	Infinium FFPE QC Kit (384 reactions)
47	BD-60-601	Infinium MIDI Heatblock Insert
48	FC-140-1007	Nextera Rapid Capture Custom Enrichment Kit (48 samples)
49	FC-140-1008	Nextera Rapid Capture Custom Enrichment Kit (96 samples)
50	FC-140-1009	Nextera Rapid Capture Custom Enrichment Kit (288 samples)
51	FC-132-1001	Nextera Mate Pair Library Prep Kit (12 indexes, 48 gel-free samples or 12 gel-plus samples)
52	20015964	TruSeq Nano DNA Low Throughput Library Prep Kit (24 samples)
53	20015965	TruSeq Nano DNA High Throughput Library Prep Kit (96 samples)
54	20015960	TruSeq DNA Single Indexes Set A (12 Indexes, 24 Samples)
55	20015961	TruSeq DNA Single Indexes Set B (12 Indexes, 24 Samples)
56	20015949	TruSeq DNA CD Indexes (96 Indexes, 96 Samples)
57	20020590	IDT for Illumina – TruSeq DNA UD Indexes (24 Indexes, 96 Samples)
58	20022370	IDT for Illumina – TruSeq DNA UD Indexes (96 Indexes, 96 Samples)
59	20015962	TruSeq DNA PCR-Free Low Throughput Library Prep Kit (24 samples)
60	20015963	TruSeq DNA PCR-Free High Throughput Library Prep Kit (96 samples)
61	20018978	TruSeq Genotype Ne Kit (96 Samples) - Please contact your sales representative for help with ordering

			62	FC-151-1002	TruSeq-Methyl Capture EPIC Library Prep Kit (12 samples, 4 indexes)		
			63	FC-151-1003	TruSeq-Methyl Capture EPIC Library Prep Kit (48 samples, 12 indexes)		
			64	20014279	SureCell™ Whole Transcriptome Analysis 3' Library Prep Kit (2 Cartridges Kit)		
			65	20014280	SureCell™ Whole Transcriptome Analysis 3' Library Prep Kit (6 Cartridges Kit)		
			66	20020189	TruSeq® RNA Library Prep for Enrichment (48 Samples)		
			67	20020490	TruSeq® RNA Enrichment (12 enrichments)		
			68	20020492	TruSeq RNA Single Indexes Set A (12 Indexes, 48 Samples)		
			69	20020493	TruSeq RNA Single Indexes Set B (12 Indexes, 48 Samples)		
			70	RS-122-2001	TruSeq RNA Library Preparation Kit v2, Set A (48 samples, 12 indexes)		
			71	RS-122-2002	TruSeq RNA Library Preparation Kit v2, Set B (48 samples, 12 indexes)		
			72	20020594	TruSeq® Stranded mRNA Library Prep (48 Samples)		
			73	20020595	TruSeq Stranded mRNA Library Prep (96 Samples)		
			74	20020492	TruSeq RNA Single Indexes Set A (12 Indexes, 48 Samples)		
			75	20020493	TruSeq RNA Single Indexes Set B (12 Indexes, 48 Samples)		
			76	20019792	TruSeq RNA CD Index Plate (96 Indexes, 96 Samples)		
			77	20020591	IDT for Illumina – TruSeq RNA UD Indexes (24 Indexes, 96 Samples)		
			78	20022371	IDT for Illumina – TruSeq RNA UD Indexes (96 Indexes, 96 Samples)		
			79	FC-140-1007	Nextera Rapid Capture Custom Enrichment Kit (48 samples)		
			80	FC-140-1008	Nextera Rapid Capture Custom Enrichment Kit (96 samples)		
			81	FC-140-1009	Nextera Rapid Capture Custom Enrichment Kit (288 samples)		
			82	20004795	TruSeq Bovine Parentage Kit (96 indexes, 96 samples)		
			83	RT-101-1001	TruSeq Targeted RNA Custom Panel Kit (48 samples)		
			84	RT-102-1001	TruSeq Targeted RNA Custom Panel Kit (96 samples)		
			85	RT-801-1001	TruSeq Targeted RNA Supplemental Content Kit (48 samples)		
			86	RT-802-1001	TruSeq Targeted RNA Supplemental Content Kit (96 samples)		
			87	RT-401-1001	TruSeq Targeted RNA Index Kit (48 indexes, 48 samples)		
			88	20020612	TruSeq® Stranded Total RNA Library Prep Globin (48 Samples)		
			89	20020613	TruSeq® Stranded Total RNA Library Prep Globin (96 Samples)		
			90	20020610	TruSeq® Stranded Total RNA Library Prep Plant (48 Samples)		
			91	20020611	TruSeq® Stranded Total RNA Library Prep Plant (96 Samples)		

			92	20020596	TruSeq® Stranded Total RNA Library Prep Human/Mouse/Rat (48 Samples)		
			93	20020597	TruSeq® Stranded Total RNA Library Prep Human/Mouse/Rat (96 Samples)		
			94	20020598	TruSeq Stranded Total RNA Library Prep Gold (48 Samples)		
			95	20020599	TruSeq® Stranded Total RNA Library Prep Gold (96 Samples)		
			96	MS-102-3001	MiSeq Reagent Kit v3 (150-cycle)		
			97	MS-102-3003	MiSeq Reagent Kit v3 (600-cycle)		
			98	TG-142-3003	TG MiSeq Reagent Kit v3 (600 cycle)		
			99	MS-102-2001	MiSeq Reagent Kit v2 (50-cycles)		
			100	MS-102-2002	MiSeq Reagent Kit v2 (300-cycles)		
			101	MS-102-2003	MiSeq Reagent Kit v2 (500-cycles)		
			102	MS-102-2021	20-pack MiSeq Reagent Kit v2 (50-cycles)		
			103	MS-102-2022	20-pack MiSeq Reagent Kit v2 (300-cycles)		
			104	MS-102-2023	20-pack MiSeq Reagent Kit v2 (500-cycles)		
			105	MS-103-1002	MiSeq Reagent Micro Kit v2 (300-cycles)		
			106	MS-103-1001	MiSeq Reagent Nano Kit v2 (300-cycles)		
			107	MS-103-1003	MiSeq Reagent Nano Kit v2 (500-cycles)		
			108	TG-142-1001	TG MiSeq Reagent Nano Kit, v2 (300 cycles)		
			109	TG-142-1002	TG MiSeq Reagent Micro Kit v2 (300 cycles)		
			110	TG-142-1003	TG MiSeq Reagent Kit, v2 (300 cycles)		
			111	TG-142-1013	TG MiSeq Reagent Kit v2 (500 cycles)		
			112	TG-142-1022	TG MiSeq® Reagent Kit v2 (300 cycles) - 20 Pack		
			113	TG-142-1001	TG MiSeq Reagent Nano Kit, v2 (300 cycles)		
			114	TG-142-1002	TG MiSeq Reagent Micro Kit v2 (300 cycles)		
			115	FC-110-3001	PhiX Control v3		
			116	TG-110-3001	TG PhiX Control Kit v3		
			117	FC-134-2001	TruSeq Custom Amplicon Low Input Kit (96 samples)		
			118	FC-134-2002	TruSeq Custom Amplicon Low Input Kit (16 samples)		
			119	FC-121-9999	TruSeq FFPE DNA Library Prep QC Kit (24 samples)		
			120	FC-130-1003	TruSeq Custom Amplicon Index Kit (96 indexes, 384 samples)		
			121	FC-130-1001	TruSeq Custom Amplicon kit (96 samples)		
			122	FC-130-1006	TruSeq Custom Amplicon Filter Plate (1 plate)		
			123	FC-130-1007	TruSeq Index Plate Fixture & Collar Kit (2 each)		
			124	IP-202-1012	TruSeq ChIP Library Preparation Kit - Set A (12 indexes, 48 rxns)		
			125	IP-202-1024	TruSeq ChIP Sample Preparation Kit - Set B (12 indexes, 48 rxns)		
			126	20020616	Nextera™ Exome Kit (24 Samples)		
			127	20020617	Nextera™ Exome Kit (96 Samples)		
			128	20020614	TruSeq Exome Kit (24 Samples)		
			129	20020615	TruSeq® Exome Kit (96 Samples)		
			130	20023977	AmpliSeq™ for Illumina® On-Demand Panel (24 Reactions, 1-50 Genes)		
			131	20023983	AmpliSeq™ for Illumina® On-Demand Panel (24 Reactions, 51-300 Genes)		

		132	20023978	AmpliSeq™ for Illumina® On-Demand Panel (24 Reactions, 301-500 Genes)	
		133	20023979	AmpliSeq™ for Illumina® On-Demand Panel (96 Reactions, 1-50 Genes)	
		134	20023980	AmpliSeq™ for Illumina® On-Demand Panel (96 Reactions, 51-300 Genes)	
		135	20023981	AmpliSeq™ for Illumina® On-Demand Panel (96 Reactions, 301-500 Genes)	
		136	RS-200-0012	TruSeq Small RNA Library Prep Kit -Set A (24 rxns) (Set A: indexes 1-12)	
		137	RS-200-0024	TruSeq Small RNA Library Prep Kit -Set B (24 rxns) (Set B: indexes 13-24)	
		138	RS-200-0036	TruSeq Small RNA Library Prep Kit -Set C (24 rxns) (Set C: indexes 25-36)	
		139	RS-200-0048	TruSeq Small RNA Library Prep Kit -Set D (24 rxns) (Set D: indices 37-48)	
		140	20020496	AmpliSeq™ for Illumina® Custom RNA Panel	
38.	**SNP Genotyping Kit** **(Tender Fee: Rs. 1,500.00)**	**SNP based Whole-Genome Genotyping Kit** 1. From minimum 50,000 to 1,00,000 SNPs at a time per sample 2. More than 1,00,000 SNPs at a time per sample ➔ Customizable genotyping panels for GWAS and, candidate gene studies in Bovines. ➔ The vendor should offer dedicated bioinformatics support for custom design of the array. ➔ It is preferred to have a panel / array / plate in 96 well format. ➔ The custom designed array/chip/plate should include *de novo* SNPs and or SNPs from already available chips of bovine database. ➔ Customised design should be available for minimum 96 to 480 samples. ➔ The array / kit/ panel with consistent result, high precision (minimum 99%), less SNP dropout and suitable plotting of our identified SNPs will be preferred. ➔ Automated workflow with assistance in analysing data will be preferred. ➔ Should have Proven INDEL polymorphism calling capability. ➔ Analysis software should do QC checks, generate automated genotype calls for bovine genomes. ➔ It should have flexibility of converting the raw data to other formats in order to use different pipelines for analysis.		**0.50**
DEPARTMENT OF AGRICULTURAL MICROBIOLOGY, BACA, AAU, ANAND **(Tender Fee: Rs. 1,500.00 for items 39 to 41)**					
39.	**HDPE Bottles** **Qty.: 20,000 Nos.**	HDPE bottles with wide mouth 700 mm Dia x 1800 mm ht weight 60 to 65 g capacity – 500 ml			**0.10**
40.	**Carboys 5 Ltr.**	HDPE Carboys Capacity : 5 Litre Required Quantity: 1,000 Nos.			**0.05**
41.	**Carboys 20 Ltr.**	HDPE Carboys Capacity : 20 Litre Required Quantity: 1,000 Nos.			

PART-III: ROOF TOP SOLAR SYSTEM

KRUSHI VIGYAN KENDRA (KVK), AAU, ARNEJ, TA. DHOLKA, DIST. AHMEDABAD

42. **5 KW Solar Rooftop On-Grid Solar system - 2 Qty.**

(Tender Fee: Rs. 1,500.00)

The Detailed technical specifications for 5kw solar rooftop on-grid solar system is as under -

Particulars	Description
Solar Power Plant	5 kW
Solar Panel in Watt	250 to 350 Watt
Solar Panel Qty	As per 5 kw requirement
On-Grid Solar Inverter	5 kW
MC4 Connector	2 Pair
Solar Structure	5 KW
AC Junction Box	1 Nos
DC Junction Box	1 Nos
DC Cable	As per requirement
AC Cable	As per requirement
Space required	500 sq feet
Solar Accessories	Fasteners, Cable Tie, Crimping Tool, Earthing Kit, Lighting Arrestor

Note: all specification must match with GEDA as it declared in rooftop scheme and all the terms and conditions match with GEDA.

Also mention product brand, specifications, warranty of each items.

Quote for 5 kW Solar PV Plant totaling for all the items A to D

The system should comprise of following:

A 5 kw roof top on-grid system having following major components:

A) Solar PV Modules:

Multi/Poly crystalline Si of reputed MNRE approved company, Indian brand with IEC 61215/IS 14286 standards and have TUV certification. 250-300Wp module rating, each module has 29.2 V Pmax Voltage, 7.85 A Pmax Current with 36.5 V open-circuit voltage and 8.35 A short circuit current and should have more than 15 % efficiency. Solar PV modules /panels must have only +ve tolerance to Wp rating and no ± tolerance will be acceptable. SPV Panel should comply salt, mist & corrosion resistance as per IEC 61701, Industry Standard as per IEC 61215 for design & standard, IEC 61730 Part I & II.

Copies of all the relevant IEC Certificates for product offered along with valid test reports be enclosed. It is mandatory for bidder to have valid test report of modules and test certificate of respective solar panel with similar or larger capacity from Govt. approved laboratories.

B) Module Mounting Structure:

Modules shall be mounted on a non-corrosive support structure suitable for site conditions with facility to adjust tilt to maximize annual energy output. Support structure design must have adequate strength and foundation or fixation mounting arrangements shall withstand minimum horizontal wind velocity up to 150 kmph. The structures be made of hot dipped galvanized MS

0.27

		with minimum 80 micron thickness and with SS fittings. It shall support SPV modules at a given orientation, absorb and transfer the mechanical loads to the ground properly. The structures shall be so designed that it will occupy minimum space without sacrificing the output. The legs of the structure, will be fixed and grouted in the PCC/RCC foundation columns made with 1:2:4 cement concrete. The design should allow easy replacement of any module and should be in line with site requirements. **C) Grid Tied Inverter / PCU:** The unit of reputed make (Kaco/ Darfon/ Danfoss or equivalent) should comprise of regulated, high efficiency, pure sine wave, inverter, MPPT solar charge controller, 3-phase & RS 485, IP65. It should have suitable central monitoring system, irradiation/temperature sensor, data logger connected, alarm facility, auto grid charger, intelligent logic control scheme with solar priority. Inverters should comply efficiency measurements & environmental testing as per IEC 61683 & IEC 60068. **D) DC/AC Cable Junction Combine Boxes:** The array junction boxes shall be dust, vermin and water proof and made of FRP. The terminals shall be connected to copper bus bar arrangement of proper sizes. The junction boxes shall have suitable cable entry points fitted with cable glands of appropriate sizes for both incoming and outgoing cables. Suitable markings shall be provided on the bus bar for easy identification and cable ferrules shall be fitted at the cable termination points. The junction boxes shall have suitable arrangement for combine groups of modules into independent charging. Sub-arrays that shall be wired to PCU provide arrangement for disconnection for each group (Isolation), provide a test point for each sub-group for quick fault location. Rating of JB's shall be suitable with adequate safety factor to inter connect solar PV array. DC distribution board shall be provided in between PCU and solar array shall have all MCCB of suitable rating for connection and disconnection of input & output. It shall have all meters for measuring array voltage and current. AC distribution board shall be provided in between PCU & grid interface. ACDB shall have MCCB of suitable rating for connection and disconnection. It shall have output indication lamps, voltmeter, ammeter and energy meter. All the cables shall be conforming to IS 1554/694 Part I of 650 V 1.1 kV grade as per requirement. Only PVC copper UV stabilized cables shall be used. The size of the cables between array interconnections, array to junction boxes, junction boxes to PCU etc shall be so selected to keep the voltage drop and losses to the minimum. Cables should withstand general test & measuring methods for working voltages up to & including 1100V, should comply IEC 60189, IS 694 / IS 1554, IS / IEC 69947. Switchgears, Circuit Breakers / Connectors should comply IS / IEC 60947 part I, II, III, EN 50521. Junction Boxes / Enclosures should meet IP 65 for outdoor and IP 21 for indoor installations as per IEC 62208. Appropriate wind, earthing, and surge protection units should be included. Technical details of all major components offered along with product catalogues to be submitted. Drawing / SLD of the system should to be submitted. The plant should be complete in system design engineering and include all civil activities including of module foundation, cable conduit construction, installation, commissioning of all electrical components, project planning & controlling and all technical support & documentation required for statutory & regulatory approvals like getting NOC / Consent from	

		UGVCL, Approval/ Inspection/ Consent from Chief Electrical Inspector, installation of MGVCL approved Bi-Directional meter and IEC 612215 & IEC 61730 certifications. The bidder should be an approved MNRE Channel Partner for minimum two years with minimum 3B rating and should have experience of supply & installation of grid connected solar PV system of 5 KW and more and have standards likes ISO 9001, 14001 & 1800. The bidder should be in solar business for adequate years with a service station within 100 km distance from Arnej. The bidder should warrant the system for 5 years against any manufacturing defect and offer comprehensive AMC for 3 years. Price quoted should be inclusive of all charges for complete operational system, clearances, testing installation and commissioning charges, AMC system for 3 years, taxes and others.	

PART-IV: PLOYHOUSE, SHADE NET HOUSE, GREEN HOUSE ETC.

KRUSHI VIGYAN KENDRA (KVK), AAU, ARNEJ, TA. DHOLKA, DIST. AHMEDABAD

43. **Naturally Ventilated Polyhouse (NVPH)**

(Tender Fee: Rs. 1,500.00)

0.06

Technical Specification for Naturally Ventilated Poly house (NVPH) having motorized mechanism to cover vent.

Location of unit: Krushi Vigyan Kendra, Anand Agricultural University, Arnej, Ta. Dholka, Dist-Ahmedabad

1. Total height of NVPH – 7 m
2. Height of Gutter – 4.5 m
3. Height of Top Vent - 1 m (or **10% area of covered area whichever is higher**)
4. Bay Size- 8 m x 4 m
5. Corridors – Maximum 2 m all sides for area calculation with aerodynamic shape
6. Area of structure: Approximate- 96 sq.mt 12 m (l) x 8 m (w): N-S gutter direction

Comprehensive rate is to be quoted: _____Rs/Sq.m for following specifications

TUBULAR FRAME COMPONENTS			
Sr. No.	**Part name**	**Specification**	**Description**
1.	Main Column	76 mm OD & 2.0 mm thick (@ 3.75 kg per meter)	7 m length
2.	Small column along gable	76 mm OD & 2.0 mm thick (@ 3.75 kg per meter)	5 m length
3.	Small Column along gutter	76 mm OD & 2.0 mm thick (@ 3.75 kg per meter)	5 m length
4.	Foundation Stub	60 mm OD & 2.0 mm thick (@ 2.85 kg per meter)	1.4 m
5.	Corridor along gable	60 mm OD & 2.0 mm thick (@ 2.85 kg per meter)	As per design requirement
6.	Corridor along gutter	60 mm OD & 2.0 mm thick (@ 2.85 kg per meter)	As per design requirement
7.	Small bottom chord along gable	60 mm OD & 2.0 mm thick (@ 2.85 kg per meter)	4 m
8.	Big Bottom chord	60 mm OD & 2.0 mm thick (@ 2.85 kg per meter)	8 m
9.	End Purlin	48 mm OD & 2.0 mm thick (@ 2.30 kg per meter)	
10.	First top purlin	48 mm OD & 2.0 mm thick (@ 2.30 kg per meter)	Top vent

11.	Second top purlin	48 mm OD & 2.0 mm thick (@ 2.30 kg per meter)	Top vent
12.	4 m gutter purlin	42 mm OD & 2.0 mm thick (@ 2.10 kg per meter)	Support to gutter
13.	6 m gutter purlin	42 mm OD & 2.0 mm thick (@ 2.10 kg per meter)	Last pipe towards slope
14.	Curtain runner	42 mm OD & 2.0 mm thick (@ 2.10 kg per meter)	
15.	Horizontal member	42 mm OD & 2.0 mm thick (@ 2.10 kg per meter)	
16.	Long arc at end	42 mm OD & 2.0 mm thick (@ 2.10 kg per meter)	
17.	Long arc	42 mm OD & 2.0 mm thick (@ 2.10 kg per meter)	
18.	Small arc	42 mm OD & 2.0 mm thick (@ 2.10 kg per meter)	
19.	Knee Bracing and Small Inclined strut	33 mm OD & 2.0 mm thick (@ 1.60 kg per meter)	
20.	Big Inclined strut	33 mm OD & 2.0 mm thick (@ 1.60 kg per meter)	
21.	Top chord runner in last bay	33 mm OD & 2.0 mm thick (@ 1.60 kg per meter)	At both ends
22.	Cross Bracing	33 mm OD & 2.0 mm thick (@ 1.60 kg per meter)	At all top corners
23.	Curtain pipe	27 mm OD & 2.0 mm thick (@ 1.30 kg per meter)	Max length 40 m
24.	Curtain pipe handle	27 mm OD & 2.0 mm thick (@ 1.30 kg per meter)	Curtain pipe handle
25.	Flap Control Pipe	27 mm OD & 2.0 mm thick (@ 1.30 kg per meter)	
26.	Vent Stay	27 mm OD & 2.0 mm thick (@ 1.30 kg per meter)	

FIXTURES AND ACCESSORIES			
Sr. No.	**Part name**	**Specification**	**Description**
1.	Angle Bracket	ISA 40 X 40 X 3	
2.	Full angle Cleat	ISA 40 X 40 X 3	
3.	Half angle Cleat	ISA 40 X 40 X 3	
4.	Flat Patti 25/5mm	25 MM X 5 MM	
5.	Full Clamp	76 ID 40 mm Width & 2.9 mm thick	Galvanized/ Zinc plated
6.	Half Clamp	76 ID 40 mm Width & 2.9 mm thick	Galvanized/Zinc plated
7.	Full Clamp	60 ID 40 mm Width & 2.9 mm thick	Galvanized/Zinc plated
8.	Half Clamp	60 ID 40 mm Width & 2.9 mm thick	Galvanized/Zinc plated
9.	Full Clamp	43 ID 40 mm Width & 2.6 mm thick	Galvanized/Zinc plated
10.	Half Clamp	43 ID 40 mm Width & 2.6 mm thick	Galvanized/Zinc plated
11.	T-Fixtures	33 mm OD & 2.6 mm thick	Galvanized/Zinc plated
12.	L-Fixtures	33 mm OD & 2.6 mm thick	Galvanized/Zinc plated

13.	Curtain Clamp	42 mm Width	Galvanized/Zinc plated
14.	Universal Joint	20 mm sq. bar	--
15.	Stud Cover	21 mm OD & 2.0 mm thick	Galvanized/Zinc plated
16.	Curtain Pipe Insert	21 mm OD & 2.0 mm thick	Galvanized/Zinc plated
17.	Self-Trapping Screw	20 mm length	Galvanized
18.	Bitumen Washer	3 mm thick	--
19.	Spring Insert	2.3 mm dia.	--
20.	Spring Insert (Platting)	2.3 mm dia.	--
21.	M 10 X 125	10 mm dia.	Galvanized
22.	M 10 x 125	10 mm dia.	Galvanized/Zinc plated
23.	M 10 X 100	10 mm dia.	Galvanized/Zinc plated
24.	M 10 X 90	10 mm dia.	Galvanized/Zinc plated
25.	M 10 X 40	10 mm dia.	Galvanized/Zinc plated
26.	M 10 Nuts	10 mm dia.	Galvanized/Zinc plated
27.	M 10 washers	10 mm dia.	Galvanized/Zinc plated
28.	M 8 X 200	8 mm dia.	Galvanized/Zinc plated
29.	M 8 X 90	8 mm dia.	Galvanized/Zinc plated
30.	M 8 X 65	8 mm dia.	Galvanized/Zinc plated
31.	M 8 Nuts	8 mm dia.	Galvanized/Zinc plated
32.	M 8 washers	8 mm dia.	Galvanized/Zinc plated
33.	M 6 X 75	6 mm dia.	Galvanized/Zinc plated
34.	M 6 X 20	6 mm dia.	Galvanized/Zinc plated
35.	M 6 Nuts	6 mm dia.	Galvanized/Zinc plated
36.	M 6 washers	6 mm dia.	Galvanized/Zinc plated
37.	GI Wire 3 mm trellis wire	3 mm dia.	--
38.	GI Wire 4 mm trellis supporting wire	4 mm dia.	--
39.	Pulley with clamp HDPE/ MS	40 mm dia.	Galvanized
40.	Rings stainless steel	20 mm dia.	--

Entry Room (1 door of 1m x 2m Aluminum and poly carbonate mix)		
Sr. No.	**Description**	**Specification**
1.	Entry room size	2 m x 1 m

2.	No of doors	01 (inner door may be of frame stitched with 40 mesh insect net of minimum 50 cm (ISO 16513: 2016) overlapping
3.	Door size	1 m x 2 m; Door of wire gauge angle framed
4.	Frame of door (ISA four sides to cover the gap below the door)	Galvanized
5.	Half part of door (Downside)	Aluminum sheet
6.	Upper half part of door	Poly carbonate sheet 5 mm thick
7.	Flooring	50 mm PCC flooring over 75 mm thick sub base
8.	Foot wash basin	2 feet x 3 feet x 0.5 feet depth near outer door inside entry room and air curtain system (blower)
9.	Tractor entry door	It is a separate structure frame entry with a minimum entry width of 2.7 m and minimum height of 2.7 m with stainless steel hinges. Framed flaps fixed with all drop locked entry. Door frames with required size shall be made openable horizontally/vertically.
10.	Fire extinguisher	Total five numbers of multi-purpose dry chemical A:B:C rated 10 lb fire extinguishers charged with formulated siliconized dry chemical UL rated for fighting paper, wood, fabric, grease, flammable, liquid and electric fire.
11.	Benches	Total twenty five Nos. benches framed with aluminium extrusion and 1x2 rectangle galvanized steel. Bench mesh is 3/4'' X 13 gauge galvanized expanded metal. Bench cross braces made of 1x2 rectangle tubing and spaced 2 ft. apart, bench legs are made of 1x2 rectangle tubing.
12.	Aluminum Ladder (Foldable)	Total five Nos. Aluminum Step Ladder 21/2" Inch Step, Sizes: 10 ft, Load Bearing Capacity: 150 kgs, Outer Width:15", Step To Step Distance : 12", Complete With Rubber Shoes And Side Plugs Etc.

PROFILE AND GUTTER			
Sr. No.	**Part Name**	**Specification**	**Description**
1.	Profile	Aluminum profile OR GI Profile	200 to 220 gr per running meter 300 gr per running meter
2.	Gutter purlin single piece,	1-1.5% slope, max. gutter length 40 m. GP drainage sheet 2 mm (supported on column)	600 mm wide, Supported with funnel and PVC pipes from top to bottom for rain water harvesting with underground connection

3.	Zigzag spring insert	High carbon steel wire for repeated action, 2.3 mm diameter	GI spring over 2 inch strip of new poly film over the main plastic in profile. (25% over lapping)	

Cladding			
Sr. No.	**Description**	**Specification**	
1.	Plastic films for greenhouses- Specifications (IS 15827:2009)	Fixed properties - 200 micron thick, UV stabilized, Thermic, diffused, Anti dust, Anti drip. Optional property - IR Reflective Cooling,	

NETS			
Sr. No.	**Part Name**	**Description**	
1.	40/50 mesh insect net to all four sides of curtains which shall depend on types of pre-valence of insect pests	As per (IS 16513: 2016) 2.5-3 m width (height) minimum 25 % of floor area	
2.	50/60% shade net motorized operated under the beneath of roof	As per (IS 16008; Part 1 & Part 2), 2.5-3 m width (height) minimum 25 % of floor area	

Sr. No.	**Particulars**	**Description**	
1.	Gutter slope	The slope to the gutter side must be between 1.0 to 1.5%. In case of gutter length is more than 40 m and then the slope should be preferable given to both sides to avoid damages/leakages.	
2.	Gable side slope	0 to 1.0 %	
3.	Foundations	Telescopic type. The column size to be 45 cm x 45 cm x 90 cm depth of CC 1:2:4 ratio properly compacted over 10 cm layer of 1:8:16.Two holdfast to be used in perpendicular direction at 20 cm apart in concrete starting from 20 cm from base.	
4.	Bottom apron	UV stabilized woven polythene 160 GSM and a height of 1 m above ground and 50 cm buried below ground (Total width 1.5 m)	
5.	Side wall curtain	Insect net 40/50 mesh fixed and polythene movable fitted to curtain pipe with plastic/GI clamps and supported by GI guard 20/22 mm OD pipes 2.0 mm thick on corridor pipes	

		6.	Orientation	The Playhouse gutters should be preferably installed in North – South direction. All the vents should preferably face to East direction and the last vent of eastern direction to face to West direction.	
		7	Top vent covering mechanism	The top vent (10% of covered area) must have motorized mechanism to operate the ventilation system specifically to cover the top – natural vent when it desires to close the vent- the complete set up with electrification.	
		8	Climate control Fogging system	Overhead fogging system of 28 lph, 4 way fogger (zero drain) hanging type fine fogger nozzle to be fixed in LLDPE pipe of diameter 16 mm and other accessories separately.	
		9	Irrigation system	Drip irrigation system as per requirement. Drip irrigation system is to be covered ¾ area and micro sprinkler should be cover entire area (crop spacing: 0.9 x 0.30m) 16 mm drip line of 0.30 cm x 2 lph, with standard header and filtration manifolds, fertilizer injector (ventury) with suitable pump set size)- The complete set. Furthermore, Inverted modular micro sprinkler is of at least 70-80 lph discharge with proper hanging system in entire area is to be installed. The arrangement of Drip and Micro sprinkler can either be or simultaneous operated. Mini sprinkler provision for Roof washing/cleaning should be provided	
		10	Civil works	Sides Brick wall of size 0.23 m thick with 0.6 m height in all 4 sides of periphery of the unit. 1m wide footpath mad of paver blocks around the periphery of out sides as well inside of the structure for easy walking and inter-culturing operation).	
44.	**Shade Net House** **(Tender Fee: Rs. 1,500.00)**	**Technical Specification for Shade Net House** **Location of unit: Krushi Vigyan Kendra, Anand Agricultural University, Arnej, Ta.Dholka, Dist-Ahmedaba** Area of structure: Approximate - **768 sq.mt** (N-S gutter direction) [(32 m (l) x 24 m (w)			**0.12**

Sr. No.	Particulars	Description / Specifications
1	Product	Gable roof net house – DOME SHAPE
2	Size	768 sq.m (Bay size 4 x 4 m for Gable/parabolic roof and 6 x 4 m / 6 m x 6 m for others)
3	Height	4-4.5 m from floor area. Gable shaped roof, the side height should be in between 3 m - 3.5 m and Centre height 4 m - 4.5 m.

			4	Structural design	The structural design must withstand wind speed of minimum 130 km/hr. and withstand crop load up to 25 kg/m^2 crop load. The structure must have the provision for opening one portion at either side for entries of small tractor/ power tiller for inter-cultural operations. The aerodynamics shape should be preferred to avoid wind load.		
			5	Structure	Complete structure should be made of galvanized steel tubular pipes or equivalent section of light class conforming Indian Standards IS: 1161-1998, the structural member should be joined with fasteners properly.		
			6	Columns	60 mm OD, 2 mm thick		
			7	Trusses, purlins and hockey Member for Truss, Corner & others	48 mm OD, 2 mm thick 42 mm OD, 2 mm thick		
			8	Four & Five way pipe couplers	48 mm OD, 2.0 mm thick		
			9	Aluminum Profile	C type Aluminum profile to fix shade net to the structure by means of self tapping screws. Weight of aluminum profile is 200-220 gm/meter. Self drilling screw should be fixed on profile every 30 cm along the full length of the profile.		
			10	Entrance room & Door	Two entrance room of size 2.5 m x 2.5 m x 2.5 m (L x W x H) made of GI square pipe size 38 mm x 38 mm having minimum wall thickness 2.6 mm or Aluminum profile need to be provided and covered with UV stabilized net. Two hinge lockable doors of size 2.5 m width & 2.5 m height double leaf made in plastic/FRP sheets mounted in suitable strong frame.		
			11	Cladding material	UV stabilized shade net having 50 % shading factors having minimum wt. of 70-80 GSM. The shade net colour should be green and it should be used to cover the top portion of the structure. This top portion should be open and close by the motorized operated facility.		
			12	Stainless Steel net	36 Gage, 0.009 Inch Wire Diameter, 16 x 16 Mesh per Linear Inch, Stainless Steel on all sides on plinth (Sr. No.16) up to a vertical height of 4.0 m above Ground level.		

			13	Insect Proof Net (Cladding material)	40 Mesh (120 GSM) (white colour) UV stabilized Insect proof net on all the five sides made from virgin raw materials up to a vertical height of 4.0 m above Ground level and on the top of the structure. Roll up rod with worm gear on two opposite sides (East and West sides of the structure) within the top 1.2 m for opening and closing of shade net. All four sides of curtains should be motorized operated		
			14	Fixing of cladding materials	All ends/joints of net house to be fixed with two-way aluminum profile with suitable locking arrangement such as zigzag high carbon steel with spring action wire of 2-3 mm diameter. Wooden batons or PVC grippers must not be used.		
			15	Civil work	Depth of foundation need be kept at 60 cm or more depending upon soil type and prevailing wind conditions. GI pipes of 48 mm light class conforming to Indian Standards IS: 1161-1998 or equivalent sections should be grouted in cement concrete mixture with 1:2:4 ratios.		
			16	Plinth	2 feet height plinth with 9 inches of thickness protection around the structure on which casing the shade net house.		
			17	Drip irrigation System with fogging & misting facility	Drip irrigation system inside greenhouse need to be selected based on crop spacing along with fogging and misting Facilities. The system must have Sand Filter, Screen Filter, Control Valves, Bypass Assembly, Air Release Valve, Non Return Valve, Throttle Valve, Flush Valve, Venturi Injector with manifold, PVC pipes, LDPE plane lateral, Emitting pipe, foggers & misters to be fixed w.r.t design. Water tank and fittings & accessories (applicable only BIS standards for all irrigation components as well as water tank).		
					Note: Fogging System: suitable as per the crop, in consist of four way anti leak fogger 10-28 lph flow rate (working pressure should be mentioned at which it be able to get required particle size, fogger spacing along the lateral and lateral spacing) and particle size 80-100 micron, 16 mm lateral class-3, PVC pipe 6kg/cm^2, valves, filter, pump, panel with volt meter, MCB, relay, temp and humidity sensors etc. complete application rate 3 mm/hr.		

		18	Footpath	1m wide and 10 cm thick footpaths made of cement concrete ratio of 1:2:4 should be provided with drainage facility inside the net house.	
		19	Testing	All plastic materials used in the greenhouse to be tested by the CIPET or any other testing Institute for quality assurance (if required).	
		20	Tractor entry door	It is a separate structure frame entry with a minimum entry width of 2.7 m and minimum height of 2.7 m with stainless steel hinges. Framed flaps fixed with all drop locked entry. Door frames with required size shall be made openable horizontally/vertically.	
		21	Fire extinguisher	Total five numbers of multi-purpose dry chemical A:B:C rated 10 lb fire extinguishers charged with formulated siliconized dry chemical UL rated for fighting paper, wood, fabric, grease, flammable, liquid and electric fire.	
		22	Benches	Total twenty five Nos. benches framed with aluminium extrusion and 1x2 rectangle galvanized steel. Bench mesh is 3/4'' X 13 gauge galvanized expanded metal. Bench cross braces made of 1x2 rectangle tubing and spaced 2 ft. apart, bench legs are made of 1x2 rectangle tubing.	
		23	Aluminum Ladder (Foldable)	Total five Nos. Aluminum Step Ladder 21/2" Inch Step, Sizes: 10 ft, Load Bearing Capacity: 150 kgs, Outer Width:15", Step to Step Distance: 12", Complete With Rubber Shoes And Side Plugs Etc.	

MAIN VEGETABLE RESEARCH STATION (MVRS), AAU, ANAND

45. **Fan and Pad Green House**

(Tender Fee: Rs. 1,500.00)

Technical Specification for Fan & Pad Green House
Location of unit: Main Vegetable Research Station Farm, AAU, Anand, Dist: Anand

1. Total height of structure – 6.0 m from the formation level
2. Height of Gutter – 4.50 m
3. Bay Size- 8 m x 4 m
4. Area/size of structure – Apprx. 1150 Sq.m area (preferable dimension 48 m (l) x 24 m (w) direction of gutter (N-S)

Comprehensive rate is to be quoted: _____Rs/Sq.m for following specifications

0.51

TUBULAR FRAME COMPONENTS			
Sr. No.	**Part name**	**Specification**	**Description**
1.	Main Column	76 mm OD & 2.0 mm thick (@ 3.75 kg per meter)	6m length
2.	Small column	76 mm OD & 2.0 mm thick (@ 3.75 kg per meter)	5m length
3.	Foundation pipe	60 mm OD & 2.0 mm thick (@ 2.85 kg per meter)	1.4 m
4.	Short bottom chord along gable	60 mm OD & 2.0 mm thick (@ 2.85 kg per meter)	4 m
5.	Long Bottom chord	60 mm OD & 2.0 mm thick (@ 2.85 kg per meter)	8 m

		6.	Horizontal member	43 mm OD & 2.0 mm thick (@ 2.25 kg per meter)		
		7.	Long arc at end	43 mm OD & 2.0 mm thick (@ 2.25 kg per meter)		
		8.	Gutter purlin	43 mm OD & 2.0 mm thick (@ 2.25 kg per meter)	Support to gutter	
		9.	6 m gutter purlin	43 mm OD & 2.0 mm thick (@ 2.54 kg per meter)		
		10.	Side purlin	43 mm OD & 2.0 mm thick (@ 2.25 kg per meter)		
		11.	Knee Bracing and Small Inclined strut	33 mm OD & 2.0 mm thick (@ 1.60 kg per meter)		
		12.	Big Inclined strut	33 mm OD & 2.0 mm thick (@ 1.98 kg per meter)		
		13.	Cross Bracing	33 mm OD & 2.0 mm thick (@ 1.60 kg per meter)	At all top corners	
		14.	Curtain pipe	33 mm OD & 2.0 mm thick (@ 1.60 kg per meter)	Max length 48 m	
		15.	Curtain pipe handle	33 mm OD & 2.0 mm thick (@ 1.60 kg per meter)		
		16.	Door and its Support	33 mm OD & 2.0 mm thick (@ 1.60 kg per meter)		
		17.	Gutter Purlin single piece	GP sheet 2.0 mm thick/ LDPE 1.4-2mm sheet 600 mm wide	Supported with funnel and PVC pipes from top to bottom for rain water harvesting with underground connection	
		18.	Profile	200 – 220 gm Aluminum/ 300 gm GI per run meter	For fixing cladding	
		19.	Cellulose Pad	Cross fluted Cellulose cooling pads of 5-6 feet height, with 152 mm (6 inch) thickness covering the area properly, PVC uniform water disturbing system with anodized aluminum frame with fittings with the water pumping system 120-150 lpm minimum	As per requirement and should be mounted/placed on the longer side of the structure	
		20.	Pump with accessories (ISI) marked	3 hp single phase with a minimum discharge 120-150 lpm to distribute water uniformly over pad with 3 layer white plastic tank of 2000 lit	For wetting of all cellulose pads of the structure	
		21.	Co-axial fan/ fan pad system (IS marked)	Sufficient cooling pads- **48" <u>FAN</u>** with louvers, **1.0 HP-single phase** ISI standard electric motor containing 6SS blades mounted in aluminum frame having air blowing capacity of 10600cfm(300cmm), followed by aluminum / plastic louvers	As per requirement and should be mounted/placed on the longer side of the structure	

		22.	Digital controller with sensory devices	Sensory devices and accessories to operate fan & pad system for control temperature and humidity inside the structure	1 No.	
		23.	Electrifications	Photo synthetically Active Radiation Lamp with Photo simulators, Metal Halide (MH) high intensity discharge lamps to meet the requirements. Electric fitting: Complete electrical wiring in structure with copper wire (standardized cable with ISI mark to be used for HAF), MCB, Main switch, light/power points for general purpose requirement where it is necessary.	As per requirement	
		24.	Plastic water tank & RWH mechanism	5000 liter 3 layer white plastic tank with fittings	2 No.	
		25.	Irrigation System	Drip irrigation system as per requirement. Drip irrigation system is to be covered ¾ area and inverted micro sprinkler should be cover entire area (crop spacing: 0.9 x 0.30m) 16 mm drip line of 0.30 cm x 2 lph, with standard header and filtration manifolds, fertilizer injector (ventury) with suitable pump set size)- The complete set. Furthermore, Inverted modular micro sprinkler is of at least 70-80 lph discharge with proper hanging system in entire area is to be installed. The arrangement of Drip and Micro sprinkler can either be or simultaneous operated. Mini sprinkler provision for Roof washing/cleaning should be provided		
		26.	Side walls	Brick wall of size 0.3 meter thick with 1.0 meter height for cooling pad and Exhaust fan with both side plaster Brick wall of size 0.23 meter thick, 0.60 meter height for periphery in rest all three sides.		
		27.	Stands for Tray	As per requirement to cover the maximum area. To be covered ¼ area.		
		28.	Civil work	Civil work under the stands path as per requirement for piling and foundation Structure is to be erected on		

		CC pilling. 1m wide footpath mad of paver blocks around the periphery of all out sides as well inside of the structure.	
29	Climate control Fogging system	Overhead fogging system sufficient for 1250 sq.m of area with 2 HP mono block electric pump and online water filter, 2000 ltr unbreakable 3 layer white Plastic water tank, hanging type fine fogger nozzle to be fixed in LLDPE pipe of diameter 16 mm and other accessories. Auto control sensory mechanism specific for overhead humidity generation fogging system, controller to avoid the water logging condition in the unit.	28 lph 4 way fogger (zero drain) Hydro-Pneumatic fogging system for Pesticide spray with air compressor.
30	Fire extinguisher	Multi-purpose dry chemical A:B:C rated 10 lb fire extinguisher charged with formulated siliconized dry chemical UL rated for fighting paper, wood, fabric , grease, flammable, liquid and electric fire.	5 Nos.
31	Benches	Benches framed with aluminium extrusion and 1x2 rectangle galvanized steel. Bench mesh is 3/4'' X 13 gauge galvanized expanded metal. Bench cross braces made of 1x2 rectangle tubing and spaced 2 ft. apart, bench legs are made of 1x2 rectangle tubing.	25 portable benches having size of 9'6" x 6' x 2'6'' (LxWxH)
32	Aluminum Ladder (Foldable)	Aluminum Step Ladder 21/2" Inch Step, Sizes: 10 ft, Load Bearing Capacity: 150 kgs, Outer Width:15", Step To Step Distance : 12", Complete With Rubber Shoes And Side Plugs Etc.	Requirement: 5 Nos.

FIXTURES AND ACCESSORIES			
Sr. No.	**Part name**	**Specification**	**Description**
1.	Angle Bracket	ISA 40 X 40 X 3	
2.	Full angle Cleat	ISA 40 X 40 X 3	
3.	Half angle Cleat	ISA 40 X 40 X 3	
4.	Flat Patti 25/5mm	25 MM X 5 MM	
5.	Full Clamp	76 ID 40 mm Width & 2.9 mm thick	Galvanized/ Zinc plated
6.	Half Clamp	76 ID 40 mm Width & 2.9 mm thick	Galvanized/ Zinc plated
7.	Full Clamp	60 ID 40 mm Width & 2.9 mm thick	Galvanized/ Zinc plated
8.	Half Clamp	60 ID 40 mm Width & 2.9 mm thick	Galvanized/ Zinc plated

9.	Full Clamp	43 ID 40 mm Width & 2.6 mm thick	Galvanized/ Zinc plated
10.	Half Clamp	43 ID 40 mm Width & 2.6 mm thick	Galvanized/ Zinc plated
11.	T-Fixtures	33 mm OD & 2.6 mm thick	Galvanized/ Zinc plated
12.	L-Fixtures	33 mm OD & 2.6 mm thick	Galvanized/ Zinc plated
13.	Curtain Clamp	42 mm Width	Galvanized/ Zinc plated
14.	Universal Joint	20 mm sq. bar	
15.	Stud Cover	21 mm OD & 2.0 mm thick	Galvanized/ Zinc plated
16.	Curtain Pipe Insert	21 mm OD & 2.0 mm thick	Galvanized/ Zinc plated
17.	Self-Trapping Screw	20 mm length	Galvanized
18.	Bitumen Washer	3 mm thick	
19.	Spring Insert	2.3 mm dia.	
20.	Spring Insert (Platting)	2.3 mm dia.	
21.	M 10 X 125	10 mm dia.	Galvanized
22.	M 10 x 125	10 mm dia.	Galvanized/ Zinc plated
23.	M 10 X 100	10 mm dia.	Galvanized/ Zinc plated
24.	M 10 X 90	10 mm dia.	Galvanized/ Zinc plated
25.	M 10 X 40	10 mm dia.	Galvanized/ Zinc plated
26.	M 10 Nuts	10 mm dia.	Galvanized/ Zinc plated
27.	M 10 washers	10 mm dia.	Galvanized/ Zinc plated
28.	M 8 X 200	8 mm dia.	Galvanized/ Zinc plated
29.	M 8 X 90	8 mm dia.	Galvanized/ Zinc plated
30.	M 8 X 65	8 mm dia.	Galvanized/ Zinc plated
31.	M 8 Nuts	8 mm dia.	Galvanized/ Zinc plated
32.	M 8 washers	8 mm dia.	Galvanized/ Zinc plated
33.	M 6 X 75	6 mm dia.	Galvanized/ Zinc plated
34.	M 6 X 20	6 mm dia.	Galvanized/ Zinc plated
35.	M 6 Nuts	6 mm dia.	Galvanized/ Zinc plated
36.	M 6 washers	6 mm dia.	Galvanized/ Zinc plated
37.	GI Wire 3 mm trellis wire	3 mm dia.	Galvanized/ Zinc plated
38.	GI Wire 4 mm trellis supporting wire	4 mm dia.	Galvanized/ Zinc plated
39.	Pulley with clamp HDPE/ MS	40 mm dia.	Galvanized
40.	Rings stainless steel	20 mm dia.	

Entry Room (2 doors of 1.2m x 2m Aluminum and poly carbonate mix)		
Sr. No.	**Description**	**Specification**
1.	Entry room size	4 m x 3 m
2.	No of doors	02 (inner door may be of frame stitched with 40 mesh insect net of minimum 50 cm (IS 16513:2016) overlapping
3.	Door size	1.2 m x 2 m; Door of wire gauge angle framed
4.	Frame of door (ISA four sides to cover the gap below the door)	Galvanized
5.	Half part of door (Downside)	Aluminum sheet
6.	Upper half part of door	Poly carbonate sheet 5 mm thick
7.	Flooring	50 mm PCC flooring over 75 mm thick sub base
8.	Foot wash basin	2 feet x 3 feet x 0.5 feet depth near outer door inside entry room and air curtain system (blower)
9.	Tractor entry door	It is a separate structure frame entry with a minimum entry width of 2.7 m and minimum height of 2.7 m with stainless steel hinges. Framed flaps fixed with all drop locked entry. Door frames with required size shall be made openable horizontally / vertically.

PROFILE AND GUTTER			
Sr. No.	**Part Name**	**Specification**	**Description**
1.	Profile	Aluminum profile Or GI Profile	200 to 220 gr per running m 300 gr per running m
2.	Gutter, 1-1.5% slope, max. gutter length 40 m.	GP drainage sheet 2 mm (supported on column)	600 mm wide
3.	Zigzag spring insert	High carbon steel wire for repeated action, 2.3 mm diameter	GI spring over 2 inch strip of new poly film over the main plastic in profile. (25% over lapping)

Cladding		
Sr. No.	**Description**	**Specification**
1.	Plastic films for greenhouses- Specifications (IS 15827:2009)	Fixed properties - 200 micron thick, UV stabilized, Thermic, diffused, Anti dust, Anti drip. Optional property - IR Reflective Cooling

NETS		
Sr. No.	**Part Name**	**Description**
1.	40/50 mesh insect net to all four sides of curtains which shall depend on types of pre-valence of insect pests –motorized operated	As per (IS 16513: 2016) 2.5-3 m width (height) minimum 25 % of floor area

2.	50/60% shade net motorized operated under the beneath of roof	As per (IS 16008; 2.5-3 m width (height) minimum 25 % of floor area
3.	Provision for partitioning	Structure with motorized operated facility for partitioning in three equal sections with net curtain/ shade material

Sr. No.	Particulars	Description
1.	Gutter slope	The slope to the gutter side must be between 1.0 to 1.5%. If the gutter length is more than 40 m, then the slope should be preferable given to both sides to avoid damages/leakages.
2.	Gable side slope	0 to 1.0 %
3.	Foundations	Telescopic type. The column size to be 45 cm x 45 cm x 90 cm depth of CC 1:2:4 ratio properly compacted over 10 cm layer of 1:8:16.Two holdfast to be used in perpendicular direction at 20 cm apart in concrete starting from 20 cm from base.
4.	Bottom apron	UV stabilized woven polythene 160 GSM and a height of 1 m above ground and 50 cm buried below ground (Total width 1.5 m)
5.	Side wall curtain	Insect net 40/50 mesh fixed and polythene movable fitted to curtain pipe with plastic/GI clamps and supported by GI guard 20/22 mm OD pipes 2.0 mm thick on corridor pipes With motorized curtain operating system
6.	Orientation	The Poly-House gutters should be preferably installed in North – South direction. All the vents should preferably face to East direction and the last vent of eastern direction to face to West direction.

Sr. No.	Particulars	Description
1	Industrial Water filtration system	The complete set of Industrial water filtration-Reverse osmosis system having filtration capacity of minimum 1000 LPH with 2 year warranty for complete performance along with **2 nos** of 5000 ltr unbreakable 3 layer white Plastic water tank (1 tank is to be used as feeding tank and 1 tank is to be used as storage tank of filtered water) -complete set up with installation and commissioning. System must have configuration of different level of TDS in output water (filtered water)
2	Trellising system	Trellising wires of 2 mm gear wire or 3 mm diameter high carbon steel to be used at 3 m height from ground level parallel to beds and number of wires will be 8 for 8 m span. The trellis support wires to the trellising wires should be of 4 mm or 3 mm gear wire rope and to be fitted at 4 m distance. The trellising wires should be connected to a Base wire connected to both ends to the periphery columns. The diameter of such wires should be 8 / 10 mm. These wires should be fitted to anchor (hole pass bolt) buried in ground at each end. The diameter of such anchor should be minimum 12 mm and it should be buried in ground at least 90 cm in ground with 1:2:4 concrete. (A pit of 45 cm x 45 cm x 90 cm to be used for foundation and the anchor should be buried with holdfast.

46.	**Naturally Ventilated Polyhouse (NVPH)** **(Tender Fee: Rs. 1,500.00)**	**Technical Specification for Naturally Ventilated Polyhouse (NVPH) having motorized mechanism to cover vent.** **Location of unit: Main Vegetable Research Station Farm, AAU, Anand, Dist: Anand** 1. Total height of NVPH – 7 m 2. Height of Gutter – 4.5 m 3. Height of Top Vent – 1 m (or **10% area of covered area whichever is higher**) 4. Bay Size- 8 m x 4 m 5. Corridors – Maximum 2 m all sides for area calculation with aerodynamic shape 6. Area of structure: Approximate- 1150 sq.mt 48 m (l) x 24 m (w): N-S gutter direction **Comprehensive rate is to be quoted: _____Rs./Sq.m for following specifications.**	**0.31**

TUBULAR FRAME COMPONENTS			
Sr. No.	**Part name**	**Specification**	**Description**
1	Main Column	76 mm OD & 2.0 mm thick (@ 3.75 kg per meter)	7 m length
2	Small column along gable	76 mm OD & 2.0 mm thick (@ 3.75 kg per meter)	5 m length
3	Small Column along gutter	76 mm OD & 2.0 mm thick (@ 3.75 kg per meter)	5 m length
4	Foundation Stub	60 mm OD & 2.0 mm thick (@ 2.85 kg per meter)	1.4 m
5	Corridor along gable	60 mm OD & 2.0 mm thick (@ 2.85 kg per meter)	As per design requirement
6	Corridor along gutter	60 mm OD & 2.0 mm thick (@ 2.85 kg per meter)	As per design requirement
7	Small bottom chord along gable	60 mm OD & 2.0 mm thick (@ 2.85 kg per meter)	4 m
8	Big Bottom chord	60 mm OD & 2.0 mm thick (@ 2.85 kg per meter)	8 m
9	End Purlin	48 mm OD & 2.0 mm thick (@ 2.30 kg per meter)	
10	First top purlin	48 mm OD & 2.0 mm thick (@ 2.30 kg per meter)	Top vent
11	Second top purlin	48 mm OD & 2.0 mm thick (@ 2.30 kg per meter)	Top vent
12	4 m gutter purlin	42 mm OD & 2.0 mm thick (@ 2.10 kg per meter)	Support to gutter
13	6 m gutter purlin	42 mm OD & 2.0 mm thick (@ 2.10 kg per meter)	Last pipe towards slope
14	Curtain runner	42 mm OD & 2.0 mm thick (@ 2.10 kg per meter)	
15	Horizontal member	42 mm OD & 2.0 mm thick (@ 2.10 kg per meter)	
16	Long arc at end	42 mm OD & 2.0 mm thick (@ 2.10 kg per meter)	
17	Long arc	42 mm OD & 2.0 mm thick (@ 2.10 kg per meter)	
18	Small arc	42 mm OD & 2.0 mm thick (@ 2.10 kg per meter)	

19	Knee Bracing and Small Inclined strut	33 mm OD & 2.0 mm thick (@ 1.60 kg per meter)	
20	Big Inclined strut	33 mm OD & 2.0 mm thick (@ 1.60 kg per meter)	
21	Top chord runner in last bay	33 mm OD & 2.0 mm thick (@ 1.60 kg per meter)	At both ends
22	Cross Bracing	33 mm OD & 2.0 mm thick (@ 1.60 kg per meter)	At all top corners
23	Curtain pipe	27 mm OD & 2.0 mm thick (@ 1.30 kg per meter)	Max length 40 m
24	Curtain pipe handle	27 mm OD & 2.0 mm thick (@ 1.30 kg per meter)	Curtain pipe handle
25	Flap Control Pipe	27 mm OD & 2.0 mm thick (@ 1.30 kg per meter)	
26	Vent Stay	27 mm OD & 2.0 mm thick (@ 1.30 kg per meter)	

FIXTURES AND ACCESSORIES			
Sr. No.	**Part name**	**Specification**	**Description**
1.	Angle Bracket	ISA 40 X 40 X 3	
2.	Full angle Cleat	ISA 40 X 40 X 3	
3.	Half angle Cleat	ISA 40 X 40 X 3	
4.	Flat Patti 25/5mm	25 MM X 5 MM	
5.	Full Clamp	76 ID 40 mm Width & 2.9 mm thick	Galvanized/ Zinc plated
6.	Half Clamp	76 ID 40 mm Width & 2.9 mm thick	Galvanized/ Zinc plated
7.	Full Clamp	60 ID 40 mm Width & 2.9 mm thick	Galvanized/ Zinc plated
8.	Half Clamp	60 ID 40 mm Width & 2.9 mm thick	Galvanized/ Zinc plated
9.	Full Clamp	43 ID 40 mm Width & 2.6 mm thick	Galvanized/ Zinc plated
10.	Half Clamp	43 ID 40 mm Width & 2.6 mm thick	Galvanized/ Zinc plated
11.	T-Fixtures	33 mm OD & 2.6 mm thick	Galvanized/ Zinc plated
12.	L-Fixtures	33 mm OD & 2.6 mm thick	Galvanized/ Zinc plated
13.	Curtain Clamp	42 mm Width	Galvanized/ Zinc plated
14.	Universal Joint	20 mm sq. bar	--
15.	Stud Cover	21 mm OD & 2.0 mm thick	Galvanized/ Zinc plated
16.	Curtain Pipe Insert	21 mm OD & 2.0 mm thick	Galvanized/ Zinc plated
17.	Self-Trapping Screw	20 mm length	Galvanized/ Zinc plated
18.	Bitumen Washer	3 mm thick	--
19.	Spring Insert	2.3 mm dia.	--

20.	Spring Insert (Platting)	2.3 mm dia.	--
21.	M 10 X 125	10 mm dia.	Galvanized
22.	M 10 x 125	10 mm dia.	Galvanized/ Zinc plated
23.	M 10 X 100	10 mm dia.	Galvanized/ Zinc plated
24.	M 10 X 90	10 mm dia.	Galvanized/ Zinc plated
25.	M 10 X 40	10 mm dia.	Galvanized/ Zinc plated
26.	M 10 Nuts	10 mm dia.	Galvanized/ Zinc plated
27.	M 10 washers	10 mm dia.	Galvanized/ Zinc plated
28.	M 8 X 200	8 mm dia.	Galvanized/ Zinc plated
29.	M 8 X 90	8 mm dia.	Galvanized/ Zinc plated
30.	M 8 X 65	8 mm dia.	Galvanized/ Zinc plated
31.	M 8 Nuts	8 mm dia.	Galvanized/ Zinc plated
32.	M 8 washers	8 mm dia.	Galvanized/ Zinc plated
33.	M 6 X 75	6 mm dia.	Galvanized/ Zinc plated
34.	M 6 X 20	6 mm dia.	Galvanized/ Zinc plated
35.	M 6 Nuts	6 mm dia.	Galvanized/ Zinc plated
36.	M 6 washers	6 mm dia.	Galvanized/ Zinc plated
37.	GI Wire 3 mm trellis wire	3 mm dia.	--
38.	GI Wire 4 mm trellis supporting wire	4 mm dia.	--
39.	Pulley with clamp HDPE/ MS	40 mm dia.	Galvanized
40.	Rings stainless steel	20 mm dia.	--

Entry Room
(2 door of 1.2m x 2m Aluminum and poly carbonate mix)

Sr. No.	Description	Specification
1.	Entry room size	4 m x 3 m
2.	No of doors	02 (inner door may be of frame stitched with 40 mesh insect net of minimum 50 cm (IS 16513:2016) overlapping
3.	Door size	1.2 m x 2 m; Door of wire gauge angle framed
4.	Frame of door (ISA four sides to cover the gap below the door)	Galvanized
5.	Half part of door (Downside)	Aluminum sheet
6.	Upper half part of door	Poly carbonate sheet 5 mm thick
7.	Flooring	50 mm PCC flooring over 75 mm thick sub base

		8.	Foot wash basin	2 feet x 3 feet x 0.5 feet depth near outer door inside entry room and air curtain system (blower)
		9.	Tractor entry door	It is a separate structure frame entry with a minimum entry width of 2.7 m and minimum height of 2.7 m with stainless steel hinges. Framed flaps fixed with all drop locked entry. Door frames with required size shall be made openable horizontally/vertically.
		10.	Fire extinguisher	Total five numbers of multi-purpose dry chemical A:B:C rated 10 lb fire extinguishers charged with formulated siliconized dry chemical UL rated for fighting paper, wood, fabric, grease, flammable, liquid and electric fire.
		11.	Benches	Total twenty five Nos. benches framed with aluminium extrusion and 1x2 rectangle galvanized steel. Bench mesh is ¾'' X 13 gauge galvanized expanded metal. Bench cross braces made of 1x2 rectangle tubing and spaced 2 ft. apart, bench legs are made of 1x2 rectangle tubing.
		12.	Aluminum Ladder (Foldable)	Total five Nos. Aluminum Step Ladder 21/2" Inch Step, Sizes: 10 ft, Load Bearing Capacity: 150 kgs, Outer Width:15", Step To Step Distance : 12", Complete With Rubber Shoes And Side Plugs Etc.
		13.	Trellising system	Trellising wires of 2 mm gear wire or 3 mm diameter high carbon steel to be used at 3 m height from ground level parallel to beds and number of wires will be 8 for 8 m span. The trellis support wires to the trellising wires should be of 4 mm or 3 mm gear wire rope and to be fitted at 4 m distance. The trellising wires should be connected to a Base wire connected to both ends to the periphery columns. The diameter of such wires should be 8/10 mm. These wires should be fitted to anchor (hole pass bolt) buried in ground at each end. The diameter of such anchor should be minimum 12 mm and it should be buried in ground at least 90 cm in ground with 1:2:4 concrete. (A pit of 45 cm x 45 cm x 90 cm to be used for foundation and the anchor should be buried with holdfast.
		14	Electrifications	Photo synthetically Active Radiation Lamp with Photo simulators, Metal Halide (MH) high intensity discharge lamps to meet the requirements. Electric fitting: Complete electrical wiring in structure with copper wire (standardized cable with ISI mark to be used for HAF), MCB, Main switch, light/power points for general purpose requirement where it is necessary

PROFILE AND GUTTER			
Sr. No.	**Part Name**	**Specification**	**Description**
1.	Profile	Aluminum profile OR GI Profile	200 to 220 gr per running meter 300 gr per running meter
2.	Gutter purlin single piece,	1-1.5% slope, max. gutter length 40 m. GP drainage sheet 2 mm (supported on column)	600 mm wide, Supported with funnel and PVC pipes from top to bottom for rain water harvesting with underground connection
3.	Zigzag spring insert	High carbon steel wire for repeated action, 2.3 mm diameter	GI spring over 2 inch strip of new poly film over the main plastic in profile. (25% over lapping)

Cladding		
Sr. No.	**Description**	**Specification**
1.	Plastic films for greenhouses-Specifications (IS 15827:2009)	Fixed properties – 200 micron thick, UV stabilized, Thermic, diffused, Anti dust, Anti drip. Optional property – IR Reflective Cooling,

NETS		
Sr. No.	**Part Name**	**Description**
1.	40/50 mesh insect net to all four sides of curtains which shall depend on types of pre-valence of insect pests	As per (IS 16513: 2016) 2.5-3 m width (height) minimum 25 % of floor area
2.	50/60% shade net motorized operated under the beneath of roof	As per (IS 16008; Part 1 & Part 2), 2.5-3 m width (height) minimum 25 % of floor area

Sr. No.	**Particulars**	**Description**
1.	Gutter slope	The slope to the gutter side must be between 1.0 to 1.5%. In case of gutter length is more than 40 m and then the slope should be preferable given to both sides to avoid damages/leakages.
2.	Gable side slope	0 to 1.0 %
3.	Foundations	Telescopic type. The column size to be 45 cm x 45 cm x 90 cm depth of CC 1:2:4 ratio properly compacted over 10 cm layer of 1:8:16.Two holdfast to be used in perpendicular direction at 20 cm apart in concrete starting from 20 cm from base.
4.	Bottom apron	UV stabilized woven polythene 160 GSM and a height of 1 m above ground and 50 cm buried below ground (Total width 1.5 m)

		5.	Side wall curtain	Insect net 40/50 mesh fixed and polythene movable fitted to curtain pipe with plastic/GI clamps and supported by GI guard 20/22 mm OD pipes 2.0 mm thick on corridor pipes	
		6.	Orientation	The Playhouse gutters should be preferably installed in North – South direction. All the vents should preferably face to East direction and the last vent of eastern direction to face to West direction.	
		7	Top vent covering mechanism	The top vent (10% of covered area) must have motorized mechanism to operate the ventilation system specifically to cover the top – natural vent when it desires to close the vent- the complete set up with electrification.	
		8	Climate control Fogging system	Overhead fogging system of 28 lph, 4 way fogger (zero drain) hanging type fine fogger nozzle to be fixed in LLDPE pipe of diameter 16 mm and other accessories separately.	
		9	Irrigation system	Drip irrigation system as per requirement. Drip irrigation system is to be covered ¾ area and micro sprinkler should be cover entire area (crop spacing: 0.9 x 0.30m) 16 mm drip line of 0.30 cm x 2 lph, with standard header and filtration manifolds, fertilizer injector (ventury) with suitable pump set size)- The complete set. Furthermore, Inverted modular micro sprinkler is of at least 70-80 lph discharge with proper hanging system in entire area is to be installed. The arrangement of Drip and Micro sprinkler can either be or simultaneous operated. Mini sprinkler provision for Roof washing/cleaning should be provided	
		10	Civil works	Sides Brick wall of size 0.23 m thick with 0.6 m height in all 4 sides of periphery of the unit. 1m wide footpath mad of paver blocks around the periphery of out sides as well inside of the structure for easy walking and inter-culturing operation).	
47.	**Shade Net House** **(Tender Fee: Rs. 5,000.00)**	**Technical Specification for Shade Net House** **Location of unit: Main Vegetable Research Station Farm, AAU, Anand, Dist: Anand** Area of structure: Approximate - **8000 sq.mt** (N-S gutter direction) [(100 m (l) x 80 m (w)]			**1.95**
		Sr. No.	**Particulars**	**Description / Specifications**	
		1	Product	Gable roof net house – DOME SHAPE	
		2	Size	8000 sq.m (Bay size 4 x 4 m for Gable/parabolic roof and 6 x 4 m / 6 m x 6 m for others)	
		3	Height	4-4.5 m from floor area. Gable shaped roof, the side height should be in between 3 m - 3.5 m and Centre height 4 m - 4.5 m.	

			4	Structural design	The structural design must withstand wind speed of minimum 130 km/hr. and withstand crop load up to 25 kg/m^2 crop load. The structure must have the provision for opening one portion at either side for entries of small tractor/ power tiller for inter- cultural operations. The aerodynamics shape should be preferred to avoid wind load.		
			5	Structure	Complete structure should be made of galvanized steel tubular pipes or equivalent section of light class conforming Indian Standards IS: 1161-1998, the structural member should be joined with fasteners properly.		
			6	Columns	60 mm OD, 2.9 mm thick		
			7	Trusses, purlins and hockey Member for Truss, Corner & others	48 mm OD, 2.9 mm thick 42 mm OD, 2.9 mm thick		
			8	Four & Five way pipe couplers	48 mm OD, 2.0 mm thick		
			9	Aluminum Profile	C type Aluminum profile to fix shade net to the structure by means of self tapping screws. Weight of aluminum profile is 200-220 gm/meter. Self drilling screw should be fixed on profile every 30 cm along the full length of the profile.		
			10	Entrance room & Door	Two entrance room of size 2.5 m x 2.5 m x 2.5 m (L x W x H) made of GI square pipe size 38 mm x 38 mm having minimum wall thickness 2.6 mm or Aluminum profile need to be provided and covered with UV stabilized net. Two hinge lockable doors of size 2.5 m width & 2.5 m height double leaf made in plastic/FRP sheets mounted in suitable strong frame.		
			11	Cladding material	UV stabilized shade net having 50 % shading factors having minimum wt. of 70-80 GSM. The shade net colour should be green and it should be used to cover the top portion of the structure. This top portion should be open and close by the motorized operated facility.		
			12	Stainless Steel Net	36 Gage, 0.009 Inch Wire Diameter, 16 x 16 Mesh per Linear Inch, Stainless Steel on all sides on plinth (Sr. No.16) up to a vertical height of 4.0 m above Ground level.		
			13	Insect Proof Net (Cladding material)	40 Mesh (120 GSM) (white colour) UV stabilized Insect proof net on all the five sides made from virgin raw materials up to a vertical height of 4.0 m above Ground level and on the top of the structure. Roll up rod with worm gear on two opposite sides (East and West sides of the structure) within the top 1.2 m for opening and closing of shade net. All four sides of curtains should be motorized operated		

			14	Fixing of cladding materials	All ends/joints of net house to be fixed with two way aluminum profile with suitable locking arrangement such as zigzag high carbon steel with spring action wire of 2-3 mm diameter. Wooden batons or PVC grippers must not be used.	
			15	Civil work	Depth of foundation need be kept at 60 cm or more depending upon soil type and prevailing wind conditions. GI pipes of 48 mm light class conforming to Indian Standards IS: 1161-1998 or equivalent sections should be grouted in cement concrete mixture with 1:2:4 ratios.	
			16	Plinth	2 feet height plinth with 9 inches of thickness protection around the structure on which casing the shade net house.	
			17	Drip irrigation System with fogging & misting facility	Drip irrigation system inside greenhouse need to be selected based on crop spacing along with fogging and misting Facilities. The system must have Sand Filter, Screen Filter, Control Valves, Bypass Assembly, Air Release Valve, Non Return Valve, Throttle Valve, Flush Valve, Venturi Injector with manifold, PVC pipes, LDPE plane lateral, Emitting pipe, foggers & misters to be fixed w.r.t design. Water tank and fittings & accessories (applicable only BIS standards for all irrigation components as well as water tank).	
					Note: Fogging System: suitable as per the crop, in consist of four way anti leak fogger 10-28 lph flow rate (working pressure should be mentioned at which it be able to get required particle size, fogger spacing along the lateral and lateral spacing) and particle size 80-100 micron, 16 mm lateral class-3, PVC pipe 6kg/cm^2, valves, filter, pump, panel with volt meter, MCB, relay, temp and humidity sensors etc. complete application rate 3 mm/hr.	
			18	Footpath	1m wide and 10 cm thick footpaths made of cement concrete ratio of 1:2:4 should be provided with drainage facility inside the net house.	
			19	Testing	All plastic materials used in the greenhouse to be tested by the CIPET or any other testing Institute for quality assurance (if required).	
			20	Tractor entry door	It is a separate structure frame entry with a minimum entry width of 2.7 m and minimum height of 2.7 m with stainless steel hinges. Framed flaps fixed with all drop locked entry. Door frames with required size shall be made openable horizontally/vertically.	
			21	Fire extinguisher	Total five numbers of multi-purpose dry chemical A:B:C rated 10 lb fire extinguishers charged with formulated siliconized dry chemical UL rated for fighting paper, wood, fabric, grease, flammable, liquid and electric fire.	

		22	Benches	Total twenty five Nos. benches framed with aluminium extrusion and 1x2 rectangle galvanized steel. Bench mesh is 3/4'' X 13 gauge galvanized expanded metal. Bench cross braces made of 1x2 rectangle tubing and spaced 2 ft. apart, bench legs are made of 1x2 rectangle tubing.	
		23	Aluminum Ladder (Foldable)	Total five Nos. Aluminum Step Ladder 21/2" Inch Step, Sizes: 10 ft, Load Bearing Capacity: 150 kgs, Outer Width:15", Step To Step Distance : 12", Complete With Rubber Shoes And Side Plugs Etc.	
		24	Electrification inside the net house	Photo synthetically Active Radiation Lamp with Photo simulators, Metal Halide (MH) high intensity discharge lamps to meet the requirements. Electric fitting: Complete electrical wiring in structure with copper wire (standardized cable with ISI mark to be used for HAF), MCB, Main switch, light/power points for general purpose requirement where it is necessary	
48.	**Walk-In Tunnel** **(Tender Fee: Rs. 1,500.00)**	**Technical Specification for walk in Tunnel** **Location of unit: Main Vegetable Research Station Farm, AAU, Anand, Dist: Anand** 1. Total height of structure – 4.0 m from the formation level 2. Bay size - 4 m 3. Area/size of structure – Apprx. **500 Sq.m** area **Comprehensive rate is to be quoted: _____Rs/Sq.m for following specifications** Product specifications –			**0.09**

Size	8-10 Meter (Span) x 4 Meter (Bay)
Top Height	3-4 Meter
Trellising Load	25 Kg/meter square
Wind Load	120 km/hr
Trusses Pipe	48 mm OD and 2.0 mm thick
Purlin Pipe	42 mm OD and 2.0 mm thick
Trusses Member Pipe	33 mm OD and 2.0 mm thick
Foundation Pipe	42 mm OD and 2.0 mm thick
Fasteners	High Tensile Strength & Hot Dip Galvanized (120 GSM)
Entrance Door	Hinge/Sliding door made from Aluminum Frame with Polycarbonate/Plastic Sheet.
Covering material	UV stabilized covering materials of Polyethylene film (200 micron)
Note	Galvanized Steel Construction. Special Aluminum locking profile to fix covering materials with structure. Designed to withstand wind speed of Anand condition. Bears, hanging load 15- 25 kg per Sq. Mt. Natural Roof and side wall ventilation system. Air circulation fans Heating system in cold climate. CO_2 Generator. Shading / Thermal Net Trellising system for vegetable.

49.	**Screen House – 1 Complete Set** **(Tender Fee: Rs. 1,500.00)**	**Technical specification for Screen house** **Location of unit: Main Vegetable Research Station Farm, AAU, Anand, Dist: Anand** Size: **35 to 50 sq. mt** Ridge Height: 4.0 m Gutter Height: 2.5 m Design: Gothic shape Buffer room: 2.0 m x 2.0 m with double door system 2.0 m x 1.0 m each	**0.28**

Sr. No.	Description of material/work
1	**Structure frame:** All galvanized steel is used and design as per IS875 standards to take withstand of wind speed 120 km/h. Its assembly style without any welding point. All main parts are hot galvanized with zinc cover 275g/m^2. All Structures, Rafters, Perlins, Trusses are hot dip galvanized and designed to take a wind load up to 120 km/hr. **Pipe Sections to be used for different Structural Member or equivalent will be as below, given structure size in OD:** a) Pillar: 80mm x 50mm x 2mm thickness hot galvanized rectangular tubes. Distance between pillars on lateral line: 2m. Distance between pillars on central line: 4m. b) Arc: 50mm x 50mm x 2mm thickness. c) Ridge: 40mm / 41mm. d) Crop Bar: 41mm x 41mm x 2mm thickness. e) Trusses Tie: 32mm tube structural member will be fitted with zinc plated nuts & bolts. Frame is made by 50 x 50 x 2 mm hot galvanized rectangular tubes. f) Gutter: Molding hot galvanized steel plate g) Roof beam: 40x30x2mm hot galvanized rectangular tubes h) Bolts and Nuts: Galvanized bolts and nuts **Nuts, bolts and other metallic parts:** Includes all the elements required for joining and water tight components (such as fittings, clamps, screws and nuts plated against corrosion).
2	**Structure glazing:** Complete pre-machined structure and cladding with Polycarbonate sheet 6 mm thick multiwall UV stabilized material & roof screen 50:50 shades net UV stabilized. Thermal insulation by silicon sealant.
3	**Roof screen:** 50% shading net rolling system with motorized operated gear.
4	**Pre entry room & door:** **1) Ante room/Vestibule:** The hardening chamber will have a specific Pre entry room size of 3m x 3m x 2.43(LxWxH), made by polycarbonate sheet 6mm and galvanized tubular frame, where all the other spare items can be stored / dumped out.

				2) Sliding door: 1.5m wide & 2m Tall single door complete with polycarbonate sheet glazing, top & bottom tracks, jambs, flashing & installation hardware. One Air Curtain with auto on/off when door opening /closing at main entry.	
			5	**Side ventilation:** Manual opening & closing gear mechanism with gear box, driving shaft, rack arch pinion, shaft support plate, covered with 40 mesh nylon net from inside to prevent insect entry inside the chamber, generally used during power failure, window lift up to 1m wide & length as per chambers length.	
			6	**External screen:** Ridge roof motorized external 1 meter above of screen 50% black/white combination, mechanism using Gear motor with inbuilt limit switch for smooth control, rack & pinion, Support Aero wheel, Handspike driving shaft, Rolling axes, Pull rod clamp, Directing clam, Aluminum pipe for more long life & light in weight, Retraction mechanism supported on polyester wire having with high abrasion strength - which results smooth operation & long durability.	
			7	**Climate control System:** This can monitor & control temperature and humidity. It also includes switching system for operating chamber equipment with suitable relays, contactors and safety devices. **A) SENSORS**: Temperature & RH - Range: 0-50 ^{0}C and 0-100% RH, Type: 4-20mA	
			8	**Fogging/Misting system:** To increases the humidity up to 80% by providing fogging / mist Nozzles hanging type (2.0x2.0m) with fine discharge (28-30 l/hrs) at 4 bar pressure with heavy duty pump head unit, filter assembly etc.	
			9	**Electric fitting:** Complete electrical wiring of green house with copper wire, MCB, Main switch, light/power points as per requirement.	
			10	**Cooling system:** Provided with Air Conditioner (A.C) **(a) Air conditioner:** Two Frost free air conditioning system (1.5 tons each) with sequential timer, which is responsible to maintain the temperature ranges 5 to 45 ^{0}C **(b) Sequential timer:** To operate two Air Conditioners alternately with minimum ON/OFF cycle of 60 min. Input: 110/220 VAC, Phase-single. RH up to 85% normally.	
			11	**Vents:** By providing 2 windows on each side wall size 1.0m x0.5m, vent area will be covered with SS net 40 Mesh fixed with aluminum beading.	
			12	**Earth work:** Excavation in trenches & Foundation	
			13	**Foundation:** Grouting of side poles (1'x1'x2.5') below earth surface in cement concrete 1:2:4 ratio	
			14	**PCC:** 1:5:10 in foundation	
			15	**Curtain wall:** Made of CC blocks/stone/FPS bricks in 1:6 CM, all sides of the green house 1.0' above ground level with below earth surface.	
			16	**Plaster:** 12 mm thick in 1:4 CM (1 cement and 4 fine sand)	
			17	**Plumbing work:** For fogging & cooling system with necessary fitting GI/PVC, Polymer tank 2x1000 liter	

		18 **Top movable benching system:** Top Moveable Bench: Size:1m wide x 3m 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. 2 bench each chamber. **19** **Civil Work :** **Foundation wall**: 1.5' below earth's surface. 1.5' above earth's surface, as 9" wide, Frame base block height 3'x9"x9"each with front side wall plinth protection 3' wide 6" thick. **Frame base column:** Galvanized channel 12mm X 42mm X 72mm X 42mm X 12mm and 3mm thick, C channel with Grouting CC (1:2:4) block, each. **Floor:** By tiled with dull white anti-slippery hard material along with the entry room. **Note: The vendors are requested quote the price of additional item(s), if required, separately in technical bid.**	
PART-V: FARM EQUIPMENT			
PULSE RESEARCH STATION, MODEL FARM, AAU, VADODARA			
50.	**Seed Grading with Cleaning Machine** **("Petty Pankho")** **(Tender Fee: Rs. 1,500.00)**	The required technical specifications of mentioned item are as follow Construction : CNC Machining for fabrication of all metal component Dimensions with stand : 195 cm H x 110 cm W x 95 cm L (approx) Cleaning Capacity : 150 Kg/h (based on wheat) Main Screen (2 Nos.) : 250 mm x 500 mm (approx) Prescalping Screen size : 250 mm x 250 mm (approx) Motor for blower : 1 HP, 2810 rpm Motor for Vibrating Deck : 90 Watt, 1440 rpm Operating Voltage : 220V, 50 Hz Single Phase AC	**0.06**
MAIN RICE RESEARCH STATION, AAU, NAWAGAM			
51.	**Combine Harvester** **(Tender Fee: Rs. 1,500.00)**	We intend to buy combine harvester for our rice research station. The combine harvester quoted should meet below mentioned specifications as below: 1. Speed Adjustment: Preferably mechanically 2. Height Adjustment: The height should be hydraulically adjusted. 3. Cleaning: The cleaning should ideally be forced air type with mechanical adjustment. 4. Transmission: The transmission should ideally be fully hydro statically controlled independently by two levers. 5. Cutter Bar Width – 2400 mm to 4400 mm 6. Min. Cutting Height- Thresher Drum 7. Cleaning Area- 15000 to 20000 sq. cm. 8. Length- 7000 to 8000 mm 9. Width- 3000 to 4000 mm 10. Hydraulic Oil Tank- 25 Ltr. (minimum) 11. No of Blades- 6 (minimum) 12. Width of Fan- 800 to 900 mm 13. Min Ground Clearance- 400 to 500 mm 14. Steering System- Hydraulic	**0.60**

		15. No of Cylinders- 4 – 6 16. Engine Type- Ashok Leyland 17. Engine BHP Maximum- 76 PS 2200 RPM 18. Cutter Bar Height Adjustment- Hydraulically 19. Cutter Bar Cutting Height - 100 mm (minimum) 20. Reel Type- Pick Up 21. Reel Speed Adjustment- Mechanically 22. Speed of transmission: The speed should be 0-10 km /hr or better. **Note:** 1. Training is to be given onsite. 2. Warranty of implement will start only after the installation of the implement. 3. All the above information for Combine harvester should be clearly mentioned on instrument brochure from the manufacturing company is to be attached. 4. Any peripherals/ spares other than above mentioned required for the warranty service system for working of implement should be supplied along with the system. 5. A certificate from the original instrument manufacturer company will be required confirming about the availability of all essential spares / parts for at least 05 years after the expiry of one year standard warranty period. 6. The bidder may also visit the Department before submitting the instrument quote. No modification or requirement will be provided for the system at the time of installation by the Department. If there is a need of any utilities during the installation of implement, then the requirement has to be fulfilled / supplied by the bidder. 7. Should provide at least one year warranty certificate. 8. Should provide authorization certificate, instrument installation, demonstration and time to time service as and when necessary. 9. Must include all the cost like installation charges, taxes, on site delivery and other charges, if any.	
REGIONAL COTTON RESEARCH STATION, AAU, VIRAMGAM			
52.	**DR Gin machine with Autofeeder** **(Tender Fee: Rs. 1,500.00)**	Quantity – 2 (Two) nos. Double Roller Cotton Ginning Machine - 54" Jumbo complete with 12G heavy duty auto feeder and all spares including all knifes, roller shaft fitted with leather washer duly pressed and grooved, all belts, 5 H.P. Electric motor, 1440 RPM, With Starter, Switch and Minimum 10 mtrs. Cable with Foundation Bolt, Motor Pulley, including installation work and freight **F.O.R at our station Viramgam**	**0.15**
53.	**Conveyor for seed cotton** **(Tender Fee: Rs. 1,500.00)**	Quantity – 5 (Five) Set. TAPER BELT CONVEYOR - Width 500 mm Length 12' ft. with 3 hp gear-motor set, make in :- 75 x 40 x 5 mm imsc, 50 mm dia rollar, bearings, 500 mm width Dunlop rubber belts, with joint, 2 mm g.i.sheets hoper inlet-outlet mouth set complete along with installation charges for panel board, cable, switch board and other required equipments and **freight F.O.R at our station Viramgam.** **Also mention charges (in Rs. /Ft.) for extension of conveyor, if required.**	**0.30**

54.	**Delinting Machine**	This machine consists following three components, vendors are requested to quote separate price for each of following three components. **1. Delinting Machine** **2. Ducting Pipeline Set** **3. Blower set** The required technical specifications for each of these components are as mentioned below –	
54.1	**Delinting Machine** **(Tender Fee: Rs. 1,500.00)**	Quantity – 3 (Three) nos. Mini Model (approx. 36 saw) for laboratory purpose, High speed/latest design, Capable of delinting 25 kg cotton seed per hour including 5 BHP motor/960 RPM for saw shift and and 5 BHP MOTOR / 960RPM, for brush cylinder, Control panel wires etc. Accessories: (for each machine) Saw - 58 pcs, Ribs- 20 pcs, Ratchet, Gear & Pawl – 3 pcs alongwith installation charges for panel board, cable, switch board and other required equipment and freight F.O.R at our station Viramgam	**0.27**
54.2	**Ducting Pipeline Set** **(Tender Fee: Rs. 1,500.00)**	Quantity – 1 (one) set. Ducting pipeline set - 1 make in :- 22 swg. g.i. sheets mouth, hoper, band, pipes, pvc pipe 6'' dia., approx. length 350' feet along with installation charges for panel board, cable, switch board and other required equipments and freight F.O.R at our station Viramgam	**0.02**
54.3	**Blower Set** **(Tender Fee: Rs. 1,500.00)**	Quantity – 1 (one) nos. Blower set -1 with three phase electric motor 5HP, 2800 RPM min., impeller dia 600 × 100 mm alongwith installation charges for panel board, cable, switch board and other required equipments and freight F.O.R at our station Viramgam	**0.02**
55	**Lint Conveyor** **(Tender Fee: Rs. 1,500.00)**	Quantity Set - 1 (one) TAPER BELT CONVEYOR - Width 500 mm Length approx. 70' ft. with 3 hp gear-motor set make in :- 75 x 40 x 5 mm imsc, 50 mm dia rollar, bearings, 500 mm width Dunlop rubber belts, with joint, 2 mm g.i.sheets hoper inlet-outlet mouth set complete with five Lint mouth make in :- 22 swg.gi.sheets mouth-hoper for DR Gin to belt conveyor along with installation charges for panel board, cable, switch board and other required equipments and freight F.O.R at our station Viramgam. Also mention charges (in Rs. /Ft.) for extension of conveyor, if required.	**0.30**
56	**Seed Cleaner** **(Tender Fee: Rs. 1,500.00)**	Quantity – 3 (Three) nos. ROUND SEED CLEANAR WITH 2 HP GEAR-MOTOR SET – SZ;- L 5'-0'' FT X W 3'-0'' FT X H 4'-0''FT. make in :- 75 x 4 mm ms. 3 square pipes, magnet, v-belt pulleys, msspockets, ms chain, v-belts, 2 mm ms. Sheets, 2'' ms brightbars, 40 mm ms. brightbars, 50 mm & 40 mm ms.ucp, 10 mm ms. Perforated, 2 mm ms, perforated sheets, complete set with Cyclone two set – each 36" Diameter, angle bars stand **AND** Ducting pipe line set-1 make in :- 22 swg.gi. sheets mouth, hoper, band, pipes, pvc pipe 6'' dia., approx. length 350' feet. along with installation charges for panel board, cable, switch board and other required equipments and freight F.O.R at our station Viramgam	**0.22**

PART-VI: DRIP IRRIGATION SYSTEMS

MAIN VEGETABLE RESEARCH STATION (MVRS), AAU, ANAND

57. **Installation of Drip Irrigation System at MVRS, AAU, Anand**

(Tender Fee: Rs. 1,500.00)

Sr. No.	Name of Item	Estimated Required Quantity
1	**Head Unit**	
1.1	4" Header Assembly (MS)	1 No.
1.2	HYDROCYCLONE FILTER PP 3"/50 ISI	2 Nos
1.3	PLASTIC DISC FILTER 3"-50M^3/Hr ISI	2 Nos
1.4	Plastic Butterfly Valve 4"	2 Nos
1.5	By Pass Tee (Flange End) 4"	1 No.
1.6	Pressure Relief Quick valve Type 2'' L BSP	1 No.
1.7	PRESSURE GAUGE 4.0BAR 2.5''STL 1/4''BSP L (Glycerin)	4 Nos
1.8	BOB COCK FOR PG 1/4" PP	4 Nos
1.9	Fertilizer Injector with assembly Low Flow 2"	1 No.
1.10	AIR VALVE 2" BSP COMBINED BARAK GRAY LINE (GI	1 No.
1.11	NRV FL 4" (GI)	1 No.
1.12	Water meter	1 No.
2	**PVC Network**	
2.1	PVC Pipe 110 mm 4 Kg/cm^2	444 Mtr
2.2	PVC Pipe 110 mm 4 Kg/cm^2	324 Mtr
2.3	75mm HDPE PIPE CLASS-1 WITH C-CLAMP	1 No
2.4	End Plug Quick Action 75 mm	1 No
2.5	Pump Connecting Nipple 75 mm	1 No
2.6	Plastic Butterfly Valve 2.5"	8 Nos
2.7	FLUSH VALVE 75	8 Nos
2.8	AIR VALVE 1'' BSP VACUUM AV-010 GRAY (Double Action)	3 Nos
3	**Drip Network**	
3.1	PLANE LATERAL 16MM -ISI Class II	800 Mtr
3.2	EMITTING PIPE(2.0 LPH) 40 CM (Round)	44000 Mtr
3.3	BARBED GREEN START CONNECTOR 16mm S	800 Nos
3.4	12,16,17,20 START CONNECTOR GROMMET	800 Nos
3.5	BARBED GREEN S COUPLING 16x16	1000 Nos
3.6	LINE END CLAMP 16MM	800 Nos
4	**GI Fitting**	
4.1	CI Ring Flange 2.5"	16 Nos
4.2	CI Ring Flange 4"	7 Nos
4.3	Threaded Flange 4"	2 Nos
4.4	Rubber Gasket 3"	2 Nos
4.5	Rubber Gasket 4"	15 Nos
4.6	Bolts 12 x 150	8 Nos
4.7	Bolts 12 x 100	36 Nos
4.8	Nuts 12	76 Nos
4.9	Washer for Nut /Bolts	152 Nos
4.10	Teflon tape (10 meter)	20 Nos
4.11	Hack Saw Blade	4 Nos
4.12	Thread Bolls	2 Nos

0.30

4.13	Holdtite 50 gms	2 Nos
4.14	Bolts 12 x 62.50	50 Nos
5	**PVC Fitting**	
5.1	Solvent Cement	7 Lit.
5.2	75 MM Tail piece/6 kg (FABRICATED)	20 Nos.
5.3	110 MM Tail piece/6 kg (FABRICATED)	10 Nos.
5.4	63 x 2" M.T.A./6 kg	4 Nos.
5.5	110 x 63 PVC Reducer/6 kg	2 Nos.
5.6	110 mm PVC ElBend	2 Nos.
5.7	32 mm PVC Elbow/10 kg	2 Nos.
5.8	63 mm PVC Elbow/10 kg	4 Nos.
5.9	75 mm PVC Elbow/10 kg	40 Nos.
5.10	110 mm PVC elbow/10 kg	12 Nos.
5.11	110 mm PVC TEE/10 kg	12 Nos.
5.12	110 x 75 PVC Reducing Bush/10 kg	10 Nos.
5.13	75 mm PVC Coupler/10 kg	4 Nos.
5.14	110 mm PVC elbow/10 kg	4 Nos.
5.15	Blind FlangeBlind Flange	10 Nos.
5.16	110 x 1" PVC Service Saddle/10 kg	4 Nos.
5.17	32 x 1" F.T.A./10 kg	4 Nos.
5.18	32 x 1" M.T.A./10 kg	4 Nos.
5.19	32 mm PVC Pipe(Fitting) Mtr	4 Nos.
5.20	63 mm PVC Pipe(Fitting) Mtr.	4 Nos.
5.21	Slip On flange 3"	4 Nos.
6	**Submersible pump-set I** (Duty head - 65 m & Discharge - 30,000 lph) Three phase motor of 10 HP and compatible pump of 4 stage, discharge outlet 3" along with start delta starter, 2.5 sq.mm three core cable - ISI (100 meter) HDPE coil of 3" diameter PE 63 raw material grade with pressure having of 8 kg/cm^2 (PN-8) 40 meter length (Pipe Diameter 3")	1 set
7	**Submersible pump-set II** (Duty head – 40 m) Single phase motor of 5 HP and compatible pump of 4 stage, discharge outlet 2" along with start delta starter, 2.5 sq.mm three core cable - ISI (50 meter) HDPE coil of 2.5" diameter PE 63 raw material grade with pressure having of 8 kg/cm^2 (PN-8) 40 meter length (Pipe Diameter 2.5")	1 set
8	**Drip Winder Machine (Enclose Photograph & Specification)**	4 No
9	**Trenching and Backfilling Charges per Running Mtr.**	1000 Running Mtr
10	**Installation Charges for Drip Irrigation**	1 ha
11	**Transportation Charges up to site FOR ANAND**	-
Note: The vendors are requested quote the price of additional item(s), if required, separately in technical bid.		

58	**Installation of drip irrigation system at Horticultural Research Station, Khambholaj, AAU, Taluka & District - Anand (Gujarat)** **(Tender Fee: Rs. 1,500.00)**			**0.15**

Sr. No.	Name of Item	Estimated quantity required
1	**Head Unit**	
1.1	4" Header Assembly (MS)	1 No.
1.2	HYDROCYCLONE FILTER PP 3"/50 ISI	2 No.
1.3	PLASTIC DISC FILTER 3"-50M^3/Hr ISI	2 No.
1.4	Plastic Butterfly Valve 4"	2 No.
1.5	By Pass Tee (Flange End) 4"	1 No.
1.6	Pressure Relief Quick Type 2'' L BSP	1 No.
1.7	PRESSURE GAUGE 4.0BAR 2.5''STL 1/4''BSP L (Glycerin	4 No.
1.8	BOB COCK FOR PG 1/4" PP	4 No.
1.9	Fertilizer Injector with assembly Low Flow 2"	1 No.
1.10	AIR VALVE 2" BSP COMBINED BARAK GRAY LINE (GI)	1 No.
1.11	NRV FL 4"	1 No.
1.12	Water meter	1 No.
2	**PVC Network**	
2.1	PVC Pipe 90 mm 4 Kg/cm^2	2292 Mtr.
2.2	PVC Pipe 40 mm 4 Kg/cm^2	90 Mtr
2.3	Plastic Butterfly Valve 3"	10 Nos.
2.4	FLUSH VALVE 40	30 Nos
2.5	AIR VALVE 1'' BSP VACUUM AV-010 GRAY (DOUBLE ACTION)	10 Nos.
3	**Drip Network**	
3.1	PLANE LATERAL 16MM - ISI Class - II	4000 Mtr.
3.2	ONLINE DRIPPER 3.85 l/h PC	4000 No.
3.3	BARBED GREEN START CONNECTOR 16mm S	100 No.
3.4	12,16,17,20 START CONNECTOR GROMMET	100 No.
3.5	BARBED GREEN S COUPLING 16x16	150 No.
3.6	LINE END CLAMP 16MM	100 No.
4	**GI Fitting**	
4.1	CI Ring Flange 2.5"	16 Nos.
4.2	CI Ring Flange 4"	7 Nos.
4.3	Threaded Flange 4"	2 Nos.
4.4	Rubber Gasket 3"	2 Nos.
4.5	Rubber Gasket 4"	15 Nos.
4.6	Bolts 12 x 150	8 Nos.
4.7	Bolts 12 x 100	36 Nos.
4.8	Nuts 12	76 Nos.
4.9	Washer for Nut /Bolts	152 Nos.
4.10	Teflon tape (10 meter)	20 Nos.
4.11	Hack Saw Blade	4 Nos.
4.12	Thread Bolls	2 Nos.
4.13	Holdtite 50 gms	2 Nos.
4.14	Bolts 12 x 62.50	50 Nos.
5	**PVC Fitting**	
5.1	Solvent Cement	4 Lit.
5.2	90 mm PVC Elbow/6 kg	40 Nos.
5.3	40 mm PVC Elbow/6 kg	80 Nos.
5.4	110 MM Tail piece/6 kg (FABRICATED)	10 Nos.
5.5	63 x 2" M.T.A./6 kg	4Nos.

		5.6	110 x 63 PVC Reducer/6 kg	2Nos.	
		5.7	90 mm PVC TEE/6 kg	40 Nos.	
		5.8	110 mm PVC ELBend	4 Nos.	
		5.9	32 mm PVC Elbow/10 kg	2Nos.	
		5.10	160 mm PVC TEE/6 kg	6Nos.	
		5.11	63 x 40 PVC Reducing Bush/6 kg	50 Nos.	
		5.12	90 x 63 PVC Reducing Bush/6 kg	50 Nos.	
		5.13	90 mm PVC Coupler/6 kg	10 Nos.	
		5.14	160 x 90 PVC Reducer/6 kg	10 Nos.	
		5.15	160 x 110 PVC Reducing Bush/6 kg	10 Nos.	
		5.16	110 x 90 PVC Reducing Bush/6 kg	10 Nos.	
		5.17	40 mm PVC End Cap Plain/4 kg	10 Nos.	
		5.18	110 x 1" PVC Service Saddle/6 kg	10 Nos.	
		5.19	32 x 1" F.T.A./10 kg	10 Nos.	
		5.20	32 x 1" M.T.A./10 kg	10 Nos.	
		5.21	32 mm PVC Pipe(Fitting) Mtr.	6 Nos.	
		5.22	63 mm PVC Pipe(Fitting) Mtr.	6 Nos.	
		5.23	Slip on flange 3"	4 Nos.	
		6	**Trenching and Back filling Charges per Running Mtr.**	**1000 Running Mtr.**	
		7	**Installation Charges for Drip Irrigation**	**1 Ha.**	
		8	**Transportation Charges up to site FOR KHAMBHOLAJ**	-	
		Note: The vendors are requested quote the price of additional item(s), if required, separately in technical bid.			
Additional Items for : SMC College of Dairy Science, AAU, Anand					
59.	**Mini Incubation Room for Fermented Milk** **(Tender Fee: Rs. 1,500.00)**	1) Temperature range: 5 to 45°C 2) Chamber Volume: Upto 1000 LTR 3) Color: Off White or any 4) Voltage: 220V / 50Hz			**0.05**
60.	**Stretching Machine for Mozzarella Cheese (100 kg/hr)** **(Tender Fee: Rs. 1,500.00)**	1) S.S.: AISI 304 2) Capacity: Upto 100 Kg/hr 3) Compact Hot Water Stretching machine with dipping arms 4) Teflon Coating on Augers, mixing arms and machine body 5) Hot water temperature: 75 to 100°C			**0.09**
Additional Item – Farm Yard Manure (FYM), (Tender Fee: Rs. 1,500.00 for item nos. 61 and 62)					
61.	**Supply of FYM (છાણીયું ખાતર) at MMRS, AAU, Godhra**	છાણિયું ખાતર (એફ.વાય.એમ.): અત્રેના મુખ્ય મકાઇ સંશોધન કેન્દ્ર, આણંદ કૃષિ યુનિવર્સિટી, ગોધરા ખાતેના ફાર્મના જુદાજુદા પ્લોટોમાં જમીનની ફળદ્રુપતા જાળવવા માટે સારૂ કહોવાયેલું છાણિયું ખાતર (એફ.વાય.એમ.) ૧ ટ્રેકટર ટોલી કુલ ભરેલી. અહી ટ્રેકટર ટોલી એટલે લંબાઇ ૧૦ ફુટ, પહોળાઇ ૬ ફુટ અને ઉંડાઇ ૧.૭૫ ફુટ ગણવામાં આવે છે. તે મુજબ એફ.વાય.એમ. અત્રેના મુખ્ય મકાઇ સંશોધન કેન્દ્ર, આ.કૃ.યુ., ધોળાકુવા, ગોધરા, તા.ગોધરા, જી.પંચમહાલ ખાતે બેઠેના ભાવ.			**0.27**

<table>
<tr><td>62.</td><td>Supply of FYM (છાણીયું ખાતર) at ARS, Sansoli. Ta. Mahemdabad Dist. Kheda</td><td>છાણિયું ખાતર (એફ.વાય.એમ.): અત્રેના કૃષિ સંશોધન કેન્દ્ર, આણંદ કૃષિ યુનિવર્સિટી, સણસોલી ખાતેના ફાર્મના જુદાજુદા પ્લોટોમાં જમીનની ફળદ્રુપતા જાળવવા માટે સારૂ કહેવાયેલું છાણિયું ખાતર (એફ.વાય.એમ.) ૧ ટ્રેકટર ટોલી કુલ ભરેલી. અહી ટ્રેકટર ટોલી એટલે લંબાઇ ૧૦ ફુટ, પહોળાઇ ૬ ફુટ અને ઉંડાઇ ૧.૭૫ ફુટ ગણવામાં આવે છે. તે મુજબ એફ.વાય.એમ. અત્રેના મુખ્ય કૃષિ સંશોધન કેન્દ્ર, આ.કૃ.યુ., સણસોલી તા.મહેમદાવાદ, જી.ખેડા ખાતે બેઠેના ભાવ.</td><td>0.27</td></tr>
<tr><td colspan="4">Agricultural Research Station (ARS), AAU, Sansoli Ta. Mahemdabad, Dist. Kheda</td></tr>
<tr><td>63.</td><td>Tractor – 55 HP</td><td>Technical specifications of the tractor required at ARS, Sansoli is under –
<table>
<tr><td>Engine -</td><td></td></tr>
<tr><td>No. of Cylinder</td><td>3</td></tr>
<tr><td>HP</td><td>55</td></tr>
<tr><td>Engine RPM</td><td>2400</td></tr>
<tr><td>Cooling</td><td>Coolant cooled with overflow reservoir</td></tr>
<tr><td>Air Filter</td><td>Dry type, dual element</td></tr>
<tr><td>Fuel Pump</td><td>Inline</td></tr>
<tr><td>Transmission -</td><td></td></tr>
<tr><td>Type</td><td>Collarshift</td></tr>
<tr><td>Clutch</td><td>Dual clutch</td></tr>
<tr><td>Gear Box</td><td>9 Forward + 3 Reverese</td></tr>
<tr><td>Battery</td><td>12 V 88 Ah</td></tr>
<tr><td>Alternator</td><td>12 V 43 Amp</td></tr>
<tr><td>Forward Speed</td><td>2.05-28.8 kmph</td></tr>
<tr><td>Reverse Speed</td><td>3.45-22.33 kmph</td></tr>
<tr><td>Brakes -</td><td>Oil Immersed Disc Brakes</td></tr>
<tr><td>Steering Type -</td><td>Power Steering</td></tr>
<tr><td>Power Take off -</td><td></td></tr>
<tr><td>Type</td><td>Independent 6 Spline</td></tr>
<tr><td>RPM</td><td>540 @2376 ERPM</td></tr>
<tr><td>Dimensions and Weight of Tractor -</td><td></td></tr>
<tr><td>Total Weight</td><td>2410 KG</td></tr>
<tr><td>Wheel Base</td><td>2050 MM</td></tr>
<tr><td>Length</td><td>3580 MM</td></tr>
<tr><td>Width</td><td>1875 MM</td></tr>
<tr><td>Hydraulic Lifting Capacity</td><td>2000 KG</td></tr>
<tr><td>Wheels and Tyres -</td><td></td></tr>
<tr><td>Wheel Drive</td><td>4 WD</td></tr>
<tr><td>Front</td><td>9.5 x 24</td></tr>
<tr><td>Rear</td><td>16.9 x 28</td></tr>
<tr><td>Accessories -</td><td>Tool, Toplink, Canopy, Hook, Bumpher, Drawbar</td></tr>
<tr><td>Additional features -</td><td>Tractor should have features like – Tiltable Steering Column, Electrical Quick Raise and Lower (EQRL), Mechanical Front Wheel Drive (MFWD)</td></tr>
<tr><td>Warranty-</td><td>Five (5) Years.</td></tr>
</table></td><td>0.30</td></tr>
</table>

: Terms &Conditions:

i. E-tendering procedure of two bid system i.e. financial and technical should be followed for quoting the rates / bidding for items.

ii. This tender document / form may be procured / downloaded from (n)Code Solutions website **www.nprocure.com** as well as from university 's website **www.aau.in/tenders** from **3-12-2019 upto 23-12-2019, 04:00 P.M.**

iii. The financial bid / quotation rates / bidding rates for these instruments / equipment consumable item(s) has/have to be uploaded / submitted electronically through <www.nprocure.com> only **on or before 23-12-2019 6:00 P.M.** Vendors should not mention quoted price anywhere in technical bid.

iv. **The price quoted for indigenous items should be inclusive of all kinds of taxes, transportation, installation and commissioning at respective locations of the university and should be valid upto 31st December, 2020.**

v. In case of foreign manufactured equipment / goods the **CIF, Ahmedabad** rates be quoted in foreign currency which will be paid by Wire Transfer or Demand Draft of respective foreign currency. The other charges levied in order to supply goods at the respective location of the university, like agency commission, clearing charges, transportation from airport, insurance etc. including custom duty shall be reimbursed to the vendor against the bills.

vi. If the rates are quoted in foreign currency, for conversion in INR exchange rate available on RBI's website on the date of opening of commercial bid of the tender shall be considered for comparison.

vii. No change, addition, alteration in the tender rates on omission / misunderstanding / mistake or any other reasons would be permitted.

viii. The University is authorized for exemption in Custom Duty / Excise Duty and accordingly the custom duty exemption certificate, if applicable, will be provided by the University to successful bidder.

ix. The University is also registered with the DSIR and being public funded research and educational institute, **concessional GST rate of 5%** shall be levied on goods supplied to this university.

x. The total cost must be inclusive of all intended accessories, if not mentioned separately.

xi. **The hard copy of the technical bid should be addressed to "The Member Scretary, E-Tendering Committee, Department of Agricultural Biotechnology, Anand Agricultural University, Anand – 388 110".**

xii. **Technical bids for each item should be dispatched in separate envelopes alongwith all necessary documents and DD for Tender Fee and separate EMD for each item.**

xiii. **The hard copy of the technical bid should reach this office latest by 27-12-2019 upto 04:00 P.M. in sealed cover superscripted "Technical Bid for _____" by Registered Post / Speed post only. The technical bid/documents sent through courier or any other mode will not be accepted.**

xiv. **Tender Fee (Non-Refundable):** Tender fee of respective items is as mentioned in col. no. 2 with the name of respective item in tender document. Vendor quoting for multiple items of the tender may submit single DD of cumulative amount, but not exceeding Rs. 15,000/- and should be paid in the form of Demand Draft (DD) only, drawn in favour of "Anand Agricultural University Fund Account" payable at Anand.

xv. **Earnest Money Deposit (EMD):** EMD amount should be paid item-wise separately as mentioned in the tender document. It may be paid in form of either DD or Pay Order or Bank Guarantee issued from any Nationalized Bank or banks mentioned in GR of Finance Department, GR No.: EMD/10/2018/18/DMO, Dated 16-04-2018 in the favour of "Anand Agricultural University Fund Account".

Note: *The vendor/bidder quoting for multiple items of the tender ought to submit EMD amount separately for each item. Single DD/Pay Order/Bank Guarantee of cumulative amount will not be accepted.*

xvi. **DD of Tender Fee and DD/Pay Order/Bank Guarantee of EMD have to be scanned and uploaded online**. The original documents of Tender Fee & EMD have to be submitted along-with the technical bid.

xvii. Earnest Money Deposit (EMD) will be refunded to unsuccessful bidders after the deal is finalized. However, the same will be refunded to the successful bidder only after submitting required security deposit for respective items. If EMD is paid in form of Bang Guarantee, it will be refunded after six months only.

xviii. **Bidder should give specification compliance statement point wise showing / highlighting items part no., serial no. as quoted in their quotation for comprehensive technical comparison. Proof of compliance should be mentioned point wise in the catalogue. Failing in compliance and proof of compliance may cause cancellation of the bid without any further notice.**

xix. Valid Manufacturer's / Distributorship's / Dealership's certificate from the principle for the year 2019-20 must be submitted along with quotation.

xx. Bidder should have a turnover of atleast 50% of the cost of the item for which vendor is bidding during any one of the last two years. The necessary documents related to turnover during last two years be submitted alongwith the technical bid.

xxi. A copy of the supporting document like, GST No., Tin No., PAN No., etc. of the vendor should be enclosed with the quotation / tender.

xxii. **Product quality certification issued by Quality Council of India (QCI), BIS or any other government approved body should be submitted alongwith the technical bid as preference for procurement may be given to such firm / company for respective items.**

xxiii. For imported goods, product quality certificate issued by BIS under FMCS should be submitted. If certification is not provided by BIS then certification issued from internationally acclaimed agency shall be considered.

xxiv. Those quotations will not be considered for financial bid opening which does not conform to given specifications for respective instrument / item and terms and conditions.

xxv. The vendor should invariably sign the quotation, general terms and conditions and must be submitted in original.

xxvi. Necessary items like UPS, Air Conditioner, Computer etc. of suitable capacity, if essentially required, for proper operation of the scientific instrument/equipment must be supplied by the vendor at no additional cost.

xxvii. As far as possible the technical literature should be furnished along with the quotation.

xxviii. If any query to the quotation is raised, a written reply must reach this department within specified period through letter / email or as suggested, else the quotation shall be treated as cancelled.

xxix. All quotations and correspondences should be addressed by designation only and not by name.

xxx. The supply should be made within the stipulated time as mentioned in the purchase order followed by installation.

xxxi. The equipment should be installed by the service engineer of the vendor at our site free of cost and the working should be demonstrated including training.

xxxii. No advance or part payment against the ordered goods will be made till the full order placed is satisfactorily executed.

xxxiii. List of users of your product and their opinion may also be sent along with their phone number/(s).

xxxiv. **Warranty:** The standard warranty should be provided for respective items. However, items where warranty period is mentioned in the specifications shall be considered as standard warranty period.

xxxv. **Training:** Training shall be provided free of cost by the vendor for each instrument quoted, if so desired by the indenter, if not mentioned separately.

xxxvi. **Security Deposit:** The successful bidder has to deposit 5% of invoice value in the University fund account prior to issue of purchase order by the University/Concerned department/College. This money will remain deposited in University as security deposit till standard warranty period is over or till complete supply of goods in case of consumable items.

xxxvii. The security deposit in favour of "Anand Agricultural University Fund Account" may be submitted in form of either DD or Pay Order or Bank Guarantee issued by Nationalized Bank or Banks mentioned in GR of Finance Department, GR No.: EMD/10/2018/18/DMO, Dated 16-04-2018

xxxviii. Rights are reserved with the undersigned to vary number of units, accept the quotation fully or partially and shall not be bound to give reasons for rejecting the whole or part of the quotation.

xxxix. Quotations/ tenders without Earnest Money Deposit (except from parties exempted for the purpose) for specific item will not be considered.

xl. Losses/damage of the instrument in transits, if any, shall be at the risk of the vendor / supplier

xli. If the demurrage charges occur due to delay in sending the document/air cargo receipt, the amount of the demurrage will be borne by the vendor / supplier.

xlii. All provisions as mentioned in the Gujarat State Purchase Policy – 2016, if admissible shall be made available to the vendors.

xliii. The technical bid may be opened on **30-12-2019** (tentative) at 10:00 Hrs. for scrutiny followed by commercial bid opening either on the same date or any other next date of completion of technical scrutiny.

xliv. In the event of the dispute regarding any matter related to acceptance or rejection of tender or consideration of tender for purchase order, decision of Director of Research or Dean Faculty of PG students of Anand Agricultural University, Anand – 388 110, Gujarat or person /persons authorized by him shall remain final.

xlv. For all legal matter court jurisdiction shall be "Anand", Gujarat.

Sd/-
Unit Officer
Department of Agricultural Biotechnology
Anand Agricultural University
Anand 388 110

Note: To be returned with the quotation duly sealed and signed by the vendor as acknowledgement of acceptance of the terms and conditions otherwise the quotation will be considered as disqualified.

Signature of Vendor
(Rubber Stamp, Address & Phone No.)

Place:
Date:

TERMS & CONDITIONS

(Applicable for Items mentioned at sr. no. 43 to 49 in this tender document)

1. AAU wishes to erect Fan & Pad Green House (app. 1150 Sq. meters), Naturally Ventilated Polyhouse (app. 1150 Sq. meters), Shade Net house (app. 8000 Sq. meters), Walk in tunnel (app. 500 Sq. meters) & Screen house (app. 35-50 Sq. meters). The size of these structures will be location specific and area can be increased or decreased.

2. This project is going to be established under RKVY at Main Vegetable Research Station, Anand Agricultural University, Anand.

3. The firm can fill the tender after visiting the site and understand the work in presence of respective authority on any working day.

4. The material to be used should be as per the BIS/ISI specifications and norms prescribed by the NHM and AAU, Anand.

5. The firm must specify the quality, brand of the material /equipment that will be used in the project.

6. The tenders will be evaluated by a committee constituted for this purpose.

7 The work shall be completed within 75 calendar days and this period completion shall be counted from 5 day after issue of work order letter. Director of Research, Anand Agricultural University, Anand is competent authority to extend this period only in justified reasons by the bidder.

8 In case of delay of work is there than a penalty shall be imposed and that shall be 1% per week up to maximum 10% of total bid value.

9 In case of violation of terms and conditions, the security of the firm shall be forfeited and firm will be blacklisted.

10 In case of incomplete work or non-completion of work, the security of the firm shall be forfeited and work shall be completed at risk and cost of the firm.

General Conditions of Erection of Structures.

(Applicable for Items mentioned at sr. no. 43 to 49 in this tender document)

1. The firm can fill the tender separately for each structure.
2. No pipes should be found welded. The bottom horizontal of 8 m length should be prepared by placing one feet section of lesser size. (Inside & clamping it properly).
3. The apron plastic must be fitted air tight on the side wall of structure.
4. The curtain pipe should be cut near the door in case door is placed at the centre of the side wall. The wall of polyhouse having more length, at centre of the wall a complete plastic without side curtain, insect net etc. should be fixed with separate profile and springs so that it can be removed as and when tractor operation is required in the polyhouse.
5. Supplier should ensure checking of construction materials for specifications by AAU representatives after supply of materials at site.
6. If fixtures found rusted the structure will be considered incomplete.
7. In case of top poly film fitted to the arches, if the length of top is more than 30 m, then the top plastic to be fitted to arch at every 24 m length by using profile and zig zag spring to avoid flapping of top plastic during winds.
8. Fixing of top poly-sheet should be fixed with profile and spring in the center of gutter length.
9. Self-drilling screw in profile should not be more than 30 cm apart
10. While installing the multilayer film, first insure that respective layers are facing the right direction as shown on film (e.g. inside out)
11. Provide a sample of one sq. m size of poly film, thermal net etc. having manufacturer's identification mark along with batch no.
12. Film should be tensioned tightly enough so that there should not be flapping during windy days.
13. The structural design should be sound enough to withstand wind velocity as per Gujarat conditions.
14. Regarding material used under MI component the firm will use BIS mark material. The system should run smoothly and there shall be no leakage.
15. The overall structure should perform satisfactorily in all respects.
16. If the vendors / bidders installed the necessary structure at AAU, Anand on or off campus, then necessary documents and certificates from the University officers has to be attached.
17. The approved supplier must mention the make/manufacturer/company name of product supplied along with operation/user manual and warranty/guarantee conditions.
18. Testing of both structural and plastic materials used in the greenhouse should be tested by the NTH & CIPET or any other agencies for quality assurance (not older than 6 months report).

TERMS & CONDITIONS

(Applicable for Items mentioned at sr. no. 57 & 58 in this tender document)

1. AAU wishes to install drip irrigation system. The size of system will be location specific and area can be increased or decreased.
2. This project is going to be established under at Main Vegetable Research Station, Anand Agricultural University, Anand and Horticultural Research Station, Anand Agricultural University, Khambholaj.
3. The firm can fill the tender separately for Anand and Khambholaj location after visit the site and understand the work in presence of respective authority on any working day.
4. The material to be used should be as per the BSI/ISI specifications and norms prescribed by the NHM/GGRC and AAU, Anand.
5. The firm must specify the quality, brand of the material /equipment that will be used in the project.
6. The tenders will be evaluated by a committee constituted for this purpose.
7. The work shall be completed within 30 calendar days and this period completion shall be counted from 5 day after issue of work order letter. Director of Research, Anand Agricultural University, Anand is competent authority to extend this period only in justified reasons by the bidder.
8. The approved supplier has to declare their Warranty Schedules. Item supplied by the supplier shall carry warrantee as per warrantee schedules declared by supplier against any manufacturing defect from the date of Installation. In case of complaint / defect the supplier shall have to arrange repair /replacement within 10 days from the date of receipt of intimation.

General Conditions for Installation of System.

1. Regarding material used under MI component the firm will use BIS/ISI mark material. The system should run smoothly and there shall be no leakage.
2. The overall system should perform satisfactorily in all respects after installation and exertion.
3. If the vendors/bidders installed the necessary structure at AAU, Anand on or off campus, then necessary documents and certificates from the University officers has to be attached.
4. Comprehensive warranty on control panel and other electrical peripherals should be attached.
5. Bid can be accepted only after entire assessment.
6. The approved supplier must mention the make/manufacturer/company name of product supplied along with operation/user manual and warranty/guarantee conditions.
7. Testing of both structural and plastic materials used should be tested by any authorized agency for quality assurance (not older than 6 months report).

C H E C K L I S T

(Documents to be submitted physically in Technical Bid)

Sr. No.	Check List Documents	Remarks
1	Tender Fee in form of Demand Draft as applicable (Non-Refundable)	Mandatory
2	EMD amount in form of either Demand Draft / Pay Order / Bank Guarantee Item-wise as applicable (Refundable)	Mandatory
3	Signed & Stamped Tender Document	Mandatory
4	Copy of GST Registration	Mandatory
5	Firm / Company Registration attested copy	Mandatory
6	Valid Authorization Letter from OEM	Mandatory
7	Technical specification point-wise compliance statement	Mandatory
8	Copy Permanent Account Number of the bidder firm.	Mandatory
9	Copy of TAN of the bidder firm.	Mandatory
10	Last two (2) financial year's Income Tax returns of the bidder firm.	Mandatory
11	An affidavit / declaration on non-judicial stamp paper of Rs.100/- duly attested by Notary Public	Mandatory
12	Product quality certificate issued by QCI / BIS etc.	Preferable
13	User List / Opinion of users for respective items	Preferable
14	Product catalogue / literature etc.	Preferable

(TO BE SUBMITTED PHYSICALLY)

AFFIDAVIT

(To be submitted IN ORIGINAL on Non-Judicial Stamp Paper of Rs. 100/- duly attested by First Class Magistrate/ Notary public)

I/We, _____, age _____ years residing at _____ in capacity of _____ M/s _____ hereby solemnly affirm that

1. All General Instructions, General Terms and Conditions, as well as Special Terms & Conditions laid down on all the pages of the Tender Form, have been read carefully and understood properly by me which are completely acceptable to me and I agree to abide by the same.

2. I/We have submitted following Certificates / Documents for T.E. as requires as per General Terms & Conditions as well as Special Terms & Conditions of the tender.

Sr. No.	Name of the Document
1	
2	
onwards	

3. All the Certificates / Permissions / Documents / Permits / Affidavit are valid and current as on date and have not been withdrawn / cancelled by the issuing authority.

4. It is clearly and distinctly understood by me that the tender is liable to be rejected if on scrutiny at any time, any of the required Certificates / Permissions / Documents / Permits / Affidavits is / are found to be invalid / wrong/ incorrect / misleading / fabricated / expired or having any defect.

5. I/We further undertake to produce on demand the original Certificates / Permissions / Documents / Permits for verificati0on at any stage during the processing of the tender as well as at any time asked to produce.

6. I/We also understand that failure to produce the documents in “Prescribed Performa” (wherever applicable) as well as failure to give requisite information in the prescribed Proforma may result in to rejection of the tender.

7. My/Our firm has not been banned / debarred / black listed at least for three years (excluding the current financial year) by any Government Department / State Government / Government of India / Board / Corporation / Government Financial Institution in context to purchase procedure through tender.

8. I/We confirm that I/We have meticulously filled in, checked and verified the enclosed documents / certificates / permissions / permits / affidavits / information etc. from every aspect and the same are enclosed in order (i.e. in chronology) in which they are supposed to be enclosed Page numbers are given on each submitted document. Important information in each document is “highlighted” with the help of “marker pen” as required.

9. The above certificates/ documents are enclosed separately and not on the Proforma printed from tender document.

10. I/We say and submit that the Permanent Account Number (PAN) given by the Income Tax Department is _____, which is issued on the name of _____ [Kindly mention here either name of the Proprietor (in case of Proprietor Firm) or mane of the tendering firm, whichever is applicable]

11. I/We understand that giving wrong information on oath amounts to forgery and perjury, and I / We am/are aware of the consequences thereof. In case any information provided by us are found to be false of incorrect, you have right to reject our bid at any stage including forfeiture of our EMD/PBG/cancel the award of contract. In this event, this office reserves the right to take legal action on me/us.

12. I/We have physically signed & stamped all the above documents along with copy of tender documents (page no._____ to _____)

13. I/We hereby confirm that all our quoted items meet or exceed the requirement and are absolutely compliment with specification mentioned in the bid document.

14. My/Our Company has not filled any Writ Petition, Court matter and there is no court matter filled by State Government and its Board Corporation, is pending against our company.

15. I/We hereby commit that we have paid all outstanding amounts of dues / taxes / cess / charges / fees with interest and penalty.

16. In case of breach of any tender terms and conditions or deviation from bid specification other than already specified as mentioned above, the decision of Tender Committee for disqualification will be accepted by us.

Whatever stated above is true and correct to the best of my knowledge and belief.

Date: **Stamp & Sign of the tenderer**

Place: **(Signature and Seal of the Notary)**