

BIDHAN CHANDRA KRISHI VISWAVIDYALAYA
College of Agriculture, Susunia, Chhatna, Bankura
(Extended campus of BCKV)

Ref: COAS-I-11/22-23

26
Date: 26.08.2022

Notice E-Tender

The Associate Dean College of Agriculture, Susunia, Chhatna, Bankura (Extended campus of BCKV) are invited Sealed quotations from the bona fide suppliers/ vendors for supplying the different Instruments as per specifications stated below within **fourteen days of publication under the project "Development of A soil, plant and water testing laboratory for sustaining soil health and agricultural productivity in Red and Lateritic Zone of West Bengal"**. Please mention terms & condition clearly against each item, if any, for supplying the Instruments.

- i) Price: The price of instruments including the imported ones should be quoted in each unit (including taxes and duties etc). However, quoted rates must be FOR DESTINATION including packing, insurance and delivery charges up to **College of Agriculture, Susunia, Chhatna, Bankura (Extended campus of BCKV)** West Bengal with satisfactory of good condition.
- ii) EMD: Vendors are required to pay the Demand draft amounting Rs. 10000/- (Rupees ten thousand) only (**xerox copy**) as specified along with their quotations. Without EMD quotations will not be considered for technical comparison. Demand Draft must be in favour of "**Bidhan Chandra Krishi Viswavidyalaya**" payable at Kalyani (IFSC: SBIN0001082). Supporting document regarding exemption of demand draft must be submitted.
- iii) Supporting Documents:
 - a) Bid papers should accompany authorization certificate from original manufacturer, trade license, GST registration etc.
 - b) Photocopy (Self attested) of the original supporting document in favour of the specification – claim for each item must have to be submitted separately.
 - c) User list along with certificate from reputed users also need to be submitted.
 - d) Photocopy of supporting document of assured after sale service in Eastern India and availability of spare parts need to be submitted.

Price bid of the vendors will be compared only if technical specificity as appended against each item is fulfilled. The Viswavidyalaya reserves the right to accept or reject any tender without showing reason.

N.B : Please read the carefully terms and conditions of items.

The quotations must be dropped in the office at Registrar, Bidhan Chandra Krishi Viswavidyalaya, Administrative Building, BCKV, Mohanpur, Nadia 741252 WB or sent by post same as above within ten days of publication.

Chairman, CTC, BCKV


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List of Instruments with Specification

Sl. No.	Name of Instruments	Specification
1	Atomic Absorption Spectrophotometer (AAS)	AtomicAbsorptionSpectrophotometerwithGraphiteTubeAutomizer(GTA),FlameAutomizer(FA)andVapourGenerationAssembly(VGA),UnitforFlame(AirAcetyleneandnitrousoxide-acetylene),Chiller,AutosamplersforGTAandflame.
TECHNICAL SPECIFICATION		
	Atomic Absorption Spectrophotometer	Computer Controlled with built-in flame emission mode
	Wave length range	180 – 910nm wave length
	Sensitivity	Sensitivity at least 0.35 abs for 5µg/ml aqueous copper standard solution with air – acetylene
	Optics	Double Beam holographic Monochromator, Czerny turner
	Focal length	At least 250mm focal length
	Resolution	1800 lines / mm
	Slit Width	0.1nm, 0.2nm, 0.4nm, 1nm, 2nm & 5.0nm (Six step auto-changer)
	Flame Atomizer	All titanium or equivalent burner with impact bead/ Flow spoiler, premix Design
	Movement	Automatic movement into the sample compartment
	Affect from Acids /Organic solvent	Unaffected from attacks by acid solution or organic solvents (e.g. Methylisobutyl Ketone i.e. MIBK)
	Flame Alignment in liquid beam	Fully automatic, optimized with motorized burner mount for vertical and horizontal burner adjustment
	Nebulizer	High precision able to provide manually adjustable uptake rates material of the nebulizer and related Venturi should be inert to acid solutions and organic solvents such as MIBK
	Flame Control	Computer controlled ignition
	Gas Control	Computer controlled with oxidant and fuel gases monitoring to monitor constant fuel / oxidant ratio ignition.
	Safety Function	Interlocking system to prevent ignition
	Essential Interlock Monitor	Burner type as well as its presence in position, air selector, flame sensor, liquid trap level, gas supply pressure and air supply anywhere in the network of gas tubing in the system
	Automatic Lamp Selection Function	Computer controlled Hollow Cathode Lamp selection and alignment
	Lamp Holder	At least 8 lamp holder with built-in power supplies for hollow cathode lamps and electrodeless discharge lamps or equivalent
	Operating Parameter setting	Automatic Setting
	Read Out/Display	Display facility for absorbance as well as concentration, Display of error or error codes, absorbance range at least up to 2.0 Abs.
	Scale Expansion	Scale expansion at least up to 100x
	Integration time	Integration time should cover at least 0.1 to 60 seconds range
	Measurement	Measurement of mean, RSD and CV, Background only mode, Integration
	Accessories / Spares with Flame AAS system	


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Vapor Generation Assembly

Should be continuous flow based hydride/mercury vapor generator with option of using with or without out a program

Memorable auto sampler Highly automatic: After pressing the start key, the whole process (sampling, reacting, calibrating and cleaning) will be finished automatically.

High Sensitivity: The sensitivity of most elements is better than 1 ng/ml/1% A. Sensitivity of Arsenic is better than 0.15 ng/ml/1% A.

RSD: Less than 3%

Measurement time: The single measurement will take 25 to 35 sec

Less solution: sample 2-2.5 ml (including clean), potassium borohydride 1-1.5 ml, carrier liquid 5-6 ml.

Atomizer: Heated absorption cell (heated by Air-C₂H₂ flame in standard Carrier gas: Ar pressure: 0.32 Mpa, consumption: 70 ml/min

Power requirements: 240 VAC, 50/60 Hz

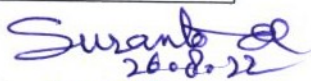
Precision	Precision of better than or at least 1% at ppb level of mercury, arsenic etc.
Absorption Cell	The absorption cell's material should have no effect of the high heat of the flame and the cell for the analysis of mercury should be of a closed absorption design
Flame Arrester	Flame arresters should be provided in the tube which connects the assembly to the absorption cell
Cell Design holder	The design of the cell holder should give a firm and easily adjustable (for alignment) mounting on the
System accessories	Complete with necessary reagent bottles, connector etc.
Hollow Cathode lamps	Arsenic, Antimony, Calcium, Chromium, Cobalt, Copper, Iron, Nickel, Lead, Manganese, Mercury, Tin, Zinc, Molybdenum.
Air Compressor with Air Filter or equivalent Air Service Unit	Complete with pressure regulator quite in operation, necessary tubing and connectors and should meet the air supply requirements of AAS operation.
Oil Free Pump	Oil-free pump and moisture trap
Corrosion Resistant	Resistant to acidic vapour and the drain valve (if any) should be made of stainless steel or equivalent corrosion resistant material
Nitrous – oxide gas regulator	Nitrous Oxide Gas regulator (two stage) with heater, with necessary tubing and connectors. Necessary transformers should be provided to transform this supply to the requirements of the heater. The heaters should work on 230 ± 10 volts 50 Hz AC power supply.
Acetylene Gas	Acetylene gas regulator (two stage) with necessary tubing and connectors.
Nitrogen Gas regulator	Nitrogen regulator (two stage) with necessary tunings and connectors.

Graphite Furnace System

Graphite Tube Atomizer	Should be computer controlled fully enclosed graphite tube system consisting of stabilized temperature/total pyrolytic graphite plate form.
Gas Supplies	Provision of two gas supplies (programme selectable) with independent control over the gas supply through the furnace.
Heating Rate	Heating rate of at least 2500°C per second
Cooling Time	Cooling time 20 seconds
Temperature Range	Temperature range ambient to 3800°C or more in 1°C increments


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	Feedbacksystem	Feedbacksystemforfurnacetemperaturecontrol,interlocksforwater,gas,temperature,furnacedoor,graphite tubedamage and mains power.
	Temp.Programming	Upto 20 rdertemperatureprogrammingfacilitywithflexibilityofprogramselection,ramptime,gases,gasflowa ndreadtriggerforeachtemperature step.
	Control	Computercontrolledwithappropriateprovisionforprintoutofthe furnace andsample parameters
	Display	Calibrationdata/graphs,temperatureprofiles,signalgraphicsandthe instrumentstatus.
	Memory	Memoryshouldbe ableto storeatleasttwenty fivenonvolatileprogramm e s
	Chiller	Cooling Mode: Compressor Cooling, Temperature Controller: PID Controller, Temperature Range: 5°C – 35°C, Accuracy: $\pm 1^\circ\text{C}$, Cooling Capacity: 1300W @25°C, Pump Pressure: $\leq 1.3\text{Bar}$, Pump Flow: $\leq 15\text{Litre/min}$, Tank Volume: 8 Litre, Tank Material: Stainless Steel SS304, Refrigerant: R134a
	DATAWORKSTATION	
	Application Software	Program facility with multitasking software
		Shouldprovidecompletecontrolofinstrumentwithinstrumentstatusdisplayanditsvariousaccessories.
		Provide accurate and reproducible time averaged, integration, non – averaged integration, multi level calibration.
		Softwaresouldhandleinstrumentlinearabsorbancereading,concentration,oremissionintensity,integration time,built-instatistics,calibrationequationcontrol,slopeofanalyticalcurveusingoperatorselectivecalibrationstandard
		Built-ininterfaceforcomputerconnectionanduseofoptionalaccessories.
		Comprehensivequalitycontrolprotocolsfacilityincludingblank,multiplequalitycontrolstandards,QA/QCaudi ttrailandcalibrationfailure.
	Computer System	
	Make	Reputed brand
	Processor	i5 -10 th Gen
	RAM	8GB or advance.
	SSD	512
	Monitor	19"LED
	Operation Software	Preloaded Windows XP Professional operating system with Licensed CD or better
		MSOffice2000Standardwithmedia,manualandLicensedCDor better
		Preloaded Antivirus with latest version along with Licensed CD or better
	Fume Hood	Exhaust Fume Hood made in Stainless steel chimney with std 20ft SS304 Powder coated exhaust Pipe with inert Centrifugal Blower 1400RPM, AC 230V, with standard fitting installation hardware for installation.
	Operation Kit	StandardOperationKitincludingallrequireditems,tubings,fittingsforstartup/regularoperationofinstruments uch as Gas Purification System to be supplied with the system.
	Operation /maintenance Manual	Operation / maintenance Manualforeachunit
	Analytical manual	Analyticalmanualincludingapplicationsforflame, VGAandgraphite system
	Operation and Maintenance Training	One weektrainingto beprovidedtotwo scientiston softwaretraining,operation,maintenance andtrouble shootingaspectsof instrumentatthe timeof installation.
2	Air Conditioner	Split AC with inverter Swing compressor: Streamer discharge & Dew clean technology for healthy air Capacity 1.5 Ton: Suitable for medium sized rooms (111 to 150 sq.ft) 5 Star: Best in class efficiency Copper Condenser Coil: Better cooling and requires low maintenance Key Features- Cooling Capacity @ 43°C: 100%; Noise Level: 38 db(A); Ambient Operation: 54°C Special Features: 15% higher ISEER compared to base ISEER (4.5) of 5 Star AC; Patented streamer discharge for healthy air; Intelligent Eye to adjust cooling according to human presence; Triple Display (Power consumption %age, Set/Room Temperature & Auto error code); Dew clean technology that cleans indoor unit coil with a press of button Refrigerant gas: R32 Environmental friendly - no ozone depletion potential Indoor Unit, Outdoor Unit, Remote Control, User manual, Warranty Card & Standard Installation Kit
3	BOD Incubator	Floor-standing, double doors .Temperature range 5°C to 80°C with uniformity of $\pm 0.2^\circ\text{C}$ @ 10°C. Microprocessor PID controller delivers superior temperature control accuracy, required for precise results. features and advantages include illumination lamp, caster wheels for easy mobility, digital timer . 175Litres/6.1CFT, External Chamber MS, Internal Chamber SS304, Solid insulated door (with glass & without glass) w/ lock Door, Stainless steel 5 Shelves removable, Caster wheels, Humidity system, Light system by interior Illumination w/ 3 fluorescent tubes, Timer 0-99 hours for regulating cycle's illumination condition, RFID enabled door locking system. Brand name and model name must come in the display.


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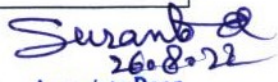
4	Centrifuge	<p>Max Speed: 15000 rpm Speed Accuracy : ± 1rpm or $\pm 1 \times g$ Temperature: -10°C to $+40^{\circ}\text{C}$. Possibility of precooling during standstill Rotor Type: Angle rotor for conical centrifuge tubes. All rotors with lid and anti-corrosion coating Rotor Capacity: 8 x 50 ml with max. rpm: ~ 14000 rpm 8 x 15ml with max. rpm: $\sim 14,000$ Pre selection of run parameters in terms of rpm Timer range: Pre selection of time from 30sec. to 10 hr. or continuous Set time in hrs:min, min:sec, or continuous mode Automatic rotor identification & imbalance sensor Low vibration during the operation. Extremely low noise during operation (<66 dB). With microcontroller for speed, time and temperature Motorized lid lock and inter lock Keys for start, stop and lid open Power supply: 230 V/50-60 Hz</p>
5	CHNS Analyser	<p>Fully Automated PC controlled Elemental Analyser for Solid and Liquid samples. The analyzer must be able to simultaneously determine the elements in the following combinations: CHNS, or CHN, or CNS, or CN, or N without a need to change column Helium as carrier gas and option for argon as carrier gas in CHNS mode. Sample weight Range: 0.2 mg of organic compound to 800 mg or more inhomogeneous Soil Detection range: 0 to 100% for all elements (C, H, N, S) with the capability of measuring at least 10 mg absolute carbon in CHNS mode and more than 50 mg in CN mode Standard deviation: $\leq 0.1\%$ of absolute. Lower detection limit of < 50 ppm for N, C and S with thermal conductivity detector (TCD) depending on sample weight. The instrument must fulfil the international and national safety standards. For safety reasons, the entire instrument including furnaces must internally operate on low voltage (< 50 V). Large dynamic measurement, range from 0.1 milligram, chemical substance to 1 gram inhomogeneous soil, best analysis results for any sample matrix, Wide variety of optional configurations, individually extendible, Low and tool-free maintenance, Low noise level, Low total cost of ownership, Integrated 120 position auto sampler as standard, Patented ball valve for blank-free sample transfer.</p> <p>Furnace System</p> <ul style="list-style-type: none"> Should have two zone furnace system, separate for combustion and reduction with independent temperature control for each furnace in CHNS mode. Easy slide-out mechanism of furnace for routine maintenance work. It should be possible to set difference temperature for combustion and reduction. Controlled furnace Temperature should be 1200°C or more. Easy ash removal without change of combustion tube by means of an exchangeable ash crucible. <p>Separation System</p> <ul style="list-style-type: none"> Combustion gases in the form CO_2, H_2O, N_2 and SO_2 are separated by means of single Temperature Programmed Desorption (TPD) column. <p>Detector System</p> <ul style="list-style-type: none"> Oxygen intrusion free thermistor technology-based Temperature stabilized TCD detector for measurement of C-H-N-S-O <p>Auto sampler System</p> <ul style="list-style-type: none"> Integrated 50 or more position automatic sampler having capacity to handle upto 1000 mg sample in each sampler holder position of carousel <p>Software</p> <ul style="list-style-type: none"> should be Windows based and should have Operating software with automatic calculation and statistical evaluation of sample results, automatic leak check, sleep/wakeup function, gas stop, service and maintenance support and weight transfer from external balance. All instrument functions incl. gas flow and pressures must be digitally controlled for diagnosis and <p>Trouble shooting via the internet. Consumables: To be supplied with consumables enough for 1,000 sample analysis in CHNS/CNS mode. Necessary documents: -</p> <ul style="list-style-type: none"> Catalogue in original. All technical specifications should be printed on the manufacturers catalogue/ data sheet.


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6	Compound Microscope	Compound Microscope (10x eye piece, objective with magnifying powers 10x, 40x and 100x oil immersion objective lens (Body - Monocular die-cast body, inclinable upto a horizontal position (90°); Focussing - By coarse & fine focusing knobs; Eyepieces - Huygenian 10x and 15x; Objectives - Hard anti-reflection coated, colour coded Par focal Achromatic 10x, 40x, 100x, oil immersion; Condenser - Built-in Sub stage Condenser with iris diaphragm. Branded, Best Quality)
7	Compound Trinocular Microscope with Camera	Trinocular head, eyepiece: SWF 10X, U plan objectives of 4X, 10X, 40X and 100X, Abbe 1.25 N. A. condenser with iris diaphragm, ceramic coated flat top stage, co axial coarse and fine focusing, LED or halogen illumination with automatic voltage sending power supply, digital camera (5 Mega Pixels), fire wire cable, C-Mount Adapter 0.7X and image analysis software with 4D experiment ability.
8	Conductivity Bridge	Advanced Microprocessor based design. Brand name and model name must come in the display. Conductivity and TDS modes. Automatic and Manual temperature Compensation Auto ranging. 0-20µS/cm, 20-200µS/cm, 200-2000µS/cm, 2 – 20 mS/cm, 20-200 mS/cm, 200mS/cm -2000. Multi point calibration. TDS Conversion factor from 0.40 to 1.00 Cell Constant adjustable from 0.1 to 10.0 Temperature Coefficient adjustable from 0 to 10%/ °C Normalisation temperature adjustable from 15 to 30 °C. Bi directional RS232 interface. Baud rate selectable from 1200,2400,4800 and 9600. Single and continuous print out of Conductivity. Multiple Printout types. Combinations selectable from Sr. No., Cond/TDS, Date, time and temperature. Real Time Clock. Temperature setting (Manual temperature compensation). Calibration report as per GLP requirements LCD touch screen display with Backlight. Memory storage of 100 measurements. Data logging facility up to 500 results. Data logging interval selectable from 5S,10S, 20S, 30S, 1M, 2M and 5M. Temperature calibration.
9	Compound phase Contrast Binocular Microscope	Body: Binocular, sturdy, stable base body with focus adjustment controls. Eye piece: Paired, high quality, achromatic, wide field, System complete with illumination system is required. Objective: Three objectives 10x, 40x, 100x. 10x and 40x objectives should have numerical apertures of 0.25 and 0.65 respectively. 100x should have numerical aperture of 1.65. Nose piece: Revolving nose piece to accommodate a minimum of three objectives with click stops. It should be provided with ribbed grip for easy rotation mounted on a precision ball bearing mechanism for smooth and accurate alignment. Stage uniformly horizontal, mechanical stage having dimensions of length 140 mm (+/- 20mm). The stage should be provided with spring loaded slide holder for exact positioning of specimen/ slide. The stage should have ball-bearing arrangement to allow smooth travel in transverse directions i.e. 80 mm (+/-10mm) and front to back direction, 50mm (+/- 10mm). The system should have a build-in variable light source (Illuminator). This light source should have a 50 W, 12 V Halogen lamp. All consumables required for installation and standardization of system and microscope cover to be given free of cost.
10	Desktop computer with accessories	Core i5-11400 Motherboard - GIGABYTE H510MH, 16 GB DDR4 RAM, 512 SSD, Key Board, Mouse, 19" LED Colour Monitor, Bluetooth, Cabinet, Branded Laser Printer.
11	Digestion Hood for the Laboratory	Internal lining: suitable material for HF resistance like uPVC or PP Internal size (1600x675x1250 mm : WxDxH) ± 10% Should supply with digital Face Velocity Meter with Alarm / Low Exhaust Indicator Cold water service fixture (inlet and outlet, pre-plumbed) for using distillation unit inside. Tri-wall construction for maximum robustness. U-PVC / PP internal chamber. Chain and Sprocket Sash support system. Hood lighting is pre-wired. Lighting is electronically ballasted, energy efficient, instant start. Typical light intensity on work surface is >1076 lux in zero ambient conditions. U-PVC exhaust collar ensures superior chemical resistance. One Gas service fixture-pre-plumbed Internal electrical connection:


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		<p>Two number (5/15 amp) socket</p> <p>Internal light fitting for proper illumination with external switches</p> <p>Vertical Sash: Polycarbonate/toughened float glass (acidresistant)</p> <p>Removable baffle/Suitable mechanism for easy cleaning,</p> <p>Blower and Duct: PP+FRP – 250 mm diameter duct 20 feet in length</p> <p>1 HP motor and reputed and standard company (brand must be mentioned), 600 cfm minimum volume</p> <p>Weather proof PP/motor housing.</p> <p>Exhaust: PP+FRP exhaust fan with chemical resistant impeller</p> <p>System will be installed in first floor of laboratory block. Stack height should be at least three meters above top roof (two storey building)</p> <p>Shaping vanes increase airflow "sweep" at the critical area at the sidewall to improve containment, especially when laboratory personnel walk fast in front of the hood.</p>
12	Electronic Precision Balance	<p>Maximum capacity [Max] 200 / 2000 g</p> <p>Minimum load 20 mg, Readability [d], 0.001 / 0.01 g</p> <p>Tare range-2000 g, Repeatability (Max) 0.001 / 0.01 g</p> <p>Repeatability (5% Max) 0.0005 / 0.005 g, Linearity $\pm 0.002 / 0.02$ g</p> <p>Stabilization time 2 / 1.5 s</p> <p>Adjustment external Physical parameters</p> <p>Levelling system manual Display LCD (backlit)</p> <p>Delivery components</p> <p>Balance, weighing pan, weighing pan shield, grounding foot $\times 1$, foot $\times 3$, power supply.</p> <p>Weighing pan dimensions 128\times128 mm</p> <p>Packaging dimensions 470\times380\times336 mm Net weight-3.2 kg</p> <p>Gross weight 4.8 kg, Protection class IP 43, Communication interface</p> <p>Communication interface, 2\timesRS232¹, USB-A, USB-B, Wi-Fi[®] (option)</p> <p>Electrical parameters, Power supply, Adapter: 100-240V AC 50/60Hz 0.6A; 12V DC 1.2A</p> <p>Balance: 12 – 15V DC 0.4A max, Environmental conditions Operating temperature +10 – +40 °C.</p>
13	Environmental Shaker	<p>Environment Shaking Incubator : SALIENT FEATURES, Programmable Logic controller (PLC), 4.3 HMI with colour Display and touch screen, Password protected Operation. , Universal Platform to accommodate various type of flask and test tube rack Max (8\times250ml).</p> <p>Electronic capacitance type Humidity sensor , Direct display of Temperature and Humidity, Display of set value and process value, Unique air flow system ensures even distribution of Temperature and Humidity, Precise control of temperature and humidity by using built in PID controller (auto tuning type), Forward and backward rotation programs and RPM 30-350, Maintenance free Brushless Induction motor, Variable frequency drive (VFD)</p> <p>Permanently lubricated bearing for noise less operation, Triple eccentric counter balanced drive mechanism for uniform agitation, Castor wheel for ease of mobility Adjustable levelling jack.</p>
14	Horizontal Autoclave	<p>1. Fully automatic micro processor based High pressure, high vacuum autoclave for sterilizing material including agars, sterilization of solution in open & closed bottles, disinfection of materials and waste decontamination.</p> <p>2. Should be front loading, have Rectangular, horizontal chamber with well insulated jacket, Chamber Volume minimum 165 lit. 3. Should have single vertical sliding door to have a pass through system. Door should be Electrically controlled having fully automatic function with multiple safety arrangements. Sealing system should be based on silicone seal. 4. Should have at least 50mm thick insulation materials on jacket and in doors to ensure low thermal losses. Working temp. of the door should be less than 45deg. C.</p> <p>5. Should be high grade Stainless steel. 6. Should have a built in Colour touch screen. 7. Should have audio visual alarms in case of undesired situations. 8. Should have programmable Operators access level. 9. Should have at least 10 pre programmed standard cycles plus 5 or more user programmable cycles and provision of chip card port for loading of new programs through chip cards. 10. Should have temperature adjustable from 25Deg. to 135 Deg. C.</p> <p>11. Safe Working pressure range should be adjustable 12. Should have complete monitoring of cycle operation and provided with at least two pressure sensors and two Temp. Sensors (PT -100) in addition to analog for chamber pressure, jacket pressure and steam generator pressure indication. 13. The unit should be equipped with multiple safety mechanisms for Emergency Stop over pressure safety valves for chamber and jacket, over temp safety, steam traps and electrical safety. 14. The unit should include Non fade built in thermo-recorder for step progress values during the cycle with time and date and alarm condition if any. 15. Should have built in feature of Water Saving System for water conservation. 16. Should be supplied complete with high quality stainless steel trolleys and sterilization baskets:</p> <p>a. External trolley = 01 nos. b. Internal trolley with steel roller</p>


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		<p>c. Shelves = 01 nos. and d. 2 sets of Sterilization baskets.</p> <p>17. All accessories & electric fitting to be included 18. Three compulsory visits for calibration and check-up irrespective of complaints in year.19. The steam Generator should be also be made of AISI 316 Ti steel & the steam generator should be equipped with automatic cleaning facility. 20. Integrated waste water cooling, integrated water saving device. Touch screen display, chip card reader and RS 232 interface.</p>
15	Hot Air Oven	<p>Capacity 250 Litre, Temp range: +5°C to 250°C.</p> <p>Control accuracy: $\pm 0.2^\circ\text{C}$, Uniformity: ± 2.0 at 100.0°C</p> <p>Minimum 3 No. of Shelves with height adjustable in 25mm steps, Glass window in-built into the door for easy viewing of samples, Automatic cut off of heater & blower when door opened, Digital PID temperature controller with timer, alarms and auto tuning, Aero dynamic internal design for achieving horizontal air circulation, Solid and plain bottom without electrical, Outer body made of G.I Epoxy Coated</p> <p>Inner body made of Stainless steel with clear bottom</p> <p>CE certified. Brand name and model name must come in the display.</p>
16	Hot Plate	<p>Size 420 x 320 x 130 mm Ht. (Total height with feet)</p> <p>Weight 9 kg, Voltage 230v (50Hz), Temperature 250°C maximum Uniformity $\pm 2^\circ\text{C}$. Temperature rise 6°C per minute</p> <p>Temperature drop 1°C per minute, The hot plate should be able to control the temperature within $\pm 2^\circ\text{C}$, Temperature should be uniform throughout the hot plate surface.</p> <p>6. There should be rims around the edges of the hot plate for safety, Power 2200 W, approx. 9.6 Amp in 230V, Material PFA coated Graphite.</p>
17	Laminar Air flow chamber	<p>Microprocessor controlled system with motorised Door.</p> <p>Type of airflow: Horizontal</p> <p>Full password protected operation.</p> <p>70% of air should be recirculated to the cabinet work area through HEPA filter and the 30% balance should be exhausted through HEPA. The balance should be dynamic to ensure the 70/30 recirculation/exhaust air</p> <p>The instrument must have HEPA filters on down flow as well as exhaust with an efficacy of 99.99% for particles sized of Calibration certificates along with DOP test report shall have to be submitted at the time of supply of instrument)</p> <p>The dimensions of the working chamber should be in the following range: Length: 90-120 cm ,Width: 40-60 cm ,Height: 50-80 cm .</p> <p>The main body and working chamber of the cabinet should be made of stainless steel, rigid and rustproof with removable trays</p> <p>The cabinet should have an electrically operated sliding front sash made of safety (UV) glass with a provision for manual operation of the sliding front window. Also, the sliding front sash should have true air and aerosol tight electrical shahs.</p> <p>Front door: clear transparent sturdy material</p> <p>Work chamber should be fitted with a Fluorescent lamp for illumination and should have programmable UV light cycle.</p> <p>The unit should have microprocessor control keys with large icons and a large graphical display with provision for the permanent display of the following key cabinet conditions.</p> <ol style="list-style-type: none"> Inflow and down flow air velocity Exhaust and recirculated airflow volumes Time and date Residual lifetime of filters & total time of cabinet operation (optional) <p>Alarm notification in the following situations:</p> <ol style="list-style-type: none"> Low inflow velocity Low down flow air velocity HEPA filter life Alarms for clogged filters Other malfunction <p>Compatible at a power supply of 220 V, 50Hz</p> <p>Noise level: < 65 dB</p> <p>Basic cabinet should be termite and insect resistant and washable</p> <p>Accessories: Manometer, gas inlet, castors</p> <p>The cabinet should be with a stand with lockable castors</p> <p>Brand name and model name must come in the display.</p>
18	Multimeter with Ion selective electrodes for water quality testing	<p>Colour Capacitive touch screen with software control facility.</p> <p>Can store 2000 sets of test data, which can be saved and transferred to USB memory stick and opened with Excel.</p> <p>Power: Universal AC adapter and with Rechargeable Lithium Battery (Included).</p> <p>Concentration Range: (0~19990), Can Switch 6 kind of Concentration units: ug/l, mg/L, g/L, mol/L, mmol/L, ppm.</p> <p>Concentration Resolution: 4 significant digits (expressed in scientific notation)</p> <p>Can be operated through 5 Amp plug and Battery.</p> <p>Accuracy: $\pm 0.1\text{mv}$ or 0.03%</p>

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		Temp range: (0°C to 100°C) Accuracy: $\pm 0.1^\circ\text{C}$ Output Through USB/Bluetooth Battery life 1000 Hour. Type: Lithium battery. ISE- Fluoride, Chloride, Bromide, Ammonia, Brand name and model name must come in the display.
19	Mechanical shaker	Compact Bench top Microcontroller based shaker with temperature control range from Ambient $+5^\circ\text{C}$ to 60°C , Ergonomically designed with minimal footprint Triple-eccentric counter balanced drive for uniform agitation with 25mm shaking orbit Maintenance free Permanent (self) lubricated shield ball bearings for noiseless operation FRP exterior with anti-vibration mount for smooth running Precise shaking speed control with gentle start/stop cycle, preventing spillage Powerful Permanent Magnet DC drive with digital LED display of speed Pulse width modulation (PWM) based speed control Optional timer function for speed Auto-restart to set speed after power outage Universal platform to accommodate Erlenmeyer, Round bottom, volumetric flasks, test tube holders & microplate holders Has auto restart function after power interruption with non volatile memory (retain set parameters after power failure) Orbital shaking with orbit diameter of 25 mm, Speed 20-450 rpm with accuracy of ± 2 rpm, LED display, Universal platform and clamps to hold flasks capacity 100ml-64nos or 1000ml. -16nos, Tray Dimension : 450 x 450 mm, Noiseless operation, Operational voltage - $220 \pm 20\text{V}$, 50 Hz, Should meet CE standards
20	Mechanical Soil Auger	Soil Auger Sampler : Made of Iron : Screw type, One meter long with handle : Size : 2.5 cm. Dia
21	Microprocessor based flame photometer	Alphanumeric Graphics LCD (240X 128 dots) Brand name and model name must come in the display Microcontroller based Na, K, Li, Ca & Ba Auto Ignition Gas leak sensor Auto Gas cut off. Pass word protection. Separate logging for Guest and administrator Quadratic curve fitting RTC High quality compressor Software Na minimum concentration without dilution 2 PPM and 0 -200 meq/l with 1:100 dilution Ba can be measured upto 3000PPM without dilution in higher concentration mode and 500PPM at lower Concentration mode. Ca upto 250 meq/L with 1;100 dilution Bandwidth 10nm Curve fitting accuracy $\pm 2\%$ F.S PC link software to send data to PC. Gas cylinder and regulator must be supplied. Product must be CE certified and Company should bear ISO certification. Brand name and model name must come in the display.
22	Microtomy	Section Thickness Range: 0.25 - 60 μm Trimming Thickness Range: 5 - 500 μm Resolution: 0.25 for 0.25 - 1 μm 0.5 for 1 - 5 μm 1 for 5 - 20 μm 2 for 20 - 30 μm 5 for 30 - 60 μm Resolution: 5 for 5 - 10 μm 10 for 10 - 100 μm 20 for 100 - 200 μm 50 for 200 - 500 μm Knife carrier retraction during return travel of the specimen: 60 μm Horizontal feed range of the knife carrier: max. 28mm


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		<p>Vertical specimen stroke: max. 64mm Specimen Size: 55 x 50 mm Specimen Orientation: x and y axes: universal 8° z axis: up to 360°</p>
23	Microwave digestion system	<p>Large furnace cavity design with completely independent intellectual property rights, 1~6 100ml ultra-high pressure digestion tanks can be placed at the same time; industrial grade 1000W magnetron.</p> <p>Temperature and pressure dual measurement and control, precise control, active prevention of over-temperature and over-pressure, maximum working pressure: 6MPa, maximum withstand temperature: 300°C, maximum working temperature: 250°C</p> <p>High-precision anti-interference pressure sensor adopts double explosion-proof control mode to directly measure the actual reaction pressure in the digestion tank, the pressure measurement range is 0~10MPa, and the pressure measurement accuracy is 0.01MPa;</p> <p>Insert high-sensitivity platinum resistance temperature sensor, directly measure the actual reaction temperature in the digestion tank, the temperature range is 0~300°C, and the temperature measurement accuracy is $\pm 0.1^{\circ}\text{C}$;</p> <p>It can measure and control the pressure and temperature in any reaction tank, and the 7-inch high-definition camera display accurately shows the chemical reaction process;</p> <p>Equipped with perfluorination digestion tank or FT double-layer digestion tank: PTFE digestion tank is made of PTFE (polytetrafluoroethylene), and the sheath is made of high-strength explosion-proof aerospace composite. The fiber material is made by one-time die-casting, high temperature resistance, high pressure and strong acid corrosion resistance; easy disassembly and assembly, fast cooling; double venting protection and digestion tank for venting holes and sealed bowls; up to 6 ultra-high pressure digestion tanks can be placed at the same time; The furnace cavity is ventilated with acid resistance, large air volume centrifugal fan, and the exhaust air volume is 5m³/min;</p> <p>Specially designed self-locking ground moving safety door to resist accidental explosion and microwave leakage.</p> <p>Tank Technical Parameters:</p> <p>The pressure-resistant jacket material is a hydrophobic high-strength pressure-resistant composite fiber material, which is explosion-proof and supports washing and easy to clean. The inner tank adopts imported modified polytetrafluoroethylene (TFM), high-strength frame type closed ultra-high pressure reaction tank: the highest withstand temperature $\geq 300^{\circ}\text{C}$.</p> <p>Explosion-proof membrane automatic pressure relief and PEEK compression module pressure relief safety design to ensure the safe operation of the instrument.</p> <p>The whole tank pressure monitoring system, the threshold value can be adjusted.</p> <p>Using high-strength engineering plastics for one injection molding, independent ultra-high pressure digestion tank holder.</p> <p>Tank-6pcs, Power- AC220V/50Hz/10A, Microwave frequency-2450 (MHz), Microwave output power-1000 (W), Microwave cavity-45 (L), Protective spraying- PFA, Control heating method- PID, Temperature ramp-1~50°C /min, Cooling time-$\leq 25\text{min}$, Microwave leakage-$\leq 0.3\text{mW/cm}^2$, Temperature control range-0~300°C, Temperature control accuracy-0.1°C, Pressure control range-0~10Mpa, pressure accuracy-0.01Mpa, Outer tank material- PEEK, Inner can material- TFM1700, Highest temperature resistance-300°C, Operating temperature-250°C, Highest pressure-15Mpa</p>
24	Microwave oven	<p>Convection Microwave oven with ceramic enamel cavity 21L (1. Capacity: 0.7 cu.ft. /21 Ltr., 2. Heat Source: Convection 3. Power: Power Consumption (Microwave) 4.1200W 5. Power Source: 230V / 50Hz 6. Output Power (Max): 2350W 7. PowerLevel:6 8. Display Type: LED bar 9. Control Method: Membrane 10. Door Opening Type: Handle 11. Microwave Distribution: Turntable 12. Cavity interior :Ceramic enamel)</p>
25	Millipore water purifier	<p>Parameter Value or Range</p> <p>Pressure 2 – 6 bar</p> <p>Flow rate > 10 L/min at 2 bar</p> <p>Feed water type Potable water</p> <p>Temperature 5 – 35 °C</p> <p>Conductivity 10 – 2000 $\mu\text{S/cm}$ at 25 °C</p> <p>pH 4 – 10</p> <p>Hardness (as CaCO₃) < 300 ppm</p> <p>Silica concentration <30 ppm</p> <p>Carbon dioxide concentration (CO₂) < 30 ppm</p> <p>Langelier Saturation Index (LSI) < 0.3</p> <p>Fouling Index (FI5) or Silt Density Index (SDI) ≤ 7(*)</p> <p>Total Organic Carbon (TOC) < 1 ppm</p>

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		<p>Free chlorine < 1.5 ppm</p> <p>Typical water quality measures with a well-designed and maintained distribution loop of 20 meters:</p> <p>Flow rate Pressure</p> <p>5 LPM / 1.32 GPM 2.2 bar / 32 psi</p> <p>15 LPM / 3.96 GPM 1.9 bar / 28 psi 20 LPM / 5.28 GPM 1.6 bar / 23 psi</p> <p>Plumbing Connections</p> <p>Inlet (feed water connection) 3/4" BSP</p> <p>Loop start/return 1 1/2" Sanitary TC</p> <p>Drains 3/8"</p> <p>Lab Water Purification Systems - Type 2 (Pure)</p>
26	Muffle furnace	<p>Controller: Should be microprocessor based & at least 8 segment programmable or equivalent controller with necessary safety features. Programmable Temperature (PID Controller) controller with heating rate control from 10°C/min to 40°C/min. (Fast heating rate would be Preferable), Heating element :Kanthal A1 and backed by high temperature ceramic insulation , Safety: Over Temperature protection& over load protection (Safety Controller) should provided. Door safety switch must be provided so that it disconnects power supply to heating element when door opens.</p> <p>Should be equipped with digital over temperature protection circuit to fail safe in the event of a controller malfunction ,</p> <p>Critical electronics component and heating elements protected by a 35A circuit breaker.,</p> <p>Weight : less than 100 kg ,Two set of operation and maintenance Manual should provided.</p>
27	pH Meter	<p>Supply of BENCH TOP, DIGITAL pH meter along with all its accessories and spares required</p> <p>Brand name and model name must come in the display.</p> <p>to operate the instrument as per specification given below:</p> <p>The direct reading Laboratory pH meter (Digital) operable at 230V +/- 10V A.C., 50 Hz powersupply with necessary cable connections and other standard accessories required for smoothoperation.</p> <p>Measuring Range Resolution Accuracy</p> <p>pH Range 0 to 14 pH (Min.) 0.001 pH ± 0.002 pH</p> <p>mV -1000.0 - 1000.0 (Min.) 0.1 pH ± 0.2</p> <p>Rel. mV -1000.0 - 1000.0 (Min.) 0.1 pH ± 0.2</p> <p>Temperature MTC -10.0 - 100.0 °C (Min.) 0.1 °C ± 0.1 °C</p> <p>Temperature ATC -5.0 - 100.0 °C (Min.) 0.1 °C ± 0.1 °C</p> <p>Temperature Compensation : It should have both Automatic and Manual temperaturecompensation</p> <p>Touch screen Display</p> <p>parameters likepH, Temperature, mV, date & Time etc.</p> <p>Ingress protection level : It should be IP54 complied protection level.</p> <p>Power requirements : It should be operable with 9 -12V/10W DC adapter.</p> <p>Storage of instrument : It should be able to stored in temperature of 5 to 40 °C and Relative humidity of 5 to 80% (non-condensing)</p> <p>GLP compliance : It should be GLP complied .</p> <p>To improve the reproducibility, it should allow to choose from at least three endpoint criteriaaccording to our requirements.</p> <p>The Electrode holder should move in a perfectly vertical way, making it easy to place the sensor</p> <p>in the perfect position i.e. vertically in the measurement beaker.</p> <p>It should be able to connect peripherals via USB and RS232, increasing its possibilitiessignificantly. Export of measurement data and calibration data should be possible to USB stickto direct PC software whenever required by us.</p> <p>It should allow monitoring of limits of parameter pH by giving a warning message when the value falls below or exceeds the predefined limits.</p> <p>It should have facility not to delete of data and changing of settings in routine mode. Hence it</p> <p>required to be PIN protected for Login, deletion of data, system settings etc.</p> <p>It should have choice of endpoint formats like Automatic, manual and timed.</p> <p>It should have choice of pH decimal places like X.Y, X.YY & X.YYY (Up to one, Two andThree decimal places.)</p> <p>It should have Data storage up to 1000 measurements (Min.)</p> <p>It should have pH Sensor input through BNC connector with impedance of more than 3 X 1012Ω .</p> <p>It should have Temperature sensor input.</p> <p>It should be able to show the quality of last calibration on its screen.</p>

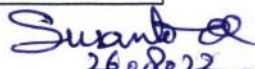

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28	Precision drier	<p>Capacity, Material and construction: Cap:3ltr/h evaporation rate. Suitable for Aqueous feed solution. Laboratory scale Model. External body –SS316. Drying chamber and cyclone in full SS 316L construction. Total construct Size: 1200 x 1300 x 2000 mm (±10% dimensional tolerance), Self-supported on castor/wheels (Compressor size is extra). Weight: max 130 kg (±20%) (compressor weight is extra) Chamber: Chamber Size: diameter-280-350mm, length- 600-1000 mm, with conical bottom. Feed pump: Variable speed gearless peristaltic pump with dual Teflon rollers and precise speed control. Feed pump should be of repute make preferable Watson Marlow/miclin /flowtec or equivalent. Silicon tube for feed. Pump should be controlled through PLC and manually as well. Spray system and nozzle: MOC for two-fluid Spray Nozzle: 316L Variable aperture nozzle of 0.7mm. Other sizes such as 0.5/1.0/1.2/1.5/2.0/2.5 mm may be available. Auto de-blocking system for spray Nozzle which will be fitted on nozzle controlled through a de-blocker timer. An Additional Spray aperture for future use should be included. Nozzle geometry and design must be submitted with a tender document. Desired output particle size range 20-45 micron, compatible with ceramic slurry also. Controller and display: PLC based operating system with a multi-touch colour, interface, 9" HMI with data logging, online trends, recipe function and ability to store recipes and recall for ease of use. PLC of repute make such as Siemens, delta or equivalent etc. The system should have an Audio visual alarm for a. Inlet temperature, Outlet Temperature and Atomization pressure. The system should have parameter control and safety interlock. Inlet/input air temperature/ /Temperature Range: Ambient to minimum 260 degrees C, variable and selectable Aspirator airflow: Max. 150 cum 3/ hr with VFD for motor control of repute make such as Delta, Fuji or equivalent Air heater: Electrical heater with minimum 6.0kW capacity Inlet filter: Combination type (Pre + HEPA) for pre-filtering environment air to keep most impurities and particles away from the spray drying process Outer filter assembly: Mainly to protect aspirators from fine particles. It should include spun bound polyester cartridge with PTFE coating. Efficiency- 1micron down to 99.99%. Compressor: Oil-free air compressor piston type with min. 20L air reservoir 1HP Power supply: Single-phase, compatible with Indian standard</p>
29	Quartz double distilled water plant	<p>All quartz, Material of distillation unit shall be made of high purity electronic grade transparent quartz only, Heaters: Demountable boiler panel with compact design of boilers & condensers easily mountable for cleaning and maintenance with spiral heaters, Electrical Requirement: 230-250 volts 10/50Hz, Single phase, Dist. Water Output capacity (ltr/hr): 2.5 ltrs/hr, Total power consumed-4.4 kw, Conductivity (µS/cm): <1*10-6, Distillation Units Type-vertical, Biological Activity-Pyrogen free, Double Stage glass (Quartz) distillation Units- Yes, Double wall Condenser- Quartz, Cooling Water Consumption (ltr/hr)-2 ltrs/min, Boiler- Quartz, demountable model and should be connected with rubber tumbling and pinch cock for cleaning sediments in primary boilers and must be CE/ ISO Certified. Primary boiler provided with O ring Accessories Distillation Apparatus Power Supply (DAPS): The Unit provides for Automatic working of distillation unit by switching off the heaters in case water level falls below the heating coil, there by safeguarding the heaters. The unit resumes distillation when water level is restored. The unit also comes with Buzzer. Apart from the above features, Dual Cut Off: the dual cut off switches off the heater even when there is no cooling water supply to the Condenser</p>
30	Quartz single distilled water plant	<p>All quartz, Material of distillation unit shall be made of high purity electronic grade transparent quartz only, Heaters: Demountable boiler panel with compact design of boilers & condensers easily mountable for cleaning and maintenance with spiral heaters, Electrical Requirement: 230-250 volts 10/50Hz, Single phase, Dist. Water Output capacity (ltr/hr): 2.5</p>


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		<p>ltrs/hr, Total power consumed-2.2 kw, Conductivity ($\mu\text{S/cm}$): $<1 \times 10^{-6}$, Distillation Units Type-vertical, Biological Activity-Pyrogen free, Single Stage glass (Quartz) distillation Units-Yes, Double wall Condenser- Quartz, Cooling Water Consumption (lts/hr)-1 ltrs/min, Boiler-Quartz, demountable model and should be connected with rubber tubing and pinch cock for cleaning sediments in primary boilers and must be CE/ ISO Certified.</p> <p>Distillation Apparatus Power Supply (DAPS): The Unit provides for Automatic working of distillation unit by switching off the heaters in case water level falls below the heating coil, there by safeguarding the heaters.</p> <p>The unit resumes distillation when water level is restored. The unit also comes with Buzzer. Apart from the above features, Dual Cut Off: the dual cut off switches off the heater even when there is no cooling water supply to the Condenser.</p>
31	Refrigerator	<p>Frost Free Refrigerator : Auto defrost function to prevent ice-build up Capacity 253 ltrs : Suitable for small families and bachelors Freezer capacity: 69 ltrs Fresh food capacity: 184 ltrs</p> <p>Digital Inverter Compressor – Enjoy greater energy efficiency, less noise and a long-lasting performance. It automatically adjusts its speed in response to cooling demand</p> <p>Shelf Type: Spill proof Toughened glass shelves with easy slide</p> <p>Special Features: Easy Slide Shelf, Door Alarm, Inverter, Temperature control, Cool pack, Stabilizer free operation (100 ~ 300 V)</p> <p>Key Feature : All round cooling for even cooling corner to corner Power Cool - Enjoy rapid cooling performance MoistFresh Zone - Preserve the freshness and flavor of fruit and vegetables for longer Interior LED Light Moveable Ice maker Tall Bottle Guards Recess Door Handle Fresh Room Deodorizer R600A refrigerant</p>
32	Refrigerator-temperature control	<p>The Upright Freezer type comes with an ABS make interior. Its outer body is a painted steel board, The door comes with a handle and a safety lock on it, There are casters provided for easy handling, Its inner drawers are made of plastic</p> <p>CONTROL SYSTEM : Uses a microprocessor-based temperature controller • The temperature control range is adjustable between -10°C to -20°C • It has a digital temperature display, Equipped with audio such as: High or low temperature alarm, chamber volume 270ltr, chamber dimensions 800X500X500 outer dimension 1060X695X792 Input voltage 230VAC 50Hz</p>
33	Semi-automatic nitrogen protein analyzer	<p>Analyzer should be semiautomatic system consisting of a digestion unit, a scrubber unit, and a distillation unit.</p> <p>Digestion unit: Automated with integrated programmable control, Should have electrically heated (230 ± 10 Volts, 50 Hz AC) metal blocks. It should be capable of providing a temperature range from 100°C - 440°C With $\pm 10^{\circ}\text{C}$ repeatability. Should have inbuilt temperature controller with digital display and LED display along-with manual temperature adjustment. Heating time setting with steps from 1- 150 minutes should have the capacity to accommodate at least eight numbers of digestion tubes each of at least 250ml capacity , should have leak proof integrated condensers (fumes carriers) made up of glass, fixed on a movable panel along with adaptor for outlet to the scrubber unit. Proper digestion exhausts system.</p> <p>Scrubber unit</p> <p>Should be an oil free centrifugal suction type, with manual vacuum adjustment facility. Corrosion and impact resistant provided with condensate and acid fumes collection vessels. Should operate on 230 ± 10 Volts, 50 Hz, AC power supply.</p> <p>Distillation unit</p> <p>Fully programmable distillation unit including sample dilution, alkali and receiver addition, distillation and tube draining facility. Validated procedure/ certification for TKN distillation like AOAC, EPA, DIN, ISO etc, Should be made-up of standard quality borosilicate glass. Should possess a steam generator made-up of borosilicate glass along with heater and have 3 step manual control facility i.e. standby, water inlet and distillation. Should have inbuilt bellows pump for accurate reagent (alkali / acid) dispensing. Should have ventilation valve. Should have timer for 5 - 15 minutes with audio signal. Steam inlet tube should be of PTFE. Unit should have quick clamping device for digestion tube with adaptor. Should operate on 230 ± 10 Volts, 50 Hz, AC power supply.</p> <p>Complete unit</p> <p>should provided with one set of digestion tubes along-with the servicing, operating and maintenance manuals. Can able to monitor and measurement of distillate temperature. Self adjusting cooling water control facility Safe feature for safe distillation. Can be upgradeable whenever required Accessories: 2 set of digestion tubes, Digestion tube stand, Spillage tray for the condensers, Tube removing device</p>
34	Soxhlet's apparatus	<p>Body constructed in MS epoxy coated finish ,Featuring use of mantle type heaters that comes with support of energy regulator, Capability to handle 6 tests, Can handle flasks of 250ml capacity, Supplied with support of clamps as well as rubber tubing, Works on electric supply of 220/230 Volts, 50/60 Hz AC, Suitable to heat soxhlet flasks of 250ml</p>

35	Top loading balance	<p>Maximum Capacity (or) Range of the balance 80-90 / 220 gm Readability 0.01 mg (0.00001 gm) / 0.1 mg (0.0001 gm) Tarring Range 0 – 220 gm Display Backlit graphics display/LCD with touch screen operation. Repeatability (Standard deviation) 0.03 mg (small range)/ 0.10 mg (large range), Linearity ± 0.20 mg / ± 0.10 mg, Eccentric Load 0.30 mg, Calibration Adjustment with internal weights, fully automatic calibration technology with temperature controlled, Data Memory Function For keeping Weighing data & Calibration history data, 10 Sensitivity drift ± 2 ppm/$^{\circ}$C (when automatic self calibration is not used) Stabilization (typical and fast) Approx. 4.0 sec (0.1mg) / 15 sec (0.01mg) , Size of weighing pan ~ 80 - 90 mm, Shielding Glass draft shield with flexible configuration Protective cover for the terminal, replaceable Feed through for weighing below the balance, Power Supply To be operable with 230 V AC, 50 Hz power supply. Accessories Power supply cable with all accessories for operation, Operating & Service Manual 2 Sets (of Hard copies) with Calibration certificate of the balance. Soft copy of Instrument Operating manual to be sent during the time of installation, Interface Standard bi-directional RS-232 interface, Dust Cover One.</p>
36	UPS for the laboratory	<p>10KVA - 192V-8Kw Online UPS , 16nos External Battery Module with iron Rack, UPS/ Automatic bypass facility, True double-conversion Online UPS, Microprocessor control for higher reliability. Pure Sine Wave. Input power factor correction. Wide input voltage range (110 V – 300 V). Generator compatible, Selectable charging current - allows flexibility to add any battery size, Emergency Power Off</p>
37	UV-Visible Spectrophotometer	<p>Double Beam (185-1100nm) Spectrophotometer with standalone colour LCD display with PC controlling software -optical System: double beam, diffraction grating -Minimum 1800 lines/mm, scan speed :6000nm/min, 8 position sample holder, Photometric details range Must cover from -4 to + 4, Bandwidth variable(0.2nm -6nm) stray light < 0.05% T @ 220, 340 (must cover less than 370nm), baseline flatness must cover $\pm 0.006A$, Detector- Photodiode/ single photodiodes/ dual silicon photodiodes, power 240+ - 10%, 50-60 HZ, Light source- xenon flash lamp, wavelength details-, Accuracy- Must cover 1.0nm, measuring Modes- Absorbance, Transmittance(%), Concentration, Operating Modes: Single Wavelength, Multiple wavelength, time scan, data Presentation- display analysis results and graphic data on screen, PC Link software, Port to data transfer, supplier should provide service for installation, demonstration, training for all operation procedure, temperature Range- operating conditions should cover +10 degree C to 40 Degree, analytical quality assurance- Instrument should have internal quality assurance tools, certification- Must comply CE Certificate. Accessories: Quartz Cuvettes: 50mm length, 10mm, 20mm path length (Each 2 Pairs), Original catalogue to be enclosed. Dedicated branded PC to be quoted with the system .Should have manufacturer's service centre in west Bengal and details location to be mentioned in the quotation..</p>
38	Vertical Autoclave	<p>Quality Systems for Medical Devices Built: <ul style="list-style-type: none"> • Floor standing vertical type top loading autoclave • Outer Dimensions: Width 75-87 cm; Height 90-110 cm; Depth 65-80 cm Software control: <ul style="list-style-type: none"> • Fully microprocessor based Proportional Integral Differential (PID) pressure control • Controller and software should comply with international standards such as 21 CFR part 11 or any other equivalent. • Should have facility to store identification codes and password codes for access level control • Built –in memory to store number of cycles Sensors: <ul style="list-style-type: none"> • Should have in-built platinum resistance temperature detector with a typical resistance of 100 Ω at 0$^{\circ}$C that complies with international standards of safety requirements for electric equipment for measurement control and laboratory use, eg. IEC61010-1, IEC 61010- 2-040 • Option to connect additional temperature sensors and pressure sensors should be available Display: <ul style="list-style-type: none"> • User interface should: <ul style="list-style-type: none"> <input checked="" type="checkbox"/> be easy to operate <input checked="" type="checkbox"/> have digital display enabling visualization of stage of the cycle, set and process temperature, pressure and quick access to important information <input checked="" type="checkbox"/> preferably have graphical display of temperature and pressure </p>



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		<p>☑ have notification for replacement of filters after appropriate number of runs performed. Chamber volume: Should be not less than 100 litres and preferably should be 150-180 litres in capacity.</p> <p>Suitable number of basket for bottle, vessels or agar media preparation should be quoted along with the instrument.</p> <p>Chamber material: Should be long lasting, made up of 316Ti grade Stainless steel of ASME/UL grade</p> <p>Chamber pressure: Chamber should be designed to withstand at least 2.8Bar/142°C and should meet European Pressure Equipment Directive (PED 97/23/EC).2 2</p> <p>Chamber heating: Should be heated uniformly by a heating plate on the outer wall with heater of suitable wattage for quick heating.</p> <p>Chamber insulation: Chamber should be completely insulated with chloride free glass wool.</p> <p>Sterilization temperature range: 105°C to 137°C with accuracy of ± 0.1 deg C at 121 deg C & an additional isothermal temperature range of 60°C to 105°C. Should have feature minimizes the time liquids are exposed to high temperatures during sterilization thereby protecting liquid media, saving laboratory time and reducing energy consumption. Biohazard and waste management system: Should have the facility to filter air removed from chamber before sterilization that is useful for sterilization of biohazard waste.</p> <p>Safety:</p> <ul style="list-style-type: none"> • Water level monitoring and maintenance of constant level for safety of heaters. • A safety device to prevent opening the door when the chamber is pressurized. • Prevent starting of runs if doors are improperly locked. • Safety feature should allow opening of doors only when the temperature reaches a pre-set temperature and pressure reaches atmospheric pressure. <p>Power requirement: A suitable size of electrical switch gear 3 phase 440 volt with earthing and recommended size of current capacity MCCB will be made available on wall at appropriate place. Other connection and installation has to be done by the supplier.</p>
39	<ol style="list-style-type: none"> 1. Hydrometer 2. Keen Boxes 3. Aluminium Box 4. Brass Sieve 5. Mortar and Pestle 6. Different types of Augers: <ol style="list-style-type: none"> 7. Screw type 8. Post hole type 9. Dutch type 10. Stirrer <ol style="list-style-type: none"> a. Magnetic b. Electric 11. Khurpi 12. Electric Heater 13. Room Thermometer 14. GPS machine 15. Camera 16. LCD projector 	Standard


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 College of Agriculture, Susuma
 (Extended Campus of BCKV)
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Signature Not Verified

Digitally signed by SUMANA ROY
Date: 2022.08.26 14:53:21 IST
Location: West Bengal WB

West Bengal Tenders		eProcurement System of Government of West Bengal Tender Details		
		Date : 26-Aug-2022 03:02 PM		
Print				
Basic Details				
Organisation Chain	BIDHAN CHANDRA KRISHI VISWAVIDYALAYA			
Tender Reference Number	COAS-I-11/22-23			
Tender ID	2022_BCKV_398600_1			
Tender Type	Open Tender	Form of contract	Item Rate	
Tender Category	Goods	No. of Covers	2	
General Technical Evaluation Allowed	No	ItemWise Technical Evaluation Allowed	Yes	
Payment Mode	Offline	Is Multi Currency Allowed For BOQ	No	
Is Multi Currency Allowed For Fee	No	Allow Two Stage Bidding	No	
Payment Instruments		Cover Details, No. Of Covers - 2		
Offline	S.No	Instrument Type		
	1	DD - Demand Draft		
	Cover No	Cover	Document Type	
	1	Fee/PreQual/Technical	.pdf	
	2	Finance	.xls	
Other Important Documents				
S.No	Category	Sub Category	Sub Category Description	Format/File
1	CERTIFICATES	CERTIFICATES	VAT/SALES TAX REGISTRATION CERTIFICATE ALONG WITH ACKNOWLEDGEMENT , PAN, LATEST IT ACKNOWLEDGEMENT, PTAX, LABOUR LICENCE	
2	CERTIFICATES	GST Registration Certificate	GST Registration Certificate	
3	CERTIFICATES	The Micro, Small and Medium Enterprises Certificate	The Micro, Small and Medium Enterprises Certificate	
4	CERTIFICATES	Permanent Account Number	Permanent Account Number	
5	CREDENTIAL	CREDENTIAL 1	CREDENTIAL 1	
6	FINANCIAL INFO	SERVICE TAX	SERVICE TAX	
7	FINANCIAL INFO	P/L AND BALANCE SHEET 2020-21	P/L AND BALANCE SHEET 2020-21	
8	FINANCIAL INFO	P/L AND BALANCE SHEET 2021-22	P/L AND BALANCE SHEET 2021-22	
9	FINANCIAL INFO	P/L AND BALANCE SHEET FOR LAST FINANCIAL YEAR	P/L AND BALANCE SHEET FOR LAST FINANCIAL YEAR	
Tender Fee Details, [Total Fee in ₹ * - 0.00]		EMD Fee Details		
Tender Fee in ₹	0.00	EMD Amount in ₹	10,000	
Fee Payable To	Nil	EMD through BG/ST or EMD Exemption Allowed	Yes	
Tender Fee Exemption Allowed	No	EMD Fee Type	fixed	
		EMD Payable To	Bidhan Chandra Krishi Viswavidyalaya	
		EMD Payable At	Kalyani	
Click to view modification history				

Work / Item(s)					
Title	COAS-I-11/22-23				
Work Description	purchase				
Pre Qualification Details	Please refer Tender documents.				
Independent External Monitor/Remarks	NA				
Show Tender Value in Public Domain	No				
Tender Value in ₹	0.00	Product Category	Equipments	Sub category	NA
Contract Type	Tender	Bid Validity(Days)	180	Period Of Work (Days)	90
Location	College of Agriculture, Susunia, Chhatna, Bankura	Pincode	722132	Pre Bid Meeting Place	NA
Pre Bid Meeting Address	NA	Pre Bid Meeting Date	NA	Bid Opening Place	BCKV, Mohanpur
Should Allow NDA Tender	No	Allow Preferential Bidder	No		

Critical Dates			
Publish Date	26-Aug-2022 05:00 PM	Bid Opening Date	12-Sep-2022 12:00 PM
Document Download / Sale Start Date	26-Aug-2022 05:00 PM	Document Download / Sale End Date	09-Sep-2022 06:00 PM
Clarification Start Date	NA	Clarification End Date	NA
Bid Submission Start Date	26-Aug-2022 05:00 PM	Bid Submission End Date	09-Sep-2022 06:00 PM

Tender Documents				
NIT Document	S.No	Document Name	Description	Document Size (in KB)
	1	Tendernotice_1.pdf	nit	997.06
Work Item Documents	S.No	Document Type	Document Name	Document Size (in KB)
	1	BOQ	BOQ_782216.xls	447.50

Bid Openers List			
S.No	Bid Opener Login Id	Bid Opener Name	Certificate Name
1.	sroy612@gmail.com	SUMANA ROY	SUMANA ROY
2.	ddeebckv016@gmail.com	Prasanta Kumar Patar	PRASANTA KUMAR PATAR
3.	dfbckv@gmail.com	Sudhibrata Mitra	SUDHIBRATA MITRA

Tender Properties			
Auto Tendering Process allowed	No	Show Technical bid status	Yes
Show Finance bid status	Yes	Show Bids Details	Yes
BoQ Comparative Chart model	Normal	BoQ Compative chart decimal places	3
BoQ Comparative Chart Rank Type	L	Form Based BoQ	No

Tender Inviting Authority	
Name	Chairman, CTC, BCKV
Address	BCKV, Mohanpur

Tender Creator Details

Created By	SUMANA ROY
Designation	DEPUTY DIRECTOR OF RESEARCH
Created Date	26-Aug-2022 02:56 PM