CP-6

BIDHAN CHANDRA KRISHI VISWAVIDYALAYA

Directorate of Research, Mohanpur - 741 252, Nadia, West Bengal

RKVY Project "Establishment of State -of -Art Soil-Water Testing Facility and Service Centre"

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Notice Inviting E-Tender

The Principal Investigator project entitle**"Establishment of State-of-Art Soil-Water Testing Facility and Service Centre"**, RKVY, under Govt. of West Bengal, Directorate of Research, BCKV, Mohanpur are invited Sealed quotations from the bona fide suppliers/ vendors for supplying the equipment as per specifications stated below within **seven days.** Please mention terms & condition clearly against each item, if any, for supplying the equipments

i) Price: The price of all the equipment, including the imported ones, should be quoted in net per unit (including taxes and duties etc). However, University will provide valid DSIR and authorization certificate to the clearing, if required. Quoted rates must be FOR DESTINATION including packing, insurance and delivery charges up to laboratory atBCKV, Mohampur,Nadia- 741252with satisfactory installation and demonstration.

ii) EMD: Vendors are required to pay the Demand draft amounting 2% of the tender amount **(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 KrishiViswavidyalaya" 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 all items.

Niharendu Saha
PI, RKVY
~~Chairman, CTC~~, BCKV 22/08/2022

List of Instruments with Specification

Sl. No.	Name of Instruments	Specification
1	**MilliporeWater Purifier**	The System should produce Pure Grade water directly from potable water feed. The System, delivering ASTM type I and III water, can be directly connected to the available potable water supply. System should contain inbuilt prefiltration containing 0.5um filter, silver impregnated activated carbon (to avoid bacterial growth) and polyphosphate granules anti-scaling compound for removal of hardness from feed water. System should include reverse osmosis with conductivity sensors before and after the membrane to ensure the quality of purification. Reverse osmosis should have a maximum water recovery of upto 20%. • **Total no. of Conductivity Cells in the system : Four units** • **3 – way solenoid valve : 2 units** • **RO reject recovery loop available to minimize tap water usage. Recovery upto 66%.** • **RFID tag for automatic traceability of new consumables in the system's memory** To ensure on-time reordering of the pre-treatment consumables, the system should have automatic warnings and alarms regarding the water quality. Type III Product water quality: Ions Rejection : 97 to 98 % with new RO cartridge. **Organics Rejection : > 99 % for MW > 200 Dalton** Particulates & Bacteria Rejection : > 99 %. Flow Rate : 8 Lt/hr. The System should be quoted with proper prefilter & Iron Removal Filter. Both of these have to be provided by the same company who manufactures the water System. **Prefiltration System:** A Two-stage purification 5 micron and 1 micron polypropylene graded density wrapped type depth filter with low voltage 20 watts powered DC pump with noise levels of 50 Db prefilter should be attached with tap water. And • The unit shall comprise of Diaphragm pump with inter connections and built-in pressure sensor ensuring continuous monitoring of cartridge life. • System shall operate at minimum inlet pressure of 0.5 bar and maximum of 1 bar. • System shall deliver water at the outlet at a minimum Pressure of 2.6 bar till a maximum of 2.8 bar. • System can handle Feed water with TDS as high as 5000 ppm and SDI upto 50. • It protects the water purification system Downstream. **Iron Removal Filter:** The system is connected with back wash able Iron removal filter to deliver 0.1 ppm out put. **Feed Water Quality :-** Potable Tap Water **Conductivity : < 2000 µs/Cm.** PH : 4-10 Total Chlorine : < 3ppm. Fouling Index : < 12.

		Feed water TOC : < 2000 ppb PE Reservoir with Vent Filter: Blow moulded PE reservoir with 50 L capacity with sensor rod float switch with a vent Filter to resist airborne contamination consisting with 0.65 micron filter, activated carbon and sodalime for the removal of particulates, CO2, N2 etc. The system produces Type I water suitable for Molecular Biology, PCR, HPLC & other critical applications. Type I Grade Product Water Specifications: Resistivity : 18.2 Meg Ohm.cm (@ 25 degree C) TOC : < 5 ppb Bacteria : < 0.1 cfu/mL Pyrogen : <0.001Eu/mL Flow Rate : 2 L /min Particulates > 0.22u : <1 P/mL RNase : <0.01 ng /mL DNase : 4 pg/ul Company must provide CE, CuL, valid ISO and Certificate of conformity. Warranty for a period of 12 months from the date of Installation. The system contains a built-in-dual wavelength Photooxidation UV Lamp (185 & 254 nm). **The lifetime of UV Lamp is TWO years. To support lifetime of UV lamp, Original Literature from company is to be submitted without fail.** There must be minimum 200 systems installations in & around Kolkata at leading Depts. Of State Govt. Institute, Central Govt. Research Institutes, Industry in West Bengal. And Company's own service team must be based in Kolkata. Engineers should be well trained by the company itself on WATER PURIFICATION SYSTEM. They only provide service whenever needed. Suitable filters should be included wherever required. Suitable distribution pump, booster pump for pumping feed water to the main unit from storage tank. Final filter is 0.22 un. **Prefiltration cartridges are to be supplied for one year.** **In case, the system is having Patented Technologies in it, certificate with Patent details should be submitted for Proprietary item. Systems Consumables Traceability via RFID tag technology.** All water purification cartridges and point-of-use filters will have a built-in RFID tag to ensure proper installation location, note installation date, and track volumes of water passed through the purification element. **Supporting documents wherever required and Original Catalogue should be provided to validate specifications. To verify the above technical specification provided catalogue & flow schematic must match on their global website for quoted model.**
2	**Microwave DigestionSystem**	Microwave digestionsystem capable of simultaneous processing of multi reaction vessels for digestion all kind of samples using all types' acids including HF through pressure active control on reference vessel with pressure rate increase control and direct temperature control on all vessels.
	Loading of vessels	Top loading with hardware and software safety interlocks. Sample vessels should be inserted individually from top for easy sample access.

	Cavity and Lid	Stainless steel construction with heat-bonded fluoropolymer (PFA - Perfluoro alkoxy) coating
	System control and Interface	Touchscreen control,inbuiltsoftware,memory formethodparametersanddigestiondata with USB interface
	Software	Built-in software featuring screen display of temperature, weight, method search, power profile, method set up, cook-book methods for various matrices, graphic display of routine operations etc. System should have option to operate using PC. Software should have separate User login and Admin login to secure method developed.
	Digestion vessels	• Vessels should bemadefrommassive TFM or PTFE-TFM for easy handling. • The rotor should have capacity of 16or more vessels to run samples in same batch/run. • Volume of vessel should be 75mL or more • Vessel operating pressure should be high up to 100 bar or better • Vessel operating temperature should be up to 260^0 C or more.
	Microwave Oven	• The system should have Poweroutput of1500W or more using dual magnetrons 2000W from 2 magnetrons (2 x 1000W) • System should have circularoven forhomogeneousirradiation with PFA-coating for corrosionprotection &gas collectionsystemforprotectionfrom reactiongases. • Built-in integrated cooling system for removal of gases (vapours) and cooling of vessel without a use of external chiller/thermostat in less than 20 minutes
	Reaction Control	• The system must have direct Temperature Control in real-time, measures the actual sample temperature in each individual vessel quipped with Floor Mounted IR Sensors. • The system should pressurecontrolsensor for reference vesselinrealtime. • The Temperature and pressure sensors supplied should be maintenance-freewithoutcable connections.
	Temperature Measurement	Measurementrangeambient to 250°C or more
	Pressure Measurement	Measurementrange0 to 40bar or better.contact-free, optical sample pressure measurement
	Safety Features	• Interlocks to avoid opening of vessels during hot condition • Release of over pressure to protect vessels from damage. • The system must have automaticsafety shut-down atoverheat /overpressure. **Safety and EMC emissions compliance**
	Warranty Details	One year standard on-site warranty from date of installation
	Input power supply	230-240 V, 50/ 60 Hz
3	**Centrifuge Machine**	Microprocessor Research Centrifuges … • Centrifuge rotors & carriers are suitable for use with variety of falcon & vacutainer tubes, • Soft touch keypads for fast and accurate setting of run parameters. Basic runs are easy with setting of speed, time, temperature, brake, press start key and compufuge • Brushless induction motor with frequency drive & unique automatic rotor identification ensuring accurate speed setting for individual rotors. Over current overheating safety cutoff circuit is provided for motor protection. • Safety lid interlock on the centrifuge ensuring that the rotor does not run with LID open while the LID cannot be opened unless rotor comes complete halt. • Max. Speed 20000 • Max. RCF 37540 • Max. Tube size 100 • Max. Capacity 400 • W x D x H (mm) 400 x 500 x 440

		Essential Features: • User friendly microprocessor control with LED display • Menu driven ten programme memory • Choice of high brake, low brake and coasting • Imbalance detector with auto cutoff • Safety lid interlock to prevent cover opening during centrifugation • Automatic unique safety rotor identification system • Speed holding accuracy 100 RPM • Self- diagnosis for errors Four (4) years on-site warranty from the date of installation ISO 9001-2015 certified
4	**Environmental Shaker**	Orbital Shaking Incubators Salient Features: • Brushless induction motor with variable frequency drives suitable for continuous operations • Step less variable frequency drive ensures gentle shaking start and maintains set speed • Counter balanced mechanism for high stability in uneven load of different sized flasks • Universal Shaking platform to accommodate different sized assorted flasks • Maximum shaking capacity – 9 flasks x 2000 ml • Powerful fan motor for forced air circulation to maintain uniform conditions inside chamber • Machine filled CFC free PUF insulation to eliminate void pockets • Unique design of thermal barrier for better energy efficiency • Heating by long SS tubular heaters • Additional tray to store samples • Chamber calibration port on side • Hermetically sealed compressor with CFC free refrigerant (CIS-24 Plus) • Microprocessor controller with 4" LCD display for display of shaking speed & temperature • 9 programes memory • High temperature safety cut off & alarms for high/low set temperature • Electrical circuit breaker • Time delay for compressor switch on (CIS-24 Plus) • Overload cut off relay for compressor (CIS-24 Plus) • Rounded inner chamber for easy cleaning • Attractive door profile • Weight carrying capacity of each tray : 30 kg uniformly distributed • Auto door closer • Smart Handle with LED door closure indication • Four (4) years on-site warranty from the date of installation Desirable features: (I) Touch screen display (TFT) with additional features (II) Validation protocol with IQ, OQ, PQ Documentation (III) Port for calibration probes/ safety back up ISO 9001-2015 certified
	Temperature Range & Accuracy	5 C to 60 C + 0.5 C
	Internal Volume (Liters)	215
	Platform Size	580mm x 600mm
	Maximum Shaking Capacity (Volume x No. of Flasks)	100ml x 49, 150 ml x 33, 500ml x 24, 1000ml x 15, 2000 ml x 9
	Shaking Speed range (RPM)	20 to 250
	Shaking Ampiltude	25 mm
	Internal Dimensions W x D x H	660 x 765 x 650

	(mm)	
	External Dimensions W x D x H (mm)	800 x 1150 x 1300
	Temperature control	Microprocessor with PT- 100 sensor
	Display	4" LCD Screen, large size display for ease of reading
	Power Failure Alarm	Audio Visual Alarm
	Door Open Alarm	Audio Alarm in case door open for over one minute
	Temperature Variation Alarm	Set Temperature + 2 C, Audio Visual Alarm
	Illumination	8 Watts Fluorescent Tube
	Internal Body Material	Stainless Steel - 304 grade (Standard Modelas), Stainless Steel-316 grade (GMP Models)
	External Body Material	Power Coated CRCA Steel (Standard Models), Satinless Steel – 304 grade (GMP Models)
	Insulation (CFC free polyurethane foam)	70 mm minimum for body & 80 mm for Door
	Noise Level	Less Than 65 db (A)
	Recommended Voltage Stabilizer	VS02
	Warranty	Four (4) years on-site warranty from the date of installation
5	**Precision Drier**	Microprocessor control helps in achieving precise high temperature with forced convection. • Technical Specifications (Parameter wise) • Internal dimension (W × D × H mm) 450×400×450 • Chamber volume (Litres) 740×618×630 • Temperature range RT+10 ~300 C • Temperature accuracy 1 C • Display resolution ±1 C • Timing range 1~9999min • Shelves (Nos) 2 • Power consumption 1550W • Electrical requirements 220V, 50Hz, Single phase Essential Features • Microprocessor PID controller (with timing function) • Polished stainless-steel chamber with rounded corners for easy & quick cleaning • Uniform distribution of air temperature • Forced-air convection • Double layer glass door, larger viewing window Four (4) years on-site warranty from the date of installation ISO 9001-2015 certified
6	**10 KVA onlineUPS with battery back up**	SRC 6000 UXI Capacity 10KVA, Battery bank consists of ~~20~~ 32 Nos, battery rake, 100 Ah VRLA battery Exide,120 minutes back up,3 years warranty
7	**UV-VIS Spectrophotometer**	Microprocessor based UV-VIS Spectrophotometer with high resolution touchscreen display, for operation on 220V / 50Hz. ▪ UV-VIS Spectrophotometer should have operating Wavelength range 190nm to 1100 along with on-board software for instrument operation.

		▪ The software should be offered with user friendly software to work in Scanning, Wavelength Program, Time-drive, Rate, Quant, Scanning Quant modes ▪ Spectral Bandwidth should be variable from 0.5, 1, 2, 5 & 20 nm is preferred ▪ Fully optically double beam with Czerny – Turner Monochromator design and holographic grating of 1200 lines/mm with 0.2 m focal length is preferred. ▪ Light source : Deuterium & Tungsten ▪ Detector – Silicon diodes is preferred ▪ Scan speed : up to 12000 nm/ min or more ▪ Wavelength accuracy : ± 0.1 nm or better is desirable ▪ Wavelength reproducibility : ± 0.1 nm or better ▪ A stray light of <0.01 %T 220, 340 & 370 is a must ▪ Photometric noise should be less than 0.00005A or better ▪ Photometric range : Minimum ± 4 A or more ▪ Photometric accuracy should be ± 0.002A or better ▪ Photometric Reproducibility : ± 0.001 Abs or better ▪ Baseline stability should be less than 0.0003 Abs/h or better ▪ Cell (quartz) – with stopper – volume – 3.5 ml. – pack of 2 to be supplied along with instrument ▪ High sensitivity matched pair Silicon Photodiode detector ▪ 4 USB ports or more for high speed PC and printer connectivity, data storage and transfer through USB pen drive ▪ The instrument should provide network access via wireless connectivity. Data can be transferred to a PC via a network ▪ Large sample compartment compatible with wide range of accessories. ▪ Must supply one pair of 10mm path length Quartz Cuvettes of 3.5 ml volume as a standard supply ▪ **The instrument must be under 3 years on-site warranty from the date of installation** **<u>The following must be supplied along with the main instrument</u>:** ▪ One Branded i3 PC with original Windows 10 Professional ▪ One Laserjet Printer Online 1 KVA UPS with 30 minutes back up
8	**AutomaticNitrogen Protein Analyzer**	**A. <u>Speed Digester with scrubber</u>** **<u>Digester unit</u>** Digestion system for 6 sample tubes with adjustable IR –heating and tight suction module to prevent the escape of sulfuric acid vapors during digestion. Robust design with stand-alone tube holder made from stainless steel. Complete and ready-to-use system supplied with the following: • Heating levels 1 to 10 and IR heating up to 580 °C • The Insulation tube as well as the optimal designed heating chamber guarantees that the sample tubes are heated with optimal thermal homogeneity • Sample tubes 300 ml (diameter 48 mm) with constricted condensation zone, glass thickness of 2.3 mm for sample tubes • Tight suction module with included hose for scrubber/water jet pump. • Stand-alone rack • Water jet pump, plastic • Fast heat transfer; temperature range 70^0C to 580 C • Sample holding capacity: at least 6 NOS with 300 mL

		• Tight suction module to prevent the escape of sulfuric acid vapors during digestion. **Scrubber unit** Environmentally friendly neutralization and exhaust of aggressive fumes, which arise during Kjeldahl or other digestions. The system should have following features - • It should operate without water-jet pump • The build in membrane pump should guarantee high suction performance of 32 L/min. • For more sensitive digestions the suction capacity can be adjusted in a typical range of 100 – 400 mbar below atmospheric pressure. • The two-step gas scrubbing system consists of a 3 L neutralization step and an adsorption step • The Scrubber should be supplied complete and ready to use. **B. Automatic Distillation System with pH Acid Base Titration** The system should have following features - • Detection range of 0.02 – 200 mg/N or more • Steam ramps should be available • NaOH Pump • H20 Pump • 7-inch Touch display The intuitive touch screen provides fast feedback and enables easy process handling. • Recovery Nitrogen: N: >98% with digestion process N: >99.5% w/o digestionprocess • Integrated timer • Distillation capacity (100%) ~ 40 mL/min • **Efficient steam distillation** by high-performance steam generator. Adjustable distillation power 10 - 100% • Operating convenience: Compact, modern, and functional design, stand-alone unit using minimal space, easy-to-use keyboard, Clear LED display • Tap water consumption ~ 1.2 L/min • System should store memory of 80+ methods • System should store number of determinations log • System should store number of determination results • Steam performance -150 ml / 5 Min **System should have Safety features:** • **Protection of users from burns at the splash protector (distillation area),** which is hot during distillation due to protective door. • **Prevention of the start of a distillation with the protective door open** and stop a running distillation and the dosing of reagents immediately when the protective door is opened during the process due to protective door sensor. • **Prevention of the start of a distillation without a sample tube inserted** due to sample tube sensor. • **Prevention of electrical shock during maintenance** with service door sensor/switch to disconnect electrical power immediately when the service door is opened. • **Protection of glass parts** by protective shield (cover) at condenser **Control:**

		• **Full process visibility, visual control, and close monitoring** of the distillation process through glass splash protector. • **Full Visibility** of Dosing pumps. • **Distillation area should be visible** to make method development or trouble-shooting easier. • Warranty : **4 years on-site from the date of installation** (for whole set up) Should have proof of supply of atleast 3 fully automatic system with Inbuilt titration. ISO 9001-2015 certified
9	**Quartz W ater Double Distillation Set**	
	Flow Rate	**2.5 lit/hr**
	Primary & Secondary Boiler	**Demountable Quartz Boiler with silicone O ring** arrangement to separate primary boiler from secondary boiler
	Easy to Drain	Unit has drain outlet at Bottom of primary Boiler for removing sediments
	Tubing	Silicone Tubing 10mmIDX14mm OD, 10m long
	Power Required	4.4kW, 230V
	Microbial Activity	Pyrogen Free
	Conductivity	Conductivity < 1µS/cm
	Condenser	**Quartz Condenser** Inlet & Outlet are at Top for easy maintenance also Additional cooling condenser is provided at centre
	o/p	2.5lit/hr
	LXBXH cm	35X35X100
	DAPS	Auto cut-off Has buzzer function & reset button
	Third Party Test Reports	Govt testing certificate for MOC / Third Party Test Reports for output water can be shared
	MOC	Quartz Boiler and Quartz Condensers
	DAPS	Auto off in case Water Level Falls – works with Level Sensor
	Water Leveller	Sediment Drain provision with Pinch cock and Water Leveller are connected with **"T-Joint"** with Primary Boiler
	Warranty documents	**3 years on-site warranty from the date of installation** ISO 9001-2015 certified
10	**pH-EC-Ion meterwith ionselectiveelectrodes**	**Specification for Benchtop Ion Meter with Ammonium & Nitrate electrode package:** **Meter Specification:** **Meter Specification:** ISE range: 0.0001 to 19900 ; Resolution: up to 3 significant digits ; Accuracy: ± 0.2 mV ; Units: ppm, M, mg/l, %, ppb, none; Calibration Points: up to 5 points; Calibration Edit: Yes Calibration Feature: Fix calibration errors without complete recalibration; Temperature compensation:-5 to 105 °C Temperature Resolution: 0.1; Readout: backlit graphic LCD display; Splash-proof rating: IP-54 Data Logging point: 2000 data with date & time stamp; Power input: 220 Vlt AC wall adapter/ Optional battery operated facility. Stirrer : Automatic Stirrer probe facility directly controlled by the meter. Warranty: 3 years replacement warranty. Certification: CE & TUV **ISE Specification:** Ammonium Electrode: Plastic Membrane Half cell with reference electrode ; Range: 0.01 to 17000ppm; Temp range: 0 to 40°C Nitrate: Module based half cell with reference electrode, Range: 0.1 to 14000 ppm as N Temp range: 0 to 40°C Connector: BNC **SUPPLY SHOULD INCLUDE:** Supply should include main

		benchtop Ion meter with electrode holder & stand, Nitrate electrode with replaceable module, reference electrode, respective filling solution pack, 300 ml , Nitrate 1000 ppm standard, Suppressor solution for Ground water sample & ISA solution for Surface water sample.and Ammonium half cell electrode with reference double junction electrode and all their respective filling solutions; Standards and ISA solutions along with automatic stirrer probe **Buffer solutions for measuring 1000 samples must be supplied along with electrode** Warranty**: 4 years on-site warranty from the date of installation .** Certification: CE & TUV **ISE Specification:** Ammonium Electrode: Plastic Membrane Half cell with reference electrode ; Range: 0.01 to 17000ppm; Temp range: 0 to 40°C Nitrate: Module based half cell with reference electrode, Range: 0.1 to 14000 ppm as N Temp range: 0 to 40°C Connector: BNC **.SUPPLY SHOULD INCLUDE:** Supply should include main benchtop Ion meter with electrode holder & stand, Nitrate electrode with replaceable module, reference electrode, respective filling solution pack, 300 ml , Nitrate 1000 ppm standard, Suppressor solution for Ground water sample & ISA solution for Surface water sample.and Ammonium half cell electrode with reference double junction electrode and all their respective filling solutions; Standards and ISA solutions along with automatic stirrer probe **Specification for Benchtop pH/Conductivity/TDS/Salinity Meter:** pH Range: -2.000 to 20.000; pH Resolution : 0.001pH Accuracy: ± 0.002 ;mV Range: ±2000.0 mV; Calibration features: Fix calibration errors without a complete recalibration;pH Electrode Type : pH/ATC Triode. Conductivity Range: 0.001 µS to 3000 mS; Conductivity Resolution / Accuracy: 0.001 µS / 0.5% of reading ±1 digit for conductivity, TDS & Resistivity; Compatible Cell Constant: 0.001 to 199.9; pH/Cond. Calibration points: Up to 5 Points; Cond. Electrode Type: Dura Probe Conductivity cell; Resistivity range / Resolution: 2 ohm to 100 meg – ohm / 2 ohms-cm resolution; Salinity range / Resolution: 0.01 to 42 ppt sea water / 0.01 resolution; TDS range / Resolution : 0 to 200 ppt / 4 significant digits; TDS Factor range: Linear, 0.01 to 10.00; Stirrer provision(optional): Direct control of stirrer probe with meter. IP Rating: IP 54 Rated; Data logging: 2000 with date and time stamp including AUTO READ Function; Power Supply: Universal, AC power adapter, 100-240 VAC and 4 nos. AAs Battery (800 hrs.). **Warranty: 3 years replacement warranty ,**Certification : CE & TUV
11	**Laboratory Petty mechanical/heating devices a)Magnetic Stirrer**	• Speeds range 150-1500 rpm • Stainless steel hot plate model for temperatures up to 340 C • Ceramic hot plate model for temperatures up to 500 C • Easy to read backlit LCD for display of set & actual parameters • Monitoring of set & actual temperature/ speed • High accuracy of temperature control with embedded duel sensors • Advanced stirrers with microprocessor technology • Constant speed even with change of load/ Voltage • Maintenance free brushless motor • Scratch proof & excellent chemical resistance • External temperature probe for control of fluid temperature • Last parameter recall, ideal for repetitive processes • Unique safety temperature control system

		• Settable safe temperature limit to avoid overheating • Residual temperature warning when unit is switched off for operator safety • Power 1050 • Max. stirring quantity(water)(Liters) 10 • Stirring paddle (PTFE coated) Q-20A (13 X 50mm) • Motor rating input (W) 18 • Motor rating output(W) 10 • Speed range (rpm) 150-1500 • Speed/ Temperature display LCD • Speed Display resolution (rpm) 1 • Top plate material Ceramic Glass • Dimension of top plate (mm) 184 x 184 • Heating power (W) 1000 • Temperature range Upto 500 C • Control accuracy of heating temperature 1 C • Residual heating warning alarm Above 50 C • Control accuracy of heating temperature with PT-1000 0.2 C • External temperature sensor PT-1000 • Dimension (WxDxH) (mm) 360 x 215 x 112 • Protection class acc. To DIN EN60529 IP 21 **Warranty:** 4 years on-site warranty from the date of installation.
	b) Water Bath	• Multipurpose water bath with adjustable double line 12 holes to hold different size • Samples for easy & hygienic heating. **Technical Data with Parameter** • Temperature range RT + 5 C _ 99 C • Temperature stability +0.5 C • Tracking alarm +2 C • Chamber volume 15 ltrs • Interior Dimension (W x D x H mm) 450x300x110 • Timing range 1~9999min • Remark Double lines six holes • Electrical requirements 220V, 50Hz, Single phase • Power Consumption 1500W Essential Features: • Microprocessor control with timing function • Digital display • Audible and visual alarm for over temperature **Warranty:** 4 years on-site warranty from the date of installation.
	c) Willy Mill Grinder	• ¼ HP, chamber size 40mmX25mm(cast steel chamber)
	d) Microwave oven	• Convection,Microwave,28L capacity, 1400W
	e) E-Burette	Fully motorized, Touch screen control panel,, pre calibrated dispensing speed, Capacity 50ml, PTFE piston for good chemical compatibility, Spring less Valve assembly, Inbuilt memory dor 20 reading, Computer connectivity option with free software, Rechargeable battery, 5 no. adapters free of cost, Free spare USB cable for computer connectivity, Battery charger, increment for 10ml capacity : 0.005 ml 25 ml capacity : 0.01 ml 50 ml capacity : 0.01 ml Accuracy (+,-)0.2% CV (+,-)0.07% Two years warranty ,NABL certificate •
12	**Refrigerator**	Frost free refrigerator with a capacity of 415 liters, Double Door, smart inverter with multi storage basket with an energy rating of 4 stars or better,3 years warranty

13	**AC Machine**	Split type ,Capacity of AC units in Tonnage 1.5 with 5 star rating, !00% copper,3 years warranty
14	**Flame Photometer**	Microcontroller-based unit designed to provide automation in operation, measurements and end-result presentation. It can do the estimation of Sodium (Na), Potassium (K), Lithium (Li),Calcium (Ca) and Barium (Ba) in single aspiration of a sample. Specifications • Microcontroller controlled automation for ease of operation. • Determination up-to five elements with single aspiration (Na, K, Li, Ca & Ba). • Unit of measurement "ppm" and "meq/l" • Suitable for medical and industrial analysis • Calibration standard up-to five point. • Auto Ignition • Gas leak sensor • Auto Gas cut-off • Password protection • Separate login for Administrator and Guest • Data processing with linear mode or quadratic curve fitting • Results of a measurement taken earlier can be recalled and displayed (Max. results storage: 500) • Graphics LCD readout (240 x 128 Dot) LCD readout for adequate user interfaces. • Built-in real time clock for date and time. • Centronix printer port for Epson compatible Dot Matrix / Inkjet printers to get hard copy of results (printer optional). • Air compressor with built-in air regulator and air filter (SYSTRONICS Model 126). • Pc-link software (optional) • REPRODUCIBILITY: + 1% fs + 2 Digits in Low Concentration mode. + 2% fs + 2 Digit in High Concentration mode. • CURVE FITTING ACCURACY : + 2% fs. (High Conc. Range) • FILTERS (Regular): Na (589 nm), K (768 nm); Interference filters with 10-nm Bandwidth • FILTERS (Optional): Li (671 nm), Ca (622 nm), Ba (554 nm) Interference filters with 10-nm Bandwidth • Separate channel and separate silicon photodiode (Detector) for each element. • MINIMUM SAMPLE: Approx. 3ml. • ASPIRATION TIME: five element analysis within 20 second on single aspiration • OPERATING AIR PRESSURE: 0.45kg/cm2 (typical), regulated. * • FUEL GAS: LPG (Liquid Petroleum Gas). regulated.** • POWER SUPPLY: 230V +10%, 50Hz. **4 years on-site warranty from the date of installation**

ELEMENTS	Minimum concentration Without Dilution	Maximum concentration (Without Dilution) LOW concentration mode	Maximum concentration (Without Dilution)High concentration mode
Na	0.2 ppm	10ppm	100 ppm
K	0.1 ppm	10ppm	100 ppm
Ca	3.0 ppm	100 ppm	300 ppm
Li	0.1 ppm	2 ppm	50ppm
Ba	50 ppm	500 (minimum)	

- Minimum & maximum are the limit of calibration , not measuring range

ELEMENTS	SERUM	URINE	BIO-FLUIDS
Na	0-200 meq/l 1 : 100 dilution	0-250 meq/l 1 : 100 dilution	Upto 250meq/l with 1:100 dilution
K	0-10 meq/l 1 : 100 dilution	0-100 meq/l 1 : 1000 dilution	Upto 250 meq/l With 1: 100 dilution
Ca	----- (Note)	0-10 meq/l 1 : 2 dilution	Upto 250 meq/l With 1: 100 dilution
Li	0-2 meq/l 1 : 10 dilution	---------	Upto 250 meq/l With 1: 100 dilution

Specification for Compressor

- Pressure : Power Supply :
- to 1.0 Kg/cm2 (Maximum) 230 V + 10 %
- Weight : 6 Kg (Approx.)

15	**Digestion chamber with heating**	**Specification of Digestion Chamber** 1 Dimension:1800mm X 1000mmX 1200mm(L X B X H) ,working space:1500mm X 900mm (L X B) 2 Fume Chamber should be made of double skin construction of FRP (Fibreglass Re-inforcement Plastic), outside should be smooth finished and Inside of Fume Chamber is mat finished.Inner lining of the F.C. should be compressed FRP sheet, Lined with F.R.P of 5mm thick biphenyl 'A' Grade fume rate resin. 3 External finish will be with 1st Class grade pigment with resign 4 Conceal type counter balancing door with toughened glass with FRP framing 5 Casing of the Blower should be made up from FRP. Motor wattage 0.75KW, 415V,3000/1420RPM,TEFC ,Type MN – 16 DOL 415V, 3Phase ON/OFF Push Bottom Starter 6 Standard ducting system of 200 mm dia (8"). PVC- rigid duct.**10 m duct free with the system**. 7 Impeller of the blower should be made up from FRP. 8 Surface of the Fume Chamber also made from FRP , Also the working **surface is fire Retardant .** 9 The Fume Chamber will have facilities to mount 02 No. Service Panel with external control to operate the gas, water outlet within the chamber, Electric Switches, **08Watt LED Daylight fitted inside the chamber.** **Specification of Digestion Chamber Fume purification system** **Water Scrubber : Vertical types:** 1. Size of the water scrubber is 1000X 800X 1400(LX D X H). 2. FRP Make water tank of capacity 750ltrs. 2 nos. 3. Chemical Pump, Capacity- 85 lpm,H.P. -0.5 1no.

		All plumbing work from connecting point.(Source of water) **Specification of hot plate** **1.**Rectangular in Shape. Body is fabricated out of thick Mild Steel Duly finished in white powder coating paint with mat finished colour combination. The hot plate made of cast iron precisely machined and smoothed duly finished in heat resistant black paint is firmly mounted on the body. Heavy duty heating elements are securely laid under the plate to operate on 220 volts, AC ,50 Hz . Temperature is controlled by three heat rotary switch/ energy regulator as per demand. Sizes : 36" x 18" Guarantee/warrantee for all components: 24 months from the date of installation
16.	**Desktop computer and accessories**	Intel i5,11th generation.8gb RAM,512gb NVME SSD/ (256gb NVME +1tb HDD). Backlit keyboard, Window 10 MS Office professional,19.5 inch display, UPS, one External Hard Disk, All in one printer, 3 years warranty.

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~~Chairman, CPC~~, BCKV