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Ref no. : RKMVU/ SSKVK / RKVY/ Lab Est-218 /2017-'18

Date: 27 November, 2017

Subject: Seeking Quotations for supplying / installation of Instruments for Soil & Water Testing Laboratory.

Interested firms are requested to submit sealed quotations for supplying of Instruments.

Details of the Instruments are given below -

Sl. No.	Particular	Specification
1.	Hot Air Oven	<ul style="list-style-type: none"> • Size -3ft x 3ft x 3ft; • Double walled construction • Outer Body - MS duly powder coated • Inner Body- SS • Temp range : ambient to 250°C; digital display, • Forced air circulation by means of a motorized blower • Digital temperature controller/indicator with Pt100 sensor with resolution:10C & Accuracy ± 0.5 °C • Electrically operated on 230 V AC • rack in internal chamber •
2.	BOD Shaker Incubator	<ul style="list-style-type: none"> • Temp. range 5°C to 60°C • Shaking speed range 20-250 RPM • Clamps for holding conical flask Capacity 250 ml. /100ml • Brushless Induction Motor with variable frequency drive suitable for continuous operation • Step less variable frequency drive ensures gentle shaking start and maintains set speed • Maximum shaking capacity –up to 35 nos (250 ml) • Powerful fan motor for forced air circulation to maintain uniform conditions inside chamber • Heating by long life SS tubular heaters • Microprocessor controller with 4" LCD display for display of shaking speed & temperature • High temperature safety cut off & alarms for high/low set temperature • Electrical circuit breaker • Set Temperature ± 2°C, Audio Visual Alarm • Internal Body Material : Stainless Steel – 304 grade (Standard Models), • External Body Material : Powder Coated CRCA Steel (Standard Models), • Electrical : 220-240 volts, 50Hz, Single Phase
3.	Centrifuge	<ul style="list-style-type: none"> • Temp range: -5°C - ambient, volume 2ml, 14000 rpm, digital display
4.	Laminar flow (horizontal)	<ul style="list-style-type: none"> • Internal chamber (3ftX2ftX2.0ft) with Hepa Filter, working steel top, gas burner point, two plug point within internal chamber
5.	Orbital Shaker	<ul style="list-style-type: none"> • 250 ml flask capacity (30 no) with digital display and controller, brushless motor
6.	Flame Photometer with accessories	
7.	Conductivity Meter	
8.	Constant Water bath shaker Water Bath with Digital PID & Safety Controller	<ul style="list-style-type: none"> • Inner chamber made of thick gauge S.S. • Outer Body with powder coating made of S.S. • Concentric rings of 3" dia i.e. (75 mm). • Temperature range: Ambient + 5 °C to 99 °C • Temperature controller – Digital PID Controller. • Safety controller – Digital safety controller to avoid Overshoot of SET

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		Temperature. <ul style="list-style-type: none"> Electrically operated on 230V AC single phase power
9.	Autoclave (vertical)	<ul style="list-style-type: none"> Double body has single chamber for steam and water, covered externally by outer shell. Inner body heavy gauge SS304 Outer shell SS304 Internal dia 14 inch, height 22inch, temperature and pressure indicator Operating pressure 15 to 22 PSI Autoclaving time cycle automatically starts when set temperature is achieved. Automatic steam release When autoclaving cycle completes. Low water level cutoff system prevents heater from burning out. Fitted with pressure gauge, safety valve and steam release valve Electrically operated on 230V AC/ 50Hz. Fitted with foot lifting arrangement
10.	pH Meter	One point mV calibration, One point ATC temperature probe calibration, Automatic or manual temperature compensation and Ready icon to indicate measurement stability Accuracy (Temperature) $\pm 0.3^{\circ}\text{C}$; Range (mV) $\pm 1999\text{mV}$; Accuracy (pH) ± 0.01 ; Range (pH) 0 to 14
11.	UV-VIS Spectrophotometer	<ul style="list-style-type: none"> Optical system - Absorption single-beam / double beam spectrophotometer with reference beam Light source - Xenon flash lamp Wavelengths: 200 nm to 830 nm, smallest increment: 1 nm Spectral band width: ≤ 4 nm Photometric measuring range: 0 A to 3.0 A at 260 nm Random error: ≤ 0.002 if A = 0, ≤ 0.005 (0.5 %) if A = 1 Systematic error: $\pm 1\%$ if A = 1 100 method programs in memory Integrated data processing option
12.	GPS System with Mobile Phone and camera	<ul style="list-style-type: none"> RAM 3GB Front Camera (Min 5 Mp, Dual or Single Camera) Back Camera (Min 13 Mp, Dual or Single Camera) Inbuilt 32 Gb – 64 Gb
13.	Fire extinguisher	
14.	Tensiometer	<ul style="list-style-type: none"> Tensiometer Standard model fitted with suction meter, 0-100 centibar vacuum, with screwable ceramic tip and translucent head assembly with water trap: 15, 30, 45, 60, 75cm Agricultural Soil Coring tool, Collapsible type Screw head for agricultural soil coring tool - 1 inch Dia Hand suction Tensiometer priming syringe
15.	ASTM Water Purification System	<p>Pre filter: Suitable pre filter must be quoted.</p> <p>The Complete Ultrapure Water system must produce ASTM Type I ultrapure water from a single system.</p> <p>Water purification methods: Adsorption by means of spherical activated carbon, catalyst, reverse osmosis, ion exchange, optional UV irradiation, and end-position particle sterile filtration.</p> <ul style="list-style-type: none"> The system should handle Conductivity $< 1500 \mu\text{S/cm}$, TOC < 2000 ppb, Free chlorine < 4 ppm, Fouling Index (SDI) < 10. The unit should be ideal for a daily consumption of up to 10 liters of ultrapure water with 8l/hr. pure water production rate. Pretreatment Cartridge should be a combination of spherical, catalytic-effective, activated carbon, a catalyst and a downstream reverse osmosis membrane. The system should come with closed bag system (replaceable) of 5 liter

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		<p>inbuilt to store consistently high quality pure water for prolonged period and prevent Contamination by ambient air. Should have technology to avoid time consuming cleaning process as well as use of chemicals.</p> <ul style="list-style-type: none"> • System should have a horizontally mounted integrated UV lamp with dual wavelength 185 and 254nm for optimized temperature gradient and reliable results. • Deionization cartridge should consist of spherical, catalytic activated carbon with ultrapure mixed bed ion exchange resin in semiconductor quality to deliver long lasting performance and low-maintenance operation. The flow inside the cartridge should be top-down to produces ideal purification kinetics and prevents any mixing of cleaning media. • Final Filter should be 0.45+ 0.2µm pleated double layered sterile grade PESU membrane and should be validated according to HIMA & ASTM F-838-83 guidelines. • System should have touch screen display with intuitive menu navigation facility for easy operation. It should have demo mode which is essential for easy operation. • Re-circulation feature in standby mode to maintain the purity of the water. • The system should have the volume-controlled dispensing function from 50 ml to 5 l (in 50-ml-increments) to obtain accurate results. • System should be Designed, Developed and Produced under DIN/ISO 9001 certificate Quality Management system. Also ISO-9001 company. <p>Product Water Quality-Type-III Production output: Up to 8 l/h, Typical Conductivity: < 20 µS/cm, Typical ion retention: Up to 98%, Retention of dissolved organic substances: > 99 %, (MW > 300 Dalton), Particle and microorganism retention: > 99 %</p> <p>Product Water Quality-Type-I Water dispensing flow rate: Up to 1.0 l/min, Conductivity: 0.055 µS/cm compensated to 25°C, Resistivity: 18.2 MΩxcm compensated to 25°C, TOC content (system with UV lamp) < 5 ppb, Microorganism content < 1 CFU/1,000 ml, Particle content (> 0.2 µm) < 1/ml, DNase/RNase free.</p>
16.	Chlorophyll Meter	<ul style="list-style-type: none"> • Optical Density Difference at two wavelengths: 650 nm and 940 nm • Measurement Area: 2 mm x 3 mm (Approximately 3/32 in x 1/8 in) • Light Source: 2 LEDs • Receptor: Silicon Photodiode • Power Source: 2 AA alkaline batteries (1.5V) • Repeatability: Within ±0.3 SPAD unit • SPAD Value: Index of relative chlorophyll content; -9.9 to 199.9 • Accuracy : 1.0SPAD • Operating temperature : 0-50°C • Quick and simple measurements without destroying the leaves. • Data logging for up to 30 measurements and the average value of all data memory can be automatically calculated. • Low power consumption with each set of batteries providing up to 20,000 measurements.
17.	Semi-Auto Nitrogen Analyzer	<p><u>A. Automatic Digestion System</u></p> <ul style="list-style-type: none"> • Twenty Place 250 ml capacity PC Compatible Block Digestion System with all essential accessories • TFT Graphic Touch Screen Display with unique wireless mouse to operate at a distance of 2 mtrs. • Icons to represent output of heating process in touch screen display • PC software performs Live graphical representation of time /temperature gradient, • Direct USB Port for PC Connectivity live process view display of various stages with print options, • Remote control module for wireless data monitoring, control and transfer to PC

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		<p><u>B. Automatic Scrubber System</u></p> <ul style="list-style-type: none"> • Four stage acid neutralization scrubber. Non corrosive centrifugal suction pump with inbuilt self priming feed pump for water recirculation, Alkali resistant FRP Tank, Containers for Alkali and Water, <p><u>C. Automatic Distillation System:</u></p> <ul style="list-style-type: none"> • Auto sequencing Programmable Microprocessor based Distillation with inbuilt software, Colour Touch Screen high resolution TFT LCD Display, • Auto Intelligent run of programmable steps, includes Addition of Boric Acid, Dilution, KMNO₄ Addition for Available Nitrogen, Alkali, Steam Processing, Process over indication with inbuilt delay time features, Auto Titration Connectivity feature for future up gradation. • Complete Inbuilt safety features, Automatic calculation of results on input of titre value • Inbuilt Automatic mini Printer for direct print out of instantaneous results without connecting to PC. • Electrical Requirement :230v/50Hz Main <p>The supplier should be ISO Certified, The original Manufacturers of laboratory equipments should have at least Rs. 1.25 crore per annum turnover in the past 3 years towards financial capability. The instrument shall strictly confirm to the specifications with relevant brochure. The company should be reputed supplier should not be blacklisted or should not have any adverse remarks in the past. Manufacturer should have Minimum 50 Installations in West Bengal and at least 50 Installations in KVK's in India.</p>
18.	Infiltrometer	complete with one inner ring 30cm dia., one outer ring 45cm dia. (Height of rings 30cm); Driving Plate with Hammer weight and Hammer Guide rod ; Water Level Gauge; Stop Watch.
19.	Bouyoucos Hydrometer	
20.	Keen's Box	
21.	2 KVA UPS	<ul style="list-style-type: none"> • 2 KVA Online UPS With Battery with at least 30 mins backup • Pure Sine Wave Output, Powerchute Business Edition, Internal Batteries, Two Years Onsite Warranty. • 2KVA/1400W • Output Power Capacity : 1400 Watts/2000 VA • Nominal Output Voltage : 230V • Nominal Input Voltage: 230V • Battery Type : Maintenance-free sealed Lead-Acid battery (Exide) with suspended electrolyte : leakproof • Included Battery Modules : 1 • Typical Recharge Time : 3 hrs • Control Panel : LED status display with load and battery bar-graphs and On Line : On Battery : Replace Battery : Overload and Bypass Indicators. • Audible Alarm : Alarm when on battery : distinctive low battery alarm : overload continuous tone alarm
22.	Analytical Balance (4 decimal)	Model ME104 Cap - 120g , d=e =0.1mg; Pan Size- 90mm Dia.
23.	Single Distillation Unit (Vertical) (Quartz Glass)	Mono Quartz Distillation Unit, Panel Mounted with Quartz Boiler & Borosilicate Condenser, vertical model; Output capacity 2.5 l/hr; with Standard Accessories for 3363 - Distillation Apparatus Power Supply (DAPS);
24.	Computer and accessories (printer cum scanner, UPS) with appropriate software for office use	I3/I5 processor ,8/4 GB ram, Graphics card, 1 TB hard Disk 19 inch monitor, UPS, wireless keyboard mouse and others, Laser Printer, Scanner, Wireless LAN card
25.	Compound microscope with attachable digital camera	<ul style="list-style-type: none"> • Completely integrated “all-in-one” inverted cell imaging system • Single compact unit including: inverted microscope, digital color camera and LCD display

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		<ul style="list-style-type: none"> • Long life LED illumination (up to 50,000 hours) • Color camera built-in to the microscope base • 4-position objective turret • Fluorite LWD objectives (10x, 20x 40x and 100x optional) • Rack and pinion focus mechanism • Optional mechanical stage for microplates or other vessels • Compact footprint; the entire system can be easily moved into a cell culture hood or glove box • Low power consumption (less than 20 Watts/hr) • Two USB output ports • Direct output to USB storage device • Supported output file formats: .jpg, .bmp and .tif
26.	Yoder apparatus	
27.	1.5 Ton AC (for AAS room)	1.5 Ton 5 Star Split AC - White (185JY, Aluminum/Copper Condenser)
28.	Electronic Top Loading Balance	<p>Weighing plate size Ø 150 mm; Auto Off function after 3 minutes without change of load; Mains Adapter (Optional); weighing range 500g (read out = 0.1g)</p> <p>Weighing plate size Ø 150 mm; Auto Off function after 3 minutes without change of load; Mains Adapter (Optional); weighing range 500g (read out = 0.01g)</p>
29.	Refrigerator (275L capacity)	275 L Frost Free Double Door Refrigerator
30.	Magnetic Stirrer cum hot plate	Top Plate Size - 18 x 18 cm; top plate Material made by Ceramic; Speed Range - 100 -1200 rpm, Temp range - 150 ^o C-500 ^o C, max capacity 5L; Dimension (W x H x D) - 19 x 11 x 21 cm
31.	Hot plate	Top Plate Size - 18 x 18 cm; top plate Material made by Ceramic; Temp range - 150 ^o C-500 ^o C; Dimension (W x H x D) -19 x 11 x 21 cm
32.	Microwave	28 L Convection Microwave Oven
33.	Mixer grinder	Mixer Grinder (Red, White, 3 Jars)
34.	Muffle Furnace Light Weight:	<ul style="list-style-type: none"> • Outer body – MS powder coated for STD Model • Inner body – Ceramic Muffle for STD • Temperature Range up to 1100^oC, Working temperature up to 1000^oC • Provided with digital temperature controller/indicator with accuracy ± 5^oC. • Kanthal wire for longer life. • The furnace is designed with high degree of insulation consisting of four layers resulting in very low heat losses and lesser atmospheric heating as under: <ul style="list-style-type: none"> • Ceramic wool blanket • Mineral wool • Ceramic bricks, light in weight and of better quality • Outer MS body • Door with clamping arrangement • Electrically operated on 230V/50Hz • Complete with indicating lamps • Muffle size (DepthxLxH) Inches : 9 x 4 x 4
35.	Digital Magnetic Stirrer	Top Plate Size - 26 x 26 cm; top plate Material made by Ceramic; Speed Range - 100 -1200 rpm, digital stirring display
36.	Heating Mantles with Energy Regulator	MS powder coated Aluminium metal body up to 20 ltrs., MS body for 250 ml. with energy regulator, switch and indicating lamp, max temp (approx. 400 °C).
37.	Table top Micro Centrifuge	Capacity – 6 nos of 1.5 ml centrifuge tube; digital time and rotation control; max rpm 13500,
38.	Sand bath	Top Plate Size - 24 x 18 cm; top plate Material made by Ceramic; Temp range - 150 ^o C-500 ^o C; digital tem display

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39.	Vortex Shaker	with speed control; Heavy metal base & rubber feet; choice of continuous & touch mode; Variable speed control; Maximum speed 3000 RPM; Includes one hand insert, micro tube insert & cup attachment.
40.	Oil Free Compressor	Compact, Light, Aluminium die cast construction; oil Free, Piston Powered; contains a moisture trap/vacuum regulator; Power -220V / 50hz; Max Power (W)-80; Max Vacuum - -670 mm/Hg; Max Flow Rate -68 l/min
41.	Electrophoresis Power Supply Unit	Operation of two units at constant voltage or constant current with maximum output of 300V, 400 mA and 80 Watts; 1 minute increment or continuous mode set up
42.	Camera	24.1MP Digital SLR Camera; with AF-P 18-55mm f/ 3.5-5.6G VR Kit Lens; 16GB 10x Memory card
43.	Rotary shaker	Variable speed from 20 – 300 RPM Digital display of speed Max no of clamps 100/50 ml x 64 nos; 250ml x 36 nos Brushless induction drive motor; shaking amplitude 40mm

They are requested to submit quotations mentioning make and specifications. They must quote the price of all the items with GST, inclusive of it, wherever applicable (should be clearly mentioned). The authority will have the right to reject any quotation without showing any reason. For further details please contact with the office of the under signed during office hours (9.30 am to 5.30 pm). Last date of submission is within 15 days of issue of this notification.



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