

### Technical Specifications

#### Supply, Delivery, Installation & Commissioning of Laboratory Equipment for Department of

No	Item	Specifications	Qty	Bidders' Response	
				Yes	No
1	Magenetic stirres	Maxximum stirring capacity: (H2O) 1000mL -2000mL	5		
		Speed: 100 rpm to 1000 rpm			
		Permissible ambient temperature: 0°C to 100 °C			
		permisble relative humidity: 95%			
		Interior and the exterior of the stirrer should be chemical resistance (priority for Chemical resist Polymers)			
		Should include set of teflon Magnet bars			
		Power supply: 230v			
		Warranty - two years or above			
2	Conductivity meter	Accuracy: 0.1µs/cm to 199.ms/cm or above	4		
		Salinity: 0.00 to + 50 psu or better			
		Temperature: 0 °C to 100 °C			
		calibration :1 point , 3 predefined standers			
		Interior and the exterior of the item should be chemical resistance (priority for Chemical resist Polymers)			
		The proposed model should have been recently introduced to the market and should be in phase out stage			
		reference temperature: 20 °C and 25°C			
		Warranty - two years or above			
		Power supply: 100-240v			
		Accuracy: 0.0001 g or above			
		Capacity: 0.1 mg - 100 g			
		responses time: 2s or lesser			
		Tare range: full to capacity			
		Interior and the exterior of the balance should be chemical resistance (priority for Chemical resist Polymers)			

3	Analitical balance	Letter of authority required from the manufactures	2		
		Documentary evidence of requested spesifications should be provided clearly by making on manufacturer's literature where necessary			
		Prriority for world reputed brand			
		The proposed model should have been recently introduced to the market and should be in phase out stage			
		Pan size: 85mm or higher			
		Calibration: internal Automatic			
		Electtrical connection: 230v /50 Hz			
		Warranty - two years or above			
		Display should be LCD Backlight			
4	pH meters	pH meter kit should include all the accessories neded to start testing in the field	4		
		It should include ,buffer ,standers ,storage solutions , calibration tubes and accessories for quick start up.			
		Meter should be water resistant to IP 67 standard			
		It should have a LCD display with backlight			
		It should have automatic temperature compensation facility and automatic buffer recognition facility with pH 4.01, 7.01, 10.01,12			
		The meter should be operated with rechargeble batteries			
		It should have gel filled pH glass combination electrode or more Advanced and Durable			
		The meter should read parameters pH ,mV and temperature			
		Range:0-14			
		Resolution :0.01or better			
		Accuracy: arround $\pm 0.01$ pH or better			
		Materials should be Chemical resist Polymer			
		Warranty - two years or above			

5	Electronic Digital Balance	Capacity : ~1 mg - 500g	2		
		Accuracy: 0.001g			
		Stabilization time: 3s or lesser			
		External calibration function should be available			
		Pan size: Not less than 120mm			
		Square draft shield with all glass panels including 3 sliding doors			
		Level indicator for easy viewing			
		Weigh below hook shall be available for density measurement			
		The balance should have stability indicator			
		Auto tare facility			
		CE and ISO certificates should be available			
		Interior and the exterior of the balance should be chemical resistance (priority for Chemical resist Polymers)			
		Letter of authority required from the manufactures			
		Documentary evidence of requested specifications should be provided clearly by making on manufacturer's literature where necessary			
		Priority for world reputed brand			
		The proposed model should have been recently introduced to the market and should be in phase out stage			
		Warranty - two years or above			
6	Thermometer (Digital)	Measurment Range: -50 °C to 150 °C or nearest	2		
		Resolution 0.1 °C or higher			
		Accuracy ( around -20 °C to 100 °C)			
		Weight 80g			
		Warranty - two years or above			
7	Thermometer (Digital)	Measurment Range: ~10 °C to 1000 °C or neasrest range	2		
		Resolution 0.1 °C or higher			
		Accuracy (~500 °C or nearest)			
		Weight 80g			
		Warranty - two years or above			

8	Electronic Digital Balance	Capacity : ~1g - 2 kg	1		
		Accuracy: 0.01g or better			
		Stabilization time: 3s or lesser			
		External calibration function should be available			
		Pan size: Not less than 120mm			
		Square draft shield with all glass panels including 3 sliding doors			
		Level indicator for easy viewing			
		Weigh below hook shall be available for density measurement			
		The balance should have stability indicator			
		Auto tare facility			
		CE and ISO certificates should be available			
		Interior and the exterior of the balance should be chemical resistance (priority for Chemical resist Polymers)			
		Letter of authority required from the manufactures			
		Documentary evidence of requested specifications should be provided clearly by making on manufacturer's literature where necessary			
		Suggesting item should be a world reputed brand with at least 10 years satisfactory sales record including in Sri Lanka			
		The proposed model should have been recently introduced to the market and should be in phase out stage			
		Warranty - two years or above			
9	Electric Water bath	Homogeneous degree of temperature(°C) : $\leq \pm 1$ Wave degree of temperature(°C) : $\leq \pm 1$ Range of temperature-control(°C) : $R_t + 10 \sim 100$ Sensitivity of temperature-control(°C): $\leq \pm 1$ Error of indication(°C): $\leq \pm 2$	1		
		Material should be chemical resistance and water bath Should be very high resistance to pitting and stress corrosion Stainless steel ( Grade 2205 or better)			
10	Ice flake making machine	It should be Energy-saving production	1		
		There is a convenient door for easy access			
		There should be a separate power switch			
		Material should be chemical resistance (priority for Chemical resist Polymers) ice Container should be high resistance to pitting and stress corrosion			
		inbuild bin with 30 kg or better			
		Ice flake production 120 kg/day or higher			
		02 years or higher warranty			
11	(Digital) Verniar caliper	Power supply: 230V, 50Hz	1		
		Measuring Speed : $\leq 1.5$ m / seconds or 60 inches / seconds or above			
		Measuring Range : 0 to 150 mm / 0 to 6 inches			
		Power : One 1.5 V button cell (Type Sr44)			
		Storage Temperature : 0°C to 50°C / 32°F to 122°F			
		Working Environment : 5°C to 40°C / 41°F to 104°F (less than 80% Relative Humidity)			
		Resolution : 0.01 mm / 0.0005 inches			
		Accuracy : +0.02 mm / $\pm 0.001$ inches (<100 mm), $\pm 0.03$ mm / $\pm 0.001$ inches (100 to 150 mm)			
		Swich - Inch / mm conversion switch , Power ON / OFF switch, Zero switch			
		Warranty - two years or above			
		Rotameter - yes			

12	Digital Balance for Physics lab	capacity 1mg – 500g	2		
		Accuracy: 0.001g			
		Stabilization time: 3s or lesser			
		External calibration function should be available			
		Pan size: Not less than 120mm			
		Square draft shield with all glass panels including 3 sliding doors			
		Front mounted level indicator for easy viewing			
		Weigh below hook shall be available for density measurement			
		The balance should have stability indicator			
		Auto tare facility			
		CE and ISO certificates should be available			
		Interior and the exterior of the balance should be chemical resistance			
		Letter of authority required from the manufactures			
		Documentary evidence of requested specifications should be provided clearly by making on manufacturer's literature where necessary			
		Suggesting item should be a world reputed brand with at least 10 years satisfactory sales record including in Sri Lanka			
		The proposed model should have been recently introduced to the market and should be in phase out stage			
		Warranty - two years or above			
		Function - Zero setting (INC length measurement system)			
		Hold			
13	Thermocouple Thermometer	Accuracy at 25°C	7		
		Temperature range 0-1300°C			
		Connectable to multimeter			
		Weight approximately 90g			
		Warranty - two years or above			
		Capacity shall not be less than 0-200g			
14	Micrometer (Digital Gauge)	Measurements are made to an accuracy - 0.01 mm / 0.0005 inches	1		
		Warranty - two year or above			
		Swich - Inch / mm conversion switch			
		Power : One 1.5 V button cell (Type Sr44)			
		Storage Temperature : 0°C to 50°C / 32°F to 122°F			
		Measuring Range : 0 to 50 mm or more			
15	Spirit level	Warranty - two years or above	10		
		Accuracy: 5mm/m			
		Should be protective-end caps			
		Warranty: Lifetime accuracy warranty			
		There must be durable aluminum alloy frame			
		Magnified horizontal vial w/patented Glo-View® maximizes vial readability			
		Large comfortable rubberized hand grips			
		Travel- Fine			
		Horizontal 15 mm minimum			
		Vertical 15 mm minimum			
		Right angle 10 mm minimum			
		Travel- Coarse			
		Horizontal 150 mm minimum			
		Vertical 150 mm minimum			

16	Travelling microscope	Right angle 100 mm minimum	10		
		Base Size ( L x B x H) minimum 350 mm X2 50mm X 80mm			
		Base Plate Cast iron with three leveling screws			
		Objective lens focal length 50mm			
		Eye piece 10x or more with graduated scale			
		Least count of all the fine travels 0.01 mm or less			
		Telescope tube setting Can be set horizontally & vertically			
		there shuld be accessories Reading magnifier			
		Packing Plywood box			
		Manufacturer should be accredited for ISO9001-2008 standard			
		Product literature of the quoted model should be enclosed, without which the offer is liable to be rejected			
		Supplied product shall have to pass our laboratory test, without which it is liable to be rejected			
		Product shall be under minimum 1 year manufacturing warranty			
17	Digital Storage Oscilloscope	60MHz/100MHz/200MHz bandwidth	15		
		500MS/s to 1GS/s real-time sample rate			
		50GS/s sample rate for repetitive waveforms			
		1M Memory			
		2mV/div to 50V/div Vertical Sensitivity			
		High resolution color LCD display			
		USB storage, RS232C , optional J45 interface			
		4000 point record length for each channel			
		Multi-waveforms math, FFT Function			
		Built-in delay sweep function			
		Automatic Multi-waveform Measurement			
		Cursor & Track measurement			
		Waveform Record & Recall			
		Trigger Mode for Edge, Video, Pulse Width, Slope & Alternate			
		Pass & Failure for ordinary setting and waveform setting			
18	Digital Pressure Gauges	Calibration Signal with optional frequency of 1KHz,10KHz & 100KHz	4		
		10 groups of waveform storage, CSV storage, 10 groups of setting and position storage			
		Accuracy: ±0.25% of full scale, BFSL			
		Display: LCD, 1/2 inch high			
		Units: PSI, FT of Head (WC), BAR			
		Process connection: 1/4 inch NPT(M), bottom			
		Wetted materials: 304L & 316L SS			
		Operating Temp: 14 to 140°F (-10 to 60°C)			
		Power: Standard 9 VDC battery (included)			
		Weight: 0.8 lb (363 g)			
19	Stop Watch	Dimensions: 2-5/8 inch diameter x 1 inch deep (6.7cm diameter x 2.54cm deep)	10		
		Type- Digital			
		Weight- 50g			
		Dimensions - (57x70x15mm)			
		Warranty- 01 year			

20	Analog DC Ammeter and voltmeter	Max scale : 3/10/30/100 $\mu$ A	8		
		Operating principle : Permanent moving coil			
		Operating position : Horizontal			
		Scale length : Approximately 135mm			
		Scale division : 100/150			
		Line max : 250v (Ammeters only)			
		should be quick response and easy to read scale			
21	Tuning fork set	Box : wooden	3		
		Color : silver, Tuning fork Material: Metal			
22	Vernier caliper (analogue)	Measuring Speed : $\leq 1.5$ m / seconds or 60 inches / seconds or above	10		
		Measuring Range : 0 to 150 mm / 0 to 6 inches			
		Power : One 1.5 V button cell (Type Sr44)			
		Storage Temperature : 0°C to 50°C / 32°F to 122°F			
		Working Environment : 5°C to 40°C / 41°F to 104°F (less than 80% Relative Humidity)			
		Resolution : 0.01 mm / 0.0005 inches			
		Accuracy : $\pm 0.02$ mm / $\pm 0.001$ inches ( $< 100$ mm), $\pm 0.03$ mm / $\pm 0.001$ inches (100 to 150 mm)			
		Warranty - two years or above			
		Rotameter - yes			
23	Pendulum bob set	Size : 25mm	5		
		Pendulum bob with hook			
		made of aluminium			
		High durability			
24	Floating compass	Compression waterproof : yes	10		
		Material : Metal glass			
		Carry way : hand held			
		Display mode : compass- style			
		Accuracy : $\leq \pm 1^\circ$			
25	Digital multimeter	AC voltage : 500v	10		
		DC voltage : 1000v			
		Display : LCD			
		Measuring methods : dual- slope			
		Probe type : test lead set			
		Display digits : 50000 counts			
		Weight : 160g			
		Warranty - two years or above			
26	Digital IR thermometer	Temperature : 0 to 100	1		
		Accuracy : $\pm 2^\circ\text{C}$			
		Data hold : yes			
		Backlight display : yes			
		Laser target pointer select : yes			
		Display : LCD			