

Inter University Centre for Evolutionary and Integrative Biology (iCEIB)
 University of Kerala, Kariavattom, Thiruvananthapuram
 Ref no:iCEIB/Pur/Ten003/2018 dated :15 April 2018

Quotations are invited from the competitive suppliers for the following equipments in the i-CEIB, University of Kerala Please submit your tenders to the Hon. Director, Inter-University Centre for Evolutionary and Integrative Biology(i-CEIB), University of Kerala, Kariyavattom campus, 695581, Thiruvananthapuram, Kerala on or before 25th April 2018 at 5.00pm.

1	<p>TOUCHSCREEN BENCH pH METER</p> <p>Specifications:</p> <ul style="list-style-type: none"> ➤ Windows® CE-driven, full-color touch screen bench measuring pH, mV, Temp. ➤ pH range of -2.000 to 20.000 pH and mV \pm 2000.0 mV ➤ Selectable pH resolution up to 0.001; accuracy \pm 0.002 pH ➤ Temperature range -5.0 to 105.0 °C resolution 0.1 °C ;accuracy \pm0.2 °C ➤ Real-time on-screen graphing function provides useful indication for specific measurements like titration ➤ Auto-calibrates with up to five pH buffers from three standard sets and fifteen different buffers; also accepts custom buffers and manual calibration ➤ The meter have compatibility with DIN pH ISFET electrodes besides BNC glass pH electrode ➤ Safety secure log-in for up to ten users provided ➤ Memory more than 1000 data sets per parameter ➤ Inputs DC Socket, DIN connector, BNC, SD reader, USB, RJ45, Phono ➤ Advanced USB, IRDA connectivity allows extensive host/ device communication capabilities. Upload or download data easily through USB 	1
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	<ul style="list-style-type: none"> ➤ Ethernet/Internet-ready with RJ45 input for connection to LAN or Internet for quick online research and data sharing. ➤ Power requirement 100 /240VAC SMPS Power Adapter with 2 pin power cord, 9 V, 3.3A, CENTRE -ve 	
2	<p>AUTOMATED GAS ANALYSER WITH ELECTROLYTES</p> <p>Specifications:</p> <ul style="list-style-type: none"> ➤ The analyzer should be able to measure gas parameters in blood like pH, pO_2, pCO_2, $CHCO_3^-$, c Base, cCa^{++}, Anion GAP, ctO₂, sO₂, ctHb, RI ➤ The analyser should have automated probe aspiration of samples ➤ The system should be small and portable and easy to carry ➤ The system should be operational on power supply and on battery ➤ The system should have On board help system via multimedia tutorials. ➤ The system should have a start-up time should be 8~ 10minutes ➤ The system should have large touch screen facility optional for keyboard operation ➤ The system should not use any Gas bottle / cylinders for calibration ➤ The system should have onboard printer ➤ The system should have data back-up with read/write CD drive and USB ports ➤ The system should be able to measure all parameters with < 100 micro L ➤ The system should have the cycle time of 100-115 sec. ➤ The system should have integrated barcode reader to support sample identification ➤ The system should have correlation correction software 	2

	<ul style="list-style-type: none"> ➤ The system r should perform samples like: whole blood, other fluids and hemodiluted samples. ➤ QC Samples in the system should not affect the number of available test. ➤ The system should detect air-in sample. 	
3	<p>REFRIGERATED MICROCENTRIFUGE</p> <p>Specifications:</p> <ul style="list-style-type: none"> ➤ Compact centrifuge for speed up to 15,000 rpm ➤ Relative Centrifugal for RCF: Max.21,130 x g ➤ RPM and RCF display. ➤ Temperature range from -10°C to +40°C ➤ Should maintain 4°C at maximum speed ➤ Fast temp function to bring down the temperature from Room temp to 4°C in max 16 min ➤ ECO power shut-off engages after 8 hours of non-use to reduce energy consumption ➤ Built-in condensation drain to eliminate water accumulation in the rotor chamber ➤ Quick acceleration (15s) and deceleration(16s) ➤ Centrifuge timer should start after the set RPM/RCF reached ➤ Centrifuge should have IVD confirmity ➤ Rotor for 24 X 1.5/2ml tubes with max speed 21,130 x g (15,000 rpm) ➤ Adapters for 0.2ml PCR tubes in the same rotor ➤ Extended rim protect lids from shearing off ➤ Motorized lid latch 	3

	<ul style="list-style-type: none"> ➤ Brushless motor ➤ Autoclavable rotors ➤ Separate Short Spin Key ➤ Short spin key with selectable rotational speed ➤ Stand-by Cooling for maintaining temperature when not in use 	
4	<p>NON-REFRIGERATED MICROCENTRIFUGE</p> <p>Specifications:</p> <ul style="list-style-type: none"> ➤ Micro centrifuge for 24 x 1.5/2mL tubes, 96 x 0.2 ml pcr tubes/strips and 10 x 5ml tubes ➤ Maximum Speed of 21,330 x g /15,060 rpm with a brushless motor ➤ System should be capable of using fixed angle and swing bucket rotor to support tube formats like 0.2ml, 0.5ml, 1.5ml, 2.0ml, 5ml and 0.2ml PCR strips formats ➤ System should be supplied with autoclavable rotors and lids ➤ Rotor lids should be certified for aerosol tight safe operation ➤ Rotor lids should enable secure and quick lid closure and opening functions ➤ System should have a dedicated rotor for 5 ml tubes to accommodate 5ml conical centrifuge tubes along with adapter to accommodate 1.5/2.0ml tubes, HPLC and Cryo tube ➤ System should have 3 program keys for routine programs ➤ System should have 10 acceleration and 10 deceleration ramps to prevent and protect sensitive samples ➤ System must have finished time function to indicate “time since centrifugation complete” ➤ Should possess a separate short spin function key with user defined speed 	4

	<ul style="list-style-type: none"> ➤ System must have a timer function to support the sample pre-incubation ➤ Automatic lid opening after end of spin feature is mandatory to prevent sample from heating ➤ System must have an emergency lid opening ➤ System must have a RPM/RCF conversion and also an rotor RCF calculator ➤ Noise level at max speed should be less than 51 dB(A) for quiet operation in work place ➤ Full digital display with LCD only ➤ Instrument should be European CE Certified ➤ System must have an USB-port for service maintenance 	
5	<p>MULTIPURPOSE CENTRIFUGE</p> <p>Specifications :</p> <ul style="list-style-type: none"> ➤ Ergonomically ideal access height for easy exchange of adapters and rotors ➤ Simple programming with 35 programs memory with write protection ➤ Very low noise level (<58dB(A)) ➤ Automatic rotor recognition with speed limitation for maximum safety ➤ Automatic Imbalance detection and cut - off ➤ Adapter for 15 mL and 50 mL conical Falcon tubes ➤ Fulfills the requirements of IEC 1010-2-020 safety standard ➤ CE and IVD certified ➤ Motorized lid latch ➤ Fast Temp function for fast pre-cooling 	5

	<ul style="list-style-type: none"> ➤ Standby cooling maintains temperature when centrifuge is not in use ➤ ECO shut-off for reduced energy consumption and extended compressor life ➤ Dynamic compressor control technology for optimized cooling performance ➤ Built in condensate drain to eliminate water accumulation and prevent corrosion ➤ Display shows Speed, RCF, Time and temperature ➤ 10 Acceleration and Braking Ramps for sensitive sample material ➤ Optional RS-232 C Interface for connection capabilities ➤ Power switch on the side at the front of device ➤ Maximum Power Requirement: 1650 W ➤ Dimensions (W x D x H): 64 x 55 x 34 cm ➤ Weight, without rotor: 80 Kg ➤ Rotor A-4-44 ➤ High-speed swing-bucket rotor for applications upto 4,500 x g (5,000rpm) ➤ Aerosol-tight caps for safe centrifugation of hazardous samples optionally available. (Aerosol-tightness tested by Public health England, Porton Down, UK) 	
6	<p>THERMOMIXER</p> <p>Specifications:</p> <ul style="list-style-type: none"> ➤ Peltier driven thermal device for excellent temperature control with user 	6

	<p>controllable mixing function for complete, dependable and reproducible sample preparation</p> <ul style="list-style-type: none"> ➤ System should have heating, mixing and cooling for tubes and plate formats with choice of blocks for 5 µL to 50 mL (0.2ml tubes or strips, 0.5, 1.5, 2, 5, 15, 50 mL tubes, 96, 384 well plates) ➤ System should have both vortex and mixing functions. Vortex with radius of 1.5 mm and mixing speed ranging 300 to 3000 rpm ➤ System should be programmable for temperature and time with capability to store 20 programs ➤ System should have a temperature control range from 15 °C below RT to 100 °C with temperature settings ranging from 1 °C to 100 °C with accuracy of ±0.5 °C at 20 – 45 °C ➤ System should have heating rate of max. 7 °C/min and cooling rate max. 2.5 °C/min between 100 °C and RT ➤ System should be able to set from 15 sec to 99:30 h or continuous mode ➤ System should have a large display to show set and actual parameters ➤ System should ensure prevention of lid wetting or cross-contamination ➤ System should have provision for heated lid to prevent condensation on the lid ➤ System should have maximum flexibility for user exchangeable blocks for various formats of tubes and plates ➤ System should possess automatic block recognition and set to its maximum speed limit ➤ System should have both interval mixing and short mixing functions ➤ System must be CE Certified ➤ System should have USB interface for software upgrade 	
7	<p>-80°C FREEZER</p> <p>Specifications:</p> <ul style="list-style-type: none"> ➤ Capacity: 570 L; 20 Cu. Ft., LED display 	7

- Temp Range: -Programmable temperature range from -50°C to -86°C in 1°C increments, even at ambient temperature up to 32°C
- Hold upto 40,000 samples
- Control: Micro Processor control of temperature and alarms with non-volatile memory
- Cascade Refrigeration: Hermetically-sealed two stage cascade system with capacity to cope in high-ambient conditions.
- Imported compressors- 1 st stage compressor with R404a and second stage compressor with R508b
- Insulation: Triple silicon section seal with ultra thin vacuum insulation panel
- Ambient to -85°C pull down is 5.1 hrs.
- Chamber: Latch able inner door to minimize cold air loss when external door is opened and reduce power consumption to maintain temperature.
- Vacuum vent with plunger - Fitted with decompression valve facility to lower air pressure inside the freezer for easy door opening. Heated air vent to prevent vacuum formation
- Shelves: 5 internal doors with 5 adjustable height corrosion resistant Stainless Steel Shelves.
- Unique low temperature outer door seals allow gaskets to remain flexible at -86°C and prevents ice buildup
- Magnetic closures on inner doors provide easier access
- Security: Keyed locks on the outer doors and lids keep out unauthorized users
- Password: 4-digit password prevents unauthorized users from changing the temperature setpoint or alarm setpoint .
- Power: On-Off switch is located behind the locked panel, preventing power from being accidentally turned of f.
- Battery Backup: Activates alarms and display temperature during power outage.

	<ul style="list-style-type: none"> ➤ Alarms: Audible and Visible alarms for Temperature filter clean, power out, Low Battery, System Fail, and Fault analysis. S. M. A. R. T. Plus diagnostic software,built into the front control panel, assist trouble shooting fault condition. ➤ Exterior: 18 gauge Steel, 1.2 mm thick with powder coated paint to resist scratch and rust. ➤ Interior: Polished 304 SS is easily cleaned, eliminates potential for oxidation. ➤ Door seal: Inner door fitted with low temperature safe silicone seal to prevent temperature loss when opening the outer door. ➤ Outer door fitted with low temperature - safe silicone triple point seal, providing tight fit ➤ Filter: Front mounted compressor filter is easily visible and accessible by ¼ turn screw for quick removal. Reusable filter rinses clean. ➤ Power consumption: 10.5 kWh/day ➤ Noise level 59.5dB ➤ Programmed startup: Random startup times have been programmed, 1-1.5 minutes apart, preventing power supply overload should multiple freezer restart simultaneously following a power failure. ➤ Stability: “Voltage Boost-Buck” on all 60Hz models, evens out high or low voltage fluctuation to maintain stable power. ➤ Certification: UL, CE and CSA certified. ➤ Computer networking: Factory Installed, Optional RS-485 communication port with optional software package enable remote control and monitoring of upto 30 Freezers. LED indicates when the operation is controlled via computer. ➤ Internal Dimensions (W x D x H): 55 x 57.5 x 126.5 cm ➤ Temperature Back Up: Optional Co2 and Ln2 Backup are available. 	
8	<p>VORTEX</p> <p>Specifications :</p>	8

	<ul style="list-style-type: none"> ➤ 3 – in – 1 Format: Mixing of Plates, Tubes and Vortexing function. ➤ 2D Mix control: efficient & very fast mixing of volumes from 5µl – 2 ml. ➤ Anti – spilling Technology: controlled mixing movements prevents Spilling & Lid wetting. ➤ Universal Holder: Allows mixing of Plate format (96 wells), MTPs, deep well plates, PCR Plates (skirted, semi skirted & unskirted). ➤ Tube Holders enable mixing of tubes up to 2 ml under controlled conditions. ➤ Mixing frequency: 300 to 3000 rpm. ➤ Touch Vortexing Frequency: 3500 rpm. ➤ Pre programmed direct selection keys. ➤ Vortexing numerous tube formats, Continuous Vortexing. ➤ Automatic imbalance Detection. ➤ Robust design & small foot print. ➤ User friendly operation. ➤ IvD conformity. 	
9	<p>DRYSHIPPER</p> <p>Specifications :</p> <ul style="list-style-type: none"> ➤ It Should safely transport a variety of materials at cryogenic temperatures ➤ Should have adsorbent material to prevents a liquid spill if the unit is tipped over ➤ Storage temperature inside the shipping chamber should remains at approximately -190 °C until the liquid nitrogen evaporates from the adsorbent material 	9

	<ul style="list-style-type: none">➤ Static Holding Days : 22 days➤ Working time days : 17 days➤ Evaporation rate : 0.93 L/day➤ Liquid nitrogen absorbed : 4.1 L➤ Empty weight : 11.7 Kg➤ Weight Full : 19 kg➤ Neck Diameter : 71 mm➤ Overall height : 467 mm➤ Number of canisters : 1➤ Number of 1.2/2.0 ml vials : 102➤ Should have a fiber made hard square casing with locking facility➤ Casing should be suitable for air shipment➤ Casing should be able to hold shipper which can hold shipper with approximate 100 vials capacity	
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