



## DEPARTMENT OF AQUATIC BIOLOGY & FISHERIES

### UNIVERSITY OF KERALA

(Reaccredited by NAAC with 'A' Grade)

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(UGC-SAP Centre of Advanced Study)

**Dr. K. Padmakumar**

*Professor & Head*

#### QUOTATION NOTICE

Sealed quotations are invited from the eligible firms for the supply and installation of the following equipment as per the individual specifications, terms and conditions.

#### **1. GRADIENT PCR with GEL DOCUMENTATION SYSTEM**

##### **Specifications:**

##### **PCR**

1. Programmable at least 99 programmes
2. 96 well 0.2 ml Gradient
3. Minimum 3°C ramp rate
4. Peltier mode of heating
5. Block temperature 4-99°C
6. Heated lid 105°C
7. Sample overshoot >1°C
8. Gradient accuracy 0.4 °C
9. Max/Min Gradient 45°C /80°C
10. Terms for buyback of old Eppendorf 5331 Master Cycler Gradient (not working).

##### **GEL DOCUMENTATION SYSTEM**

11. CCD Camera with image resolution >4 mega pixels
12. Fully automated zooming, focusing and aperture adjustment/selection of light source.
13. Stain-Free imaging for stain-free gels and blots along with options for UV, White light and Blue light. Software specifications:
14. Highest level of automation in hardware calibration, image optimization, capture and analysis.
15. Software should be able to do absolute quantification, relative quantification, molecular weight estimation, band analysis and normalization of proteins
16. Single-button acquisition from image capture to result which generate publication ready images and customized reports.
17. Warranty 2 yrs
18. 3KVA UPS with 2h backup

## 2. UV-VIS SPECTROPHOTOMETER

### Specifications:

1. Optical System: Double Beam Monochromator optics with Czerny – Turner mounting
2. Wave length measuring range: 190nm to 1100nm
3. Spectral Bandwidth: 1nm or better.
4. Light source: Deuterium and Halogen or preferably superior.
5. Stray light: <0.05% at 220nm with NaI filter; 198nm (KCl) : 1.0 % or less
6. Wavelength reproducibility:  $\pm 0.1$ nm
7. Photometric range: -4 to +4 Abs
8. Photometric Accuracy:  $\pm 0.002$  Abs (0-0.5 Abs)
9. Photometric Repeatability:  $\pm 0.002$  Abs (0-1.0 Abs)
10. Variable wavelength scanning speed of 10 nm/min to 3,000 nm/min
11. Photometric noise : <0.0001 Abs
12. Detector : Silicon Photodiode detector
13. Baseline flatness:  $\pm 0.0009$  Abs over entire wavelength
14. Baseline drift : <0.0005 Abs/hour
15. Diagnostic and security functions should be provided.
16. Should have multiple cell holder
17. Micro cell holder base, single cell holder, micro cell mask should be provided
18. Instrument should be capable of both stand alone operation, PC controlled operation through windows based Spectroscopy software.
19. *Software*: Analysis software should be supplied with the instrument and has unlimited user system license; software should have inbuilt calculations, such as blank subtraction, quantitative curve fit, qualitative classification, spectral analysis and kinetic calculations, as well as a comprehensive reporting tool; both measured and calculated data can also easily be exported to other systems like Microsoft Excel for further data handling; user should be able to load the software in multiple computer systems for data analysis.
20. *Interface* : LAN port and USB ports for PC, printer connectivity, data storage and transfer. Instrument should be capable of both stand alone operation PC controlled operation through windows based Spectroscopy software.
21. Supply one Pair of 10mm path length Quartz cells.
22. Supply one pair of 10mm path Micro Quartz cells.
23. Warranty 2 years.

### **3. MULTIPARAMETER PORTABLE METER**

#### **Specifications:**

1. Portable Multiparameter for measuring pH, dissolved oxygen (DO), conductivity, total dissolved salts (TDS), temperature, salinity and resistivity measurements.
2. Temperature range -05 to 105° C.
3. pH Measurement at the range of -2.000 to 20.000 with an accuracy of up to  $\pm 0.002$  pH and resolution of up to 3-decimal points and 5 Calibration Points.
4. Dissolved oxygen probe should measure up to 90.00 mg/L and 600 % in DO saturation
5. Salinity: 0 to 80.00 psu
6. Conductivity probe should measure up to 500 mS/cm
7. TDS: 0 to 200.0 ppt

#### Ion Selective Electrodes Needed

8. Ammonium Ion Selective Electrode
9. Nitrate Ion Selective Electrode
10. All electrodes should be supplied with respective standard solutions
11. Should have a provision to attach additional/optional sensors
  
12. Rugged and waterproof for use in harsh environments
13. Meter automatically logs up to 500 readings with time and date
14. High/low alarm limits
15. Password protection to prevent tampering
16. Carrying case for safe transportation of meter with all its probes and other accessories and Holder for electrodes has to be provided.
17. Should be operated with standard power supply and batteries also.
18. USB / IrDA Interface Adapter
19. GLP compliant.
20. Warranty 3 years on meter and 1 year for electrodes

### **4. DEEP FREEZER**

#### **Specifications:**

1. Vertical Deep Freezer
2. Temperature range -10°C to -25°C
3. Capacity Minimum 450 L. Net volume
4. CFC free refrigerant.
5. Digital temperature display
6. Noise level less than 50 dB.
7. Power supply 220-240V/50Hz
8. Minimum 4 shelves
9. Castor wheels
10. Removable Door gasket
11. Alarms for systems malfunction for temperature maintenance

## **5. Millipore Water Purification System Cartridge**

A suitable water purification Cartridge for DQ3 system.

PROGARD MX CART- 1 MICRON, 1/ PK - 2 nos

SMARTPAK DQ3 – 1 no.

Millipak® Express 20 Filter (1/box) – 1 no.

### **Terms and conditions**

1. Separate Quotation must be submitted for each equipment.
2. The rates quoted should be inclusive of all kind of charges including cost of equipment, Concessional tax/duty, transportation, loading, unloading, installation and modification charges etc.
3. The quotation should be only in Indian Rupees for indigenous items. In case of foreign quote, the vendors may quote their rates in Indian Rupees as well as in Foreign Currency.
4. All relevant technical literature pertain to items quoted with full specifications (Drawing, if any), information about the products quoted, including brochures if any should accompany the quotation.
5. A list of reputed clients to whom the firm has supplied similar items to be furnished along with the quotation.
6. Quotation should be valid for a period of 90 days from the date of opening and the period of delivery required should also be clearly indicated.
7. Compliance Statement: Equipment point-by-point comparison/compliance statement with technical specification indicated in the tender, should be enclosed along with the tender as well as any other extra features of the equipment be shown separately therein and also compliance statement for all commercial terms.
8. The undersigned has the right to accept or reject any quotation without assigning any reason thereof.
9. Complaints with the items supplied during warranty period should be rectified/ replaced to the satisfaction of the University by the suppliers at their own cost.
10. The payment will be made after satisfactory installation.

The sealed quotations should reach The Head, Department of Aquatic Biology and Fisheries, Kerala University Campus, Kariavattom P.O., Thiruvananthapuram-695 581, Kerala on or before 11.06.2018 12.00 p.m. For any other details please contact 09447794323.