SCHOOL OF ENVIRONMENTAL SCIENCES
VERC PROJECT
MAHATMA GANDHI UNIVERSITY

SHORT TENDER NOTICE FOR PURCHASE OF FULLYAUTOMATIC TITRATION SYSTEM WITH AUTOMATIC DISTILLATION UNIT FOR NITROGEN ANALYSIS

TENDER NOTICE No: SES/MGU/VERC/T/2018 *Date:04.05.2018*

Competitive tender in sealed cover for the supply of **FULLYAUTOMATIC TITRATION SYSTEM WITH AUTOMATIC DISTILLATION UNIT FOR NITROGEN ANALYSIS** is invited from reputed firms and authorized dealers so as to reach the office of the undersigned not later than 2.00 pm on 17.05.2018. Technical bid of the tenders will be opened on 18.05.2018 at 10.30 pm in the presence of authorized representatives of tendered firms. The financial bid of the Tender will be opened on 18.05.2018 at 03.30 pm

S. No	Scheduled Item	Specification	E.M.D (Rs.)	Tende Fees(Rs.)
	Fully Automatic Titration System with Automatic Distillation unit for Nitrogen analysis	**Automatic Titration System** pH (pH combination electrode with glass shaft, platinum diaphragm, Length; 100-120 mm; Diameter 10 – 12 mm, and pH range from 0 to14) based compact Titration System for potentiometric acid base with Auto End Point detection titration. Titrations to one equivalence point (pH and mV) with dynamicor linear titration addition with Complete closing unit with tubes/screw threads titration tip holder and electrode stand rod, etc. as well as auto stirrer with electrical connections. Measuring input pH/mV electrode: pH-input with 12-bit converter for highly accurate resolution of the measuring range from: pH measuring Range from 0.00 to	2.5% of the estimated value	1000+GST

		14.00; pH measuring Range mV from -14.00 to +14.00 Calibration should be done automatically using standard buffer solutions. Standard buffer solutions should be provided (4 pH / 7 pH / 10 pH) for calibration or integral pH valves. Should have inbuilt Magnetic Stirrer Titration Parameters should be Automatic Rinsing and filling, Automatic pH end point determination, Auto scroll to select end point & indicators, 5-10 internally stored methods for various types of titrations, Automatic mV titrations, Several Titration Dosing speeds user desired pre-settable and incremental dosing with waiting time with an inbuilt auto timer. Should have the laptop/Personal Computer interface compatibility with USB port for PC Connectivity, titration curves via Graphical representation , and processing of titration data with necessary formulas. **<u>Automatic Distillation Unit</u>** Fully Automatic Auto-sequencing ProgrammableMicroprocessor based, touch screen,Distillation System with printer and inbuilt software and TFT LCD Display. Automatic Addition of Receiver solution addition (Boric Acid), $KMNO_4$ addition for determination of available nitrogen. Automatic Alkali Addition and reaction delay time		

		for Neutralization. Automatic Steam Addition/Processing (Distillation Cycle) with automatic Microbrilliant Distillate control with adjustable volume , Delay time, residue removal and Process over sign with alarm. Auto Titration Connectivity feature forfuture upgradation, Aspiration of Receiver residue.Enables Automatic monitoring and measuring of high temperature in distillate with sensor for auto warning signal and safety alarm to alert user to control distillate temperature. Temperature displayed digitally. Inbuilt Automatic Printer with communication software for documentation of results without connecting to PC. Automatic calculation of results on input of titre value in terms of percentage of Nitrogen, Total Nitrogen,available nitrogen. The Supplier should be ISO certified, CE Certified to fulfill good laboratory practice norms of International Safety requirements to ensure quality standard with certified calibration. The company should have a good performance trackrecord of at least 10 years with references ofusers of similar equipment. The company should be reputed supplier should not have been blacklisted or should not have any adverse remarks in the past.		

		Spares should be made available for a minimum period of 10 years after the warranty period by the supplier.		

Sd/-

Director
School of Environmental Sciences
M. G. University, Kottaym

NOTE:

(1) PLEASE SEE THE ANNEXURES I, ANNEXURE II, ANNEXURE III and ANNEXURE IV ATTACHED BELOW

(2) ALL THE DOCUMENTS RELATED TO THE TENDER CAN BE DOWNLOADED FROM THE UNIVERSITY WEBSITE- www.mgu.ac.in, in the section “Quotation/tender”.

ANNEXURE I

General Terms and Conditions

1. The main envelop should be super scribed: "Tender for Equipment procurement under Department purchase"

2. The non refundable application fee of accompanied with tender for each item. The application fee must b e as D.D. drawn in favour of Finance officer, M.G. University.

3. Tenders must accompany a copy of the "General Terms and Condit ions, Annexure Iand Annexure IIand III" section of this document, signed and stamped on each page indicating that they agree to these.

4. Last date of submission of tender along with requisite fee, EMD and all documents is **17.05.2018 (**not later than 2.00 pm**)**. The DD for EMD or any other accepted document must be drawn in of favour of Director, School of Environmental Sciences, M. G. University, Kottayam, Kerala payable at SBI Mahatma Gandhi University Campus Branch.

5. All other charges including GST/CST, Excise Duty and other levies payable by C.I.P should be clearly indicated otherwise it will be presumed that the rates quoted are inclusive of all these charges and will not be paid.

6. The Excise Duty component (with percentage) should be indicated, as the University is exempted from the payment of Custom/Excise Duty. Exemption will be availed by providing Custom/Excise Duty Exemption Certificate with order.

7. The Delivery Schedule, Payment Terms & Warranty/Guarantee etc must be clearly indicated in the technical bid. The charges for extended warranty and/or Annual Maintenance Contract after the expiry of offered warranty period should also be specified in the financial bid.

8. The manufacturers' printed literature/catalogue/drawing/user's list in respect of range of product being quoted should also be submitted with the offer.

9. Our Institute is registered with the Department of Scientific & Industrial Research (DSIR), so Excise duty exemption will be provided.

Other requirements for delivery and complete installation

1. Delivery at School o f Environmental Sciences, Mahatma Gandhi University, Kottayam
2. All other requirements for satisfactory installation of Software.
3. It will be the responsibility of the supplier to deliver the ordered materials at the respective laboratory of School of Environmental Sciences, Mahatma Gandhi University, Kottayam.
4. All required materials for satisfactory installation are to be provided by the supplier at their own cost.

ANNEXURE II:
TENDER FORM PART-I (TECHNICAL BID)

PART-I (TECHNICAL BID) OF TENDER NO:

Last date for receipt:

Due date for opening Part –I (TECHNICAL BID):

Tenderer's Offer No:

Date:

From,

M/s. ……

…… To,

Director

School of Environmental Sciences , M. G. University,

Kottayam, Kerala,India

Dear Sir,

I/We have gone through the tendering conditions pertaining to the Tender and General Terms and Conditions of Contract and other requirement for delivery and complete Installation and Special Conditions of Contract contained herein with this tender document. I/we hereby agree to supply the stores conforming to the tender specifications incorporated in ANNEXURE I of the tender document and also agree to abide by your General Conditions of all Contracts and Special Conditions of Contract contained in the ANNEXURE I of the Tender document.

You will be at liberty to accept any or more of the items of stores offered by us and I/we shall be bound to supply you the stores as may be specified in the Purchase Order/Contract. I/We hereby agree to keep the price valid for your acceptance for a period of 30 days from the date of opening of Part-II (Financial bid) of the tender

I/We are also enclosing herewith all the leaflets catalogue etc. pertaining to the stores offered.

Yours faithfully

Stamp and Signature of the Tenderer

ANNEXURE III

TENDER FORM PART-II (FINANCIAL BID)

PART-II (FINANCIAL BID) OF TENDER NO:

Last date for receipt:

Due date for opening Part –II (FINANCIAL BID):

Tenderer's Offer No:

Date: From,

M/s.

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To, Director School of Environmental Sciences, M. G. University, Kottayam, Kerala, India

Dear Sir,

In response to your invitation and as per your tendering and contracting conditions, the prices applicable for the scope of supply contained in ANNEXURE-I (TECHNICAL BID) of our tender are indicated in the format at annexure "A" to this tender.

We hereby agree to keep the price valid for your acceptance for a period of 30 days from the date of actual opening of Part-II (FINANCIAL BID) of the tender.

Yours faithfully,

Stamp and Signature of the Tenderer

ANNEXURE IV

Detailed Technical Specification

Fully Automatic Titration System with Automatic Distillation unit for Nitrogen analysis

- Autosequencing Programmable Microprocessor based Distillation with inbuilt software, Colour Touch Screen high resolution TFT LCD Display,
- Auto Intelligent run of programmable steps, Addition of Boric Acid, Dilution, KMNO4 Addition for Available Nitrogen, Alkali Addition, Steam Processing, Residue Removal, Process over indication with inbuilt delay time features, Auto Titration Connectivity feature for future upgradation, Aspiration of Receiver Residue.
- Facility to program and control distillate volume for determination of available nitrogen
- Auto sensing of "NO WATER" condition in condenser & steam generator with alarm & signal to alert user.
- Auto deactivation of operation after warning in case of user non availability
- Enables Automatic monitoring and measuring of high temperature in distillate with sensor for auto warning signal and safety alarm to alert user to control distillate temperature. Temperature displayed digitally.
- Auto reagent Level Sensor with Alarm for Reagents, Stainless steel non corrosive steam Generator
- Inbuilt Automatic Printer for direct print out of results without connecting to PC.
- Automatic calculation of results on input of titre value

- Fully Automatic Titration System for Potentiometric acid base pH titration. Should be integrated with Distillation System for online titration,
- GLP compliant results with titration curve can be documented on a connected printer, Data stored on USB-memory stick,
- Titrations to pH, mV - endpoint (2 EP)Titrations to one equivalence point (pH und mV) with dynamic or linear titration addition, Manual titrations with the remote controller,
- Application : Nitrogen according to Kjeldhal, Total acidity, Alkali, FOS/TAC, should be upgradeable for applications like salt content and chloride content in drinking water and other samples.
- Measuring input electrode pH/mV-input with DIN or BNC socket Temperature: for resistance probes Pt 1000 (socket: 2 x 4 mm).

- Should have atlest 50 installations in Kerala for Nitrogen Analyzer with good performance track record.Company should have good performance track record of at least 10 years with references of users of similar equipment. 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. Spares should be made available for minimum period of **10** years after the warranty period by the supplier.
- Should have adequate experience in supply and installation of Autotitrator along with compatible nitrogen analyser.

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