



TENDER NOTIFICATION (Extension of time)

Adichunchanagiri University is inviting Closed tenders for the supply of following equipment for the **CMPAT, Adichunchanagiri University from the competitive firms.**

1	Name of the work	Supply of equipment for CMPAT Adichunchanagiri University R&D Centre.
2	Tender documents available for download	<u>06-05-2020 to 30-05-2020 up to 5:00 PM</u>

Sl. No	Requirements for Adichunchanagiri University R&D Centre	Quantity (in No's)
Major Equipment		
1.	Computer Workstation	1
2.	Digital Density Meter	1
3.	Multifrequency Ultrasonic Interferometer	1
4.	Combined pH and Conductivity Meter	1
5.	Refractometer	1
6.	Automatic Surface / Interfacial Tensiometer	1
7.	Advanced Probe Sonicator	1
8.	Contact Angle Meter	1

Note:

- Kindly send quotes in 2 bid formats (Technical and Financial bids sealed separately
- For individual items) to be addressed to **“The Registrar, Adichunchanagiri University, B.G. Nagara -571448, Nagamangala (T), Mandya (D)”**.
- Adichunchanagiri University reserves all the rights to accept, reject, incorporate changes and re-tender without giving any reasons.
- The sealed cover must be superscripted with the name of the equipment along with the Words **“CMPAT (Name of the equipment)”**. E.g., CMPAT Refractometer.
- **Mention the details of the contact person on the envelope.**
- All quotes must be submitted latest by **May 30th 2020** to The Registrar, Adichunchanagiri University, B G Nagara, Nagamangala Taluk, Mandya District, Karnataka- 571448.
- For technical queries, please contact **Prof. Minaketan Tripathy 97770-19949**.



EQUIPMENT

1. Computer Workstation with following Specifications

Processor	: Intel Xeon Processor with minimum 20 Cores, 2.2 GHz or higher
Memory	: 128 GB DDR4 RAM
HDD	: 4x4 TB SATA, 7200 rpm or higher, RAID5/6 support.
Expansion Slots	: At least 2 no.s of PCI Express 3.0 ×16 slots (capable of supporting full height full length (FHFL) cards)
Others	: Minimum 2 x Gigabit Ethernet, 4 x USB, VGA/HDMI etc. and other standard ports
Accessories	: 48" LED Monitor, Standard Keyboard, mouse, DVD-RW drive
Operating System	: Linux (CentOS/Ubuntu) pre-installed or to be installed by vendor
Make	: HP, DELL, LENOVO, FUJITSU etc.
Optional Add on	a) 256 GB DDR4 RAM instead of 128GB DDR4 RAM b) 2 x 200 GB SSD (Solid desk disk)

Note: The quoted price should include charges for packaging and shipping to B G Nagara as well as warranty for 5 years. Evidence of prior installation of the model quoted (or equivalent models) in other institutions and organizations of repute in India is highly desired and should be furnished along with the quote.

2. EQUIPMENT NAME: Digital Density Meter

Technical specification	
Digital Density Meter for determination of Density of liquid and gases by pulsed excitation method based on the oscillating U-tube technology.	
Instrument should be compliant to ASTM D4052 and D5002	
Performance Specifications:	
Density Accuracy	: $1 \times 10^{-4} \text{ g/cm}^3$
Temperature Range	: 15 to 60°C
Temperature accuracy	: 0.05°C
Resolution	: 0.00001 g/cm ³
Reproducibility	: 0.00007 g/cm ³
Repeatability	: 0.00005 g/cm ³
Essential Features:	



- Instrument should be able to automatically correct influence of sample viscosity on density.
- Instrument should be able to measure and display Density with/without viscosity correction, Specific gravity with/without viscosity correction, Apparent Density (Steel or Brass), Apparent Specific Gravity.
- Instrument to be able to automatically detect filling errors or gas bubbles in the filled in sample. It should alert the operator of potential measurement deviations and document the incident. The operator should not manually check for bubble.
- The instrument should display live image of the complete U-Tube Oscillator and the entire filled in sample, in one picture, up to the bow of U-Tube.
- The image of the U-Tube up to the bow, for every measurement, should be stored in the memory for later review and verification.
- Instrument should have integrated standardized API temperature functions for density & API at temperature 29.5, 20, 15 and 15.56 °C
- Instrument should be able to measure samples of viscosities up to 35000 mPa.s
- Instrument should have built-in memory for storing 5000 measuring results (incl. times, temp, sample name, camera images and potential filling warnings)
- Instrument should be able to export data to USB device (pdf or csv files), Printer (Serial, USB, Ethernet) and over local network.
- Instrument should have 3 # USB, RS-232 and Ethernet interfaces.
- Instrument should have graphical, bright coloured 7" TFT WVGA display with touch screen (800 x 480 px) PCAP touchscreen with customizable dashboard layout.
- Instrument should have – Password protection for individual users with configurable password rules, Customizable user levels with individual access rights, Audit trail, Electronic signature for measurement and check results.
- Instrument should have compliance to European and US Pharmacopoeia and FDA 21 CFR Part 11.
- Instrument should be able to configure 400 freely customizable products (8 preinstalled products for standard applications)
- Instrument should have integrated temperature and humidity sensor for intelligent condition monitoring.

Note: The quoted price should include charges for packaging and shipping to B G Nagara as well as warranty for 3 years. Basic consumables for the use of the machine should be included in the quote. Evidence of prior installation of the model quoted (or equivalent models) in other institutions and organizations of repute in India is highly desired and should be furnished along with the quote.



3. EQUIPMENT NAME: MULTIFREQUENCY ULTRASONIC INTERFEROMETER

The instrument should be capable of determining the ultrasonic velocity in liquids with a high degree of accuracy.

Specification:

- The instrument should have the High Frequency Generator Operating at 6 different frequencies such as 1, 2, 4, 6, 8, and 10MHz
- Separate cells for liquid samples (Special grade Stainless steel) 6Nos. (1, 2, 4, 6, 8, 10 MHz) with quartz crystal in bottom for each frequency must be provided. The cells, should be thermo jacketed, so to be connected with a temperature controlled circulating water bath to control the temperature of the liquid samples to be investigated
- One Cell Top having Stainless Steel reflector controlled by digital micrometre with least count 0.001mm, matching to all 6 cells should be included.
- The instrument should include a **Base** that is heavy enough to hold above. Preferably Inside Bronze and Nickel chrome plated from outside.
- The connecting cable to be a part of the instrumental set up, to connect generator for liquid Cell, preferably having silver plated connectors at both the ends

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4. EQUIPMENT NAME: COMBINED pH AND CONDUCTIVITY METER

SPECIFICATIONS

Features in pH Mode: -

1. Complies with USP - DIN Standards and CE Certifications.
2. Advance micro controller based user friendly system with non-volatile memory storage of 40 pH/mV readings with temp in pre-selected GLP or Non-GLP format.
3. Simultaneous Measurement of pH, mV and Temperature.
4. Calibration Reminder Facility.
5. Automatic and manual temperature compensation facility.
6. Three point/Five Point Calibration (User entered Buffer Values) with auto buffer recognition facility with password protection
7. Alpha- numeric entries of Sample name, Identification Number, customers name on report printouts.
8. Result Resolution selection (0.1, 0.01, 0.001 pH) with auto and manual temperature compensation
9. RS – 232 C and printer output.
10. Should capable of measuring pH of semi-solid samples by using Flat Surface Probe / Electrode. Also Determination of pH of Small Volume (i.e. 500ul) sample should be

possible.

Features in Conductivity mode: -

11. Non-volatile memory storage of 40 Conductivity readings with temperature in pre-selected GLP or Non-GLP formats.
12. Password protection for calibration data and stored readings.
13. Simultaneously measurement of Conductivity and temperature.
14. Automatic evaluation of cell constant with standard solutions.
15. Calibration data with date, time stamp and reminder alarm for authentication.
16. Automatic range selection for faster measurement from 0.01 μ S to 199.9 ms with conductivity cells having constants 0.1 and 1.0 and 10 K.
17. User selectable temperature co-efficient for automatic temperature compensation through special TEMPCO key.
18. Built-in real time clock [RTC] and Customer name on report printouts for authentication.
19. Alpha- numeric entries of Sample name, Identification Number for authentication.
20. Complies with USP and Din standards.

SPECIFICATIONS pH mode

pH Range	: 0 to 14
Accuracy	: 0.002 pH
Slope	: 90 to 105 %
MV Range	: 0 to 1999.9 mV
Resolution	: 0.1 mV.

SPECIFICATIONS Conductivity mode

Measuring Range	: 0.01 μ S to 199.9 ms
Resolution	: 0.01
Accuracy	: 0.5 %
Temperature Range	: 0 to 150.0°C.
Temperature Compensation	: Automatic/ Manual.

Specifications for TDS

0.01 ppm to 99.9 ppt (i.e. Grams / Liter) considering TDS Factor 0.50

160.0 gms/ltr actual TDS (Non ATC) with Factor 0.80 i.e. 0.0 to 160% of NaCl is possible.

Separate 40 memory locations for TDS readings.

Note: The quoted price should include charges for packaging and shipping to B G Nagara as well as warranty for 5 years. Basic consumables for the use of the printer should be included in the quote. Evidence of prior installation of the model quoted (or equivalent models) in other institutions and organizations of repute in India is highly desired and should be furnished along with the quote. A technical compliance certificate should be included. The above specifications are highly desired. However, in the eventuality of budget constraint, the institute reserves the right to compromise on some of the desired specifications of the printer, as listed above.



5. EQUIPMENT NAME: REFRACTOMETER

Specification for Refractometer	
The refractometer should be digital, compact in design & with reliable optics. The instrument should have the following specifications.	
RI Measurement Range	: 1.26 to 1.72
Brix Measurement Range	: 0 to 100%
Temperature Control:	: Automatic with built in Peltier Thermo Module
Temperature Control Range with Inbuilt Peltier	: 4°C to 85°C.
Temperature Probe Accuracy	: +/- 0.05 degree
Resolution (RI)	: 5 digits i.e. +/- 0.00001
Accuracy (RI)	: 4 digits i.e. +/- 0.0001
Light Source	: LED lamp with average lifetime of 100,000 h
Wavelength	: 589.3 nm
Data Interfaces	: RS 232 port for printer connection, USB port.
<ul style="list-style-type: none">• Recording of data on system's internal memory.• The provision for setting the limit (fail & pass) for the respective test sample should be inbuilt.• The system should have the option of setting the user name & password for the different users working on the instrument.	

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6. EQUIPMENT NAME: AUTOMATIC SURFACE / INTERFACIAL TENSIO METER

SPECIFICATION

Measurement of surface & interfacial Tension of liquids by du nouy's principal for upward and Wilhelmy Plate for downward movement. As per IS: 6104/1972 & ASTM-D-971, 1590 & 1331 for oils, detergents, Dyes, Cosmetics, Insecticides, Imulsifiers, Pharmaceuticals, Biological Fluids etc.	
Display	: LCD
User Interface	: Colour Touch Screen
Unit Of Measurement	: Dynes/cm or mN/m
Range	: 0 - 999.99 dynes
Display Resolution	: 0.01dynes



Accuracy	: ± 0.2 Dynes/cm.
Table Speed	: 0.1mm/Sec to 10mm/Sec
Stroke Length	: 80mm
Sample Volume	: 40ml.
Power	: 230VAC
Measurement Principle	: Force
Operating Principle	: Du-Nuoy Ring & Wilhelmy Plate
Sample Temperature	: 0 - 80°C by an external circulator. Circulation jacket provided
Sample Temperature Measurement	: By RTD Sensor
<ul style="list-style-type: none">• LAN Enabled hence does not require a dedicated PC• Inbuilt 2GB memory to store data• Pc interface Software for data logging and operation• Density Measurement provision using glass sinker• LED illumination• Acrylic windshield to prevent air draft• Supplied with 1 no. 6cm ring and 1 no. sample dish	

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7. EQUIPMENT NAME: ADVANCED PROBE SONICATOR

SPECIFICATION

Main Features must include:

<ul style="list-style-type: none">• The equipment should come with one sound proof enclosure.• Auto Frequency chasing, avoiding adjustment liquid crystal display at peak value.• Main Instruction, Convenient operation• -Display Temperature control checking and set over - hot protection on the sample• Output Amplitude 0-100% adjustment• Overload protection, so that equipment cannot be damaged• 10 Operating Programs for application or reserve after refreshing.	
Ultrasonic Wave Power (W)	: 750
Pulverizing Volume	: 0.5ml to 600 ml
Frequency (Khz)	: 20
Working Voltage	: 220-240 VAC, 50-60 Hz



Time Mode Working Time Clocking	: 0 -59 minutes 59 seconds
Counting Mode Ultrasonic Working Times	: 0 – 149 times
Ultrasonic Time Scope	: 0-10 seconds
Internal Time Scope	: 0-10 seconds
Power Adjustment Scope	: 0-99% of the rated power
Temperature Setting Scope	: 0-59 °C
Time Control Precision	: 1Sec + 0.1%
Temperature Control Precision	: ± 1°C
<ul style="list-style-type: none"> • Suitable Probes (Ultra Horn) made of Titanium with suitable probes with tips diameter of 3mm, 6mm, 8mm, 10mm, 12 & 15mm. • Over temperature protection and alarming functions. • Ultrasonic output intensity automatic restriction functions. 	

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8. EQUIPMENT NAME: CONTACT ANGLE METER

SPECIFICATION

Measuring Technique	: Sessile drop method
Analysis Method	: Automatic curve fit analysis using drop snake method
Optics	: High performance aberration corrected imaging lens with precise manual focus adjustment.
Measurement Angle Range	: 0-180 degree
Measurement Accuracy	: ≤ 1 degree
Camera Type	: CMOS sensor
Image Resolution in Pixels	: 2592 x 1944 (typical, max.)
Video System	: High performance CMOS sensor and suitable shielded cable of minimum 3 m length
Dispenser to Camera Positioning Unit	: Designed for top view
Illumination Mechanism	: LED based diffused lighting.
Illumination Units	: Fixed backlit LED illuminator and angled illuminator for top view imaging.
Liquid Dispenser	: Through motorized syringe pump; suitable for both motorized and mechanical type. : Three syringes with 50, 100 and 250 micro litre capacity to be



	included.
Temperature of Test Base	: Adjustable from ambient to 100°C
Substrate/Sample Holder	: It will be rotatable in the range +/- 180° from its horizontal position (total 360°); Height adjustment Substrates: Aluminum, brass and stainless steel (03Nos. one each)
X-Y Stage and Other Accessories	:75 mm travel of CCD/Optics assembly to fine focus the image : For live image/video capturing and contact angle measurements, windows operating system (OS) compatible processing software should be included. The system will have provision for: i) Static and dynamic contact angle measurement iii) Contact angle hysteresis iv) Dedicated personal PC.
Input Power	: 230+10 VAC, 50Hz
The system will be rigid & vibration resistant construction suitable to operate on a table top.	

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Dr. C.K. Subbaraya

Registrar

Adichunchanagiri University
BG Nagara