

ADVT. for Tender Notice

Institute Website

CENTER FOR HEALTHCARE SCIENCE & TECHNOLOGY

Indian Institute of Engineering Science and Technology, Shibpur; Howrah-711103

Tender Advt. No SE/D(AA)/16/50

Dated: 26.09.2016

Sealed tenders are invited by the Centre for Healthcare Science & Technology, Indian Institute of Engineering Science and Technology, Shibpur, Howrah-711103 for the supply of laboratory items/works.

Tender Documents containing details of the items and terms and conditions may be downloaded from the university website and completed bidding documents are to be submitted to the **Head, Centre for Healthcare Science & Technology, Indian Institute of Engineering Science and Technology, Shibpur; Howrah-711103** or dropped into the Tender Box kept in the Center **within Fourteen days of publication of this advertisement.**

Enclosed: **Section- I: General conditions and Important Instructions for Bidders.**

Section-II: Specification of the Items.

Prof. Amit Roy Chowdhury

Head,

Centre for Healthcare Science and Technology

SECTION-I: General Conditions and Important Instructions for Bidders

1. Interested parties/vendors are to download the tender documents with detailed specifications from the institute website (www.iiests.ac.in)
2. It is necessary to submit the original tender documents alongwith technical/price bids in sealed envelopes to the **Head, Centre for Healthcare Science and Technology (CHST), Indian Institute of Engineering Science and Technology (IEST), Shibpur; Howrah-711103**, or directly to **Drop** in the **Tender Box** kept in the Centre at the 2nd floor of Heaton Hall building (above Hospital and UBI, BESUS branch)
3. Bids are to be submitted in sealed envelope superscribed with “**Tender Advt. No.**” along with the bidders name and address. Bid envelope should contain the Technical Bid and Commercial Bid in separate sealed envelopes inside.
4. Bidders are to abide by the terms and condition and submit this tender document in original duly signed with acceptance of the terms and conditions.
5. Last date of receipt of tender is **Fourteen days from publication of advertisement up to 3.00 pm**. Tenders received late will not be accepted under any circumstances. Tenders will be opened in the Office of the Head of the Centre for Healthcare Science and Technology, on the same day at 3.30 pm. In case the University remains closed on the said date, tenders will be opened on next working day at 3.00 pm.
6. The Price Bid should clearly mention the price including the following:
 - Delivery charges up to IEST, Shibpur, Howrah, including loading and unloading charges.
 - All taxes, duties, levies applicable.
 - Erection, Commissioning and testing charges at IEST, Shibpur site
7. DGS&D rate contract price will be preferred wherever applicable. The University will not issue any C or D form availing for concessional Sales Tax/ VAT. The University will issue Customs Duty Exemption Certificate or Excise Duty Exemption Certificate for foreign purchase, if required.
8. The equipments are to be supplied at the Centre for Healthcare Science and Technology, Indian Institute of Engineering Science and Technology between 11.00 am and 4.00 pm from Monday to Friday except holidays. The bidders will be responsible for any breakage, damage or defect in the equipment detected subsequently.
9. Period of delivery of equipment/ execution of work should be within 6 to 10 weeks from the date of issue of Purchase Order. If the supply/execution is not completed within the stipulated period as indicated in the Purchase Order a Liquidated Damage @0.5% per week will be imposed on the value of purchase order subject to maximum of 5% of the value of work order.
10. Bills in triplicate should be presented for payment within 15 days of supply/ commissioning of work. No advance is paid for execution of the order. The Order No. is to be noted on both Challan and Bill. All bills are to be accompanied by order copies and Challan receipt.
11. Payment will be made on submission of Proper Bills, Challans etc, by A/C Payee Cheque and no cash payment will be made under any circumstances.

12. All payments are subjected to statutory deductions as and when applicable.
13. Tender is to be kept valid for acceptance for 3 months with effect from the last date of issue of the tender without any modifications in its terms and conditions.
14. Documents mandatory to be submitted with the tender:
 - Tender Documents, General Conditions and Important Instruction in original duly signed by the Proprietor/ Partner/ Director of the company as a token of acceptance of Terms and Conditions of Tender.
 - OEM certificate/Authorization letter from manufacturer in the name of the Head, CHST; IEST, Shibpur against this tender enquiry only/ UCAS/CE/ISO or other international certification, if applicable.
 - Latest Income Tax, Sales Tax, Professional Tax clearance certificates and copy of valid Trade License
 - Bid according to specifications.
 - Certificates and Literature in support of the item.
16. For all equipments the comprehensive warranty period must be mentioned. Calibration/ Test Certificate must accompany along with the equipment. Supply of equipment shall include installation, erection, commissioning and demonstration. Indian Institute of Engineering Science and Technology, Shibpur, Howrah reserves the right to accept/ reject all or any of the bidders without assigning any reason whatsoever.

I/We accept the above terms and conditions.

Signature of vendors with date & Seal

Name of items	Specifications
1. Audiometer	Clinical/Diagnostic Portable pure tone Audiometer (Air & Bone Conduction) Model in Briefcase with Speech & +20 dB, ABLB, • SAL, SISI, Automatic Tone Decay Test, Patient Signal, Computer • Type soft touch Digital Interrupter Switch & Free Field Facility • Battery/Mains operation
2. Impedance Analyzer	1MHz to 1.3GHz Measurement Frequency Impedance Analyzer with 0.5ms Test Speed and 0.07% Variability • Z , L, C, R testing • Testing source frequency: 1 MHz to 1.3 GHz • Measuring time: 0.5 ms • Measured value variability : 0.07% • Measure LCR and conduct frequency sweeps simultaneously
3. EEG	32 channel EEG/ERP amplifier with raw data and analysis software technical specification Amplifier : 32 (EEG) + 8 AUX channels expandable to 160 + 8 channels; Bandwidth: DC [8 kHz for EEG and 20 kHz for Aux @ 100 kHz sampling); Highpass -0 Hz (DC), Input Noise: $\approx 2 \mu\text{Vpp}$ (0.1 -30 Hz) for EEG channels; Input Impedance for DC: EEG: > 1000 M Ω AUX: > 40 M Ω –with integrated impedance measurement (0...100 Khz); Digitization: 24 bit; Max Sampling rate for EEG + Aux channels: 100 Khz; Resolution: $\approx 0.048 \mu\text{V}$ / bit; CMR: > 100dB; Trigger input: 8 bit Software : All type of transformations, artefact rejections and ERP analysis, multiple data views, support variety of input file types
4. Universal Testing Machine	<ul style="list-style-type: none"> • Single column load frame with min. 5kN capacity • Table Top Model • Force Measurement Accuracy NLT 0.5% of applied force • Crosshead Speed range 0.001 to 1500 mm/min min up to 1kN • Crosshead Speed range 0.001 to 500 mm/min min up to 5kN • Set speed resolution approx 0.001 mm/min • Crosshead Speed accuracy nlt 0.005% of set speed • Crosshead Stroke measurement resolution 0.0001 mm min. • Extension accuracy 0.001 mm min • Maximum cross head travel excluding grips - 750mm • Max. Sample dia. 200mm • Four Quadrant precision motor controller, preferable • Zeroing of Load & Displacement by pressing single click • Automatic specimen breakage detection with automatic stop & crosshead return • Fully automatic machine control through computer • Force measurement conform to EN10002-2, ASTM E4, DIN 51221 • Frame is factory proof tested for strength & stability to 10KN • Dimensions approx– 1100 mm, 500 mm , depth 450 mm • Communication Between the testing machine and computer via RS 232 using ASCII mode and super high speed binary mode or other equivalent • System installation & basic operator training including instruction on set-up procedures, test methods, calibration & test result generation. • Conforms to CE directives <ul style="list-style-type: none"> • LOAD CELL

- Z Beam Construction conforms to EN10002-2, ASTM E4,
- DIN 51221
- Range: 2% to 100%
- Accuracy: 0.5% of applied force
- Resolution: 1 part in 64000
- Extended Range down to 1%
- Automatic identification of Load Cell
- Load Cell protection system

Optional Accessories:

Different load cells and gripper attachments especially for biomedical testing like stents, contact lens etc should be quoted.

Fluid Bath (temperature controlled) with External Re-circulating Reservoir -

Include Control Box, Re-circulating temperature controlled bath, base fitting 5/8" (M) inside bath and 5/8" (M) upper tie rod.

- Library of more than 1000 test routines as per Various test standards (ASTM, DIN, ISO, JIS)
- Recalculation of results
- Graphical features with color code, curve overlay, curve analysis with moving cursor, multiple zoom on curve, rescale & redraw graph Multi language
- Post test analysis
- Suspend test function to protect against power failure or interruption during testing
- Auto system check before testing
- Plot of Histogram, SPC, Regression chart
- Generate test routine as per user requirement
- Report wizard to design report format
- Substitute over original results
- Analyze curve data
- Curve Overlay
- Curve Offset
- Zoom on curve
- Pass fail limits
- Operator password protection
- Easy to read ICON tool bar
- Graph annotation
- Moving cursor on test curve
- Auto scaling
- Input of test data, specimen dimensions, unit select etc.
- Saving of test parameters for fast future recall
- Results tables and statistical analysis
- Results & Curve save and retrieval

Suitable PC, printer and UPS.

Data saved in WindowsTM MS format

<p>5. Contact Angle tensiometer</p>	<ul style="list-style-type: none"> - Static & Dynamic Contact Angle according to Sessile Drop method - The wetting behavior in solid surface - Advancing and Receding Contact Angle - Surface and Interfacial Tension by Pendant Drop Method - Surface Tension and Interfacial Tension by Lamella method should be offered as option <p><u>The instrument should be capable and equipped with the following specification and features :</u></p> <p>Max Sample dimension : 220x ∞ x 70mm</p> <p>Sample Table Dimension : 100 x 100 mm</p> <p>Sample Stage Movement : Adjustable in X, Y and Z axis for accurate sample positioning</p> <p>Traversing range of sample table : 100 x 100 x 50 mm (in X-/Y-/Z-direction)</p> <p>Measuring range of the Contact Angle : 0° - 180°</p> <p>Measuring accuracy of the video system : ± 0.1° or near</p> <p>Measuring range for Surface Tension and Interfacial Tensions : 1 x 10⁻² to 100 mN/m</p> <p>Resolution : ± 0.01 mN/m</p> <p>illumination : Lighting with Manual and Software Controlled adjustment of intensity without hysteresis</p> <p>Video system , Camera Speed : 311 Images / Sec with full scan (Not Progressive Scan)</p> <p>Field of view : 1.32 x 0.99...8.50 x 6.38 mm</p> <p>Image distortion : < 0.05%</p> <p>Image Processing System : High-performance image processing system with 132 MBytes/s data transfer rate (Compatible to European standard CCIR and US Standard RS – 170) upto 60 images/sec digitizing speed with RS-170</p> <p>Dispensing type : Automatic High Precison Direct Dosing system without any tubing through both manual and Software Control. Dosing system should be adjustable in vertical and Horizontal position.</p>
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<p>6. Electrochemical Impedance Analyzer</p>	<ul style="list-style-type: none"> • Voltage control (potentiostat mode) <ul style="list-style-type: none"> ➤ Applied voltage range: 10V ➤ Resolution: 300μV ➤ Accuracy: 1mV approx. ➤ Maximum scan rate: 10kV/s (10mV step) ➤ Maximum scan range: ±10V/300μV • Current control (galvanostat mode) <ul style="list-style-type: none"> ➤ Applied current range: (upgradable) ±4A ➤ Resolution: ±1/32,000 x full scale ➤ Accuracy: ±2pA ➤ Maximum scan rate: ±4A / 123μA ➤ Maximum scan range: ±40pA/1.2 fA • Impedance (EIS) <ul style="list-style-type: none"> ➤ Frequency range: 10μHz - 10 MHz. ➤ Minimum ac voltage amplitude 0.1mV RMS ➤ Sweep: Linear or logarithmic • Electrometer <ul style="list-style-type: none"> ➤ Max. input range: ±10V ➤ Bandwidth : ≥10MHz ➤ Input Impedance: ≥10¹¹ in parallel with ≤2pF ➤ Leakage current: ≤2pA ➤ CMRR: 60 dB at 100kHz • PC/Software (lifetime upgradable pref.) <ul style="list-style-type: none"> ➤ Communications Interface: Universal Serial Bus (USB) ➤ Operating System: Windows XP/ Windows 8 (64 and 32 bit), Windows 7 (64 and 32 bit) ➤ Software: VersaStudio Developers Kit <p>Reference electrode Ag/AgCl; working 2mm Pt, 50 ml min. cell vol., purging facility.</p>
<p>7. -80°C Freezer</p>	<p style="text-align: right;">1 no</p> <p>PID temperature digital control unit Pt 100 temperature probe Acoustic and visual alarm for max.temperature and Power failure. Digital temperature display Super isolated 90 mm Cascade refrigeration system Rapid recovering natural convection of the air Cooling exchanger in each drawer, made in aluminum Blind door with opening aids and safety lock with separate key Isolation of 90mm, made in high density injected CFC free polyurethane Refrigerant free CFC Low noise <48dB Two side opening door with size handle High regulated frontal feets Magnetic perimetral sale on the door, insure a perfect airtight closing Tropical treatment allow to work until +32°C working area Temperature with 85-90% RH Temp. range: -86°C; Capacity: 210 liters; Power consumption: 980W; No of drawers: 5; Internal Dimension: 490 (w) x 450 (d) x 985 (h) mm ; External Dimension: 660 (w) x 760 (d) x 1610 (h) mm Power supply: 220VAC, 50/60Hz; With back up CO2, UPS as applicable</p>

<p>8. Spectrum Analyzer</p>	<ul style="list-style-type: none"> • 9 kHz to 3.0/7.5 GHz frequency range covers a broad range of analysis needs • 40 MHz acquisition bandwidth enables real time analysis for transient capture and vector analysis • Standard GPS/GLONASS/Beidou receiver for mapping • Optional tracking generator for gain/loss, antenna and cable measurements • Streaming capture can be used to record and play back long term events • Mil-Std 28800 Class 2 environmental, shock and vibration specifications for use in harsh conditions • Internal battery for extended field operations • SignalVu-PC software offers real time signal processing with DPX Spectrum/Spectrogram to minimize time spent on transient and interference hunting • 100 µsec minimum signal duration with 100% probability of intercept ensure you see problems first time, every time • Application programming interface included for development of custom programs • Accessories including tablet PC, calibration kits, adapters and phase-stable cables offer a complete field solution for interference hunting and transmitter maintenance <p>Applications</p> <ul style="list-style-type: none"> • Spectrum management • Interference hunting • Maintenance, installation and repair of radio networks <p>Measurements and functions included in SignalVu-PC base version</p> <p>Including PC, Softwares etc.</p>
<p>10. Holter Monitor</p>	<p>1. Specifications</p> <p>Overall · CPU : 16 bit single chip ·SRAM : 512 K Bytes ·LCD Resolution : 112 dot ×72 dot (graphics) ·Recording time : Continuous 24 hours ·Internal Clock : RTC ·Backup battery : Lithium battery Service life six (6) years or more ·Patient EVENT recording : EVENT switch Records up to twelve (12) times / min ·Recording media : Multimedia card (MMC-64) ·ECG signal recording unit Number of recording channels : bi-polar 2/3 channels, unipolar 2/3 channel Input impedance : 10 MΩor more CMRR : 60 dB or more Gain ratio : 300x (A/D input) : 300x (Monitor output) Frequency response : 0.05/0.67~40Hz Monitor output : 300 mV/1mV Quantifying bit number : 10 bits Sampling frequency : 125 Hz Dynamic range : ±5.00mV Minimum resolution : ±9.76µV · Pacemaker pulse detection Detection channel : given 1 channel · Acceleration sensor : 3 axial directions (static position information detection) ·Switches : 2 units (EVENT, ONⓄENTER) ·Buzzer : 1 unit (separate excitation) ·Power supply : one AAA battery ·Dimensions (W×H×D mm) : 65×62×18 Weight (g) : 78g (incl. battery and multimedia card)</p>

<p>9. Spirometer</p>	<ol style="list-style-type: none"> 1. It must meet latest American Thoracic society (ATS)/ European Respiratory Society (ERS) standards 2. It should be able to measure/do the following: Spirometry and Flow Volume Parameter (FVC,FEV0.5 FEV1,FEF50,FIF 50,FEF75,MVV,FET&MTT) ,SVC,Maximum ventilation volume (MVV)inspiratory capacity, Expiratory Reserve volume. ii)Maximum Ventilation Volume. iii) Pre & Post Bronchodilatation Comparison. iv) Lung Volumes & Sub -divisions. v)Broncho provocation Test. 3. Flow meter - Bi- directional digital turbine (flow:up to 14L/S or More, accuracy : within 3%) or Pneumotach (flow: up to 14L/s Or more: accuracy within 3%) 4 Resistance: less than 1.5 cm H2O/L/sec. 5. Parameters should be measured with highest accuracy & Reproducibility ,of these accuracy is important.If at all affected With high Surrounding Temperature and humidity levels. 6. Should incorporate Electronic Barometer & temperature sensors,for Automatic BTPS correction 7.SPO2(pulse oximetry) 8. Overlaying of previous test curves for comparison. 9. Real Time Flow Volume and Volume – time Time Traces on Computer screen. 10 . Capablity to select and modify predicted equations. 11 .Facility to interface for desktop/Laptop computer. 12 . System software should be based on Windows 7/XP OS. 13 Should be supplied with Computer interfacing package,cables,software, 3 -litre precision calibration syringe,standard accessories and manual. 14. Additional accessories :Pnuemotach screens (05 nos),Pulmonary filters(100 nos), Disposable Mouthpieces (500 nos), Nose clips -20 nos and Thermal paper roll -20 nos. 15 . Laptop/Desktop Computer: 4GB RAM ,Intel core13/15 processor (3 rd generation), 15’’TFT screen, USB Ports ,DVD R/W, Hard Drive 500 GB ,LaserPrinter and UPS. 16. Should be able to export all data to a computer 17. Should have a digital display of all graphs and parameters and an alphanumeric Alphanumeric keypad . 18. Safety and quality standards –US FDA or European CE certification to MDD. <p>http://www.rmhc.nic.in/pdf/Specs.%20Spirometer%20.pdf</p>
<p>11. Motorized Tread Mill</p>	<ol style="list-style-type: none"> 1. Motorized Treadmill (with and without holter monitors) <ul style="list-style-type: none"> • Motor: 2 HP • Incline Type: Manual • Manual Incline: 3 • Maximum Weight Support: 120 kg • Heart Rate: Hand Grip Pulse Sensor or other suitable • Display Features: Calories, Distance, Speed, Time, Pulse • Foldable: Yes

	<ul style="list-style-type: none"> • Folding Type: Vertical • Wheels: Yes <p>Tread mill must be equipped with all kind of data logger, USB interfaces, blue tooth, wifi etc. as per the requirements.</p> <p>4. All tracking devices, Tread mill must be free from tracking problems.</p> <p>5. Should provide Printer with Printer stand.</p> <ol style="list-style-type: none"> 1. That can be suitable for Amputees, Orthopaedic, Spinal Cord, joint replacement patients etc. 2. Treadmill must have Instrumented deck/Walking Surface that monitors to record step length, step speed, right to left foot time distribution. 3. Heart rate monitoring through Chest strap telemetry type and contact hand grip. 4. Forward speed range approx 0-10 mph (0-16.9 km/h) 0.1 mph speed increments and Reverse: 0-3 mph (0-4.8 km/h) in 0.1 mph increments. 5. Elevation range of : 0 to 15% grade or similar 6. Easy movement of subject on the deck and off the deck i.e. low step-up height. 7. Walking Area should be approximately 51 x 160cm with 10 % tolerance on upper side. 8. Patient capacity of 200 Kg \pm 15% is required. 9. On tread mill, larger display of 12" or more with high resolution is required. (touch screen desirable or otherwise display with keys to operate) 10. Motor must be at least 2 HP with Modulation Control. 11. Option for Geriatric/paediatric handrails. 12. Minimum warranty of parts and labour of 2 years
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<p>12. Viscometer</p>	<ul style="list-style-type: none"> • Programme based Viscometer • Digital display with continuous sensing and display the information like viscosity (cP or MPa.s), Temperature (degree C or degree F), % Torque, Speed, Spindle used, Shear rate, Shear stress. • Determination of viscosity in less amount of sample • Available with Temperature probe • Timed stop feature to measure viscosity at precise user specified time intervals • Easy to use key pad • Temperature Sensing Range: - 10 to 100 • Viscosity Accuracy: $\pm 1.0\%$ of full scale range • Viscosity Repeatability: $\pm 0.2\%$ • Temperature Accuracy: $\pm 1^\circ\text{C}$ /-100°C to +149°C and $\pm 2^\circ\text{C}$ /+150°C to +300°C
<p>13. Recorder</p>	<p>Features</p> <ul style="list-style-type: none"> - Able to perform tests within 2 mins without patient fasting or sample collection - Should be able to investigate sudomotor function - Should be Non Invasive in nature - Should be able to screen cardio-metabolic risk by measuring Electro Chemical Sweat Conductance - Quantitative results should be immediately available - Proven Clinical results with Sensitivity & Specificity of 92% & 86% respectively better than conventional methods like FPG, OGTT <p>Specifications</p> <p>CHARACTERISTICS OF ACQUISITION Atleast 80Gb Hard disk with No Compression Mode Frequency of Acquisition 100Hz or better Minimum Resolution should be 0.025 microampere</p> <p>ELECTRICAL CHARACTERISTICS Measurement Voltage 1V to +4V DC Frequency 0Hz DC Dynamic Resolution 10bits or better Power Input 110V / 220 V +/- 3% variation with 50Hz/60Hz freq Electronic Power Supply 5V +/- 0.25V , < 300mA (with power Supply in conformity with EN69950-1)</p> <p>SEALING Index of protection IP41</p> <p>MECHANICAL Weight of Master Unit plus electrodes <20kg Dimension 55 X 50 X 50 or smaller</p>

	<p>STORAGE AND CONDITIONS OF USE Operating 0 to 45C with 10% to 95% moisture 700 to 1060 hPa without condensation</p> <p>TESTS & COMPLIANCE Immunity Test as per IEC 61000-4-2 Transient Fast Electric Cut IEC 61000-4-4 Overvoltage IEC 61000-4-5 Voltage Drops IEC 61000-4-11 Electrical frequency IEC 61000-4-8 USFDA Approved and CE marked</p>
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