

**Office of the Dean of Research and Development  
Indian Institute of Engineering Science & Technology (IEST), Shibpur,  
Howrah-711 103**

**Project Code: DRC/CSIR/CHEM/CB/018/17-18**

**Department of Chemistry  
Indian Institute of Engineering Science & Technology, Shibpur  
(Formerly, Bengal Engineering and Science University, Shibpur)  
Howrah-711 103, West Bengal**

**Notice Inviting Quotations**

Sealed quotations are invited for the supply of the following items as per the given technical specification for the CSIR, Govt. of India Sponsored project entitled "**Modifications of Aurivillius type semiconducting Photocatalysts through incorporation of dopants and co-catalysts for improvement of Photoelectrochemical water oxidations behavior**":

<b>SI No.</b>	<b>List of items</b>	<b>Quantity (approx)</b>
1.	Digital Calibrator	~6 pieces
2.	DC Regulated Power Supply	1 piece
3.	Magnetic Stirrer - 2 L capacity	~6 pieces
4	Digital Multimeter	1 piece
5	(a) Ammonium Metavanadate – 500gm pack (b) Ammonium Molybdate – 500gm pack Tetrahydrate (Ammonium heptamolybdate) (c) Cobalt (II) Chloride Hexahydrate – 500gm pack (Cobaltous chloride hexahydrate) (d) Cupric Sulphate Pentahydrate – 500gm pack (Copper (II) sulphate pentahydrate) Quality : Extrapure AR, ACS, ExiPlus™, minimum 99% & should meets comp. specs of USP	(a) 01 pkt. (b) 01 pkt. (c) 01 pkt. (d) 01 pkt.

The relevant bidding document can be downloaded from the website. The document can be also obtained from the Department of Chemistry (contact: Dr. Chinmoy Bhattacharya) between 10.00 a.m. and 4.00 p.m. on all working days. Last date of submission of sealed quotation is **20<sup>th</sup> November 2017 by 10.30 a.m.**

**Dean (R & D)**

**(A. Code DRC-T073/17-18)**

*This is downloadable*

INDIAN INSTITUTE OF ENGINEERING SCIENCE & TECHNOLOGY, SHIBPUR  
(formerly, BENGAL ENGINEERING AND SCIENCE UNIVERSITY, SHIBPUR)

CSIR, Govt. of India Sponsored Project Scheme

entitled

**“Modifications of Aurivillius type semiconducting Photocatalysts  
through incorporation of dopants and cocatalysts for improvement of  
Photoelectrochemical water oxidations behavior”:**

**Project Code: CSIR/CHEM/CB/018/17-18**

## **BIDDING DOCUMENT**

*For Supply of*

**Digital Calibrator, DC Regulated Power Supply, Digital Multimeter, Magnetic  
Stirrer & Consumables**

**Department of Chemistry,  
IEST, Shibpur  
(formerly, BESUS)**

**08<sup>th</sup> Nov, 2017**

**SECTION I: TERMS & CONDITIONS AND IMPORTANT INSTRUCTIONS  
FOR BIDDERS**

1. Bidders are to invited to submit sealed quotation (10.00am to 4.00pm except Saturday, Sunday and other public holidays) as per the technical specifications for tendered item to Dr. Chinmoy Bhattacharya, Assistant Professor, Department of Chemistry, IEST, Shibpur **on or before 20<sup>th</sup> November 2017.**
2. The last date of receipt of tenders is **20<sup>th</sup> November 2017 by 10.30 a.m.** Quotations received later will not be entertained under any circumstances.
3. Date and time of opening of bid is **20<sup>th</sup> November 2017 at 3.30 p.m.** and the place of opening of bid is office Room of the Department of Chemistry, Indian Institute of Engineering Science & Technology, Shibpur (formerly, Bengal Engineering and Science University, Shibpur, Howrah-711103).
4. Bidders are to submit the quotations in Sealed Cover to the Department of Chemistry in the following address:

**Dr. Chinmoy Bhattacharya**  
**PI: CSIR, Govt. of India Project**  
**Assistant Professor**  
**Department of Chemistry**  
**Indian Institute of Engineering Science & Technology, Shibpur (IEST, Shibpur)**  
**(formerly, Bengal Engineering and science university, Shibpur)**  
**Howrah-711103, West Bengal, India**  
**Email: chinmoy@chem.iests.ac.in   cbhattacharya.besus@gmail.com**

- (i) All bids will be submitted in ONE-BID Format in sealed covers (Enquiry Number must be mentioned) giving Detailed Specifications, International Standards (BIS/INTERNATIONAL), Catalogues, List of users & Technical Details / Operating Parameters, Pre-Installation Requirements, payment terms, warranty, etc. as well as giving full Prices in Indian Rupees and/or in Foreign currency.
5. Materials & Accessories supplied should be as per specification and finally approved by any authorized Officer of the IEST, Shibpur, Howrah.
6. Installation & Commissioning will be the sole responsibility of the Supplier / Indian Agent.
7. The price quoted should be inclusive of all Taxes, duties and levies. Inclusion of Tax/Levy at a latter stage will not be accepted. Freight, Insurance charges should be clearly indicated. For imported equipment, Letter of Credit may be opened against proforma invoice received from the Principal Vendor. In case of imported equipment the local agents are to quote the price in foreign currency.
8. The materials are to be supplied at a place within IEST, Shibpur (formerly, BESUS) premises between 11.00 a.m. and 4.00 p.m. The tendered will be responsible for any breakage, damage or defect in the equipment detected subsequently. The supply and installation of the equipment should be completed within a period not exceeding 3 months from the placement of the formal work order or opening of the LC, failing which appropriate action will be taken as per Institute rules.

9. If the supply is not completed within the stipulated period as indicated in the Work Order, a Liquidated Damage @ ½ per cent per week will be imposed subject to maximum of 5% of the value of work order.

10. (a) For Indian purchase (*This clause is applicable only for Indian purchase and not applicable for foreign purchase*):

Bills in triplicate should be presented for payment within 15 days of Supply / Completion of work. No Advance Payment can be made. All bills are to be accompanied by Order copies and Challan Receipt. The Order Number is to be noted on both the Challan and the Bill.

**Or**

(b) For Foreign purchase (This clause is applicable only for foreign purchase and not applicable for Indian purchase):

Payment will be made through Bank Transfer / Demand Draft. AWB, Packing list, Warranty certificate, etc should be provided..

**11. Documents to be submitted with the tender:**

- a) Tender Documents/Terms & Conditions in Original duly signed by the Proprietor/ Partner/ Director of the Company as a token of acceptance of Terms & Conditions of Tender.
- b) Latest Income Tax, Sales Tax, Professional Tax Clearance Certificates and copy of Valid Trade License. (This clause is applicable only for Indian purchase and not applicable for foreign purchase)

**12. Customs Duty & Excise Duty**

- The Institute will not issue any C or D form availing of concessional Sales Tax/ VAT.
- The Institute will issue Customs Duty Exemption Certificate or Excise Duty Exemption Certificate for foreign purchase, if required.

**13. Warranty:**

- Warranty/guarantee for all the items of equipment/furniture supplied shall be on 'all comprehensive' basis (i.e., including repairs, replacements, maintenance, etc.).
- The minimum applicable period of all comprehensive warranty for all items of **equipment and furniture** shall be **36 (thirty six) months** from the date of acceptance by the Institute.

**14. Indian Institute of Engineering Science & Technology, Shibpur (formerly, BESUS), Howrah reserves the right to accept / reject all or any of the tenders without assigning any reason whatsoever.**

**Other requirements**

- i) **Annual maintenance plan:** Annual maintenance plan, after expiry of the guarantee period, and AMC charges should be clearly stated in the offer.
- ii) **Supply of spares:** The supply of spares should be guaranteed for at least 10 years from date of discontinuation of the particular model.

iii) **Software updates:** all software updates for the complete system during its life period should be supplied free of charges.

iv) **Training:** after installation on site training should be provided to at least two of our scientists/engineers on operation of the system for proper functioning at no extra cost.

We accept the above terms and conditions.

Dated:

Signature of Bidders/Suppliers  
With date & Seal

# **TECHNICAL SPECIFICATIONS**

## **1. Digital Calibrator --- quantity ~06 pcs (approx)**

<b>Display</b>	<b>4½ digit LCD</b>		
<b>Range</b>	200mV / mA	2V/mA	20V/mA
<b>Source Output</b>	0 to 199.99	0 to 1.9999	0 to 19.999
<b>Measure Input</b>	0 to ± 199.99	0 to ± 1.9999	0 to ± 19.999
<b>Accuracy</b>	± 0.05% ± 2 Counts		
<b>mA Load</b>	1 KE Max.		
<b>Output Adjustable</b>	10 turn POT Coarse & Fine		
<b>Operating Temp</b>	0 to 50°C (RH < 80%)		
<b>Supply</b>	230 V AC ± 10% 50 Hz		
<b>Box</b>	Table Top		
<b>Includes</b>	Test Leads, Thermocouple Tables		
<b>Options</b>	110/220V AC Supply Voltage		

## **2. DC Regulated Power Supply --- quantity ~01 pcs (approx)**

<b>Input Voltage:</b>	AC 220V±5%
<b>Output Voltage:</b>	0-60V
<b>Output Current:</b>	0-10A
<b>Source Regulation:</b>	CV≤5×10 <sup>-4</sup> +2mV; CC≤5×10 <sup>-4</sup> +5mA
<b>Load Regulation:</b>	CV≤5×10 <sup>-4</sup> +2mV; CC≤5×10 <sup>-4</sup> +5mA
<b>Ripple &amp; Noise:</b>	CV≤ 1.5mV; CC≤15mV
<b>Protection:</b>	Current- Limiter
<b>Working Environment:</b>	0 ~ 40°C
<b>Relative Humidity:</b>	< 90% RH

## **3. Magnetic Stirrer - 2 L --- quantity ~06 pcs**

<b>Type of Product:</b>	Magnetic Stirrers
<b>Max. stirring quantity (Water)(Liters) :</b>	2 Ltr
<b>Stirring Paddle (PTFE coated) :</b>	Q-19A ( 9 x 35 mm)
<b>Dimensions (WxDxH) (mm) :</b>	150 x 220 x 150 mm

## **4. Digital Multimeter --- quantity ~01 pcs (approx)**

Auto Ranging & Auto Power Off

Display: 3-1/2 digits 1999 Counts backlit LCD

DC Voltage: 0 – 200mV/2V/20V/200V/600V & Accuracy: ± 0.8%

AC Voltage: 0-200mV/2V/20V/200V/600V & Accuracy: ± 0.8%

DC Current: 0-200uA/2000uA/20mA/200mA/10A & Accuracy: ± 1.0%

AC Current: 0-200uA/2000uA/20mA/200mA/10A & Accuracy: ± 1.5%

Resistance: 0-200Ω/2kΩ/20kΩ/200kΩ/2MΩ/20MΩ & Accuracy: ± 0.8%

Temperature: -40°C to 1000°C / -40°F to 1832°F & Accuracy: ± 1.0%

With Diode test, Audible Continuity test and Data Hold Facility

Confirms to CE, CAT-II 600V

**5. Consumable (contingency) items:**

Items	Quantity (approx.)
i. Ammonium Metavanadate – 500gm pack	i. 01 pkt.
ii. Ammonium Molybdate – 500gm pack	ii. 01 pkt.
Tetrahydrate (Ammonium heptamolybdate)	iii. 01 pkt.
iii. Cobalt (II) Chloride Hexahydrate – 500gm pack	iv. 01 pkt.
(Cobaltous chloride hexahydrate)	
iv. Cupric Sulphate Pentahydrate – 500gm pack	
(Copper (II) sulphate pentahydrate)	
Quality : Extrapure AR, ACS, ExiPlus™, minimum 99% & should meets comp. specs of USP	