

#### INDIAN INSTITUTE OF TECHNOLOGY MADRAS Chennai 600 036

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Date: 14.10.2022

The Manager (Project Purchase)

Open Tender Reference No: EE/SARA/051/2022/ELECTROKIT

GEM NAR ID: GEM/GARPTS/12102022/FNVUDLLU7X4U Due Date/Time: 03.11.2022@ 3:00 PM

Dear Sir/Madam,

On behalf of the Indian Institute of Technology Madras, Tenders are invited in two bid system from Class-I local suppliers and Class II local suppliers, for the supply of: "Electronic Kit" Conforming to the specifications given in Annexure -A.

Tender Documents may be downloaded from Central Public Procurement Portal <a href="https://etenders.gov.in/eprocure/app">https://etenders.gov.in/eprocure/app</a>. Aspiring Bidders who have not enrolled / registered in e-procurement should enroll / register before participating through the website <a href="https://etenders.gov.in/eprocure/app">https://etenders.gov.in/eprocure/app</a>. The portal enrolment is free of cost. Bidders are advised to go through instructions provided at "Help for contractors". [Special Instructions to the Contractors/Bidders for the e-submission of the bids online through this eProcurement Portal"]

Bidders can access tender documents on the website (For searching in the NIC site, kindly go to Tender Search option and type 'IIT'. Thereafter, click on "GO" button to view all IIT Madras tenders). Select the appropriate tender and fill them with all relevant information and submit the completed tender document online on the website <a href="https://etenders.gov.in/eprocure/app">https://etenders.gov.in/eprocure/app</a> as per the schedule attached.

	Pre-bid Meeting	:	NA
<u>1)</u>	Details		
<u>2)</u>	ICSR Vendor	:	<b>Vendor registration code.</b> Vendor registration with IC&SR (IITM) is mandatory for
	Registration		bidders to participate in tenders.
			** For Vendor Registration & Guidelines, Please follow the website: https://icandsr.iitm.ac.in/vendorportal; Helpdesk: vendorhelpdesk@icsrpis.iitm.ac.in

<u>No manual bids will be accepted.</u> All tender documents including Technical and Financial bids should be submitted in the E-procurement portal.

Last date for receipt of tender	:	03.11.2022 @ 3:00 PM
Date & time of opening of tender	:	04.11.2022 @ 4:00 PM

## 3. Instructions to the Bidder:

<u>A)</u>	Searching for tender documents	:	<ul> <li>There are various search options built in the CPP Portal, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, organization name, location, date, value, etc. There is also an option of advanced search for tenders, wherein the bidders may combine a number of search parameters such as organization name, form of contract, location, date, other keywords etc. to search for a tender published on the CPP Portal.</li> <li>Once the bidders have selected the tenders they are interested in, they may download the required documents / tender schedules. These tenders can be moved to the respective "My Tender" folder. This would enable the CPP Portal to intimate the bidders through SMS / email in case there is any corrigendum issued to the tender document.</li> <li>The bidder should make a note of the unique Tender ID assigned to each tender, in case they want to obtain any clarification / help</li> </ul>
<u>B)</u>	Assistance to bidders	:	<ul> <li>Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender.</li> <li>Any queries relating to the process of online bid submission or queries relating to CPP Portal in general may be directed to the 24x7 CPP Portal Helpdesk. The contact number for the helpdesk is [0120-4200462, 0120-4001002, 0120-4001005]</li> </ul>
<u>C)</u>	Enrollment to Bidders  Process	:	

			<ul> <li>(DSC) in the form of smart card/e-token in the company's name is a prerequisite for registration and participating in the bid submission activities through https://etenders.gov.in/eprocure/app</li> <li>Digital Signature Certificates can be obtained from the authorized certifying agencies, details of which are available in the web site https://etenders.gov.in/eprocure/app under the "Information about DSC".</li> </ul>
<u>D)</u>	Preparation of bids	:	Bidder should take into account any corrigendum published on the tender document before submitting their bids.
			• Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.
			<ul> <li>Bidder, in advance, should prepare the bid documents to be submitted as indicated in the tender document / schedule and generally shall be in PDF / XLS formats as the case may be. Bid documents may be scanned with 100 dpi with black and white option.</li> <li>To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, GSTIN Details, annual reports, auditor certificates etc.) has been provided to the bidders. Bidders can use "My Documents" area available to them to upload such documents. These documents may be directly submitted from the "My Documents" area while submitting a bid, and need not be uploaded again and again. This will lead to a reduction in the time required for bid submission process.</li> </ul>
<u>E)</u>	Submission of bids	:	Bidder should log into the site well in advance for bid submission so that he/she can upload the bid in time i.e. on or before the bid submission date and time. Bidder will be responsible for any delay due to other issues.
			The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document.
			Bidder has to select the bid security declaration. Otherwise, the tender will be summarily rejected.
			<ul> <li>A standard BOQ format has been provided with the tender document to be filled by all the bidders. Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. Bidders are required to download the BOQ file, open it and complete the detail with their respective financial quotes and other details (such as name of the bidder). If the BOQ file is found to be modified by the bidder, the bid will be rejected.</li> </ul>
			• The server time (which is displayed on the bidders' dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The

		bidders should follow this time during bid submission.
		• The Tender Inviting Authority (TIA) will not be held responsible for any sort of delay or the difficulties faced during the submission of bids online by the bidders due to local issues.
		The uploaded tender documents become readable only after the tender opening by the authorized bid openers.
		• Upon the successful and timely submission of bids, the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.
		<ul> <li>Kindly add scanned PDF of all relevant documents in a single PDF file of compliance sheet.</li> </ul>
		<ul> <li>More information useful for submitting online bids on the CPP Portal may be obtained at: <a href="https://etenders.gov.in/eprocure/app">https://etenders.gov.in/eprocure/app</a>.</li> <li>All tender documents including pre-qualification bid, Technical Bid &amp;Financial Bid should be submitted separately in online CPP portal as per the specified format only. Right is reserved to ignore any tender which fails to comply with the above instructions. No manual bid submission will be entertained.</li> </ul>
<u>F)</u>	Marking on Technical Bid	The bidder eligibility criteria, technical specification and supply of item for this tender is given in Annexure A.
		The Bidders shall go through the specification and submit the technical bid.
		• The Technical bid should be submitted in the proforma as per Annexure-B in pdf format only through online (e-tender). No manual submission of bid will be entertained.
		• The technical bid should have a page-wise heading as "Technical Bid" and page no. in all pages with seal and signature of authorized signatory. The total no. of pages should be mentioned at the last page of the documents.
		• The technical bid should consist of bidder eligibility criteria details and all technical details along with catalogue/ pamphlet which will give a detailed description of product with technical data sheet so that technical compliance can be verified.
<u>G)</u>	Marking on Price Bid	• Financial bid (BoQ) should be submitted in the prescribed proforma format as per Annexure-C in xls format through e-tender only. No manual or other form of submission of Financial Bid will not be entertained

4) **Preparation of Tender**: The bidders should submit the bids in two bid system as detailed below.

#### Bid I \_Technical Bid

The technical bid should consist of bidder eligibility criteria and technical specification compliance sheet as per Annexure-B.

#### Bid II \_Price Bid

The price bid should be submitted in excel format (BoQ) as per the proforma (Annexure C) uploaded in the e-Tender web site. The Quoted price should be for supply and installation of the item and inclusive of all cost and statutory levies at IIT Madras.

#### 5) Price:

- a) The price should be quoted only in INR net per unit (after breakup) and must include all packing, transit insurance and delivery charges to the Department of Electrical Engineering.
- b) The rate quoted shall be all inclusive of all taxes and no extra payment will be made other than statutory revisions as per the terms and conditions stipulated in this contract document.
- c) The percentage of tax & duties should be clearly indicated separately. IIT Madras is eligible for custom duty (5.5%). Relevant certificates will be issued wherever necessary.
- d) The offer/bids should be submitted through online only in two bid system i.e. Technical Bid and Financial Bid separately.

#### 6) Tenderer shall submit along with this tender:

- (i) Proof of having ISO or other equivalent certification given by appropriate authorities.
- (ii) Name and full address of the Banker and their swift code and PAN No. and GSTIN number.
- (iii) GST registration proof showing registration number, area of registration etc.
- (iv) All of your future correspondences including Invoices should bear the GST No. and Area Code.

#### 7) Terms of Delivery:

Supplier will be fully responsible for the safe carriage, Installation/Commissioning of goods up to the Department of Electrical Engineering, IIT Madras or named place as per PO, Insurance coverage will be in the scope of the supplier.

The tenderer should indicate clearly the time required for delivery of the item (subject to the approval of the Executive Committee-IIT-Madras). In case there is any deviation in the delivery schedule, liquidated damages clause will be enforced or penalty for the delayed supply period will be levied.

In the event of delay or non-supply of materials/execution of Contract beyond the date of delivery/completion of job. The penalty will be levied @1% per week of delay subject to a max of 10% of the value of purchase order and if the delay is more than accepted time frame by IIT M, the PO would be partially or fully cancelled and liquidated damages will be enforced accordingly.

#### 8) Period for which the offer will remain open:

The Tender shall remain open for acceptance/validity till: 120 days from the date of opening of the tender. However, the day up to which the offer is to remain open being declared closed holiday for the Indian Institute of Technology Madras, the offer shall remain open for acceptance till the next working day.

#### 9) **EMD**:

The EMD of **Rs. 3,00, 000** to be transferred to the account details mentioned in Annexure D and proof should be enclosed in the Technical Bid. Any offer not accompanied with the EMD shall be rejected summarily as non-responsive.

The EMD of the unsuccessful bidders shall be returned within 30 days of the end of the bid validity period. The same shall be forfeited, if the tenderers withdraw their offer after the opening during the bid validity period. The Institute shall not be liable for payment of any interest on EMD.

EMD is exempted for Micro and Small Enterprises (MSE) as defined in MSE Procurement Policy issued by Department of Micro, Small and Medium Enterprises (MSME) and Startups as recognized by Department of Industrial Policy & Promotion (DIPP). (MSE/MSME/DIPP PROOF should be enclosed in the cover containing technical bid).

10)	Performance Security: -
	The successful bidder should submit Performance Security for an amount of 3% of the value of the contract/supply. The Performance Security may be furnished in the form of an Account Payee DD, FD Receipt in the name of "The Registrar, IIT Madras" from any scheduled commercial bank or Bank Guarantee from any scheduled commercial bank in India. The performance security should be furnished within 14 days from the date of the purchase order.
	Performance Security in the form of Bank Guarantee: - In case the successful bidder wishes to submit Performance Security in the form of Bank Guarantee, the Bank Guarantee should be routed directly to IIT Madras from the Bank.
	The Bank Guarantee should remain valid for a period of sixty days beyond the date of completion of all contractual obligations of the supplier including the warranty obligations.
11)	For the same tender, either the OEM or the authorized dealer/service provider can only quote. But both of them cannot quote separately for the same tender.
12)	The offers/bids should be sent only for a item/Equipments of latest version that is available in the market and supplied to a number of customers. A list of customers in India with details must accompany the quotations. Quotations for a prototype machine will not be accepted
13)	Original catalogue (not any photocopy) of the quoted model duly signed by the principals must accompany the quotation in the Technical bid.
14)	Compliance or Confirmation report with reference to the specifications and other terms & conditions should also be obtained from the principal/OEM.
15)	Risk Purchase Clause
	In the event of failure of supply of the item/equipment within the stipulated delivery schedule, the purchaser has all the right to purchase the item/equipment from other sources on the total risk of the supplier under risk purchase clause.
16)	Payment:
	(i) No Advance payment will be made. However, 90% Payment against Delivery and 10% after installation are agreed to wherever the installation is involved.
	(ii) Advance Payment: No advance payment is generally admissible. In case a specific percentage of advance payment is required, the Vendor has to submit a Bank Guarantee from a scheduled commercial bank in India equivalent to the amount of advance payment.
17)	On-site Installation:
	The equipment/item or Machinery has to be installed or commissioned by the successful bidder within the number of days (as prescribed by PI) from the date of receipt of the item at the site of IIT Madras.
18)	Warranty/Guarantee:
	The offer should clearly specify the warranty or guarantee period for the machinery/equipment. Any extended warranty offered for the same has to be mentioned separately (For more details please refer our Technical Specifications).
	** Note: PO which involves installation, warranty/guarantee shall be applicable from date of installation.
19)	Acceptance and Rejection:
	Failure to comply with any of the instructions stated in this document or offering unsatisfactory explanations for non-compliance will likely to lead to rejection of offers.
	I.I.T. Madras has the right to accept the whole or any part of the Tender or portion of the quantity offered or reject it in full without assigning any reason.

### **20)** Debarment from Bidding:

In case of breach of Terms & Conditions, Bidder may be suspended from being eligible for bidding in any contract with the IIT Madras up to 2 Years [as per Rule 151(iii) of GFR] from the date of Tender.

#### 21) Disputes and Jurisdiction:

Settlement of Disputes: Any dispute, controversy or claim arising out of or in connection with this PO including any question regarding its existence, validity, breach or termination, shall in the first instance be attempted to be resolved amicably by both the Parties. If attempts for such amicable resolution fails or no decision is reached within 30 days whichever is earlier, then such disputes shall be settled by arbitration in accordance with the Arbitration and Conciliation Act, 1996. Unless the Parties agree on a sole arbitrator, within 30 days from the receipt of a written request by one Party from the other Party to so agree, the arbitral panel shall comprise of three arbitrators. In that event, the supplier will nominate one arbitrator and the Project Coordinator of IITM shall nominate on arbitrator. The Dean IC&SR will nominate the Presiding Arbitrator of the arbitral tribunal. The arbitration proceeding shall be carried out in English language. The cost of arbitration and fees of the arbitrator(s) shall be shared equally by the Parties. The seat of arbitration shall be at IC&SR IIT Madras, Chennai.

- a. **The Applicable Law:** The Purchase Order shall be construed, interpreted and governed by the Laws of India. Court at Chennai shall have exclusive jurisdiction subject to the arbitration clause.
- b. Any legal disputes arising out of any breach of contact pertaining to this tender shall be settled in the court of competent jurisdiction located within the city of Chennai in Tamil Nadu.
- **Force Majeure:** The Supplier shall not be liable for forfeiture of its performance security, liquidated damages or termination for default, if and to the extent that, it's delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

For purposes of this Clause, "Force Majeure" means an event beyond the control of the Supplier and not involving the Supplier's fault or negligence and not foreseeable. Such events may include, but are not limited to, acts of the Purchaser either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.

If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such conditions and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

## 23) Eligibility Criteria:

- > As per the Government of India Order, only "Class I Local Suppliers" and "Class II Local Suppliers" can participate in this tender.
- Bidder should confirm their acceptance that they comply with the provisions with report to "Guidelines for eligibility of a bidder from a country which shares a land border with India as detailed at Annexure-F. The bidder should submit Certificate for "Bidder from/
  Not from Country sharing Land border with India & Registration of Bidder with Competent Authority" as per Order of DoE F.No.6/18/2019-PPD dated 23.07,2020 as mentioned.
- Preference to "class I Local Suppliers": preference will be given to "class 1 local suppliers" (subject to class -I local supplier's quoted price falling within the margin of purchase preference ) as per public procurement (preference to make in India) order 2017 .O.M No P- 45021/2/2017 pp(BE 11) dt 04/06/2020 subject to the conditions that the "class 1 Local Supplier" should agree to supply goods / provide service at L1 rate and furnish a certificate with the technical bid document that the goods/service provided by them consists local content equal to or more than 50%.( certificate from

Chartered Accountant in case value of contract exceeds Rs 10 crore). > 'Class - I local supplier' means a supplier or service provider whose goods, services or works offered for procurement consists of local content equal to or more than 50% as defined under the above said order. Declaration to be provided as per Annexure-II per item/service/work. > 'Class - II local supplier' means a supplier or service provider whose goods, services or works offered for procurement consists of local content equal to 20% but less than 50% as defined under the above said order. Declaration to be provided as per Annexure-II per item/service/work. 'Margin of purchase preference': - The margin of purchase preference shall be 20%. The Definition of the margin of purchase preference is defined in the Govt. of India Order No: P-45021/12/2017-PP (BE-II) Dt.4th June, 2020) Order 2017. As per the Government of India Order - "Margin of Purchase Preference" means the maximum extent to which the price quoted by a "Class-I local supplier" may be above the L1 for the purpose of purchase preference. \*\*Note: Local content percentage to be calculated in accordance with the definition provided at clause 2 of revised public procurement preference to Make in India Policy vide GoI Order no. P-45021/2/2017-PP (B.E.-II) dated 15.06.2017 (subsequently revised vide orders dated 28.05.2018, 29.05.2019and 04.06.2020) MOCI order No. 45021/2/2017-PP (BE II) Dt.16th September 2020 & P-45021/102/2019-BE-II-Part(1) (E-50310) Dt.4th March 2021 **Evaluation of Bids** 25) Bid evaluation will take place in two stages. Stage I Technical Bid evaluation All bidders who have fully complied with bidder eligibility criteria I, II and technical evaluation (Annexure A) will only be considered for opening of price bid. **Stage II: Price Bid Evaluation** The price bid evaluation will be based on price quoted by the bidder. The rate quoted for Electronic Kit unit will alone be taken up for arrival of Lowest Bid (L1) value. Selection of successful bidder and Award of Order **26**) The order will be directly awarded to the technically qualified bidder as per the condition in para 3A of DIPP, MoCI Order No. 45021/2/2017-PP (BE II) dated 16th September 2020. All information including selection and rejection of technical or financial bids of the prospective bidders **27**) will be communicated through e-Tender portal. In terms of Rule 173(iv) of General Financial Rule 2017, the bidder shall be at liberty to question the bidding conditions, bidding process and/or rejection of bids. The tenderer shall certify that the tender document submitted by him / her are of the same replica of the **28**) tender document as published by IIT Madras and no corrections, additions and alterations made to the same. If any deviation found in the same at any stage and date, the bid / contract will be rejected / terminated and actions will be initiated as per the terms and conditions of the contract. Due to Covid-19 pandemic pre-bid meeting will be conducted through online. Clarification to the queries **29**) and doubts raised by the bidders will be issued as a corrigendum/addendum in the e-tenders portal. Due to Covid-19 pandemic the bidders will not be entertained to participate in opening of Bids. Since the **30**) tender is e-tender, the opening of the bids may be checked using the respective logins of the bidders.

## <u>ACKNOWLEDGEMENT</u>

It is hereby acknowledged that I/We have gone through all the points listed under "Specification, Guidelines, Terms and Conditions" of tender document. I/We totally understand the terms and conditions and agree to abide by the same.

SIGNATURE OF TENDERER ALONG WITH SEAL OF THE COMPANY WITH DATE

#### Bidder Eligibility Criteria and Technical Specification for Electronic Kit

Tender No. EE/SARA/051/2022/ELECTROKIT

#### Bidder Eligibility Criteria - I (Public Procurement - Preference to Make in India)

- a) Only 'Class-I local suppliers' and 'Class-II local suppliers', as defined under DIPP, MoCI Order No. P-45021/2/2017-PP (BE-II) dated 16<sup>th</sup> September 2020 and other subsequent orders issued therein.
- b) Bidder should confirm their acceptance that they comply with the provisions with report to "Guidelines for eligibility of a bidder from a country which shares a land border with India as detailed at Annexure-F. The bidder should submit Certificate for "Bidder from/ Not from Country sharing Land border with India & Registration of Bidder with Competent Authority" as per Order of DoE F.No.6/18/2019-PPD dated 23.07.2020 as mentioned.
- c) Proof of Submission of EMD.
- d) Declaration for Blacklisting as per Annexure G

#### Bidder Eligibility Criteria - II

- 1. Bidder must be registered under relevant applicable Indian Laws with its registered office located in India. Details of location to be provided.
- 2. Bidders should have been in this business for 5 Years. Proof of Incorporation to be submitted.
- **3.** The Bidder should have supplied such specially made items for any other application, in large quantity to IITs, NITs, IISERs, CSIR Labs, DRDO, or any other Govt. of India organization or any reputed organization abroad in the last 5 years, and the necessary proof should be provided along with contact information. IIT Madras reserves its right to verify the claims.

#### III. TECHNICAL SPECIFICATION for Electronic Kit

## **I.Scope of support:**

The Electronic Kit shall support to provide hands-on experiencein conducting the Practical Lab sessions in the area of "Basic Electronics and Applications" to the School Students (IX, X, XI and XII).

(Note: view of the Electronic kit and the layout which is given in Appendix 1& 2)

## **II. Technical Specifications:**

S. No	Block level description	Remarks
(1)	Main experimental blocks:	
` /		Refer Appendix 2
	a) Basics of Electric circuits	to locate different
	b) Basics of Electronic devices	blocks
	c) Diode and Transistor circuits	
	d) Basics OP-Amp circuits and Timer circuits	
	e) Basics of Digital Electronics	
	f) Sensors, Solar and their applications	

	g) Arduino uno R3 programmer based experiments	
(2)	Solder board with pre-mounted tinned lugs:	Size 4*8 cm shall
	To provide hands on training on soldering to mount	be provided along
	selected components/ devices	with trainer kit
(3)	Simple Function Generator (20 Hz –10 kHz):	It shall be
	It shall provide sine wave (10 Vp-p), square/rectangular	integrated in the
	wave of variable duty cycle (10Vp-p) and pulse o/p (TTL)	PCB assembly.
(4)	DSO 138Oscilloscope board or equivalent	To be mounted on
		the inner side of
		the top cover.
(5)	Low cost DMM: (31/2 digitLCD display)	To be provided
		along with kit
(6)	(i) DC Power Supply (SMPS): 220 V AC powered SMPS shall be built-in to provide	
	+5 V(1 A), + 12 V(0.5 A), – 12 V (0.1 A),	
	There shall be a Power ON switch, power indicator,	
	fuse, power receptacle and a detachable 1 m power cord.	
	(ii) Variable DC powersupply (0-12V) / 100mA	
	For (i) and (ii): Power supply terminals shall be brought	
	out to the corresponding sockets to the top of Main PCB.	Refer Appendix 2
	(iii) Additional transformer (step down):	It shall be
	It shall be 2 VA, Pri 220 V, Secondary 6V-0-6 V, 100 mA	mounted on the
	to conduct practicals on transformer/rectifiers.	PCB assembly
	Secondary terminals alone shall be brought out to the	
	terminals on the top of Main PCB.	

## III. Other technical requirements:

ш. О	ther technical requirements:
(1)	Important Specs including work environment:
	(i)AC Mains input: Single phase, 160 to 260V, 50 Hz or universal AC power
	input.
	(ii) Power consumption @ 220 V: 10 W max
	(iii) Ambient temperature: 40 deg C max.
	(iv) Shall have test approvals as applicable for
	safety compliance, thermal, vibration and drop tests
	conducted on the product.
	(v) Size: 320 mm X 260 mm X 90 mm (Approx.)
	(vi) Weight: 2.5 kg (max)
(2)	Warranty: Two years.

## **IV.** Other features:

S.No	Description
1	The kit shall work well under the low and fluctuating AC mains power
	conditions in the rural environment.
2	It shall be compact (mini briefcase type) and robustwith smooth finish.
3	The material used shall be of good quality PVC or other light weight material.
4	Top cover shall have IIT Madras Emblem firmly fixed as shown in the Appendix
	1.
5	Upper half of the inside area of the top cover shall be used to mount the DSO.
6	Leads of resistors/capacitors used must be of good quality and corrosion free.

V. List of other supporting items:

S.No	Requirements	Remarks
(1)	A minimum set of supporting tools required (like simple wire gage, wire cutter, insulation remover, flat nose plier and a mini soldering iron) shall be a part of the Trainer Kit	To determine the SWG of a given wire, to make simple wire joints and connecta three pin 5 A top with 1meter AC power cord;and to provide soldering practices on the selected components/devices
(2)	Simple center zero DC milli ammeter (50mA)	Shall be provided along with the kit
(3)	Set of connecting leads and Jumpers	20 Nos of male to female - 10cm and 20cm each 20 Nos female to female -10cm and 20cm each Jumper caps - 25 Nos

## VI. Important instructions to the bidders:

S.No	Description
1	As on now, 2500 Trainer Kits are planned to begin with.
2	Suppliers shall quote separately as given below along with the details of
	different taxes payable for the following.
	(i) Trainer kit without oscilloscope
	(ii)Trainer kit with oscilloscope
3	Supplier shall be required to provide their planning and time schedule in their
	bids, for executing the order in the given time frame by IIT Madras.
4	Technical as well as commercial bids will be evaluated after the closing date.
5	Apportion of work

	IITM reserves right to Apportion the Quantity between 2 bidders if required after arriving L1.				
	** Only the next Lowest Bidder following the L1 will be offered a chance to				
	match the L1 price and will be selected as successful contractor if agreed to				
	match L1 price.				
6	NDA shall be signed by the supplier/s, before the receipt of P.O.				
7	P.O will be released to the selected bidder/s along with the Terms and				
	Conditions of IIT Madras.				
8	Suppliers shall be required to submit five prototype samples for review and				
	quality testing as per the requirements including the reliability and				
	robustness, within 10 days time on receipt of valid PO. The 2500 kits need				
	to be supplied in next 30 days time on approval of the model kit.				
9	After the approval of the samples by IIT Madras, the suppliers can commence				
	the large scale production and submission of random samples in parallel, as and				
	when required and complete the delivery.				

## VII. List of Appendix:

Appendix 1- Photographic Views of the Trainer Kit with approx dimensions

Appendix 2 - Top view of PCB layout

Appendix 3 - List of components for Main PCB

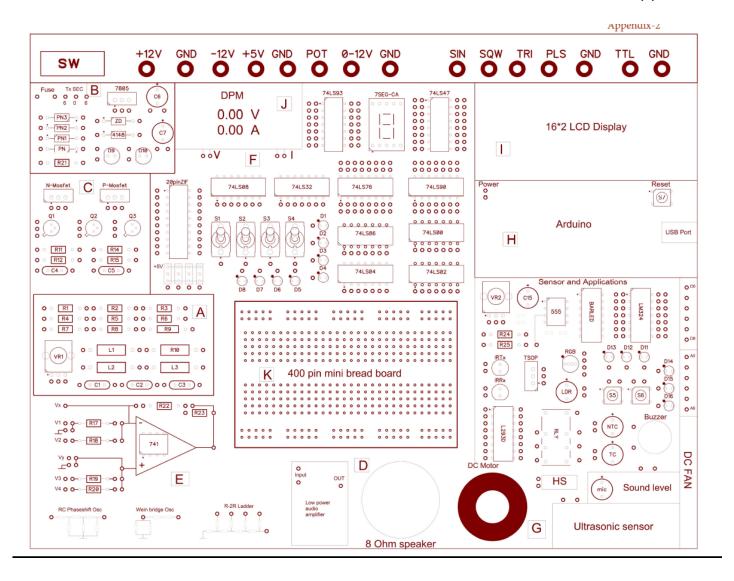
Appendix 4 - List of other items

Trainer Kit View Appendix-1



Trainer Kit Dimension = Length -310mm, Width -260mm, Height-90mm (Top to Bottom)

## Appendix-2



Components in the double sided PCB (25 * 18 cm)			
Components name	Specs	Qty/Kit	Total Qty
Fuse	100mA	1	2500
Transformer	6-0-	1	2500
Resistors - 0.25W	Through	25	62500
Resistors - 0.5W	Through	2	5000
Resistors -1W	Through	1	2500
Resistors - 0605 Pakage	SMD	40	100000
capacitors - ceramic	Through	8	20000
capacitors -Electrolytic	Through	4	10000
capacitors - ceramic (0605)	SMD	15	37500
Inductors	Through	3	7500
Diode -PN	Through	4	10000
Diode -Zener	Through	1	2500
Diode -4148	Through	1	2500
Potentiometer	Through	2	5000
Trimpot	Through	2	5000
Mosfet - N channel	Through	1	2500
Mosfet -P channel	Through	1	2500
7805	Through	1	2500
LM741	Through	1	2500
NE555	Through	1	2500
LM324	Through	1	2500
L293D	Through	1	2500
74LS08	Through	1	2500
74LS32	Through	1	2500
74LS02	Through	1	2500
74LS04	Through	1	2500
74LS00	Through	1	2500
74LS86	Through	1	2500
74LS90	Through	1	2500
74LS93	Through	1	2500
74LS47	Through	1	2500
74LS76	Through	1	2500
LM386	SMD	1	2500
3 mm LED	Through	15	
5mm white LED	Through	2	5000
Bar graph LED	Through	1	2500
RGB LED	4 pin	1	2500
7 segment CA LED	Through	1	2500
SPDT	Through	4	10000

Push button switch	mini (4 pin)	2	5000	
Speaker (28mm)	8 ohm ,	1	2500	
Digital panl meter	30V/5A	1	2500	
Bread board	400 Pin	1	2500	
16*2 LCD	Alphanume	1	2500	
Arduino uno R3 board	-	1	2500	
Buzzer	5V mini	1	2500	
NTC	1kΩ	1	2500	
Thermocouple	K type mini	1	2500	
LDR	5 mm	1	2500	
IR Emitter	5mm	1	2500	
IR Detector	5mm	1	2500	
TSOP 1738	1738	1	2500	
Relay	12V	1	2500	
Mic	9*7 mm	1	2500	
Sound level sensor	module	1	2500	
Ultrasonic sensor	module	1	2500	
Hall sensor	A3144	1	2500	
DC fan	3V- 0.1A	1	2500	
DC Motor	1.5V-0.1A	1	2500	
8 Pin base	machine	2	5000	
14 Pin base	machine	10	25000	
16 Pin base	machine	2	5000	
20 Pin ZIF socket	-	1	2500	

## List of other items

To be placed at Top left side			
DSO 138 Digital Oscilloscope with			
probes	-	1	2500

Components in the Top right pouch				
Components name	Specs	Qty/Kit	Total Qty	
Solar cell	6V-200mA	1	2500	
4*4 Membrane keypad	9*8*4 cm	1	2500	
Soldering iron	8W	1	2500	
Nichrome wire	30 cm	1	2500	
PMMC analog DC meter	50mA	1	2500	
Jumpers and wires	Required	1	2500	
Digital multimeter with probes		1	2500	
mini screw driver		1	2500	
SWG Scale		1	2500	
Different SWG Copper wire	5cm	1	2500	
Soldering Lead	small	1	2500	

To be placed at the bottom PCB				
SMPS	+12 V (0.5 A)	1	2500	
	- 12 V (0.1 A)			
	+5 V (1 A)			
	0-12V (0.5A)			
Function Generator	Sine	1	2500	
(0-10kHz, 10Vp-p)	Square			
	Triangle			
	Pulse			
	TTL pulse			

PVC Enclosure for the kit	L = 310mm
	W = 260mm
	H=90mm

**ANNEXURE: B** 

#### TECHNICAL BID PROFORMA

## **Tender No.** EE/SARA/051/2022/ELECTROKIT

#### **Item Name: Electronic Kit**

## 1.0 Bidder Eligibility Criteria:

I	Bidder Eligibility Criteria-I (Public Procurement – Preference to Make in India)	Class I / Class II	Local Content value	Reference, Page No.
1	Only 'Class-I local suppliers' and 'Class-II local suppliers', as defined under DIPP, MoCI Order No. P-45021/2/2017-PP (BE II) dated 16 <sup>th</sup> September 2020 and other subsequent orders issued therein.			
2	Bidder should confirm their acceptance that they comply with the provisions with report to "Guidelines for eligibility of a bidder from a country which shares a land border with India as detailed at Annexure-F. The bidder should submit Certificate for "Bidder from/ Not from Country sharing Land border with India & Registration of Bidder with Competent Authority" as per Order of DoE F.No.6/18/2019-PPD dated 23.07.2020 as mentioned.			
3	Proof of Submission of EMD.			
4	Declaration for Blacklisting as per Annexure - G			
2.0	Bidder Eligibility Criteria-II	Compliance (Yes/No)	Reference Page No.	Remarks, If any
1	Bidder must be registered under relevant applicable Indian Laws with its registered office located in India. Details of location to be provided.			
2	Bidders should have been in this business for 5 Years. Proof of Incorporation to be submitted.			
3	The Bidder should have supplied such specially made items for any other application, in large quantity to IITs, NITs, IISERs, CSIR Labs, DRDO, or any other Govt. of India organization or any reputed organization abroad in the last 5 years, and the necessary proof should be provided along with contact information. IIT Madras reserves its right to verify the claims.			

#### 3.0 Technical Compliance:

## **I.Scope of support:**

The Electronic Kit shall support to provide hands-on experiencein conducting the Practical Lab sessions in the area of "Basic Electronics and Applications" to the School Students (IX, X, XI and XII).

(Note: view of the Electronic kitand the layout which is given in Appendix 1& 2)

**II. Technical Specifications:** 

	echnical Specifications:	D 1		
S.	Block level description	Remarks	Compliance (Yes/No)	Reference Page No.
No			(168/110)	rage No.
(1)	Main experimental blocks:	D . C.		
	D CEL CEL	Refer		
	a) Basics of Electric circuits	Appendix 2		
	b) Basics of Electronic devices	to locate		
	c) Diode and Transistor circuits	different		
	d) Basics OP-Amp circuits and Timer circuits	blocks		
	e) Basics of Digital Electronics			
	f) Sensors, Solar and their applications			
	g) Arduino uno R3 programmer based			
	experiments			
(2)	Solder board with pre-mounted tinned	Size 4*8 cm		
(-)	lugs:	shall be		
	To provide hands on training on soldering	provided along		
	to mount selected components/ devices	with trainer kit		
(3)	Simple Function Generator (20 Hz –10	It shall be		
(3)	kHz):	integrated in		
	It shall provide sine wave (10 Vp-p),	the PCB		
	square/ rectangular wave of variable duty	assembly.		
	cycle (10Vp-p) and pulse o/p (TTL)	assembly.		
(4)	DSO 138Oscilloscope board or equivalent	To be mounted		
(4)	DSO 1360scmoscope board of equivalent	on the inner		
		side of the top		
(5)	Low cost DMM: (21/2 digit! CD dignley)	Cover.		
(5)	Low cost DMM: (31/2 digitLCD display)	To be provided		
(6)	(c) DC D C L. (CMDC).	along with kit		
(6)	(i) DC Power Supply (SMPS):			
	220 V AC powered SMPS shall be built-in			
	to provide +5 V(1 A), + 12 V(0.5 A), -			
	12 V (0.1 A),	D C		
		Refer		
	There shall be a Power ON switch, power	Appendix 2		
	indicator, fuse, power receptacle and a			
	detachable 1 m power cord.	It shall be		
		mounted on		
	(ii) Variable DC powersupply (0-12V) /	the PCB		
	100mA	assembly		
	For (i) and (ii) :Power supply terminals			
	shall be brought out to the corresponding			
	sockets to the top of Main PCB.			

(iii) Additional transformer (step down): It shall be 2 VA, Pri 220 V, Secondary 6V-		
0-6 V, 100 mA to conduct practicals on		
transformer/rectifiers.		
Secondary terminals alone shall be brought out to the terminals on the top of Main		
PCB.		

III. Other technical requirements:

S.	Description	Compliance (Yes/No)	Reference Page No.
No		(168/140)	1 age 110.
(1)	Important Specs including work environment:		
	(i)AC Mains input: Single phase, 160 to 260V, 50 Hz or		
	universal AC power input.		
	(ii) Power consumption @ 220 V: 10 W max		
	(iii) Ambient temperature: 40 deg C max.		
	(iv) Shall have test approvals as applicable for		
	safety compliance, thermal, vibration and drop tests		
	conducted on the product.		
	(v) Size: 320 mm X 260 mm X 90 mm (Approx.)		
	(vi) Weight: 2.5 kg (max)		
(2)	Warranty: Two years.		

## **IV.** Other features:

S.No	Description	Compliance (Yes/No)	Reference Page No.
1	The kit shall work well under the low and fluctuating AC		
	mains power conditions in the rural environment.		
2	It shall be compact (mini briefcase type) and robustwith		
	smooth finish.		
3	The material used shall be of good quality PVC or other light		
	weight material.		
4	Top cover shall have IIT Madras Emblem firmly fixed as		
	shown in the Appendix 1.		
5	Upper half of the inside area of the top cover shall be used to		
	mount the DSO.		
6	Leads of resistors/capacitors used must be of good quality		
	and corrosion free.		

V. List of other supporting items:

S.No	Requirements	Remarks	Compliance (Yes/No)	Reference Page No.
(1)	A minimum set of supporting tools required (like simple wire gage, wire cutter, insulation remover, flat nose plier and a mini soldering iron) shall be a part of the Trainer Kit	To determine the SWG of a given wire, to make simple wire joints and connecta three pin 5 A top with 1meter AC power cord;and to provide soldering practices on the selected components/devices		
(2)	Simple center zero DC milli ammeter (50mA)	Shall be provided along with the kit		
(3)	Set of connecting leads and Jumpers	20 Nos of male to female - 10cm and 20cm each 20 Nos female to female -10cm and 20cm each  Jumper caps - 25 Nos		

## VI. Important instructions to the bidders:

S.No	Description	Compliance (Yes/No)	Reference Page No.
1	As on now, 2500 Trainer Kits are planned to begin with.		
2	Suppliers shall quote separately as given below along with the details of different taxes payable for the following.  (i) Trainer kit without oscilloscope  (ii) Trainer kit with oscilloscope		
3	Supplier shall be required to provide their planning and time schedule in their bids, for executing the order in the given time frame by IIT Madras.		
4	Technical as well as commercial bids will be evaluated after the closing date.		
5	Apportion of work  IITM reserves right to Apportion the Quantity between 2 bidders if required after arriving L1.  ** Only the next Lowest Bidder following the L1 will be offered a chance to match the L1 price and will be selected as successful contractor if agreed to match L1 price.		

6	NDA shall be signed by the supplier/s, before the receipt of	
	P.O.	
7	P.O will be released to the selected bidder/s along with the	
	Terms and Conditions of IIT Madras.	
8	Suppliers shall be required to submit five prototype	
	samples for review and quality testing as per the	
	requirements including the reliability and robustness,	
	within 10 days time on receipt of valid PO. The 2500	
	kits need to be supplied in next 30 days time on	
	approval of the model kit.	
9	After the approval of the samples by IIT Madras, the	
	suppliers can commence the large scale production and	
	submission of random samples in parallel, as and when	
	required and complete the delivery.	

## VII. List of Appendix:

Appendix 1- Photographic Views of the Trainer Kit with approx dimensions

Appendix 2 - Top view of PCB layout

Appendix 3 - List of components for Main PCB

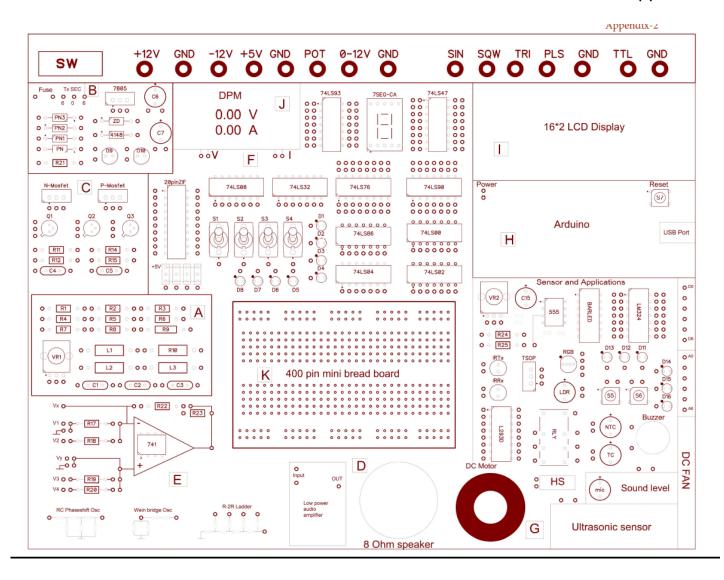
Appendix 4 - List of other items

Trainer Kit View Appendix-1



Trainer Kit Dimension = Length -310mm, Width -260mm, Height-90mm (Top to Bottom)

## Appendix-2



Components in the				COMPLIED/NOT	CATALOGUE
Components name	Specs	Qty/Kit	Total Qty	COMPLIED	PAGE NO
Fuse	100mA	1	2500		
Transformer	6-0-	1	2500		
Resistors - 0.25W	Through	25	62500		
Resistors - 0.5W	Through	2	5000		
Resistors -1W	Through	1	2500		
Resistors - 0605 Pakage	SMD	40	100000		
capacitors - ceramic	Through	8	20000		
capacitors -Electrolytic	Through	4	10000		
capacitors - ceramic (0605)	SMD	15	37500		
Inductors	Through	3	7500		
Diode -PN	Through	4	10000		
Diode -Zener	Through	1	2500		
Diode -4148	Through	1	2500		
Potentiometer	Through	2	5000		
Trimpot	Through	2	5000		
Mosfet - N channel	Through	1	2500		
Mosfet -P channel	Through	1	2500		
7805	Through	1	2500		
LM741	Through	1	2500		
NE555	Through	1	2500		
LM324	Through	1	2500		
L293D	Through	1	2500		
74LS08	Through	1	2500		
74LS32	Through	1	2500		
74LS02	Through	1	2500		
74LS04	Through	1	2500		
74LS00	Through	1	2500		
74LS86	Through	1	2500		
74LS90	Through	1	2500		
74LS93	Through	1	2500		
74LS47	Through	1	2500		
74LS76	Through	1	2500		
LM386	SMD	1	2500		
3 mm LED	Through	15			
5mm white LED	Through	2	5000		
Bar graph LED	Through	1	2500		
RGB LED	4 pin	1	2500		

7 segment CA LED	Through	1	2500	
SPDT	Through	4	10000	
Push button switch	mini (4 pin)	2	5000	
Speaker (28mm)	8 ohm,	1	2500	
Digital panl meter	30V/5A	1	2500	
Bread board	400 Pin	1	2500	
16*2 LCD	Alphanume	1	2500	
Arduino uno R3 board	-	1	2500	
Buzzer	5V mini	1	2500	
NTC	1kΩ	1	2500	
Thermocouple	K type mini	1	2500	
LDR	5 mm	1	2500	
IR Emitter	5mm	1	2500	
IR Detector	5mm	1	2500	
TSOP 1738	1738	1	2500	
Relay	12V	1	2500	
Mic	9*7 mm	1	2500	
Sound level sensor	module	1	2500	
Ultrasonic sensor	module	1	2500	
Hall sensor	A3144	1	2500	
DC fan	3V- 0.1A	1	2500	
DC Motor	1.5V-0.1A	1	2500	
8 Pin base	machine	2	5000	
14 Pin base	machine	10	25000	
16 Pin base	machine	2	5000	
20 Pin ZIF socket	-	1	2500	

## List of other items

To be placed at Top left side				COMPLIED/NOT COMPLIED	CATALOGUE PAGE NO
DSO 138 Digital Oscilloscope with					
probes	-	1	2500		

Components in the Top right pouch					
Components name	Specs	Qty/Kit	Total Qty	COMPLIED/NOT COMPLIED	CATALOGUE PAGE NO
Solar cell	6V-200mA	1	2500		
4*4 Membrane keypad	9*8*4 cm	1	2500		
Soldering iron	8W	1	2500		
Nichrome wire	30 cm	1	2500		
PMMC analog DC meter	50mA	1	2500		
Jumpers and wires	Required	1	2500		
Digital multimeter with probes		1	2500		
mini screw driver		1	2500		
SWG Scale		1	2500		
Different SWG Copper wire	5cm	1	2500		
Soldering Lead	small	1	2500		

	To be placed at the bottom PCB				CATALOGUE PAGE NO
SMPS	+12 V (0.5 A) - 12 V (0.1 A) +5 V (1 A) 0-12V (0.5A)	1	2500		
Function Generator (0-10kHz, 10Vp-p)	Sine Square Triangle Pulse TTL pulse	1	2500		

PVC Enclosure for the kit	L = 310mm	
	W = 260mm	
	H=90mm	

SIGNATURE OF BIDDER ALONG WITH SEAL OF THE COMPANY WITH DATE

## FINANCIAL BID (PROFORMA) - BILL OF QUANTITIES (BOQ)

#### Item Name: Electronic Kit Tender No. EE/SARA/051/2022/ELECTROKIT

It. No	Description of work	Quantity	Units	Basic Rate in INR	GST in Percentage	Total Amount with taxes in INR
1	Electronic Kit With oscilloscope	1	Nos.			
1	Electronic Kit Without oscilloscope	1	Nos.			
	Grand Total					

Total Amount Rupees in words	
1 0 tuli 1 11110 unit 1 tup 0 0 0 111	

Note: Total Quantity 2500(either with/ without oscilloscope), Apportion will be done if required with 2 vendors.

IIT M reserves right to choose electronic kit with/ without oscilloscope after arrival of L1 Bidder.



# CENTRE FOR INDUSTRIAL CONSULTANCY & SPONSORED RESEARCH (IC&SR) INDIAN INSTITUTE OF TECHNOLOGY MADRAS CHENNAI 600 036



## ELECTRONIC CLEARING SERVICE (Credit Clearing)/ REAL TIME GROSS SETTLEMENT (RTGS) FACILITY FOR RECEIVING PAYMENTS A. Details of Account Holder

Name of the Institution	Indian Institute of Technology - Madras
Complete Contact Address	Industrial Consultancy and Sponsored Research Indian Institute of Technology-Madras, IIT- Madras Campus Post Office, Sardar Patel Road, Guindy, CHENNAI - 600 036
Telephone No./ Fax No.	Tel - 044-2257 8356
E- mail ID of the FO/AO/REG/DIR	dricsr@iitm.ac.in

#### **B. Bank Account Details:**

Institution Account Name (As per Bank	The Registrar, Indian Institute of
Record)	Technology - Madras
Account No.	2722101003872
Account Print Name	IIT F A/C , The Registrar IIT Madras
IFSC CODE	CNRB0002722
Bank Name (in full)	Canara Bank
Branch Name	IIT-Madras Branch
Complete Branch Address	Canara Bank,
	IIT-Madras Branch,
1.	IIT- Madras Campus Post Office,
	Sardar Patel Road,
	Guindy, CHENNAI - 600 036
MICR No.	600015085
Account Type	Savings Account

Certified that the Institute's account is in an RTGS enabled branch.

I hereby declare that the particulars given above are correct and complete.

Date:

Signature of the competent Authority of the Institution with seal.

## FORMAT FOR AFFIDAVIT OF SELF-CERTIFICATION UNDER PREFERENCE TO MAKE IN INDIA – PER ITEM

Tender Reference Number:		
Name of the item / Service:		
Date: I/WeS/o, D/o, W/o, Resident of		
Hereby solemnly affirm and declare as under:		
That I will agree to abide by the terms and conditions of the Public Procurement (Preference to Make in India) Policy vide GoI Order no. P-45021/2/2017-PP (B.EII) dated 15.06.2017 (subsequently revised vide orders dated 28.05.2018, 29.05.2019and 04.06.2020) MOCI order No. 45021/2/2017-PP (BE II) Dt.16th September 2020 & P- 45021/102/2019-BE-II-Part (1) (E-50310) Dt.4th March 2021 and any subsequent modifications/Amendments, if any and		
That the local content for all inputs which constitute the said item/service/work has been verified by me and I am responsible for the correctness of the claims made therein.		
Tick (✓) and Fill the Appropriate Category		
I/We[name of the supplier] hereby confirm in respect of quoted items thatLocal Content is equal to or more than 50% and come under "Class-I Local Supplier" category.		
I/We [name of the supplier] hereby confirm in respect of quoted items that Local Content is equal to 20% but less than 50% and come under "Class-II Local Supplier" category.		
• The details of the location (s) at which the local value addition is made and the proportionate value of local		
content in percentage Address Percentage of Local content:%		
For and on behalf of		
[Note: In case of procurement for a value in excess of Rs. 10 Crores, the bidders shall provide this certificate from statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content.]		

This letter should be on the letterhead of the quoting firm and should be signed by a competent authority. Non-submission of this will lead to Disqualification of bids.

## $\underline{Annexure} - \underline{F}$

(To be given on the letter head of the bidder)		
No	Dated:	
CEF	RTIFICATE	
(Biddei	rs from India)	
I have read the clause regarding restrictions on proborder with India and hereby certify that I am not for	ocurement from a bidder of a country which shares a land rom such a country.	
OR (whiche	ever is applicable)	
(Bidders from Country whic	h shares a land border with India)	
border with India and hereby certify that I from $\underline{\ }$ registered with the Competent Authority. I also ce	ocurement from a bidder of a country which shares a land [Name of Country] and has been rtify that I fulfil all the requirements in this regard and is egistration by the Competent Authority is to be attached]	
Place: Date:	Signature of the Tenderer Name & Address of the Tenderer with Office Stamp	

## Self-Declaration that the Service Provider has not been blacklisted

(To be given on the letter head of the bidder)

I		
	police station Di	istrict
	Director/ partner/ sole p	proprietor (Strike out whichever
is not	ot applicable) of	
•••••	(Firm or Company) do h	ereby declare and solemnly affirm:
l.	That the Firmhas not been Blacklisted or declared	
	insolvent by any of the Union or State Government / Orga	anization.
II.	That none of the individual / firm / Company Blacklisted or any partners or shareholder thereof has any connection directly or indirectly with or has any subsistence interest in the deponent business / firm company.	
III.	That neither the Firm nor any of its partner has been involved / convicted in any criminal case / economic offence nor any criminal case / economic offence is pending against firm or any partner of the Firm before any Court of Law / Police.	
Place:	ce:	Signature of the Tenderer
Date:	e:	Name & Address of the
		Tenderer with Office Stamp