NATIONAL INSTITUTE OF MENTAL HEALTH & NEURO SCIENCES
(Institute of National Importance), Hosur Road, Bengaluru – 560 029
Ph. 26995023/5913/5024 **E-mail: aaos@nimhans.ac.in**
Fax: 091-080-26564830 / 26562121 / 26566811 **GST:29AABTN6120B2ZX**

STR-D4/ECT/VENKAT/PSY/2020-21 **03.02.2021**

TENDER NOTIFICATION (TENDER)
Through E Procurement Karnataka Only

Online Tender quotations for the following Equipment/~~Chemicals/Consumables/Reagents~~ are invited from reputed manufacturer/s or authorized dealers.

Sl. No.	Item Description	Qty. Reqd.
1	ECT – Ecltroconvulsive Therapy Device	04 No.
2	Computerized remotely operable EEG/ECG System	02 No.

Downloading of Tender documents from NIMHANS website	From 03.02.2021 Onwards
Last date for tender enquiry	09.02.2021 upto 11:00 AM
Tender submission last date and time	04.03.2021 upto 11:00 AM
Technical bid will be opened by Assistant Administrative officer (S) on	05.03.2021 at 03:00 PM in the AO(Stores) Office

Sd/-,
Director

Terms and conditions

1. The bid documents for the above items should be **addressed to "The Director, National Institute of Mental Health & Neuro Sciences, Post Box No. 2900, Hosur Road, Bengaluru –560 029, Karnataka, India"** and should be uploaded on or before the **due date.**
2. The tender bid should be valid for **Six months** from the due date.
3. The tender documents and all correspondence's relating to the bid should be in **English language only.**
4. **Technical bid should comprise of -**
   5.1 Brochure/Catalogue and Data sheet of the equipment.
   5.2 Tax and other charges should be mentioned as a separate item and not included in the base price.
   5.3 Proprietary certificate from the manufacturer mentioning the unique technology or feature/s mentioned apart from the brand name (If applicable).
   5.4 Pre requirements required at the installation site (Before submitting the bid, the tenderer should make pre-visit to the installation site and indicate the requirement along with the price bid wherever necessary)

5.5 Delivery Period of the item to be supplied and Time required for installation from the date of purchase order has to be indicated.

5.6 List of Institutes where the equipment has been supplied.

5.7 Copy of GST, PAN, TIN document

5.8 Whether tenderer is manufacturer / accredited agent / sole representative, indicate details of principal's name & address. The offers of tenderer who are not manufacturer or direct authorized agent will be summarily rejected. Sub- distributors will not be accepted.

5.9 Non - blacklisting certification that the firm has not been blacklisted in the past by any government/Private institution and certification for No Vigilance/CBI case pending against the firm/supplier by making an affidavit on non – judicial stamp paper of Rs. 10/-.

5.10 Declaration towards acceptance of all terms and conditions should also be provided.

5.11 Quote must have a compliance report on all the specification points mentioned in the specification sheet.

5. Price Bid should comprise of-

5.1. Quotation should be INR only and for door delivery upto laboratory in NIMHANS and should have detailed information as per tendered specifications (such as main equipment cost, each article wise/spares rates, taxes, other Government levies, Customs duty, any local agency commission, transportation, delivery of the equipment to the Institute premises, installation and commissioning etc. separately along with total cost) with manufacturers name, License number and name of the brand/make. Tender bids without price bid/quotation will be rejected. If supplier fails to bid for door delivery upto laboratory in NIMHANS, bid is liable to be rejected.

6. Successful tenderer decision will be made on the basis of base price + AMC/CMC price after the guarantee/warranty period (wherever applicable).

7. The tender bids (technical and price bid) should be typewritten; every correction in the tender should be initialled along with seal by the tenderer, failing which the tender will be rejected. All pages of the bid submitted must be signed along with seal and sequentially numbered by the tenderer.

8. Kindly quote **only for 01 unit price (rate per item) ONLY for respective items else price bid be rejected strictly**. Please note that the mentioned quantity is for 04 Nos. and 02 Nos. respectively but price bid should be quoted only for 01 quantity for evaluation on single platform for all bidders.

9. GST and other charges should be quoted separately else bid will be rejected.

10. Evaluation of Bids:-

The technical bid of the tenderer will be evaluated by the end-user to determine whether

a. They are complete with respect to specifications.

b. They are free from computational errors.

c. The requisite documents have been submitted and properly signed.

11. Tender Opening:

a. The Technical bids will be unlocked by the Assistant Administrative Officer (Stores), NIMHANS, Bengaluru.

b. The Financial bid of the technically qualified tenderer/s only will be opened by the Assistant Administrative Officer (Stores).

12. Equipment and its accessories should be covered with **minimum warranty period of 5 years** for normal or regular wear & tear from the date of complete installation (Ready to use in all respects). In case of software's, the validity of the license key should be clearly mentioned and should have user define provision with option to switch over from one system to other system of the same kind within the validity period.

13. Successful supplier need to submit a Bank Guarantee from any Nationalized bank for 3% of total PO value in order to process payment upon satisfactory supply and installation of the equipment.

14. Software Updates (<u>If applicable only</u>):
The selected firm for the supply of tendered item should provide free updates of software up to 5 years from the date of complete installation.

15. Supply of spares should be guaranteed for a minimum period of 10 years from the date of supply or from the date of cessation of production of the model for 10 years, whichever is later, at the rates prevailing against payment.

16. Any modification or revision of bids after submission will not be entertained under any circumstances. Conditions such as "subject to the availability of stocks", supplies will be made as and when supplies received from the principles etc., will not be considered under any circumstances.

17. If required, the tenderer should demonstrate the quoted model of the equipment at the institute during the technical evaluation, failing which their bid/offer shall be rejected. The tenderer will be intimated that they should get ready for demonstration. No request for extending time for demonstration will be entertained. Failure to demonstrate, their offer will be rejected.

18. The tenderer should supply the circuit diagram and instruction manual of the tendered equipment/s at the time of supply of the equipment.

19. Necessary training / instructions on operation of the system should be given by the qualified engineers of the tenderer firm to NIMHANS technical staff/s at free of cost after completion of the installation.

20. Payment terms:
Payment will be made only after good working condition of the equipment certified by the end user. **<u>NO ADVANCE PAYMENT WILL BE ENTERTAINED</u>**.

21. If, at any time, during the said period, the supplier reduce the said prices of such Materials/Equipment or sales such Materials/Equipment to any other person/organization/ Institution at a price lower than the chargeable, the company shall forthwith notify such reduction or sale to the Director, NIMHANS and the price payable for the Materials supplied after the date of coming into force of such reduction or sale shall stand correspondingly reduced.

22. The losses to NIMHANS, Bengaluru, if any incurred on account of purchase made elsewhere by failure, neglect or refusal on the part of the tenderer to supply according to the terms of agreement will be recovered from them. If any article or things supplied by the tenderer have been partially or wholly used or consumed in the hospital and they are subsequently found to be in bad condition, unsound, inferior in quality or description, not

in accordance with samples or otherwise faulty or unit for use, the wholesome of the contract price or price of such articles or things will be recovered from the tenderer. The tenderer will not be entitled for any payment whatsoever, for such articles for infringements of the stipulation of the conditions or for justifiable reasons the contract may be terminated by the Director and the tenderer shall be liable for losses sustained by the NIMHANS on the consequences of the termination which may be recovered from the EMD/Bank Guarantee or from their invoices due to them. In the event of such amount being insufficient, the balance will be recovered personally from the tenderer.

23. Any corrections/changes in the tender will be uploaded as corrigendum in the NIMHANS and Government website only.

24. If the tender last/opening date falls on any general/government/institute holiday(s), then the successive dates will be postponed by equivalent days of holiday(s), however the time remains unchanged.

25. The Director reserves the right of ordering/not ordering/cancelling/increase or decrease the quantity and to reject any or all tender quotations without assigning any reason. The decision of the Director, NIMHANS, Bengaluru, shall be final in all the controversies that may arise in the matter. Any dispute arising out of this will be subject to the jurisdiction of the Court in Bengaluru.

26. Failure to adhere any of the above terms and conditions the bid(s) may be rejected.

27. None of the terms and conditions of the supplier shall be applicable to the purchase contemplated hereunder, irrespective of it being attached to any documents to be provided to NIMHANS. Such exercise shall have no meaning and binding effect unless the same is accepted by NIMHANS in writing.

NOTE: Please keep checking the NIMHANS and Government website regularly for any further updates.

Sd/-
Director

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STR-D4/ECT/VENKAT/PSY/2020-21 **15.01.2021**

TENDER FOR THE SUPPLY OF "ECT – Ecltroconvulsive Therapy Device**"**

Department	Psychiatry	**Quantity Required**	____
END USER CONTACT DETAILS			
Name	Dr. Venkatasubramanian		
Designation	Professor		
Mobile No.		**EMD**	**Rs. 50,000/-**
Office No.	080 – 2699 5256		
Email	venkat.nimhans@gmail.com		

SL. NO.	SPECIFICATIONS
01.	**A.** ECT – Ecltroconvulsive Therapy Device**:** **As mentioned in the sheet attached**
02.	**B.** Computerized remotely operable EEG/ECG System **As mentioned in the sheet attached**

Annexure for ECT:

Name of the Item: **Electroconvulsive Therapy (ECT) Device with computerized remote operability and EEG/ECG monitoring system with 5 Years Warranty**

Quantity: **4**

Technical specification

1. Computerized remotely operable EEG/ECG monitored ECT capability

1.1. The device should deliver Electroconvulsive therapy (ECT) with concurrent recording of Electroencephalogram (EEG), Electrocardiogram (ECG), Electromyogram (EMG) and Optical Motion Sensor monitoring (OMS) data.

1.2. The device must have hand-held, portable system to allow hassle free EEG/ECG acquisition with offline battery for up to 4 hours

1.3. The device must be equipped with wireless technology that allows remote operability of ECT as well as EEG/ECG/EMG/OMS from up to 10 meters distance using a hand-held remote electronic device.

1.4. The device must meet safety standards for clinical research application

1.5. System should be certified to be Complaint with Electrical Safety Standard for Medical Equipment by ISO/CE for I IEC – 60601-1 standard for electrical safety.

2. ECT delivery system specification

2.1. The device should deliver constant current bi-directional square wave pulses.

2.2. ECT module should have an option to work in a stand–alone mode.

2.3. Range of electrical parameters:

- 2.3.1. Current: 500-1000 milli Ampere
- 2.3.2. Pulse Frequency 10-100 Hertz
- 2.3.3. Pulse Width 0.3-1.5 milli seconds
- 2.3.4. Train duration: 0.2 seconds to 16 seconds
- 2.3.5. Charge strength: 5.0 – 1152 milli Coulombs

2.3.6. Power for 220-ohm Patient Impedance: 0.6 – 205.8 Joules

2.4. All these electrical parameters (Current, pulse frequency, pulse width, train duration, charge strength) should be easily configurable by user for each session

2.5. The electrical parameters (Current, pulse frequency, pulse width, train duration, charge strength) should have the option to be configured by both of the following ways:

2.5.1. Directly though the ECT device in the stand-alone operation mode

2.5.2. Through a single remote electronic device up to a minimum of 10 meters distance in the remote operation mode.

2.6. The stimulation delivery should be through hand held electrodes

2.7. A pair each of hand-held electrodes for both Bi-frontal ECT and Bi-Temporal ECT should be provided

3. <u>Digital EEG recording system integrating with ECT:</u>

3.1. Digital EEG system should be capable of recording, processing and displaying EEG signals online during and post-ECT

3.2. EEG System amplifier should be portable

3.3. EEG system amplifier should have the facility to be powered by all the following

- Computer device
- ECT machine
- Independent power supply
- Battery

3.4. Portable amplifier should uninterruptedly run on a battery for minimum 4 hours.

3.5. EEG recording specifications:

3.5.1. No of channels: minimum 8

3.5.2. Input impedance: 100 M ohms

3.5.3. Sensitivity 1 to 200 micro Volt per mm

3.5.4. Peak to peak Noise < 1.5 micro Volt

3.5.5. Built in manual / automatic sine / square wave calibration

3.5.6. Common mode rejection ratio: ≥ 105 dB

3.5.7. Low-pass filter: 15 Hz to 300 Hz

3.5.8. High-pass filter: 0.5 Hz -15Hz

3.5.9. Notch filter

3.5.10. Electrode to skin impedance check: 2 to 50 k ohm

3.5.11. Sampling rate: 100Hz, 200Hz, 500Hz & 1kHz at

3.5.12. Analogue to Digital Conversion ratio: 10-bit and above

3.5.13. ECG Elimination filter in both acquisition and review mode

3.6. EEG system should have capacity to record 8-channel EEG with minimum 4 Bipolar flexible biological parameter monitoring capability.

3.7. Flexibility to use it as 8-channel/ 4-channel/ 2-channel EEG system or with other channels settable for other biological parameters: Electromyogram, optical motion sensor monitoring

3.8. EEG system should perform skin electrode impedance check at both junction box and computer to give the exact impedance in numeric values.

4. Remote ECT Administration and EEG/ECG/EMG/OMS Acquisition software on electronic device

4.1. The acquisition software should be provided with all the features to easily configure electrical parameters for ECT administration and to configure parameters, acquire and visualize for EEG/ECG/EMG/OMS.

4.2. The software should be compatible with the latest android OS in a tablet computer (Tablet computer to be used as a hand-held remote electronic device for ECT administration and monitoring).

4.3. Acquisition software should support multiple users, with individualized operational settings.

4.4. Acquisition software should have features to reformat and re-montage the EEG/ECG/EMG/OMS data

4.5. Acquisition software should have minimal data processing ability for the real-time analyses of fractal dimension of any part of the EEG epoch (to ensure validity of the analysis, the results should have been published in peer-reviewed journals);

4.6. Acquisition software should have feature to review earlier acquired EEG data.

4.7. Acquired data should have output in ASCII format and should be readable in MATLAB for further processing.

5. Display and storage of stimulation and EEG/ECG/EMG/OMS data

5.1. Physiological monitoring of activities of all 8 channels should be displayed on both real time basis and post-event.

5.2. The real-time display of the fractal dimension should be present

5.3. It should have capability to display the data in all the following ways:

- 5.3.1. Directly though the ECT device in the stand-alone mode
- 5.3.2. Through a single remote electronic device up to a minimum of 10 meters distance in remote operation mode.
- 5.3.3. Concurrently in both the devices in hybrid mode.

5.4. It should have features to hide selected channels and different color-coded display for each trace.

5.5. Display should have both "Overwrite" and "page-by-page" read mode.

5.6. Display must have waveforms freeze facility with simultaneous background recording

5.7. View of fractal dimension should be on Real-time

5.8. System should have facility for the data to be stored with all the treatment and patient demographic parameters on

- 5.8.1. MicroSD card embedded in the system
- 5.8.2. Personal Computer Hard disc
- 5.8.3. Cloud/ email service
- 5.8.4. External storage device

6. **Support**

6.1. 5-years warranty on all hardware and software (Cost to include onsite support for 5-years at NIMHANS, Bengaluru/CIP, Ranchi / KMC, Manipal)

6.2. Full technical support in setting ECT parameter, EEG/ECG/EMG/OMS acquisition with the acquisition software.

6.3. On-site installation and comprehensive training by a qualified support engineer must be provided at the sites. These equipments are being procured as per multi-centred collaborative project involving NIMHANS, Central Institute of Psychiatry (Ranchi) & Kasturba Medical College (Manipal). The vendor should ensure delivery and installation & maintenance of the equipment these centres as per project requirements.

6.4. The training must be comprehensive and include:

6.4.1 Hands on training on setting-up, starting on delivering ECT with concurrent acquisition of EEG/ECG/EMG/OMS data.

6.4.2 Hands-on demonstration of visualizing, saving the recorded data in a compatible format and exporting in a format analyzable using MATLAB tools.

6.5. Any major upgradation to the software or the hardware within the warranty period should be provided free of cost.

7. Mandatory accessories

7.1. Hand-held remote electronic device for each device for ECT administration and EEG monitoring (An android tablet computer with following features: 4GB RAM; Display screen size ≥10inches; touch screen'; storage of ≥64GB and expandable up to 1TB; either Exynos 9611 Octa Core processor or Qualcomm Snapdragon 450 octa core processor) with the requisite administration and acquisition software installed.

7.2. Additional set of required power supplying accessories for EEG amplifier (including battery with chargers, plug-ins to ECT machine/computer device) should be provided.

7.3. Compatible EEG Electrodes - 100 Nos.

7.4. **One-unit cost and the quantity per unit to be quoted for all the mandatory accessories and consumable items to be provided.**

8. **Others**

8.1. Compatible with Indian power supply of 220 V and 50 Hz; should have an optional notch filter at 50 Hz for line noise reduction if required.

8.2. List of users with contact details (e-mail & telephone / mobile number) in research institutes (India & Abroad) to be provided

8.3. Peer-reviewed, pubmed-indexed publications (minimum 5 Nos.) using the ECT device by the manufacturer (Copy of the publications to be attached)

8.4. The bidder should provide documents to support the compliance with all the technical specifications as annexures. In addition, the bidder should indicate the exact location of the text in the annexure (for example annexure no., page, paragraph, and lines detail) that provides the necessary documentary support for the respective technical specification. Scrutiny for matching the technical specifications will be solely based on the hard copy documents & details of the text location (as specified above) provided with the technical bid, preferably along with cross-referencing from the product website.

8.5. Certification: FDA or CE or CDSCO or equivalent certification with validity for the use of equipment in human subjects is mandatory and a copy of the same should be enclosed.

8.6. Required Mandatory Accessories to ensure turnkey operation.

8.7. The technical bid should be accompanied by an item-wise compliance report (as per enclosed format) that is signed & stamped by the authorized signatory of the bidder in all pages. This compliance report should have reference to the page number of the manual in which the specific technical compliance details with respect to each item (i.e. 1.1., 1.2., 1.3., ...) as per the instructions provided in item no. 8.3 above. The pdf / hard copy of the manual should be submitted along with the technical bid. It is preferable that the vendor provides additional reference to these technical details in their product web site as well.

8.8. If requested, the bidder must be able to organize for a physical demonstration of the product at NIMHANS with regards to all the technical specifications mentioned in this document within a notice period of 1 week.

9. Optional

9.1. Quotation for comprehensive maintenance care after 5 years of warranty

9.2. Quotation for annual maintenance care after 5 years of warranty

9.3. Quotation for a set of external re-chargeable battery with charging apparatus for wireless EEG amplifier must be provided.

9.4. Quotation for Ten20 electrode conductive paste-8Oz

9.5. Quotation for Nuprep skin preparation Gel-114gm

9.6. Quotation for SSD Portable external hard drive of 2-TB storage capacity

9.7. Quotation for SD card of 64-GB storage capacity compatible with the EEG monitoring device

Quote must have a compliance report on all the above points.

The decision of L1 (lowest price bid) will be decided based on the price quoted for sections 1 to 8.

Compliance Form:

Specification	Compliance (Yes/No)	Reference to the text in brochure with page No. (and indicate reference to the enclosed certificate/document as applicable if any)
1. **Computerized remotely operable EEG/ECG monitored ECT capability**		
1.1. The device should deliver Electroconvulsive therapy (ECT) with concurrent recording of Electroencephalogram (EEG), Electrocardiogram (ECG), Electromyogram (EMG) and Optical Motion Sensor monitoring (OMS) data.		
1.2. The device must have hand-held, portable system to allow hassle free EEG/ECG acquisition with offline battery for up to 4 hours		
1.3. The device must be equipped with wireless technology that allows remote operability of ECT as well as EEG/ECG/EMG/OMS from up to 10 meters distance using a hand-held remote electronic device.		
1.4. The device must meet safety standards for clinical research application		

1.5. System should be certified to be Complaint with Electrical Safety Standard for Medical Equipment by ISO/CE for I IEC – 60601-1 standard for electrical safety.		
2. ECT delivery system specification		
2.1. The device should deliver constant current bi-directional square wave pulses.		
2.2. ECT module should have an option to work in a stand–alone mode.		
2.3. Range of electrical parameters:		
2.3.1. Current: 500-1000 milli Ampere		
2.3.2. Pulse Frequency 10-100 Hertz		
2.3.3. Pulse Width 0.3-1.5 milli seconds		
2.3.4. Train duration: 0.2 seconds to 16 seconds		
2.3.5. Charge strength: 5.0 – 1152 milli Coulombs		
2.3.6. Power for 220-ohm Patient Impedance: 0.6 – 205.8 Joules		
2.4. All these electrical parameters (Current, pulse frequency, pulse width, train duration, charge strength) should be easily configurable by user for each session		
2.5. The electrical parameters (Current, pulse frequency, pulse width, train duration, charge strength) should have the option to be configured by both of the following ways:		
2.5.1. Directly though the ECT device in the stand-alone operation mode		
2.5.2. Through a single remote electronic device up to a minimum of 10 meters distance in the remote operation mode.		
2.6. The stimulation delivery should be through hand held electrodes		
2.7. A pair each of hand-held electrodes for both Bi-frontal ECT and Bi-Temporal ECT should be provided		
3. Digital EEG recording system integrating with ECT:		
3.1. Digital EEG system should be capable of recording, processing and displaying EEG signals online during and post-ECT		
3.2. EEG System amplifier should be portable		
3.3. EEG system amplifier should have the facility to be powered by all the following		
o Computer device		
o ECT machine		
o Independent power supply		
o Battery		
3.4. Portable amplifier should uninterruptedly run on a battery for minimum 4 hours.		
3.5. EEG recording specifications:		
3.5.1. No of channels: minimum 8		
3.5.2. Input impedance: 100 M ohms		
3.5.3. Sensitivity 1 to 200 micro Volt per mm		
3.5.4. Peak to peak Noise < 1.5 micro Volt		
3.5.5. Built in manual / automatic sine / square wave calibration		
3.5.6. Common mode rejection ratio: ≥ 105 dB		
3.5.7. Low-pass filter: 15 Hz to 300 Hz		
3.5.8. High-pass filter: 0.5 Hz -15Hz		
3.5.9. Notch filter		
3.5.10. Electrode to skin impedance check: 2 to 50 k ohm		

3.5.11. Sampling rate: 100Hz, 200Hz, 500Hz & 1kHz at		
3.5.12. Analogue to Digital Conversion ratio: 10-bit and above		
3.5.13. ECG Elimination filter in both acquisition and review mode		
3.6. EEG system should have capacity to record 8-channel EEG with minimum 4 Bipolar flexible biological parameter monitoring capability.		
3.7. Flexibility to use it as 8-channel/ 4-channel/ 2-channel EEG system or with other channels settable for other biological parameters: Electromyogram, optical motion sensor monitoring		
3.8. EEG system should perform skin electrode impedance check at both junction box and computer to give the exact impedance in numeric values.		
4. Remote ECT Administration and EEG/ECG/EMG/OMS Acquisition software on electronic device		
4.1. The acquisition software should be provided with all the features to easily configure electrical parameters for ECT administration and to configure parameters, acquire and visualize for EEG/ECG/EMG/OMS.		
4.2. The software should be compatible with the latest android OS in a tablet computer (Tablet computer to be used as a hand-held remote electronic device for ECT administration and monitoring).		
4.3. Acquisition software should support multiple users, with individualized operational settings.		
4.4. Acquisition software should have features to reformat and re-montage the EEG/ECG/EMG/OMS data		
4.5. Acquisition software should have minimal data processing ability for the real-time analyses of fractal dimension of any part of the EEG epoch (to ensure validity of the analysis, the results should have been published in peer-reviewed journals);		
4.6. Acquisition software should have feature to review earlier acquired EEG data.		
4.7. Acquired data should have output in ASCII format and should be readable in MATLAB for further processing.		
5. Display and storage of stimulation and EEG/ECG/EMG/OMS data		
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5.3.3. Concurrently in both the devices in hybrid mode.		
5.4. It should have features to hide selected channels and different color-coded display for each trace.		
5.5. Display should have both "Overwrite" and "page-by-page" read mode.		
5.6. Display must have waveforms freeze facility with simultaneous background recording		
5.7. View of fractal dimension should be on Real-time		

5.8. System should have facility for the data to be stored with all the treatment and patient demographic parameters on		
5.8.1. MicroSD card embedded in the system		
5.8.2. Personal Computer Hard disc		
5.8.3. Cloud/ email service		
5.8.4. External storage device		
6. Support		
6.1. 5-years warranty on all hardware and software (Cost to include onsite support for 5-years at NIMHANS, Bengaluru/CIP, Ranchi / KMC, Manipal)		
6.2. Full technical support in setting ECT parameter, EEG/ECG/EMG/OMS acquisition with the acquisition software.		
6.3. On-site installation and comprehensive training by a qualified support engineer must be provided at the sites. These equipments are being procured as per multi-centred collaborative project involving NIMHANS, Central Institute of Psychiatry (Ranchi) & Kasturba Medical College (Manipal). The vendor should ensure delivery and installation & maintenance of the equipment these centres as per project requirements		
6.4.1 Hands on training on setting-up, starting on delivering ECT with concurrent acquisition of EEG/ECG/EMG/OMS data.		
6.4.2 Hands-on demonstration of visualizing, saving the recorded data in a compatible format and exporting in a format analyzable using MATLAB tools.		
6.5 Any major upgradation to the software or the hardware within the warranty period should be provided free of cost.		
7 Mandatory accessories		
7.4 Hand-held remote electronic device for each device for ECT administration and EEG monitoring (An android tablet computer with following features: 4GB RAM; Display screen size ≥10inches; touch screen'; storage of ≥64GB and expandable up to 1TB; either Exynos 9611 Octa Core processor or Qualcomm Snapdragon 450 octa core processor) with the requisite administration and acquisition software installed.		
7.5 Additional set of required power supplying accessories for EEG amplifier (including battery with chargers, plug-ins to ECT machine/computer device) should be provided.		
7.6 Compatible EEG Electrodes - 100 Nos		
7.7 **One-unit cost and the quantity per unit to be quoted for all the mandatory accessories and consumable items to be provided.**		
8 Others		
8.4 Compatible with Indian power supply of 220 V and 50 Hz; should have an optional notch filter at 50 Hz for line noise reduction if required.		
8.5 List of users with contact details (e-mail & telephone / mobile number) in research institutes (India & Abroad) to be provided		
8.6 Peer-reviewed, pubmed-indexed publications (minimum 5 Nos.) using the ECT device by the manufacturer (Copy of the publications to attached)		

8.7 The bidder should provide documents to support the compliance with all the technical specifications as annexures. In addition, the bidder should indicate the exact location of the text in the annexure (for example annexure no., page, paragraph, and lines detail) that provides the necessary documentary support for the respective technical specification. Scrutiny for matching the technical specifications will be solely based on the hard copy documents & details of the text location (as specified above) provided with the technical bid, preferably along with cross-referencing from the product website.		
8.8 Certification: FDA or CE or CDSCO or equivalent certification with validity for the use of equipment in human subjects is mandatory and a copy of the same should be enclosed.		
8.9 Required Mandatory Accessories to ensure turnkey operation.		
8.10 The technical bid should be accompanied by an item-wise compliance report (as per enclosed format) that is signed & stamped by the authorized signatory of the bidder in all pages. This compliance report should have reference to the page number of the manual in which the specific technical compliance details with respect to each item (i.e. 1.1., 1.2., 1.3., ...) as per the instructions provided in item no. 8.3 above. The pdf / hard copy of the manual should be submitted along with the technical bid. It is preferable that the vendor provides additional reference to these technical details in their product web site as well.		
8.11 If requested, the bidder must be able to organize for a physical demonstration of the product at NIMHANS with regards to all the technical specifications mentioned in this document within a notice period of 1 week.		
9 Optional Accessories		
9.4 Quotation for comprehensive maintenance care after 5 years of warranty		
9.5 Quotation for annual maintenance care after 5 years of warranty		
9.6 Quotation for a set of external re-chargeable battery with charging apparatus for wireless EEG amplifier must be provided.		
9.7 Quotation for Ten20 electrode conductive paste-8Oz		
9.8 Quotation for Nuprep skin preparation Gel-114gm		
9.9 Quotation for Portable external hard drive of 2-TB storage capacity		
9.10 Quotation for SSD card of 64-GB storage capacity compatible with the EEG monitoring device		

Price Quoted Format:

Sl. No	Item	Quantity	Price (inclusive of GST)
1	ECT delivery system (As per specifications No 1 & 2)	4 Nos.	
2	Computerized remotely operable EEG/ECG system for monitoring ECT	4 Nos.	
3	Digital EEG recording system integrating with ECT	4 Nos.	

4	Remote ECT Administration and EEG/ECG/EMG/OMS Acquisition software on electronic device.	4 Nos.	
5	**Mandatory accessory**: Android tablet (As per specification 6.1)	4 Nos.	
6	**Mandatory accessory:** Batteries with chargers for EEG amplifier	4 Nos.	
7	**Mandatory accessory:** EEG electrodes	200 Nos.	
8	Quotation for comprehensive maintenance care after 5 years of warranty	1 No.	
9	Quotation for annual maintenance care after 5 years of warranty	1 No.	
10	**Optional accessory:** Quotation for a set of external re-chargeable battery with charging apparatus for wireless EEG amplifier	1 No.	
11	**Optional accessory**: Quotation for Ten20 electrode conductive paste	1 No.	
12	**Optional accessory**: Quotation for Nu-Prep Gel	1 No.	
13	**Optional accessory:** Quotation for SSD Portable external hard drive of 2-TB storage capacity	1 No.	
14	**Optional accessory:** Quotation for SD card of 64-GB storage capacity compatible with the EEG monitoring device	1 No.	

Annexure for EEG/ECG monitor:

Name of the Item: **Computerized remotely operable EEG/ECG system for monitoring Electroconvulsive Therapy (ECT) with 5 Years Warranty**

Quantity: **2**

Technical Specification

1. Computerized remotely operable EEG/ECG system for monitoring ECT

1.1. The device should be compatible with the Brief pulse Electroconvulsive Therapy (ECT) Machine "Model: INT_5, SL; I_04,2019-03-14" manufactured by Niviqure Meditech Pvt Ltd for concurrent recording of Electroencephalogram (EEG), Electrocardiogram (ECG), Electromyogram (EMG) and Optical Motion Sensor monitoring (OMS) data.

1.2. The system must be hand-held, portable to allow hassle free EEG/ECG acquisition with offline battery for up to 4 hours

1.3. The device must be equipped with wireless technology that allows remote operability of ECT as well as EEG/ECG/EMG/OMS from up to 10 meters distance using a hand-held remote electronic device.

1.4. The device must meet safety standards for clinical research application

1.5. System should be certified to be Complaint with Electrical Safety Standard for Medical Equipment by ISO/CE for I IEC – 60601-1 standard for electrical safety.

2. Digital EEG recording system integrating with ECT:

2.1. Digital EEG system should be capable of recording, processing and displaying EEG signals online during and post-ECT

2.2. EEG System amplifier should be portable

2.3. EEG system amplifier should have the facility to be powered by all the following

- Computer device
- ECT machine
- Independent power supply

- Battery

2.4. Portable amplifier should uninterruptedly run on a battery for minimum 4 hours.

2.5. EEG recording specifications:

2.5.1. No of channels: minimum 8

2.5.2. Input impedance: 100 M ohms

2.5.3. Sensitivity 1 to 200 micro Volt per mm

2.5.4. Peak to peak Noise < 1.5 micro Volt

2.5.5. Built in manual / automatic sine / square wave calibration

2.5.6. Common mode rejection ratio: ≥ 105 dB

2.5.7. Low-pass filter: 15 Hz to 300 Hz

2.5.8. High-pass filter: 0.5 Hz -15Hz

2.5.9. Notch filter

2.5.10. Electrode to skin impedance check: 2 to 50 k ohm

2.5.11. Sampling rate: 100Hz, 200Hz, 500Hz & 1kHz at

2.5.12. Analogue to Digital Conversion ratio: 10-bit and above

2.5.13. ECG Elimination filter in both acquisition and review mode

2.6. EEG system should have capacity to record 8-channel EEG with minimum 4 Bipolar flexible biological parameter monitoring capability.

2.7. Flexibility to use it as 8-channel/ 4-channel/ 2-channel EEG system or with other channels settable for other biological parameters: Electromyogram, optical motion sensor monitoring

2.8. EEG system should perform skin electrode impedance check at both junction box and computer to give the exact impedance in numeric values.

3. Remote ECT Administration and EEG/ECG/EMG/OMS Acquisition software on electronic device

3.1. The acquisition software should be provided with all the features to easily configure electrical parameters for ECT administration and to configure parameters, acquire and visualize for EEG/ECG/EMG/OMS.

3.2. The software should be compatible with the latest android OS in a tablet computer (Tablet computer to be used as a hand-held remote electronic device for ECT administration and monitoring).

3.3. Acquisition software should support multiple users, with individualized operational settings.

3.4. Acquisition software should have features to reformat and re-montage the EEG/ECG/EMG/OMS data

3.5. Acquisition software should have minimal data processing ability for the real-time analyses of fractal dimension of any part of the EEG epoch (to ensure validity of the analysis, the results should have been published in peer-reviewed journals);

3.6. Acquisition software should have feature to review earlier acquired EEG data.

3.7. Acquired data should have output in ASCII format and should be readable in MATLAB for further processing.

4. Display and storage of stimulation and EEG/ECG/EMG/OMS data

4.1. Physiological monitoring of activities of all 8 channels should be displayed on both real time basis and post-event.

4.2. The real-time display of the fractal dimension should be present

4.3. It should have capability to display the data in all the following ways:

- 4.3.1. Directly though the ECT device in the stand-alone mode
- 4.3.2. Through a single remote electronic device up to a minimum of 10 meters distance in remote operation mode.
- 4.3.3. Concurrently in both the devices in hybrid mode.

4.4. It should have features to hide selected channels and different color-coded display for each trace.

4.5. Display should have both "Overwrite" and "page-by-page" read mode.

4.6. Display must have waveforms freeze facility with simultaneous background recording

4.7. View of fractal dimension should be on Real-time

4.8. System should have facility for the data to be stored with all the treatment and patient demographic parameters on

4.8.1. MicroSD card embedded in the system

4.8.2. Personal Computer Hard disc

4.8.3. Cloud/ email service

4.8.4. External storage device

5. **Support**

5.1. 5-years warranty on all hardware and software.

5.2. Full technical support in setting ECT parameter, EEG/ECG/EMG/OMS acquisition with the acquisition software.

5.3. On-site installation and comprehensive training by a qualified support engineer must be provided at the sites. These equipments are being procured as per multi-centred collaborative project involving NIMHANS, Central Institute of Psychiatry (Ranchi) & Kasturba Medical College (Manipal). The vendor should ensure delivery and installation & maintenance of the equipment these centres as per project requirements

5.4. The training must be comprehensive and include:

5.4.1. Hands on training on setting-up, starting on delivering ECT with concurrent acquisition of EEG/ECG/EMG/OMS data.

5.4.2. Hands-on demonstration of visualizing, saving the recorded data in a compatible format and exporting in a format analyzable using MATLAB tools.

5.5 Any major upgradation to the software or the hardware within the warranty period should be provided free of cost.

6. **Mandatory accessories**

6.1. Hand-held remote electronic device for each device for ECT administration and EEG monitoring (An android tablet computer with following features: 4GB RAM; Display screen size ≥10inches; touch screen'; storage of ≥64GB and expandable up

to 1TB; either Exynos 9611 Octa Core processor or Qualcomm Snapdragon 450 octa core processor) with the requisite administration and acquisition software installed.

6.2. Additional set of required power supplying accessories for EEG amplifier (including battery with chargers, plug-ins to ECT machine/computer device) should be provided.

6.3. Following consumables must be provided along with the device at the initial procurement:

6.1.1 Compatible EEG Electrodes - 100 Nos.

6.1.2 10-20 Electrode Conductive Paste (100 Nos.)

6.1.3 Nu-prep Gel (20 Nos.)

6.2 **One-unit cost and the quantity per unit to be quoted for all the mandatory accessories and consumable items to be provided.**

7 **Others**

7.1 List of users with contact details (e-mail & telephone / mobile number) in research institutes (India & Abroad) to be provided

7.2 The bidder should provide documents to support the compliance with all the technical specifications as annexures. In addition, the bidder should indicate the exact location of the text in the annexure (for example annexure no., page, paragraph, and lines detail) that provides the necessary documentary support for the respective technical specification. Scrutiny for matching the technical specifications will be solely based on the hard copy documents & details of the text location (as specified above) provided with the technical bid, preferably along with cross-referencing from the product website.

7.3 Certification: FDA or CE or CDSCO or equivalent certification with validity for the use of equipment in human subjects is mandatory and a copy of the same should be enclosed.

7.4 Required Mandatory Accessories to ensure turnkey operation.

7.5 The technical bid should be accompanied by an item-wise compliance report (as per enclosed format) that is signed & stamped by the authorized signatory of the

bidder in all pages. This compliance report should have reference to the page number of the manual in which the specific technical compliance details with respect to each item (i.e. 1.1., 1.2., 1.3., ...) as per the instructions provided in item no. 8.3 above. The pdf / hard copy of the manual should be submitted along with the technical bid. It is preferable that the vendor provides additional reference to these technical details in their product web site as well.

7.6 If requested, the bidder must be able to organize for a physical demonstration of the product at NIMHANS with regards to all the technical specifications mentioned in this document within a notice period of 1 week.

8 Optional

8.1 Quotation for comprehensive maintenance care after 5 years of warranty

8.2 Quotation for annual maintenance care after 5 years of warranty

8.3 Quotation for a set of external re-chargeable battery with charging apparatus for wireless EEG amplifier must be provided

8.4 Quotation for Ten20 electrode conductive paste-8Oz

8.5 Quotation for Nuprep skin preparation Gel-114gm

8.6 Quotation for SSD Portable external hard drive of 2-TB storage capacity

8.7 Quotation for SD card of 64-GB storage capacity compatible with the EEG monitoring device

Quote must have a compliance report on all the above points.

The decision of L1 (lowest price bid) will be decided based on the price quoted for sections 1 to 8.

Compliance form

Specification	Compliance (Yes/No)	Reference to the text in brochure with page No. (and indicate reference to the enclosed certificate/document as applicable if any)
1. **Computerized remotely operable EEG/ECG system for monitoring ECT**		

1.1. The device should be compatible with the Brief pulse Electroconvulsive Therapy (ECT) Machine "Model: INT_5, SL; I_04,2019-03-14" manufactured by Niviqure Meditech Pvt Ltd for concurrent recording of Electroencephalogram (EEG), Electrocardiogram (ECG), Electromyogram (EMG) and Optical Motion Sensor monitoring (OMS) data.		
1.2. The device must have hand-held, portable system to allow hassle free EEG/ECG acquisition with offline battery for up to 4 hours		
1.3. The device must be equipped with wireless technology that allows remote operability of ECT as well as EEG/ECG/EMG/OMS from up to 10 meters distance using a hand-held remote electronic device.		
1.4. The device must meet safety standards for clinical research application		
1.5. System should be certified to be Complaint with Electrical Safety Standard for Medical Equipment by ISO/CE for I IEC – 60601-1 standard for electrical safety.		
2. Digital EEG recording system integrating with ECT:		
2.1. Digital EEG system should be capable of recording, processing and displaying EEG signals online during and post-ECT		
2.2. EEG System amplifier should be portable		
2.3. EEG system amplifier should have the facility to be powered by all the following		
o Computer device		
o ECT machine		
o Independent power supply		
o Battery		
2.4. Portable amplifier should uninterruptedly run on a battery for minimum 4 hours.		
2.5. EEG recording specifications:		
2.5.1. No of channels: minimum 8		
2.5.2. Input impedance: 100 M ohms		
2.5.3. Sensitivity 1 to 200 micro Volt per mm		
2.5.4. Peak to peak Noise < 1.5 micro Volt		
2.5.5. Built in manual / automatic sine / square wave calibration		
2.5.6. Common mode rejection ratio: ≥ 105 dB		
2.5.7. Low-pass filter: 15 Hz to 300 Hz		
2.5.8. High-pass filter: 0.5 Hz -15Hz		
2.5.9. Notch filter		
2.5.10. Electrode to skin impedance check: 2 to 50 k ohm		
2.5.11. Sampling rate: 100Hz, 200Hz, 500Hz & 1kHz at		
2.5.12. Analogue to Digital Conversion ratio: 10-bit and above		
2.5.13. ECG Elimination filter in both acquisition and review mode		
2.6. EEG system should have capacity to record 8-channel EEG with minimum 4 Bipolar flexible biological parameter monitoring capability.		
2.7. Flexibility to use it as 8-channel/ 4-channel/ 2-channel EEG system or with other channels settable for other biological parameters: Electromyogram, optical motion sensor monitoring		

2.8. EEG system should perform skin electrode impedance check at both junction box and computer to give the exact impedance in numeric values.		
3. Remote ECT Administration and EEG/ECG/EMG/OMS Acquisition software on electronic device		
3.1. The acquisition software should be provided with all the features to easily configure electrical parameters for ECT administration and to configure parameters, acquire and visualize for EEG/ECG/EMG/OMS.		
3.2. The software should be compatible with the latest android OS in a tablet computer (Tablet computer to be used as a hand-held remote electronic device for ECT administration and monitoring).		
3.3. Acquisition software should support multiple users, with individualized operational settings.		
3.4. Acquisition software should have features to reformat and re-montage the EEG/ECG/EMG/OMS data		
3.5. Acquisition software should have minimal data processing ability for the real-time analyses of fractal dimension of any part of the EEG epoch (to ensure validity of the analysis, the results should have been published in peer-reviewed journals);		
3.6. Acquisition software should have feature to review earlier acquired EEG data.		
3.7. Acquired data should have output in ASCII format and should be readable in MATLAB for further processing.		
4. Display and storage of stimulation and EEG/ECG/EMG/OMS data		
4.1. Physiological monitoring of activities of all 8 channels should be displayed on both real time basis and post-event.		
4.2. The real-time display of the fractal dimension should be present		
4.3. It should have capability to display the data in all the following ways:		
4.3.1. Directly though the ECT device in the stand-alone mode		
4.3.2. Through a single remote electronic device up to a minimum of 10 meters distance in remote operation mode.		
4.3.3. Concurrently in both the devices in hybrid mode.		
4.4. It should have features to hide selected channels and different color-coded display for each trace.		
4.5. Display should have both "Overwrite" and "page-by-page" read mode.		
4.6. Display must have waveforms freeze facility with simultaneous background recording		
4.7. View of fractal dimension should be on Real-time		
4.8. System should have facility for the data to be stored with all the treatment and patient demographic parameters on		
4.8.1. MicroSD card embedded in the system		
4.8.2. Personal Computer Hard disc		
4.8.3. Cloud/ email service		
4.8.4. External storage device		
5. Support		
5.1. 5-years warranty on all hardware and software (Cost to include onsite support for 5-years at NIMHANS, Bengaluru/CIP, Ranchi / KMC, Manipal)		
5.2. Full technical support in setting ECT parameter, EEG/ECG/EMG/OMS acquisition with the acquisition software.		

5.3. On-site installation and comprehensive training by a qualified support engineer must be provided at the sites. These equipments are being procured as per multi-centred collaborative project involving NIMHANS, Central Institute of Psychiatry (Ranchi) & Kasturba Medical College (Manipal). The vendor should ensure delivery and installation & maintenance of the equipment these centres as per project requirements		
5.4.1 Hands on training on setting-up, starting on delivering ECT with concurrent acquisition of EEG/ECG/EMG/OMS data.		
5.4.2 Hands-on demonstration of visualizing, saving the recorded data in a compatible format and exporting in a format analyzable using MATLAB tools.		
5.5 Any major upgradation to the software or the hardware within the warranty period should be provided free of cost.		
6 Mandatory accessories		
6.1 Hand-held remote electronic device for each device for ECT administration and EEG monitoring (An android tablet computer with following features: 4GB RAM; Display screen size ≥10inches; touch screen'; storage of ≥64GB and expandable up to 1TB; either Exynos 9611 Octa Core processor or Qualcomm Snapdragon 450 octa core processor) with the requisite administration and acquisition software installed.		
6.2 Additional set of required power supplying accessories for EEG amplifier (including battery with chargers, plug-ins to ECT machine/computer device) should be provided.		
6.3 Compatible EEG Electrodes - 100 Nos		
6.4 **One-unit cost and the quantity per unit to be quoted for all the mandatory accessories and consumable items to be provided.**		
7 **Others**		
7.1 List of users with contact details (e-mail & telephone / mobile number) in research institutes (India & Abroad) to be provided		
7.2 The bidder should provide documents to support the compliance with all the technical specifications as annexures. In addition, the bidder should indicate the exact location of the text in the annexure (for example annexure no., page, paragraph, and lines detail) that provides the necessary documentary support for the respective technical specification. Scrutiny for matching the technical specifications will be solely based on the hard copy documents & details of the text location (as specified above) provided with the technical bid, preferably along with cross-referencing from the product website.		
7.3 Certification: FDA or CE or CDSCO or equivalent certification with validity for the use of equipment in human subjects is mandatory and a copy of the same should be enclosed.		
7.4 Required Mandatory Accessories to ensure turnkey operation.		
7.5 The technical bid should be accompanied by an item-wise compliance report (as per enclosed format) that is		

	signed & stamped by the authorized signatory of the bidder in all pages. This compliance report should have reference to the page number of the manual in which the specific technical compliance details with respect to each item (i.e. 1.1., 1.2., 1.3., ...) as per the instructions provided in item no. 8.3 above. The pdf / hard copy of the manual should be submitted along with the technical bid. It is preferable that the vendor provides additional reference to these technical details in their product web site as well.		
7.6	If requested, the bidder must be able to organize for a physical demonstration of the product at NIMHANS with regards to all the technical specifications mentioned in this document within a notice period of 1 week.		
8	**Optional Accessories**		
8.1	Quotation for comprehensive maintenance care after 5 years of warranty		
8.2	Quotation for annual maintenance care after 5 years of warranty		
8.3	Quotation for a set of external re-chargeable battery with charging apparatus for wireless EEG amplifier must be provided.		
8.4	Ten20 electrode conductive paste-8Oz		
8.5	Nuprep skin preparation Gel-114gm		
8.6	SSD Portable external hard drive of 2-TB storage capacity		
8.7	SD card of 64-GB storage capacity compatible with the EEG monitoring device		

Price Quoted Format:

Sl.No	Item	Quantity	Price (inclusive of GST)
1	Computerized remotely operable EEG/ECG system for monitoring ECT	2 Nos.	
2	Digital EEG recording system integrating with ECT	2 Nos.	
3	Remote ECT Administration and EEG/ECG/EMG/OMS Acquisition software on electronic device.	2 Nos.	
4	**Mandatory accessory**: Android tablet (As per specification 6.1)	2 Nos.	
5	**Mandatory accessory:** Batteries with chargers for EEG amplifier	2 Nos.	
6	**Mandatory accessory:** EEG electrodes	100 Nos.	
7	Quotation for comprehensive maintenance care after 5 years of warranty	1 No.	
8	Quotation for annual maintenance care after 5 years of warranty	1 No.	
9	**Optional accessory**: Quotation for a set of external re-chargeable battery with charging apparatus for wireless EEG amplifier.	1 No.	
10	**Optional accessory:** Ten20 electrode conductive paste	1 No.	
11	**Optional accessory**: Nu-Prep Gel	1 No.	
12	**Optional accessory:** SSD Portable external hard drive of 2-TB storage capacity	1 No.	
13	**Optional accessory**: SD card of 64-GB storage capacity compatible with the EEG monitoring device	1 No.	