Sealed Quotations/Bids (One Technical and One Financial separately) are invited from manufacturers or their authorized dealers for the following equipments which should be sealed by the tenderers in separate covers duly super scribed and both these sealed covers are to be put in a bigger cover, which should also be sealed and duly super scribed, on the terms and conditions as printed on page No.4

Quotations should reach this office on or before 30/10/2017 by 3:00 P.M.

Item
**EMG Machine**

**Specification:**

**EMG/NCV/EP System**
- Two electrical stimulators, one auditory stimulator and one visual LED stimulator should be integrated in the base unit.
- Built-in audio speaker should be available for output of both live signals as well as playback of recorded data.
- The hardware should have two trigger inputs and two trigger outputs for connection to external devices.
- The hardware should also have connections for a patient response unit footswitch, and control panel, LED goggles, audio transducers (headphone, bone conductors, ear inserts etc.) and reflex hammer.
- All channel should be available to external acquisition equipment for on-line analysis through the Analog Out connector.
- A safety feature should stop any stimulation after a few seconds of lost communication between the base unit and the computer. Restoring USB communication should automatically bring the system back to running condition without any need for additional user intervention.
- The hardware firmware and DSP software could easily be field upgraded to incorporate most recent enhancement and update functionality.

**Amplifier:**
- 5 Channel amplifier should have at least two non-switched and six switched channels
- 22 inputs connectors for six switched channel configured according to the 10-20 EEG electrode layout that can be used in any combination.
- Extended head box with 22 input connectors for six switched channels configured according to the 10-20 EEG electrode layout should be available.
- 24 bit Analog to digital Converter.
- 48 KHz sampling rate per channel.
- Artifact rejection hardware for prevents the stimuli artifact from saturating the amplifier.
- Built-in impedance measurement capability should measure the impedance at 20Hz with a range from 500Ω-450Ω
- Built-in rectangular calibration pulse selectable between 2,20,200,2,000,20,000μV
- Gain adjustable from 10nV to 100mV/division more than 20 steps.

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Electrical Stimulator:
- Output intensity should be set either to constant-voltage or constant-current mode delivering, 0-400V/0-100mA.
- The stimulus intensity should be stored for each trace.
- Delivered stimulus should be monitored and "Short-circuit" and "Open-circuit" conditions should be indicated.
- Deviation between requested and delivered stimulus current intensity should be indicated.
- Duration should be adjustable between 0.02-1ms.
- Modes should set to either monophasic or biphasic stimulation using single, Refractory, collision, Double, or Train.
- The stimulus rate should be varied between: 0.06-200 stimuli per second (Hz).
- Electrical Stimulator probe (2Nos. for each system) should be ergonomically design, small and comfortable to use. Should allow for direct control of stimuli parameters as well as examination workflow using an integrated wheel and buttons. Should have control for stimuli intensity, start/stop, duration, polarity and move to next trace.

Auditory Stimulator:
- Type should be selected between Click, tone pip, and Tone Burst.
- Intensity should be set between 0 to 130dBnHLpSPL, or 31 to 109dBpSPL.
- nHL, depending on stimulus type, stimulus frequency, and transducer type.
- Increment steps should be set to selected between 1 to 30dB.
- Polarity should be set to: Condensation re-refraction, or alternating.

Visual Stimulator:
- Should be possible to choose pattern stimulus color/Black and White (foreground and background) and pattern intensity.
- The pattern type should be selected from checks, bars, or gratings.
- The pattern should be full-field or partial-field (hemi, quadrants, eights, and sixteenths) with possibility to select the partial-field position.
- The stimulator should calculate changes in check size, distance, and visual angle.
- Should be possible to choose the target size, position, and choose between static or a pulsating target.
- LED flash rate should be set 0.1-100 per second (Hz) with a duration between 1-5 000ms.

System Software:
- System must support Microsoft® Windows® 8/7.
- Motor Nerve conduction (MNC), Sensory Nerve Conduction (SNC) Microneurography.
- Combined Sensory Index, Combined Motor and Sensory Nerve Conduction, silent period, MEP, TST (Triple Stimulation Technique).
- Inching Studies, F-Wave, H-Reflex (Electrical and Mechanical), Repetitive Nerve Stimulation.
- Reference Help.
- Needle EMG.
- Multi-MUP Analysis, Peak Ratio Analysis, EMG Event Recorder.
- Single Fibre EMG.
- Macro EMG.
- Turns & Amplifier.
- AEP, SEP, VEP, OHL, Mid Latency EP, Long Latency EP, Flash VEP and Flash ERG.
- P300 and CNV.
- Tremor Analysis with accelerometer (two in number).
- R-R interval.

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- Sympathetic Skin Response (SSR) Galvanic Skin Response (GSR).
- MUNIX / Mune-Motor unit number estimation.
- Data should be repositioned, superimposed or shown in a restore mode.
- The same data should simultaneously be display with different filter, sensitivity, and timebase for optimal review of results. Roll Back and Roll forward of Traces.
- Data could be displayed as free run or triggered with a delay ranging from -9.9 to +9.9 division.
- Free run EMG data and sound should be recorded for up to 960 second for 2 channel or 360 second for 8 channel.
- Graphical/Anatomical Selection of Tests.
- Store data should be reanalyzed, digitally filtered, smoothed, inverted, summed, replayed, Display as trends, in plots, frequency analysis, etc.
- The data should be storable in the standard WAV format making it simple to export to other research or analysis programs.
- Should have averaging techniques to optimize the averaging results such as mean, exponential, median, threshold.
- The Artifact Reject function should automatically exclude artifacts that exceed a user definable amplitude threshold.
- Should also be possible to manually include or exclude data on a trace per trace basis.
- The average display sensitivity should be set from 0.01μV/division to 100mV/division in 22 steps.
- There should be facility to go back and see the previously recorded responses and choose the best result for reporting up to 4 replications should be available.
- Facility for signal enhancer to improve the baseline drift and clean signal must be available. In F-waves, option to hide M-portion is desired.
- Multiple exams should be organised into test folders ensuring simple and consistent examination even with the most complex diagnostic procedures or research setups.
- On-line result should given a compact clinical overview with links back to the raw data.
- Should highlight results that are outside of reference values.
- Generate a summary of findings.
- Should be setup by the user according to specific needs.
- Should have capability to capture the test screen both as picture and as a movie that should be incorporated into reports, training material, publications, presentations, etc.
- Should have an integrated data base with user defined patient demographics and visit information.
- Diagnostic software should be available that could validate the integrity of the system and reports detailed system information regarding amplifier, base unit firmware, etc.
- Should utilize Remote Support Software to allow viewing and remotely diagnosing and servicing the system if possible.
- System should offer compatibility of HL7 to transfer patient report.

Each System should be supplied with:
- 230V isolation power supply
- Leg goggles - 1 Nos.
- 300Ω TDH-39 Headphones - 2 Nos.
- Visual Stimulator
- Control Panel for ease of operation
- Computer with corei7, HDD 2 TB, RAM 8 GB, 21” TFT, Genuine Windows®7 and MS Word.
- Laser printer good quality.
- UPS with back up time of at least 30 minutes.
- Trolley good quality with amplifier arm.

Compliance/Regulatory standards should have:
- UL 60601-1 Medical Electrical Safety Standard (USA)
- CAN/CSA-C22.2 no. 601.1 M 90 Medical Electrical Safety Standard (Canada)

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Terms & Conditions:

1. Make, Model, Rate and Tax detail MUST BE clearly mentioned in the quotation.
2. Only typed quotations/tenders bearing GSTIN No. on original letter head will be entertained and please provide GST-HSN Code on each item separately.
3. Manufacturers/Authorised dealer’s certificate must be attached with Quotations/Tenders.
4. The firm must be registered supplier in any Govt./Semi Govt. or in A.M.U. Aligarh.
5. List of users for the quoted item with contact no. should provided, Photocopy of purchase order along with terms and conditions of contract received from any Govt./Public Sector Institution in last 3 years for supply of offered equipment must be enclosed with the price bid.
6. Installation and commissioning will be the responsibility of the supplier and after sales service should be provided.
7. Cutting/Over writing on quotations/tenders will not be accepted.
8. The instruments should be rust proof, made from surgical grade stainless steel and should be FDA or CE, UL OR BIS approved product.
9. The equipment/Instruments might be called for demo, and approval. It is sole discretion of the department to approve or disapprove the quality.
10. Comprehensive on site warranty 03 years.

Medical Superintendent
J.N. Medical College Hospital
A.M.U., Aligarh