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DEPARTMENT OF FACTORIES & BOILERS

No.A3/2937/2011/F&B

**SURAKSHA BHAVAN,
DIRECTORATE OF
FACTORIES AND BOILERS,
KUMARAPURAM,
THIRUVANANTHAPURAM - 11
DATED: 31-10-2014**

TENDER NOTICE

Sealed tenders are invited from the manufactures and authorized dealers for the supply and installation of the following high quality branded equipments for the Occupational Health and Research Centre, Assramam, Kollam.

The tender should be superscribed "Tender for the supply of equipments for" "Occupational Health and Research Centre, Assramam, Kollam." and addressed to the Director, Suraksha Bhavan, Directorate of Factories & Boilers, Kumarapuram, Thiruvananthapuram -11

| Sl. No. | Item | Quantity | Estimate amount | EMD | Cost of Tender form |
|---------|---------------------------|----------|-----------------|--------------------|---------------------|
| 1 | Ophthalmoscope | 3 | 4,50,000 | 1% of cost of item | Rs.900 +vat |
| 2. | Peak Flow Meter | 1 | 2,00,000 | " | Rs.400+vnt |
| 3. | Digital X-ray Unit | 1 | 15,00,000 | " | Rs.2250+vnt |
| 4. | Ultra Sonography machine | 1 | 20,00,000 | " | Rs.3000+vnt |
| 5 | ECG 12 Lead Set | 3 | 5,00,000 | " | Rs.1000 +vnt |
| 6 | Spirometer (Vitalograph) | 2 | 5,00,000 | " | Rs.1000 +vnt |
| 7 | Audio Meter | 1 | 20,00,000 | " | Rs.3000 +vnt |
| 8 | Titmus Vision Tester | 2 | 10,00,000 | " | Rs.2000 +vnt |
| 9 | Blood Analyser | 1 | 4,00,000 | " | Rs.800 +vnt |
| 10 | Cell Counter | 1 | 2,00,000 | " | Rs.400 +vnt |
| 11 | Phase Contrast Microscope | 1 | 3,00,000 | " | Rs.600 +vnt |
| 12 | Colori Meter | 1 | 2,00,000 | " | Rs.400 +vnt |

Last date for the receipt of filled up tenders: 1 pm on 29-11-2014

Opening tender : 2 pm on 29-11-2014

Tenders and other details can be had from the Directorate of Factories & Boilers, Thiruvananthapuram on all working days till 29-11-2014, 1 pm. The under signed reserves the right to reject the tender without assigning any reason there of. The tender notification is also available in the official Website: www.fabkerala.gov.in.

DIRECTOR OF FACTORIES AND BOILERS

Specifications

1. Ophthalmoscope

Ophthalmoscope with red free filter

Dimensions

5.125”L x 1.4”W x 3.750”H without eyecup Eyecup 1.45”L

Conforms with

IEC/UL/CSA/EN 60601-1 ISO 10943

Illumination :3.5V,2.8W Mini Halogen Bulb

Recharging unit : Input voltage 220V±10%V

Input Frequency : 50Hz±1Hz

Input Power : 8VA

Battery: Rechargeable

Viewing Lenses :0,±1,±2,±3,±4,±5,±6,±8,±10,±12,±16,±20,-25,-35

Apertures: Large Spot, Small Spot, Slit, Central Net, and Red-free

Net weight : 118g (excluding Battery)

Total weight : 340 g

Dimensions :42 mmx32mmx210mm

This instrument complies with medical Electrical equipment Part I General safety standard. Classs Two Type B

2. Peak Flow Meter

- **Performance Data**

Accuracy: +/- 10% or 20 L/min

Reproducibility: Less than 5% or 10 L/min

Interdevice Variability: Less than 10% or 20 L/min

- **Dimensions**

Length: 6.5 inches

Width: 2.0 inches

Height: .8 inches

Weight: 3.0 ounces

- **Materials**

| | |
|-------------------|--------------------------------|
| Main Body: | Impact-resistant ABS plastic |
| Cover and Handle: | High-density polypropylene |
| Scale | Hot-stamped, alcohol-resistant |

- **Calibration Data**

| | Full Range | Low Range |
|--------------------|-------------------|------------------|
| Measurement Range: | 60-810 L/min | 50-390 L/min |
| Resolution: | 10 L/min | 5 L/min |

3. Digital X-ray Unit

Generator: Fixed X-Ray unit, mounted on floor to ceiling, mounted on floor to ceiling column, Microprocessor controlled – high frequency; Digital display of mA and kV.

Tube : 200 mA 15 kW. Preferably rotating anode with at least 2500 rpm and focal spot of 1mm or less; Anode braking device; auto cut-off switch; Detachable exposure release switch with cord length as per ICRP recommendations.

Table: 5- position manual table with buckey

Safety : Compliant to AERB/BIS/ICRP guidelines

Training Onsite applications/demonstration training for at least 3 days

Documentation: Complete operation and system manual with hard and soft copy.

Warranty: 2 years; 3years post-warranty AMC

4. Ultra Sonography machine

1. Description of Function High resolution Grey scale ultrasound for trans -abdominal examination.

2. Operational Requirements:

2.1 Latest generation Electronic Phased array system with Minimum

1000 Electronic independent channels; desirable 4000 Electronic channel System should be DICOM ready and capable of being interfaced with HIS/RIS/PACS.

2.2 Should be field up gradable to next generation system on site. All new software should be upgraded free of cost for at least 3 years .

2.3 Frequency compounding or better technology for better resolution and penetration.

3. Technical Specifications

3.1 Phased array probe system with Minimum 1000 Electronic independent channels.

3.2 256 gray shades for sharp contrast resolutions.

3.3 Probe to be supplied which should be latest generation wide band transducer.

- 3.4 Harmonic Imaging-System should have Harmonics on all the probes following modes in harmonic with separate setting for:
- 3.5 Trapezoidal image.
- 3.6 Automated Gain control for additional level of flexibility to image quality control.
- 3.7 Real time high frequency 2D for higher resolution.
- 3.8 Monitor should be 15" or more, high-resolution Colour Monitor.
Tilt and Swivel monitor should be able to view in all angles and all light conditions.
- 3.9. Various maps for pre and post processing.
- 3.10 User defined system and application presets for multi -user department.
- 3.11 Minimum 4.8 GB optical disc drive / 80 GB hard drive for image storage and retrieval.(Standard with system)
- 3. 12 Cine loop memory – than 100 frames.
 - a.High frame rate review for better clarity of play back images study in slow motion.
 - b.Quad loop with memory for pre and post images comparison of any procedure.
 - c.memory –256 frames or more in QUAD loop
 - d.Frame grabber facility for post analysis.
- 3.13 Facility for high definition digital acquisition, review and editing of complete patient studies.
- 3.14 Frame rate should be 1000 FPS or more.
- 4. System Configuration Accessories, spares and consumables
- 4.1Convex probe 2 –5 MHz

5.ECG 12 Lead Set

Instrument Type

Microprocessor augmented automatic electrocardiograph; 10-leadwire, 12-lead simultaneous acquisition with programmable lead configuration.

Processing

ECG interpretation: Marquette® 12SL™ ECG Analysis Program for Adults and Pediatrics

Computerized measurements: 12-lead analysis

ECG analysis frequency: 500 samples/second (sps)

Digital sampling rate: 2,000 samples/second/channel

ECG on-screen preview: On-screen preview of acquired 10-second ECG waveform and optional 12SL measurement and interpretation

Acquisition mode: Pre-acquisition or post-acquisition, provide 10 seconds of instantaneous ECG acquisition

Dynamic range: AC Differential ± 5 mV, DC offset ± 300 mV

Resolution: 4.88 μ V/LSB @ 500 sps

Frequency response: -3 dB @ 0.01 to 150 Hz

Low cut-off frequency: 0.01 Hz, 0.02 Hz, 0.16 Hz or 0.32 Hz (-3 dB limits)

High cut-off frequency: Configurable at 20 Hz, 40 Hz, 100 Hz or 150 Hz

Adaptive AC filter: 47 Hz to 53 Hz when set to 50Hz, 57 Hz to 63 Hz when set to 60 Hz

Common mode rejection: >100 dB (with AC filter switched on)

Input impedance: >10 M Ω @ 10 Hz, defibrillator protected

Patient leakage: <10 μ A

Special acquisition functions: Disconnected lead detection except RL, excessive AC noise, baseline wander and muscle tremor messages

Heart rate meter: 30 to 300 BPM $\pm 10\%$ or ± 5 BPM, whichever is greater. Heart rates outside this range will not be displayed

Start-up time: Less than 7 seconds

Patient Information

Supported patient information: Patient ID, secondary ID, age, date of birth, gender. Alphanumeric entry in T9 type for patient ID and secondary ID.

Display

Display type: 4.3 inch (110 mm) diagonal, TFT LCD with LED graphics backlit (color optional)

Display resolution: 480 X 272 pixels with scrolling waveform

Display data: Heart rate, patient ID, clock, battery power indicator, waveforms, lead labels, speed, gain and

filter settings, warning messages, information messages, prompts. 12-leads standard display.

Writer

Writer technology: Thermal dot array

Writer speed: 5, 12.5, 25, & 50 mm/s

Number of traces: 3 leads + 1 rhythm or 3 leads; user selectable

Writer sensitivity/gain: 2.5, 5, 10, 20, 10/5 (split calibration) mm/mV

Writer speed accuracy: $\pm 5\%$

Writer amplitude accuracy: $\pm 5\%$

Writer resolution: Horizontal 40 dots/mm @ 25 mm/s, 8 dots/mm vertical

Paper type: Thermal. Z-fold perforated, 80 mm width, 280 sheets/pack. Roll paper 15.7 m.

Keyboard

Type: Type Membrane keyboard with tactile feedback

Software Standard

Resting ECG mode: Records and prints 12-lead resting ECGs with 10-second duration as a standard feature

Hookup Advisor™: Provides visual indication of signal quality

Multi-language support: Supports 16 languages

Software Options

Measurement: Supports measurement with Marquette 12SL ECG Analysis Program

Measurement and interpretation: Supports measurement and interpretation with Marquette 12SL ECG Analysis Program

Color: Color display

External storage: 200 ECGs in external memory (SD card)

Transmission: ECG data transmission via serial cable

XML format: ECG storage in XML format

PDF format: 1 ECG storage in PDF format

Communication (optional)

MUSE® Cardiology Information System Compatible

Serial cable: ECG transmission to MUSE Cardiology Information System

Serial cable: ECG transmission in XML format

SD card interface: Compatible with MUSE v7

CardioSoft™ Interface

SD card interface: Compatible with Cardiosoft V6.51 or above

Serial cable: ECG transmission over serial line to CardioSoft V6.61 or above

Storage (optional)

ECG storage format: GE storage format for MUSE and CardioSoft.

XML storage format. PDF storage format.

PDF file name format: User-configurable file name, which includes patient ID, secondary ID, date of birth, ECG recording date and time

Report Formats

Thermal printer report formats

4 by 2.5s

4 by 2.5s + 1 rhythm lead

4 by 3s

4 by 10s

Autorhythm (10-second ECG data for 3 leads)

Printing of 4 by 10s or Autorhythm for abnormal ECG

Continuous 3-channel rhythm

PDF report format

(A4 format):

4 by 2.5s

4 by 2.5s + 1 rhythm lead

2 by 5s

2 by 5s + 1 rhythm lead

2 by 5s @ 50mm/s

4 by 10s

Autorhythm (12-lead)

Accessories

IEC/AHA leadwire and electrode adaptor sets (user-selectable)

10-lead patient cable (user-selectable replaceable leads or fixed leads cables)

Electrodes (disposable or reusable, user-selectable)

Country-specific power cords

Z-fold and Roll paper

Electrode cream 250 ml/tube

Electrical

Power supply: External AC/DC adaptor or battery operation

External Adaptor Specifications

Input voltage: 100 to 240 VAC $\pm 10\%$

Input current: Maximum 0.6A @ 90 VAC, 0.3A @ 240 VAC

Input frequency: 50 to 60 Hz $\pm 3\text{Hz}$

Output voltage: 12V $\pm 5\%$

Battery Specifications

Battery type: Replaceable and rechargeable, Lithium Ion

Battery capacity:

7.2V typical, 2.25 AH $\pm 10\%$

360 minutes of continuous operation without recording or

250 ECGs in 2.5 X 4 format at 25 mm/S and 10 mm/mV or

100 minutes continuous rhythm print at 25 mm/S and 10 mm/mV.

Battery charge time: Approximately 3 hours from total discharge (with display off)

Physical Specification

Height: 81 mm

Width: 263 mm

Depth: 208 mm

Weight: 1.2 Kg including battery, without paper1ECG storage in PDF

Environmental Specification

Temperature

Operating 5°C to 40°C

Transport/storage: -15°C to 50°C

Humidity

Operating: 25% to 95% RH non-condensing

Transport/storage: 25% to 95% RH non-condensing

Pressure

Operating: 700 to 1060 hPA

Transport/storage: 500 to 1060 hPA

Certification

Class II, type CF defibrillator proof

UL 60601-1 Medical Electrical Equipment, part 1: General Requirements for Safety

CAN/CSA C22.2 No. 601.1 General Requirements for Safety

CE marking for Council Directive 93/42/EEC concerning medical devices

IEC 60601-1 General Requirements for Safety

IEC 60601-1-1 General Requirements for Safety Medical Electrical systems

IEC 60601-2-25 Particular Requirements for the Safety of Electrocardiographs

IEC 60601-2-51 Particular Requirements for Safety, including essential performance, of recording and analyzing single channel

and multi channel electrocardiographs

IEC 60601-1-2 General Requirements for Safety Electromagnetic Compatibility

IEC 60601-1-4 General Requirements for Safety – Programmable electrical medical systems

IEC 60601-1-6 General Requirements for basic safety and essential performance – Collateral Standard:

6. Spirometer (Vitalograph)

| | |
|-----------------------------|---|
| PC Operating System | Networked or Stand Alone Windows 7, 8, 8.1 |
| Size | 103mm x 185mm |
| Weight | 0.45Kg |
| Parameters | Selectable |
| Operating Temperature Range | 17 - 37°C Design Limits 10-40°C |
| Power Supply | From USB port, 9V battery for hygiene fan |
| Flow Detection Principle | Fleisch type pneumotachograph |
| Volume Detection | Flow integration sampling @ 100Hz |

| | |
|----------------------------------|--|
| | Volumes: Better than +/- 3% (Max 8L / Min 0L) |
| Accuracy when in Operating Range | Flows: Better than +/- 5% (Max 16L/s / Min 0.02L/s) Linearity: +/- 1% in range 0.1 L/s to 16 L/s |
| Max Test Duration | 45 seconds |
| Performance Standards | ATS/ERS 2005 & EN ISO 23747:2009 |
| Safety Standards | IEC 60601-1:2005 |
| Medical Safety Standard | Medical Devices Directive 93/42/EEC |
| Designed & Manufactured Under | ISO 13485:2003, FDA 21CFR820, CMDR |

7. Audio Meter

Outputs: Headphone (TDH39), Bone Conductor with head-band, insert, free-field
 Stimuli : Pure, pulsed or warbled
 Frequency Range : Air, FF : 125-8000Hz
 Bone : 250 – 6000Hz
 Masking signals : Contralateral, either speech noise or narrow band noise
 Channels : 2 separate channels for stimulus and masking
 Hearing range : Air, FF : -10 to 120 dB HL at 500 – 6000 HZ
 Bone : -10 to 70 dB HL at 500 – 4000HZ
 Speech input : microphone or CD/tape
 Special tests : SISI, Stenger, Auto-threshold, Auto-screening, user programmable
 Memory : 512 kB or more
 Data Communication : RS232 serial interface
 Software : Dedicated software for On-screen display of audiogram when connected
 to PC, and storage of Audiometry data for downloading to PC in DBF format
 Display : Alphanumeric LCD with backlight
 Printer : External, with generic driver
 Power supply : AC 50 Hz 220 V
 Safety norm : EN 60601-1, Class – I, Type B
 Weight : Less than 5 kg with standard accessories
 Dimensions : Less than 400x400x100mm (WxD,H)
 Accessories : Carrying case, manual, fuse kit, patient response switch
 Warranty : 2 years

8. Titmus Vision Tester

Micro Digital Membrane Control Electric Sensor, Fiber Optic Perimeter System and one set of 8 nos. Test Slides, Visionary Software, Glare Recovery, Horizontal & Vertical vision Peripheral vision, Night Vision Test, Elliptech Control Unit Head Sensor, Enlarge Viewing Lenses to accommodate Multifocal, ,Light Weight, Comfortable Head rest, Dark adaptation examination

9. Blood Analyser

It should measure Blood Gas (full parameters) in its addition to measure Electrolytes like Na⁺, K⁺, Cl⁻, pH, pO₂, pCO₂. and Haematocrit .
Calculated parameters: TCO₂, HCO₃, Base Excess A-aDO₂, Buffer Base etc.
Should display all results in print out. Should have input parameters of patient Temperature, Hemoglobin FIO₂, patient ID Etc. Should have a sample temperature control of 37 degree centigrade. It should have inbuilt printer.
Analysis time should not be more than 90 seconds. System should be based on liquid / gas calibration technology. System should not be a cartridge based system i.e. electrodes should not be in the cartridge system. Should work on whole blood and should have syringe and capillary sampling. Should be with numeric keypad, graphic / LCD display, and inbuilt printer and RS 232 port. Analyzer with memory of storing patient data/result minimum 250 or more.
System should be supplied complete with all standard accessories, electrodes & start up kits. Onboard life of reagents should not be less than one month. Power input: 220 VAC + 10%, 50 Hz and a suitable one hr. back up UPS should be supplied along with analyzer. There should be storage facility of data in case of power failure. Maintenance free electrode and the unit should be upgradeability for auto quality control. System should be ISI /CE marked or US FDA approved. Should submit certificate of relevant of IEC safety standards. Any other parts except reagents to be replaced free of cost during warranty period.

10.Cell Counter

1. Blood Cell 'Counter with Minimum 20 Parameter namely, WBC, HGB, RBC, PLT, HCT, MCV, RDW%, MPV, MCH% CHC% Ly%, Ly, Mid. MID%, Gran, RDW, PDW, PCT & LPLT with 3 part Differential.
2. Results displayed within 55 seconds (between 40 - 60 sec.).
3. Open Tube inlet with 125 ul as well as pre-dilute blood with 20 to 25 ul in to 5ml with Auto dispensing of reagent for dilution.
4. Facility of direct aspiration for capillary blood from finger prick.
5. Touch Screen for all functional operation.
6. Auto Loader for atleast 20 Vaccutainers.
7. No start up or shut down default program.
8. Choice of ID no. and or Sequential no.
9. Two Floating discriminator.
10. Dual Channel having two different measuring unit one for RBC and one for Platelet & WBC.
11. HGB By photometry.
12. Based on two-reagent system only.
13. Volumetric measurement crosschecked by time.
14. Facility of Histogram in pre-diluted samples.

15. Quality control program and sample memory of 250 samples with histogram without external software support.
16. Warning flag on pathological samples.
17. Size distribution curve (Graph) or PLT, RBC & WBC.
18. Platelet count in same dilution as RBC.
19. Automatic check for all size distribution curve.
20. Automatic HGB blanking for each sample.
21. Service free or maintenance free closed sample Turn Valve.
22. Statistical check for PLT, RBC, WBC parameter.
23. User programmable print bottom function giving more than 5 different print possibilities for user Selective print format.
24. Presence of STAT facility.

11. Phase Contrast Microscope

| | |
|---------------------------|--|
| Stand | Rigid & Heavy single mold aluminum die-cast stand. |
| Observation Head | BINOCULAR or TRINOCULAR head inclined at 45° and rotatable in 360° lockable at any angle. Both eyepiece tubes focusable to match objectives tube length. Interpupillary distance adjustments provided. |
| Eyepiece | KEOWA H6x and HKW 10x (Paired) & one centering telescope eyepiece. |
| Nosepiece | Quadruple ball bearing nosepiece with POSITIVE click stop & rubber grip. |
| Objectives | Achromatic objectives 4x/NA 0.10 Ph, 10x/NA 0.25 Ph, 40x/NA 0.65(SL) Ph and 100x/NA 1.25(SL, Oil imm) Ph. |
| Stage | MECHANICAL stage(Ball Bearing Type) of size 120x140mm having low positioned co-axial controls. Both X & Y axis having graduated scale & verniers reading to 0.1mm. |
| Focusing | Co-axial fine & coarse focusing control with ball bearing guideways based on four stage gear reduction system, free from any back lash & large knobs provide a soft & sophisticated touch to the microscope. |
| Tension Control Ring | Enable you to adjust tension on coarse focusing knobs. |
| Condenser | Focusable Abbe two lens type condenser NA 1.25 fitted with iris diaphragm and swing out filter holder with blue filter moving up and down through rack and pinion mechanism. |
| Phase Contrast Attachment | Phase Annular Rings built inside matching with annular Phase plates provided in a substage condenser having a turret to bring in position the required Phase Rings suitable |

| | |
|--------------|--|
| | for the particular objective which is in position. |
| Illumination | Built-in Base illumination with 6V-20W halogen lamp & intensity controlled power supply. |
| Electricals | Built-in transformer with universal input 100v-240v ac. |
| Warranty | <ul style="list-style-type: none"> • 2 Years parts. |
| Information | |

12. Colori Meter

| | |
|-----------------------|----------------------------|
| Test parameters | 90 preprogrammed methods |
| Display | LED |
| CE Compliance | |
| Wavelengths | 420, 520, 560, 610 nm |
| Output | USB |
| Waterproof | |
| Datalogging | 500 |
| Dimensions | 9 1/8" x 3 13/16" x 1 7/8" |
| Range (Absorbance) | 0 to 2 A |
| Power | four AA batteries included |