Notice Inviting e-Tender

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Supply & Commissioning of Medical equipment for setting up/augmentation of Critical Care Unit (CCU) / High Dependency Unit (HDU), Paediatric Intensive Care Unit (PICU), Neonatal Intensive Care Unit (NICU) facilities at COVID Hospitals of the State of West Bengal.
(Submission of Bid through *online*)

Bid Reference No.: WBMSCL /NIT- 208/2021	Dated –24.06.2021

The following amendment has been made in the tender document,

Amendment – I
(Page No.-3)

1. Tender Schedule Details

The quantity of BIPAP has been reduced is noted below

Sl. No.	ITEM	Total Qty	Warranty
2	Bi PAP	100	2 Year

Amendment – II
(Page No.-3)

4. Annual Turnover requirements: (E)

The Tenderers should have annual sales turnover (i.e. total turnover of the company) of minimum on an average of last three financial years (**2017-18**, **2018-19** & **2019-20**) as per the Audited Accounts of the Organization as mentioned in the table below:

Sl. No.	ITEM	Annual Turnover in Crore Rs.
1	Multi Channel Monitor	3 Crore
2	Bi PAP	
3	Defibrillator	
4	ABG Analyser	
5	ECG	
6	Portable X Ray	
7	USG with ECHO probe	
8	Bubble C PAP	
9	Syringe Pump	
10	Heated Humidifier for upgradation of PM CARES (for using it in HFO mode)	

Amendment – III
(Page No.-59)

Form 8: STATEMENT OF BREAKUP OF DUTIES AND TAXES

Form 8a:Applicable for Sl. 4 Blood Gas Analyser

Sl. No.	Item Description	Quantity (A)	BASE PRICE per unit excluding GST (Rs.) (B)	Total (C) = (A X B)
1	Basic Price of Blood Gas Analyser	1		
2	Cost per reportable test result	18000.000		
Total *(to be fed in the designated cell of the BoQ)				
Applicable GST @				.....%
Gross Price (including GST)				

Form 8b: Applicable for Sl. 8 Bubble CPAP

Sl. No.	Item Description	Quantity (A)	BASE PRICE per unit excluding GST (Rs.) (B)	Total (C) = (A X B)
1	Basic Price of Bubble CPAP	1		
2	Nasal Tubing	5		
3	Nasal Prongs of silicon in various sizes based on nares diameter & width of septum, for infant with bodyweight < 1 kg,	20		
4	Nasal Prongs of silicon in various sizes based on nares diameter & width of septum, for infant with body weight 1 kg to 1.5 kg	20		
5	Nasal Prongs of silicon in various sizes based on nares diameter & width of septum, for infant with body weight 1.5 kg to 2.5 kg.	20		
6	Infant Bonnets / Caps of different sizes to fit on head to hold nasal tubing & prongs	10		
7	Infant Nasal Masks small sizes	3		
8	Infant Nasal Masks medium size	4		
9	Infant Nasal Masks large size	3		
10	Canula fixation Pad	50		
Total *(to be fed in the designated cell of the BoQ)				
Applicable GST @				.....%
Gross Price (including GST)				

Form 8c: Applicable for Sl. 10 Temperature Controlled Humidifier

Sl. No.	Item Description	Quantity (A)	BASE PRICE per unit excluding GST (Rs.) (B)	Total (C) = (A X B)
1	Basic Price of Temperature Controlled Humidifier	1		
2	Compatible Single Limb Disposable Circuit with adaptor (Paediatric-20 L / Adult-60 L as	10		

	per need)			
3	Cannula (Preterm newborn / Term new born / Infant / Paediatric / Adult as per need)	10		
Total *(to be fed in the designated cell of the BoQ)				
Applicable GST @				.....%
Gross Price (including GST)				

Amendment – V
(Page No.-35 to 45)

TECHNICAL SPECIFICATIONS

Multi Channel Monitor

1. The monitor should have bright, highly visible minimum 10 inch LED screen colour display of minimum 800 X 600 line resolution for easy viewing from a distance.
2. Integrated modules for standard measurements with ECG, Heart Rate, Respiration Rate, SpO2, Arterial pressure, Central Venus pressure, Non Invasive blood pressure & Temp. SpO2 measurement (accuracy ±2%) with NELLCORE / MASHIMO or recognized equivalent technology. The bidder should supply original accessories from OEM.
3. Modules should be colour coded to avoid inserting wrong cables, leads.
4. The monitor shall be able to mount on the wall with a battery backup of minimum two hrs. as well as on bed side trolley.
5. Should have the capability to display at least five (05) real-time waveforms along with related numerical parameters on a single screen.
6. The size of the numeric and waveforms should be adjustable to become larger for viewing from very long distance.
7. The monitor should have the capability to be operated through knob/touch screen or both.
8. Should have 5 lead ECG facility.
9. Should have advanced multi – lead arrhythmia analysis capability.
10. The monitor should have configurable screen configurations for various monitoring settings like emergency, general monitoring, 5 lead screens etc.
11. Trends recording for 24 hrs.
12. The monitor should have the facility to connect to central nursing station.

13. The monitor must have audio & visual alarms for the vital parameter specifically covering the range for the neonates.

Standard Accessories should be supplied as standard:

- ECG/Respiration ECG lead: 02 nos.
- ECG electrodes for paediatric: 10 nos.
- ECG electrodes for Adult: 10 nos.
- NBP Disposable cuff neonates (size 1 and 2): 25 nos each
- NBP Reusable cuff infant: 02 no.
- NBP Reusable cuff paediatric: 02 no.
- NBP Reusable cuff Adult: 01 no.
- NBP Hose for reusable cuff: 01 no.
- SpO2 sensor for neonates flex wrap type: 05 nos.
- SpO2 sensor for paediatric jack type with restrain / Clip type: 05 nos
- SpO2 sensor for adults: 01 no.
- Reusable Temperature probe for neonate: 01 no.
- Reusable Temperature probe for paediatric: 01 no.
- Reusable Temperature probe for Adult: 01 no.
- Wall mount to be provided: 01 no.
- Saline pressure bag (500 ml) to maintain Arterial line: 05 nos.
- Arterial pressure transducer: 05 nos.
- Central Venus pressure transducer: 05 nos.
- Pressure transducer cable: 02 nos.

Standards & Safety:

i). The product should be US FDA or CE ("Conformite Europeene") from European Union notified body having 4 digit identification number approved (Certificate to be submitted) or BIS.

ii). It should have onsite service facility. The service provider should have necessary equipments recommended by the manufacturer to carryout preventive maintenance test as per guidelines provided in the service/ maintenance manual.

iii). Warranty for 2 years and 5 years CMC after warranty.

Bi-PAP Machine (with NIV Mask)

1. Modes of Operation:

1.1 Spontaneous
1.2 CPAP
1.3 BI-LEVEL
1.4 Variable (10-40 breath per minute) apnea backup
1.5 During changing from one mode to the other, the machine should not be switched off.

1.6 All its parts are to be considered as non-consumables and should be supplied free of cost during warranty and CMC

1.7 Should have facility for attachable/inbuilt temperature controlled Humidifier. The bidder should supply with attachable/inbuilt temperature controlled Humidifier with the equipment.

1.8 Ventilator circuit for paediatric -05 nos.; The Paediatric circuit should come with inbuilt heated wire

1.9 Nasal mask for infants, Full Face Mask for paediatric and adult - 05 nos. each; full face mask and nasal mask should have adequate cushion to avoid facial injury.

2. Product Feature:

2.1 Simplified standard setting menu

2.2 Automatic Leak management

2.3 Automatic / Adjustable Breath trigger / cycle

2.4 Noiseless flow generator of less than 30Db

3. Technical Specification:

3.1 Performance:

3.1.1 Operating pressure range: 4 to 25 cm H_2O

3.1.2 Maximum single fault pressure: 40 cm H_2O

3.2 Dynamic pressure characteristics:

3.2.1 S mode: IPAP: 4 to 40 cm H_2O ; EPAP: 2 to 25 cm H_2O

3.2.2 CPAP mode: 2 to 20 cm H_2O

3.2.3 S/TD mode (with back up breath and also Ti)

3.3 Sound pressure level:

3.3.1 < 30 dB with certification

3.4 Display:

3.4.1 Leak

3.4.2 Pressure

3.4.2.1 IPAP

3.4.2.2 EPAP

3.4.3 Respiratory Rate

3.4.4 Minute / Tidal Volume

3.5 Power Supply:

3.5.1 220 – 240 V AC, 50 – 60 Hz

3.5.2 Inbuilt Battery Back-up minimum 1 hour when heated wire is not in use

3.6 Environmental condition:

3.6.1 Operating Temperature – 5 – 40^0C

3.6.2 Humidity – 10 – 95%

3.7 Air Filter:

3.7.1 Washable air filter

3.7.2 Filter to be changed whenever needed without disturbance to compressor

3.8 Electromagnetic Compatibility:

3.8.1 Shall meet IEC – 60601 – 1 – 2:2001 (or equivalent BIS) general requirements of safety for electromagnetic compatibility

3.9 It should be US FDA or CE ("Conformite Europeene") from European Union notified body having 4 digit identification number approved or BIS (Certificate to be submitted).

3.10 Warranty for 2 years and CMC for 5 years.

Note: Supplier should arrange for stand by machine in case the equipment is taken to the service centre for repair and calibration.

Defibrillator with Monitor

1. Biphasic, Manual and AED with voice prompt, compact and light weight
2. Energy selection 2J to 200J in steps
3. Momentary energy selection access on frontal panel
4. Should have adult and pediatric paddles integrated on same handle
5. Momentary charge key on front panel and on the apex hand
6. Monitor 5" or more should display selected and delivered energy
7. Should have disarm facility
8. Energy should be delivered within (30-60) ms after the detected R wave in synchronization mode
9. Charging time maximum 6 sec for 200J
10. Should have battery backup (3 to 4 hrs) for 50 discharges of 200J
11. Should have ECG inputs through paddles or 3 lead cables
12. Should have display for selected ECG input source (I, II, III paddles)
13. Lead off message should appear with alert tone
14. Amplitude gain of ECG waveform should be adjustable
15. Should have display for heart rate
16. Should have alarm for high and low HR
17. Should have an inbuilt thermal recorder-paper size 50/60 mm, paper speed 25 mm/sec
18. Should have enable / disable option for printer
19. Should supply 2 bottle of jelly, 12 roll of thermal paper
20. Should supply 3 (three) pairs of AED pads
21. Should operate on mains 230 V, 50 Hz
22. External pacing facility with 6 (six) pairs of lead
23. Environmental Factors:
    - 23.1. The unit shall be capable of being stored continuously in ambient temperature of 10 – 40^0C & Relative Humidity of 15 – 90%
    - 23.2. Shall meet IEC – 60601 – 1 – 2:2001 (or Equivalent BIS) general requirements of safety for electromagnetic compatibility

23.3. Shall be capable of operating continuously in ambient temperature of 10 – 40^{0}C and Relative Humidity of 15 – 90%

24. Power Back-up:

24.1. Power input: 220 – 240V / 50Hz Single phase or 380 – 400V AC 50 Hz three phase fitted with appropriated Indian plugs and sockets

Standards and Safety :

i). It should be US FDA or CE ("Conformite Europeene") from European Union notified body having 4 digit identification number approved or BIS (Certificate to be submitted).

ii). Electrical safety conforms to standards for electrical safety IEC – 60601 / IS – 13450

iii). Manufacturer should have ISO certification for quality standards

iv). It should **have onsite service facility.** The service provider should have necessary equipments recommended by the manufacturer to carryout preventive maintenance test as per guidelines provided in the service/ maintenance manual.

v). Warranty for 2 years and 5 years CMC after warranty.

Blood Gas Analyser

1) **MEASURED PARAMETERS:** pH, PO_2, PCO_2, Hb, Hct, Na, K, Ca, Cl, Bilirubin & Lactate.
2) **CALCULATED PARAMETERS:** Total CO_2 or TCO_2, HCO_3 (Standard), Base Exc, Base ECF, D (A-a) O2, Total Buffer Base.
3) Should work on whole blood and should be suitable to work with less volume of neonatal and paediatric whole blood sample via auto aspiration.
4) System should be cartridge based / conventional liquid reagent based.
5) Should have a sample temperature control of 37 ^{0}C.
6) Analysis time should not be more than 90 to 120 seconds.
7) It should have inbuilt / integrated printer. The equipment and the printer should also be physically integrated.
8) Should display all results in print out.
9) Should have input parameters of patient Temperature, Haemoglobin, Hct, FiO_2, patient ID etc.
10) Capable to work both syringe and capillary samples (sample volume ≤100 micro litre)
11) Should have numeric / touch keypad, LCD display and printer.
12) Analyser with memory of 200 tests.
13) System should be supplied complete with all standard accessories and start up kits.
14) External calibration during Preventive Maintenance Service (PMS) is mandatory by the supplier.
15) Cost per test calculated on the suitable pack size considering the number of tests per day mentioned in the table below will be considered during financial evaluation. Expected

consumption in 5 years of the different cassettes covering all the parameters of tests is detailed in the table below:

Parameter	Indicative Usage per month (nos. of test)
pH, PO_2, PCO_2, Hb, Hct, Na, K, Ca, Cl, Bilirubin & Lactate	300

16) Required no of cartridge / reagent for 300 tests should be supplied free of cost with each machine.
17) Warranty should be covered for 2 years and 5 years CMC after warranty.
18) Warranty should include everything required for operation of equipment except cartridge / reagent.

The rate of consumables for Blood Gas Analyser shall be fixed for 3 years. After completion of 3 years price of the Consumables may be increased commensurate with the applicable Cost inflation index (CII) as per CBDT or decrease as per prevailing market price at that point of time.

Standards and Safety :

i). It should be US FDA or CE IVD or BIS approved (Certificate to be submitted).
ii). It should **have onsite service facility.** The service provider should have necessary equipments recommended by the manufacturer to carryout preventive maintenance test as per guidelines provided in the service/ maintenance manual.

ECG Machine

Parameter/Feature	Threshold Limit/Range
ECG Waveform	12 or more
ECG Waveform printout on paper	12 or more
Paper Size	A4/A5
Paper Speed in mm/s	5, 10, 12.5, 25, 50
Amplitude (mV)	5,10
Frequency Response in Hz	(0.05 -150) or better
Display size (inch)	5 or more
Memory for patient data	350 or more
CMRR in db	100 or more
Parameter/Feature	**Yes/No**
Visual alarm & Audible alarm for open lead	
Digital display of 12 channel ECG	
Alphanumeric keyboard	
Built-in ECG Parameters measurements and Interpretation	
Operating modes & Print mode: Automatic, Manual and Rhythm	
Maintenance free digital thermal printer	
Printer should work with standard thermal paper (should be available in Local Market)	

ECG lead attachment (limb lead and chest lead for adult and infant)	
12 lead ECG preview display before taking printouts and should have printer on/off selection.	
Sufficient battery backup for taking at least 50 nos. ECG on a fully charged battery	
Operate on mains(220v-50Hz) and rechargeable battery	
Defibrillation protection facility	
Digital filter for AC, muscle, drift, baseline & Low pass filter.	
Pen Drive / SD card / LAN / Wi Fi Facility to take patient data from ECG Machine	
US FDA or CE ("Conformite Europeene") from European Union notified body having 4 digit identification number approved (Certificate to be submitted) or BIS.	
Warranty for 2 years and 5 years CMC after warranty	
It should have onsite service facility. The service provider should have necessary equipments recommended by the manufacturer to carryout preventive maintenance test as per guidelines provided in the service/ maintenance manual.	

X-RAY Machine

PARAMETER/FEATURE	THRESHOLD LIMIT/ RANGE
Generator	
Frequency in KHZ	100 or more
Output in KW	4 or more
KV range	40 to100
mA range	upto 100
mAs	200 or more
X-ray tube	
Anode focal spot size in mm	2.8 ×2.8 or less
Operating voltage range in Volt	190-240
Current in Amp	15
MUST HAVE SPECIFICATION	
PARAMETER/ FEATURE	**YES/ NO**
Operational Requirements	
Compact, lightweight, easily transportable, mobile unit	
Effective Braking system for parking and transport	
Spring balanced tube stand	
Tube head rotate in all direction	
High frequency (not biphasic)	
Digital display of KV& mAs	
Exposure with remote controlled hand switch	

(Wired or Remote)	
Generator	
Microprocessor controlled	
X Ray tube	
Stationary Anode	
Manual collimator	
LED for visualization of Radiation field	
Auto shut off facility for Collimator	
Run on Single phase	
Accessories	
Lead Jacket-04 NOS.	
Lead Gogles-01 NOS.	
Thyroid Guard-02 NOS.	
Lead Hanger-01 NOS.	
Quality Standards & Safety Certification	
ISO	
AERB type approval	
European CE/ BIS	

Neonatal Ultrasound with Multimodality Probe

a) System shall provide all digit broadband technology using all digit time delay circuits, implemented using ASICs. There shall be no analog delay line components employed in the construction of beam former.

b) System should have minimum 15 lakh digitally processed channels for simultaneous formation, acquisition and delay processing of multiple ultrasound beams.

c) The system must use a full frequency spectrum Compounding Technique where by a broad/ wide band width of digital signal are broken down into multiple sub - bands and processed in parallel before "fused " into a single image to reduce speckle noise and optimize tissue contrast , while retaining spatial and contrast resolution.

d) System should have 2D, M-Mode, color Flow , PW, CW, steerable CW and Directional Color power Angio Facility, one button optimization for 2D and Doppler modes, Auto Doppler calculation taking the entire sample acquired.

e) System should have minimum 1400 frames per second.

f) The system should be capable of supporting the Extreme Resolution adaptive image processing technique that performs analysis at the pixel level.

g) The System should support broadband multi frequency Phased and Linear Array and convex Array transducer technologies. Frequency processing facility for this transducer(s) should be 2-15 MHz. This should be available without the need of frequency switching.

h) Side pot TGC & gain optimization in the lateral walls with pre-defined curves.

i) Triplex Imaging

j) 21″ High Resolution non – interlaced LED/LCD monitor with articulating arm & tilt & swivel facility.

k) System should have minimum scanning depth of 30 cm.

l) System should at least 250 dB full times input dynamic range.

m) System should have cine loop image review up to 1000 frames.

n) System should provide a technique that automatically maintains optimal angle to flow and assists in delivering accurate and consistent Doppler velocity measurements.

o) System should be a new generation ergonomically designed to curb minimum injury to the sonographer/Physician with keyboard platform rotatable (optional) and moveable (up/down) [(optional)]

p) Tissue harmonic imaging and Tissue Doppler imaging

q) The system should have zoom facility.

r) Simultaneous real time display Angio/Color Doppler and Gray scale images side by side.

s) System should support Tissue Harmonic Imaging facility in phased Array (separate probe for infants and adults), Convex Array, Linear Array.

t) Linear Array should have extended field of view on side of the linear array.

u) System should have minimum 4 active transducer connectors/ports.

v) System should have more than 500 GB hard drive.

w) On board Image Management – should have facility to direct digital storage of single B/W and color loops to internal hard disk and compact disk and print patient reports with the help of ink based colour printer. Bidder should supply a colour ink jet printer with the equipment.

x) Should be US FDA or European CE approved product.

y) Fully function measurement facility and calculation should be possible.

z) Following Transducer to be quoted as standard:

i) 3 MHz-5 MHz curved Array Transducer
ii) 5 MHz-10 MHz linear Transducer. (foot print of 35 mm or less)
iii) Small footprint (20 mm or less) of phased array for neonatal head ultrasound and ECHO (4 MHz – 12 MHz)
iv) Adult Echo Probe – 2-4 MHz
v) Warranty for 2 years for entire unit including all probes

vi) CMC for 5 years for entire sunit including all probes

aa) Should have provision for Direct PC transfer

bb) Should supply with inbuilt battery backup of minimum 30 min

cc) External online UPS (of the whole system) backup of minimum 30 minutes.

dd) Unit should be DICOM compatible.

C - PAP machine

Bubble C - PAP System with combined effects of C - PAP and pressure oscillations from the bubbles provides a lung protective, safe and effective method of respiratory support to spontaneously breathing patients, by reducing mechanical ventilation. By its non-invasive technique & application, it avoids the need for intubation.

For better Lung Development by supporting in maintaining FRC, reduce WOB, reduce incidence of CLD & improves non-pulmonary outcomes in neonates & paediatrics.

1. Servo controlled humidifier base with digital temperature display with audio visual alarms for conditions like high & low temperature, humidity & disconnection and / more. Provided approved by US FDA or European CE. Should also carry a certificate of use from reputed Govt. institution in Neonatology unit.
2. Reusable Humidifier Chamber with constant compressible volume to maintain CPAP pressure should be the part of the system.
3. User friendly Breathing Circuit with heater wire technology to provide proper humidification, at least 1 reusable sets and at least 4 disposables with each machine. Reusable circuit should contain – a) Heated wire, b) Temperature probe, c) Air way probe d) chamber probe and necessary connector.
4. C - PAP generator with adjustable C - PAP upto 10cm H_2O with generation of bubbles.
5. Safety provision for maximum pressure limiting in case of occlusions.
6. Facility for flow (0.5 – 15) lpm monitoring & port for monitoring FiO_2.
7. Non-invasive Interface should include:
   a) Nasal Tubing to hold the nasal prongs, five numbers should be the part of the system.
   b) Nasal Prongs of silicon in various sizes based on nares diameter & width of septum, system should come with at least 20 numbers for infant with bodyweight < 1 kg, 20 numbers for infant with body weight 1 kg to 1.5 kg, 20 numbers for infant with body weight 1.5 kg to 2.5 kg.
   c) Infant Bonnets / Caps of different sizes to fit on head to hold nasal tubing & prongs, 10 numbers of different sizes should be the part of system.

d) Infant Nasal Masks of 3 numbers of small sizes, 4 numbers of medium size and 3 numbers of large size.

8. Provision to deliver gas with selectable FiO_2 (21% – 100 %)
9. Unit should be supplied with mobile pole with castors, mounting brackets & IV hook
10. Unit should be supplied with proper demonstration & setup guides
11. Unit should be compliant with International Safety Regulation & Certification
12. Should have one blender with flow meter of (0.5 – 15) lpm.

e) Should have facility for high flow nasal canula with at least 10 numbers for infant with bodyweight < 1 kg, 10 numbers for infant with body weight 1 kg to 1.5 kg, 10 numbers for infant with body weight 1.5 kg to 2.5 kg.

f) Canula fixation pad – 50

g) The machine should have necessary adaptors for attachment of High flow nasal canula with the circuit.

13. Power supply

a) Power input to be (220 – 240) VAC, 50Hz

b) Resettable over current breaker shall be fitted for protection

14. Standards, Safety and Training

a) Should be US FDA or CE ("Conformite Europeene") from European Union notified body having 4 digit identification number approved product.

b) Demonstration of quoted equipment model is a must.

c) Should have local service facility. The service provider should have the necessary equipments recommended by the manufacturer to carry out preventive maintenance test as per guidelines provided in the service / maintenance manual

d) Warranty for 2 years and provision of Comprehensive Maintenance Contract (CMC) for next 5 years; Warranty and CMC should cover C-PAP machine, Humidifier, Blender and Compressor.

e) Back to back warranty to be taken by the supplier from the principal to supply spares for a minimum period 10 years

15. Documentation

a) Certificate of calibration and inspection from factory

b) List of Equipment available for providing calibration and routine maintenance support as per manufacturer documentation in service / technical manual.

c) User manual in English

d) Service manual in English

e) Log book with instructions for daily, weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out.

f) List of important spare parts and accessories with their part number and costing

g) Compliance Report to be submitted in a tabulated and point wise manner clearly mentioning the page / para number of original catalogue / data sheet. Any point, if not substantiated with authenticated catalogue / manual, will not be considered

h) Must submit user list and performance report within last 5 years from major hospitals.

16. Medical Air Compressor specifications:
    1. Stand alone Medical Air compressor
    2. An oil free Medical air compressor
    3. Medical Air Compressor should automatically activate in the event of wall air supply loss.
    4. Replacement of internal filters should be performed without removing the compressor
    5. Should have washable air filter
    6. US FDA or CE ("Conformite Europeene") from European Union notified body having 4 digit identification number approved.

Syringe Pump

1. Microprocessor controlled pump capable of propulsion of fluids accurately.
2. Syringe compatibility: The pump should work with different brands of syringes and is able to accept syringes with volumes of 5 ml – 50 ml.
3. There should be automatic detection of syringe size.
4. It should be equipped for detecting correct fixing of syringe.
5. Flow rate should be adjustable from 0.1 ml/hr to 1000 ml/hr.
6. Flow rate should be adjustable in increments of 0.1 ml/hr.
7. Flow rate adjustment should not involve stopping of the existing infusion rate.
8. The accuracy of flow rate should be ± 2%.
9. The flow rate should be displayed in ml/ hr. Delivery rate can be calculated automatically by pre-setting of volume & time. It should also accept values in mg/ hr, µg/ hr, mg/ kg/ hr etc.
10. It should be able to deliver bolus dose in automatic/ manual mode.
11. Pump should have commonly used drugs library of 40 or more.
12. It should work on 200 – 240 VAC, 50 Hz source and in-built rechargeable battery.
13. Internal battery life should be minimum of 6 hrs when fully charged.
14. Pump should have LED/ LCD display.
15. The following audio and visual alarms should be incorporated:
    i. Main changeover to battery indication
    ii. Alarm for occlusion volume of less than 0.5 ml
    iii. Near empty syringe
    iv. Low battery
    v. Standby visual alarm
16. There should be a method of automatic bolus volume reduction after occlusion release.
17. There should be provision for setting of occlusion pressure alarm at 150 mm of Hg or lower.
18. The pump should be waterproof / water resistance so that fluid should not enter inside the pump in case of accidental spillage.
19. The syringe pumps should be capable of standalone functioning as well as being fixed on a frame/platform/stand.
20. Power cord should be supplied with 3 meters in length.

21. Cost of all accessories and spares including the cost of rechargeable battery should be mentioned in form 9 (a) & 9 (b) separately.

22. **Standards, Safety and Training**

i). It should be US FDA or CE ("Conformite Europeene") from European Union notified body having 4 digit identification number approved or BIS (Certificate to be submitted).

ii). It should **have onsite service facility.** The service provider should have necessary equipments recommended by the manufacturer to carryout preventive maintenance test as per guidelines provided in the service/maintenance manual.

iii). Warranty for 2 years and 5 years CMC after warranty.

Temperature Controlled Humidifier with Accessories

1) Should preferably be built in heated wire adaptor/base.
2) Should have at least 3 temperature settings-low, medium, high preferably with led indicator.
3) Temperature range should preferably between (29-37) degree Celsius.
4) Should be able to deliver a constant flow up to 60l/min.
5) Should be used for non invasive ventilation, invasive ventilation and high flow nasal oxygen therapy.
6) Should preferably have ambient temperature sensing for control of condensation.
7) Preferable alarms for overheating, water level, inclination.
8) Warm up time should be less than 30 minutes.
9) Preferable humidity level 20-35mm H2O/l.
10) Supply voltage 220 - 240 V.
11) Supply frequency 50 - 60 Hz.
12) **Consumable:** Bidders should supply the following consumables with each unit of Heated Humidifier:
    i) compatible Single Limb Disposable Circuit with adaptor [Paediatric-20 L (6 nos.) / Adult-60 L (4 nos.) as per need] - 10 nos
    ii) Cannula (Infant-3/ Paediatric-4 / Adult-4 as per need) - 10 nos

The consumables should be compatible with the offered Humidifier and the Ventilator which are proposed to be upgraded;

Bidders should quote breakup of rates for each items such as Humidifier in Form - 8 for the consumables separately in the BOQ and the selected bidder should supply the same as per supply order / requirement.

13) **Standards & Safety:**

iv). The product should be US FDA or CE ("Conformite Europeene") from European Union notified body having 4 digit identification number approved or BIS (Certificate to be submitted).

v). It should have onsite service facility. The service provider should have necessary equipment recommended by the manufacturer to carryout preventive maintenance test as per guidelines provided in the service/ maintenance manual.

vi). Warranty for 2 years and 5 years CMC after warranty.

N.B. It should **have onsite service facility.** The service provider should have necessary equipments recommended by the manufacturer to carryout preventive maintenance test as per guidelines provided in the service/ maintenance manual.

Amendment – VI

(Page No.-63)

Form: 12

Sl. No.	ITEM	QTY	Available in ready stock and which can be delivered within 7 days	Quantity which can be delivered within next 7 days	Remarks, if any
2	Bi PAP	100			