***Annexure – I***

***IVFC Gandhi Inspection Tender Specifications***

1. **DICOM compatible fully digital, compact portable Colour Doppler Ultrasound Scan machine.**
   1. System should be operated for general purpose ultrasound scanner and colour Doppler for Pediatric, Abdomen, OB/GYN, Vascular, Cardiac and small parts, Musculoskeletal uses.
   2. Unit should be of USFDA and European CE approved.
   3. Latest generation Electronic Phased array Colour Doppler system with Minimum 1,00,000 or more Electronic independent channels. System should be DICOM ready and capable of being interfaced with HIS/RIS/PACS.
   4. Should be field upgradable to next generation system on site. All new software should be upgraded free of cost during warranty and CMC period.
   5. Specifications

* 256 grey shades for sharp contrast resolutions
* Harmonic Imaging- System should have following modes in harmonic with separate setting for:
* Tissue Harmonic or equivalent
* Harmonic imaging / Equivalent Technology capability in Convex, Linear, Endocavity and Adult Cardiac.
  1. Gain control in 2D/M Mode/Colour/Doppler with auto adjustment for additional level of flexibility to image quality control.
  2. Real time high frequency 2D for higher resolution and low frequency Doppler for higher sensitivity in all probes
  3. Frame rate should be 600 or more
  4. Frequency processing facility for the transducer is 1.0-13.0 MHz +/- 1 MHz.
  5. Speckle reduction imaging should be available and it should be user configurable setting to obtain better image without reduction in frame rate.
  6. Steerable PW/CW in all Phased Array probes.
  7. High-definition acoustic zoom for enlarging sections of 2D and Colour flow images with more acoustic information for greater clarity and detail while maintaining an optimal frame rate.
  8. Modes –2D, M-Mode, Steerable PW/CW Doppler, Colour Doppler, and High Definition Colour flow.
  9. Monitor should be atleast 17” high-resolution colour Monitor.
  10. Tilt and Swivel monitor should be able to view in all angles and all light conditions.
  11. Colour Flow Imaging for
  12. Increased lateral & spatial resolution.
  13. Selection of different types of colour maps are required
  14. Colour flow with capability of automatically picking up colour flow as a function of focal depth
  15. Cine loop memory should be available, specify the memory available
  16. High Frame rate review for better clarity of playback images study in slow motion.
  17. Quad loop with memory for pre and post image comparison.
  18. Simultaneous display of both live B-Mode and 2D with Color should be possible.
  19. Speckle reduction imaging user configurable should be possible
  20. Multiline compounding imaging on convex and linear imaging
  21. Trapezoidal or panoramic imaging should be possible
  22. User defined system and application presets for multi-user department.
  23. Inbuilt/ External CD/DVD and PEN drive for image storage, archiving and retrieval for offline complete analysis. .
  24. System should have facility for cardiac studies like Tissue Doppler imaging, B Mode , M mode ,Cardiac Measurements for Echo Cardiography.
  25. Transducer ports - Three or more Application software for abdomen, OBG, Vascular, Cardiac Adult and Pediatric applications. All application packages should be built into the system.
  26. System should be field upgradable to Real time 3D/4D applications for abdomen and fetal anatomical study.
  27. Digital Storage and Retrieval – 01
  28. Colour Doppler System with all application packages and probes should be supplied as mentioned below as standard.

a. Broadband Convex probe 2.0-6.0 MHz +/- 1 MHz for abdomen and OBG applications - 01 No.

b. Broadband Endocavity probe 3.0-9.0 MHz +/- 1 MHz with more than 120 Degree FOV or more- 02 Nos.

* 1. Accessories as standard :

1. Sony Thermal Printer – 01

2. Latest desktop computer with at least I5 configuration.

* 1. GENERAL INSTRUCITONS TO VENDORS:
* All information in the tender document must be supported in the product data sheet.
* Compliance statement sheet must quote page number/s as it appears in the product data sheet enclosed the vendor.
* Supplier should be able to demonstrate its quoted model when and where required along with quality control programme for system performance.
* Supplier must attach the list of installation in leading Diagnostics centres hospitals or in institutions inside India (at least 100).
* System should be ISO, CE & FDA certified.

1. **Multipurpose electro hydraulic with manual override mobile Table with divided leg section suitable for all Gynaecological surgical procedures, complete with 5cm mattress and corded handset.**
   1. Should be a Electro Mechanical controlled operating table, working range from floor level: 640-1040mm
   2. Should be adjustable to all essential positions.
   3. Should be equipped with movement controls at side of the table. Should provide wired remote control handset.
   4. Should have Frame and bottom made of Stainless Steel 304 material.
   5. Should have reinforced three section stainless steel top/radiolucent top.
   6. All movements should be adjustable easily. There should be an internal battery backup in the table with auto charging cut off, with batten- charge level indicator.
   7. Should have detachable head rest which can be easily adjustable to any desired position, above or below table top.
   8. Table top can be rotated 360° through base, Trendelenburg: ≥25°-30°, Reversed Trendelenburg: ≥30°
   9. Head Section tilting up from the Horizontal: ≥20°-30°, Head Section tilting down from the Horizontal: ≥28°-30°
   10. Back Section Raised from the Horizontal: ≥60°-70 °
   11. Leg Section Lowered from the Horizontal: ≥40°-50°
   12. Kidney Position should be achievable by breaking the table.
   13. Table-top should be radio-lucent.
   14. User's interface: Automatic by remote control.
   15. Physical Characteristics

* Dimensions (metric): Table top dimension (1900 mm x 525 mm) ± 15% Table elevation: (640mm -1040 mm) ± 10%
* Weight (lbs, kg) : Should be able to bear patient having weight upto 160 kg
* Heat dissipation: Should maintain nominal temp and the heat should be disbursed through an cooling mechanism
* Energy Source: Protection: Should have over charging cut off,
* Accessories, Spare Parts, Consumables

1. S. S. Arm Rest 1 No
2. Anaesthetic Screen 1 No.
3. Lithotomy Leg Holders with Stirr-Ups 1 Set
4. Leather Wristlets 1 Set
5. Padded Leg Rest (Gutter Type)-2 nos
6. Anti-static mattress-2 nos
7. Additional Poly-urathrene mattress 50mm thick with velcro attchment.
   1. Environmental And Departmental Considerations

* Atmosphere / Ambiance conditioning, humidity, dust ...)
* Operating condition : Capable of operating continuously in ambient temperature of 10 to 40 deg c and relative humidity of 15 to 90% in ideal circumstances

Storage condition : capable of being stored continuously in ambient temperature of 0

to 50 deg C and relative humidity of 15 to 90%

* User’s care, Cleaning, Disinfection & Sterility issues

1.Parts of the device that are designed to come into contact with the patient or the operator should either be capable of easy disinfection or be protected by a single use / disposable cover.

2. Sterilization not required.

* 1. Standards And Safety
* Certificates : FDA(US) /CE(EU) and BIS/ CDSCO /ISO 13485:2003; IEC 60601-1
  1. Pre-installation requirements nature, values, quality, tolerance
  2. Availability of 5amp socket
  3. Safety and operation check before handover
  4. Requirements for sign-off: Certificate of calibration and inspection from the manufacturer
  5. Additional Points
* Remote control for all the movements
* Battery backup for 50-60 movements

1. **LED Procedure Lights**
   1. Double dome
   2. Main dome: 1,60,000 lux , second dome 1,60,000 lux for Uniform intensity and

Deeper depth penetration.

* 1. Height adjustments : 600mm
  2. Action radius : 1850 mm
  3. Possible movements : Radial , Angular & Axial
  4. Colour temperature : 4500k and above
  5. LED technology minimum 40,000 hours lamp life. The control panel must have

a built in digital hour counter to show the number of hours the light has worked.

* 1. Intensity, brightness, contrast and power switch to be made available on handle

/ wall check

* 1. Focal distance (d1+d2) =0.8 to 1.2m
  2. Temperature rise on the keep of surgeries to be less than 1 degree
  3. CR +- approx 95 or more
  4. 360 degree rotation for both arms
  5. User’s interface: Manual
  6. Physical Characteristics
  7. Heat dissipation: Should maintain nominal temperature and the heat should be disbursed through an cooling mechanism
  8. Energy Source (electricity, UPS, solar, gas, water, CO2 ....)
  9. Power Requirements: Recharging unit : Input voltage – 220V-240V AC, 50Hz
  10. Battery operated: 6-8 hours of inbuilt battery back up.
  11. Tolerance (to variations, shutdowns) : Voltage +10% , frequency +2%
  12. Protection: Should have over charging cut off with visual symbol.
  13. Environmental And Departmental Considerations
  14. Atmosphere / Ambiance conditioning, humidity, dust ...)
  15. Operating condition : Capable of operating continuously in ambient temperature of 10 to 40 deg c and relative humidity of 15 to 90% in ideal circumstances
  16. Storage condition : capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%
  17. User’s care, Cleaning, Disinfection & Sterility issues
  18. 1.Parts of the device that are designed to come into contact with the patient or the operator should either be capable of easy disinfection or be protected by a single use / disposable cover.
  19. 2. Autoclavable Handle should be provided by bidder 4 Pieces.
  20. Standards And Safety

1. **IVF Work station with Laminar Airflow**
   1. 6 x 2 Feet IVF Workstation where both user and product are protected

against particle and microbial contamination. IVF workstation should have

provision for 2 stereo

microscopes, one on left and 1 on right

* 1. Camera Set, which includes Camera, TV tuner Card, Cables and Connect

providing Stereozoom Microscope due to Compatibility.

* 1. Surgical Stainless Steel Heated work surface between 2mm-3m.
  2. Electrical adjusted front glass window
  3. 80-100mm heated glass stage to minimize temperature fluctuations in the

media with temperature accuracy ± 0.1°C

* 1. Light source preferred is LED
  2. Noise level between 48-52dBA
  3. Programmable auto-start and shut-down functions of all built in features,

including air flow

* 1. The IVF workstation should have main filters which are high-efficiency HEPA

filter class (H14). The filter should system consists of two HEPA filters

* 1. Built in 21 inch minimal Medical grade LCD Monitor
  2. Microscope Fittings with Heating Stage Warmer with Microprocessor based

Temperature controller

* 1. Warming blocks should be part of package
  2. Should be constructed in high density steel
  3. Should be USFDA/European CE certified - 220V/50-60Hz

1. **Bench Top Incubator for Human Embryo Culture (Tri gas Bench Top Incubator for Human Embryo**
   1. Compact, humidified Pre-Mixed/ TRI-gas incubator designed to maintain

optimal environment for development of ova or embryos.

* 1. Has two or more chambers to hold dishes, dishes per chamber minimum 4.
  2. The dual chambers have individual temperature control. Heating of both base

and lid ensures even distribution of heat.

* 1. Direct contact of base with each culture dish ensures heat transfer by

Conduction resulting in thermal stability.

* 1. Automatic gas purge on lid closure to maintain gas environment.
  2. In built humification system.
  3. Uses pre-mix Gas & Several units can be connected to one source of Supply.
  4. 24 hour digital recording of temperature and gas flow.
  5. Time-stamped alarm notifications include description of event.
  6. Battery backup - For day 1 - day 5 Culturing
  7. Gas Supply: High Purity CO2/O2/N2 mixture. Nominal input pressure

150kPa.

* 1. Power: Universal Input 100-240 V AC, 50/60 Hz.
  2. Safety : Designed to conform with AS3200.1 1990, IEC60601.1 and

IEC61010.1

* 1. Two Stage Regulator
  2. Product should be approved from USFDA/European CE certified.

1. **Trinocular Stereozoom Microscope**
   1. Microscope body with 5x-500x magnification, and 45 degrees inclination

trinocular tube (C- mount)

* 1. Eyepiece 10X with ESD capability, F.N. 22, focusable
  2. Focussing mount with coaxial coarse and fine focussing knobs
  3. Power Cord
  4. Should be integrated into IVF Workstation Dust Cover`
  5. Beam sp,litter for trinocular port
  6. Eyepiece 10x, FN 22
  7. C-mount adapter to be included
  8. Trinocular observation tube with inclination at 30 degree, inter pupillary

distance adjustment 48mm -76mm.

* 1. Working Distance Up to 92 mm
  2. Plane achromatic objective 1X Resolution of at least 600lp/mm.
  3. Transmitted light stage with halogen illuminator of at least 30 watt.
  4. Scientific Digital Camera for microscopy with control software, progressive

scan CMOS/CCD having resolution of 5 M-pixel or better

* 1. Coaxial course and fine focusing knob mechanism should be built in

1. **ICSI Micromanipulator System with Inverted Microscope**
   1. Latest Inverted microscope
   2. 3 position light path
   3. Prism preinstalled
   4. Illumination equipped with condenser holder
   5. LED Lamphouse
   6. Sextuple Nosepiece is included.
   7. Binocular Tube Widefield eyepiece 10X, focusable.
   8. Enough travelling range applied for slide glass, 35 mm dish as well as

multiwell plate, circle stage inserts included.

* 1. Sample holder for slide glass, 35 mm dish, multiwell plate as option. Stage

stopper function is implemented for time-lapse or operation on stage.

* 1. Long working distance condenser for DIC/RC/NAMC observation
  2. Mechanical or manual or electrical micromanipulator
  3. Digital display of 3D fine control from single level
  4. Heating system of insert should be such that it should avoid cold spots
  5. 1 x Oil Injector
  6. 1 x air injector
  7. For Intracyloplasmic Sperm Injection in IVF.
  8. Micromanipulator should be compatible for the utility of commonly available

LASER And Spindle view imaging system.

* 1. Must be FDA/ EU approved

1. **Pharmaceutical Refrigerator**
   1. Capacity of storage 300 liters or more
   2. Temp range-should have adjustable temperature control range from +1° to +8° C, factory present at 4° C.
   3. Refrigerator system: The system should have high density CFC-free insulation to protect cabinet from ambient temperature fluctuation. The system should have positive, force, air circulation to maintain temperature uniformity at all shelf levels, with quick recovery +/- 1 degree Celsius.
   4. The system should have sensors for activation of automatic/manual defrosts cycle to minimize the frost build up.
   5. Internal construction should be made of high grade stainless steel (minimum 22G) External construction corrosion resistant sheet at least 1 mm thickness.
   6. Internal temperature control: System should have temperature control range from +1O C to +8O C. Temperature control resolution should be better than 1O C.Cooling down time of max of 150 min on half load.
   7. External ambient temp should perform in ambient temp up to +43O C.
   8. Door System should lockable double doors with double pane with self closing door for better safety.
   9. Safety System:

* System should have large and clear Digital displays for the set/run parameters.
* The system should have chart recorder to record temperature changes with battery back up.
  1. The system should have key operated set point for the added security Alarms.
* System should have audible/visual warnings for over-temperature under temperature and power failure with visual status reports on critical functions.
* System should have battery back up and connections for remote alarm contacts.
* Should have adjustments for uneven bases. The adjustments should be easy to use like rotating a screw at the legs in the base.
  1. Scratch resistance internal of the cabinet.(stainless steel or aluminum)
  2. Should have 6-10 adjustable drawers of stainless steel of 22G
  3. Power input to be 220-240VAC, 50Hz fitted with Indian Plug.
  4. Voltage corrector/stabilizer of appropriate ratings meeting ISI specifications. (Input 160- 260V and output 220-240V and 50Hz)
  5. Certificate: Should be European CE or US FDA or BIS certified.
  6. Electrical Safety conforms to standards for electrical Safety.
  7. User/Technical/Maintenance manuals to be supplied in English.
  8. Certificate of Calibration and Inspection.
  9. List of Important spare parts and accessories with their part number.

1. **Defibrillator**
   1. Defibrillator should be a low energy Bi-Phasic and truly Portable. Should not weigh more than 6 Kgs (+/- 10% is acceptable)
   2. Unit should have facility for automatic external defibrillation and manual defibrillation
   3. Should work on Manual and Automated external defibrillation (AED) in Bi-phasic mode. The maximum energy delivered should be as per AHA (American Heart Association Guidelines) by the device should be 1 J to 200J in manual mode and 150 J in AED mode.
   4. Should having design protection to avoid passage of current to the user
   5. The whole system should have an inbuilt recorder ; Telemetry not recommended.
   6. Settings : Manual and Automatic

* The monitor should have a TFT color display with a two or more channels display with monitor size of 7 inches or more.
* Software and/or standard of communication (where ever required) : Inbuilt

Physical Characteristics

* Dimensions (metric) : Compact
* Noise (in dBA) heat dissipation : <60 dBA ; adjustable heart rate alarm as well as paddies and ECG cable disconnection alarms
* Mobile, portable
* Energy Source

1. Power Requirements : 220 to 240V, 50Hz
2. Battery operated : Rechargeable battery backup for 100 shocks or more than 3 hours
3. Tolerance (to variations, shutdowns) : + 10% of input AC

* Protection : Electrical protection by resettable over current breakers or replaceable fuses, fitted in both live and neutral lines
* Power consumption : Should not be more than 160w
* Accessories AS STANDARD

1. Accessories- Chest paddles
2. Machine must be supplied with ECG cable, Battery, paddle Adult integrated
3. 10 pads for monitoring and defibrillation are standard and price for 100 pads may be quoted optional
4. ECG Cable, recording paper rolls ; disposable pads

* Environmental And Departmental Consideratons

1. Atmosphere / Ambiance conditioning, humidity, dust ...)
2. Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%. Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90%.

* Standards And Safety Certificates: FDA (US)/CE (EU) from authorized third party and BIS/ISO 13485.

1. **Patient Monitor:**

1.Description of function: Beside monitors are used to monitor the seven vital parameters

(ECG,SPO2,NIBP,Respiration ,Temperature ,Dual IBP AND Etc02) of patient’s side inwards ,ICU ,CCU , other intensive care units and all operation theaters.

2. Operational Requirements: patient monitors must be pre-configured with following seven parameters (ECG,SP02,NIBP,Respiration,Temparature ,Dual IBP, and Etc02 ) easy to use, portable ,wall mounted and operation by single knob control.

3.Technical specifications: patient monitor should be of modular design so that software and hardware up gradation can be done on the client location

a) patient monitor must have Bidirectional connectivity to central monitoring system with other bed view facility.

c)protection: built -in cautery & defibrillator protection

d) minimum 72 hours tabular trends must be available for all monitors.

4. Display : 1) Monitors must have at least 12.1 inch or more high resolution TFT colour display screen with flexible user definable settings

2) should have resolution of 800×600 or better with at least 8 traces and numeric values on display

3) combination of single , dual and multi parameters modes

4) should have Ability to change the wave trace color and parameter colour by user

5) Must have special features to adjust and smooth the wave forms

for better viewing from from different angle

6) must have RJ 45/RS232 interface for CMS ( central monitoring system)

5. ECG: Monitoring of ECG (I,II,III,aVR,avL,aVL,aVF and chest lead) and pulse detection ,display of heart rate with low and high heart rate alarm ( adjustable between 30-250 bpm, audio visual alarms)

2) HR Range : 20 to 300 BPM (+/-3 3BPM or2% whichever is greater )

3) Must have 5 lead ECG

4) must have ST Analysis ( with Graphical Representation )& pacemaker detection

Defibrillation protection against electric discharge and Electrostatic potentials.

6.spo2: 1) Must show accurate value +/-2% of pulse oxymeter (spo2) / plethysomograph at high (20%) to low (0.05%) perfusion level and motion artifacts

2) Must have Tone variation : tone variation with change in spo2 values: 1-100%

3) patient monitor to have the Accuracy of : 100 -70% (±2) ;0-69% (±3)

4) PR Range : 20 to 250 BPM or more

7. NIBP

1) patient monitor must have NIBP measurement is on a proven oscillometric reading on deflation of cuffs NIBP must be possible manually or Automatic mode through time set intervals ranging from 1-120 minutes

2) Alarm Limits : selection possible for systolic ,Diastolic & MAP

3) Modes: manual, start (continuous 5 min. operation) and automatic (time interval 2-90 min. selectable)

8.Respiration:

1) Must have Trans -thoric impedance technique

2)must have the Range of : 5 to 150 breaths /min

3) Accuracy +/-2 or +/-3 breaths /min

9.Temperature :

1) must have the Range of : 00 to 50 c or more

2) must have the accuracy of +/-0.1%

10.Dual IBP : 1) patient monitor must have the Range from -10 to 300 mm hg

2) patient monitor must have the Accuracy of +/-1mmhg or 2% whichever is greater

11.Etc02 : 1) patient monitor must have side stream Etco2 measurement

2) Method : infrared Absorption

3) Must have apnea and occlusion error with audio visual alarms

4) Must have the following output Etco2 ,ico2,RR

12. Accessories , spares and consumables:

1) ECG/Resp cable: 5 Lead ECG cable 1 no. per monitor

2) NIBP: Reusable Adult /Neonatal cuff-1 no. per monitor

3) SPO2: Adult spo2 probe -1 no. per Monitor

4) SPO2: with Reusable Neonatal probe -1 no.per monitor

5) Temperature: 1 no skin Temperature probe ;

a) set of Etc02 sampling line per monitor

b) Reusable IBP cable with 5 Disposal lines and one transducer per monitor

13.standards & safety :

Monitor should be US-FDA or CE certified product .

Must comply Electrical safety conforms to standards for electrical safety

1. **Anaesthesia Work Station**

I) General Requirement

1.a Compact and modular, three gas oxygen, Air & N20 Anaesthesia workstation with an integrated ventilator for adult to infants and integrated airway monitor for pressures and volume.

1.b The machine should be suitable for low and minimal flow anaesthesia application with compliance compensation of breathing circuit, fresh gas flow compensation/ decoupling.

1.c The machine should have 2 or 3 drawers

1.d The anaesthesia machine, in built ventilator and vaporizer should be manufactured by same company to maintain uniformity of part and efficient after sale service. Vaporiser should FDA approved. Certificate should be enclosed in the technical bid

1.e Dual cascade type flow meter tubes for all three gases 02, Air & N20 to be provided. Range 20ml/min to 10 Lit/min calibrated in multiple scales

1.f The system should have minimum 2 hrs or more battery backup

1.g System should confirm to European CE or US FDA/BIS

2) Gas delivery system

2.a Should have pin index yokes for Oxygen and Nitrous oxide besides separate connection for central gas supply for Oxygen, Nitrous oxide.

2.b The machine should have pressure gauges for cylinders and central supply lines mounted on front of Anaesthesia machine for better visibility. The gas connections should be non-interchangeable

2.c The system should be suitable to use at minimal flow up to 700 ml fresh gas setting.

2.d Automatic cutoff of N2O by Oxygen pressure failure.

2.e Hypoxic guard for linear regulation of minimum oxygen concentration at 25 % volume

2.f Audible visual oxygen failure alarm.

2.g Emergency oxygen flush at 30-70 1/min by passing the vaporized.

2.h In the event of complete power loss and battery failure it shall be possible to manually ventilate and deliver anaesthetic agent.

3) Vaporiser

3.a Should be provided with a temperature /pressure compensated and flow independent vaporizer for isoflourane / sevoflurane

3.b Vaporizer should have extended delivery range from 0 to 6 vol. %

3.c The vaporizer should require no calibration in its life time

4) Breathing system

4.a Should have fresh gas coupled / de-coupled semi closed circle absorber system

4.b Should have adjustable pressure relief valve from 5 to 70 mbar

4.c Should have change over from spontaneous to bag ventilation with single step.

4.d The system should have leak and compliance test (including patient hoses upto the Y piece)

4.e Should have compact breathing system below 3 ltrs volume capacity

4.f Should have external fresh gas outlet for connecting Magill or Bain’s circuit

4.h The device should have port for anaesthesia gas scavenging system

5) Anaesthesia ventilator

5.a The system should have inbuilt ventilator with electronically controlled and pneumatic or piston driven technology

5.b Should not require changing of bellows for adult and infants

5.c Should have minimum screen size of 6" or more.

5.d Modes: Manual /spont, volume controlled, pressure controlled, SiMV/PS

5.e The same ventilator should be capable to be upgrade to pressure support

5.f Tidal volume - 20-1500 ml

5.g PEEP – 4-20 cm H2O

5.h Breathing Frequency - 4 to 60 BPM

5.i I: E Ratio – 4 :1 to 1: 4

5.j Inspiratory pause – 0-50% of TI

6) Integrated Airway monitoring and display of following parameters

6.a Expiratory tidal volume

6.b Expiratory minute volume

6.c PEEP, Peak and Mean and Paetau airway pressure

6.d Frequency

6.e Waveform display for Airway pressure,

7) Adjustable high/low alarm limits with audio and visual alarms for the following

7.a Minute volume

7.b Airway pressure (incl stenosis and disconnect)

7.c Insp oxygen concentration

7.d Audio power supply fail alarm

7.e Fail to cycle warning

8) Options (Mention unit prices in price bid)

8.a Color screen display

9) Machine should have RS232 connectivity port

10) Scope of supply

10.a 3 gas Anaesthesia Machine

10.b Trolley with 2 or 3 drawers

10.c Writing surface

10.d Pin index yokes for O2& N2O

10.e Pipeline connections for all three gases

10.f Anaesthesia ventilator

10.g Patient monitor with ECG, SPO2 , NIBP & ETCO2

10.h Semi closed breathing system

10.i Adult and peadiatric autoclavable patient tubings

10.j Anaesthetic mask size- Adult and child

10.k Vaporizers for Isoflourane & sevoflourane

10.l Central gas supply hoses (Color coded)

10.m Instruction for use

1. **Air Shower**

Supply, installation, testing and commissioning of 16 G GI powder coated suitable single person entry air shower as per the manufacture standard ,including SS304 nozzles, grated floor, Pre filter and HEPA ( 99.997 efficiency @ 0.3 micron filters, high efficiency Blower of make : Nicotra or dynamic or EBM mounted on vibration isolators for smooth operation ,Fluorescent lamp, Door closer along with interlocking facility to ensure both doors do not open simultaneously,2 sets of Heavy-duty, durable doors with glass windows to permit visibility.​​​​​​ doors suitable to the air shower with necessary hinges and joinery material deemed required for making the unit complete in all aspects. And air shower panels powder coating to matching the clean room partition panel. Electromagnetic interlock system prevents the doors from opening before the air shower cycle is completed, protecting the cleanroom from cross-contamination. Magnehelic gauge across the filters mounted at the entry side of the air shower. Noise level should be lowest possible say less than 65-68 DbA from 1 mtr distance of air shower entry door.

1. Door locks automatically release in the event of a power outage or if one of the Emergency Exit buttons are depressed.
2. Shower time and door interlock duration can be programmed. Status indicator. Air nozzles to be adjusted to redirect streams of air
3. Energy-efficient LED lighting includes motion-activation. No gaps and crevices where microbes can colonize rounded corners for easy disinfection. All required documentation and Single Phase, 230 volts.
4. It should meet clean room requirement and standards as per ISO14644. Need to provide all test certificates and to provide qualification documents DQ, IQ, PQ & OQ, Field test readings relevant to ISO14644 standards. To provide neoprene gasket between the air shower body and the modular panel to reduce the transfer of vibration & finished with coving and sealant. Indicator lights mounted on both sides of the exterior of the air shower to regulate traffic flow, in and out of the cleanroom.​​​​​​