

Setting up of In-Vitro Fertilization (IVF) Lab alongwith other services (on Turnkey basis) in Department of Obstetrics & Gynecology at AIIMS, Mangalagiri

Name of work	Setting up of In-Vitro Fertility Lab along with other services (on turnkey basis) in Department of Obstetrics & Gynecology at AIIMS, Mangalagiri.
Estimated Cost	Rs.
Stipulated time for completion of work.	04 Month

Objective & Scope of Work & Services:

- AIIMS, Mangalagiri is an autonomous body under MOH&FW and is institute of National importance. AIIMS, Mangalagiri is committed towards excellent patient care and research. In this context, Dept. of Obstetrics and Gynecology, AIIMS, Mangalagiri is planning to develop a state-of-art In-vitro fertilization (IVF) facility which will be first of its kind in public sector in the state of Andhra Pradesh.
- With this aim and vision AIIMS, Mangalagiri invites Indian agencies of good reputation to come forward and work with us to develop one of the best ART facilities available in India.
- Following will be the scope of work for the agency:
 - The proposed site and the building is ready and functional. The proposed building has 2 existing Operation theatres along with other ancillary areas which are completely functional. The agency needs to develop a plan and establish IVF set up at this site.
 - The scope of work will include-
 - Planning of the area for ART services including various laboratories, equipment, furniture and civil and electrical engineering modification works as required, in the existing operation theatres and ancillary area to suit the needs/ prerequisites for establishment of IVF unit in the space provided.
 - Modification of the existing air-conditioning facilities of the area, if any, as required for the IVF lab
 - Air quality management
 - All the equipment's to be used in follicular monitoring room, operation rooms and IVF and andrology laboratories.
 - Partitions and furniture.
 - Control of environment in various laboratories.
 - A vision to run the facility in initial days.

TECHNICAL SPECIFICATIONS for IVF unit TURN KEY PROJECT

AIIMS Mangalagiri

1. IVF Lab Equipments

1.	IVF (LAMINARFLOW) WORK STATION WITH INTEGRATED STEREOZOOM MICROSCOPEWITH ACCESSORIES :	Quantity-1
	1. Size : Working chamber should be approximately (Depth X Width X Height) 450-650mm X 1600-1900mm X 600-700mm. External dimension should be approximately (Depth X width X Height) 660-700mm X 1900-2000mm X 1200-1400mm.	
	2. HEPA filters: Class H-14 HEPA Filters in accordance with EN1822. Filter Efficiency 99.999%for 0.3 Micrometer particles size.	
	3. Access of maintenance should be from front of the laminar flow, so that cabinet need not be moved.	
	4. Filters: Carbon VOC filter, Pre-Filter and HEPA Filter.	
	5. Heating : Electrical	
	6. Flow : Flow meter to regulate flow rate of gas through bubble flask (vertical Flow)	
	7. Noise level : upto 55 Db	
	8. Light damping facility to adjust light intensity.	
	9. Unit should be workable on standard UPS supply	
	10. Working chamber tabletop should be made up of stainless steel. SS table should be integrated with two glass heating stage and should be of minimum size: 210 x 110 mm and should flushed with SS table controlled by electronic temperature controller with digital display.	
	11. Integrated Humidification System.	
	12. IVF work station should be fully heated with provision for heated system for Stereozoommicroscope	
	13. External data output via USB	
	14. Should have provision for fixing two Stereozoom microscopes.	
	15. Special Heating Surface with Thermal Sensors. Temp accuracy +_0.4-0.7*c	
	16. Inbuilt LCD monitor 19' to 21' of medical grade with video grabber and adequate memory forseeing microscope images on the screen.	
	17. HEPA Filter Alarm indicator.	
	18. Should have adequate Electrical Sockets (>2)	
	19. Variable Fan speed.	
	20. Warming blocks for holding at least 8 or more follicular fluid tubes (qty 5-). Full Specifications mentioned separately in table below as Equipment No.6	
	21. Test tube heater should be portable, able to hold test tubes (14 ml) with rechargeable battery,heater, sensor, and LED indicators for battery and temperature - 4 Nos.	
	22. Warming block for 60mm dish (qty-5) Full Specifications mentioned separately in table below as Equipment No.7	
	23. Warming block for NUNC 4 well dish (qty 5)	
	24. Work station should have provision of UV Light	
	25. Revolving Chairs – 2 (stainless steel) for IVF Lab	
	26. Should have with image grabbing provision for image saving as well view rephrase	
	27. Branded PC and software for grabbing videos and high resolution, Pic with following specifications:	

- a. Intel core i5 core processor (around 2.93ghz, 1066 MHZ FSB)
 - b. Standard memory: 2GB DDR3
 - c. External Drive: Base External (1) 5.25" Internal (1) 3.5"
 - d. Internal Drive: 320GB SATA hard disc drive (7200rpm)
 - e. Optical Drive: Super Multi SATA drive and double layer supporting light Scribe Technology.
 - f. Graphics: Intel Graphic media accelerator x 4500HD up to 782 MB total available graphics \, Memory, suitable grabber card.
28. Ports: 6USB 2.0 ports (2 in front), 1 linen in 1 line out, 2 microphones (1 in front), 1 headphone, LAN, VGA port Video connector: VGA port. Slots: 1 PCI express (x16) 2 PCI express (x1) 1PCI. Network Interface: Ethernet 10/100 BT integrated network interface
29. Must be US FDA or EU or CE approved.
30. **Two Numbers (2 Nos) Trinocular stereo zoom microscope (Stereo zoom microscope- Trinocular:Medical Device for use in Human IVF with following specifications:**
- a. Parallel optics Typical Zoom Ratio 10:1 or more
 - b. Zoom range: 0.6 – 8.0X
 - c. Diopter adjuster, Rubber Eye-Shield, Reticle Lead.
 - d. Eyepiece tube: trinocular tube for camera attachment
 - e. Eyepiece inclination: for fatigue free observation
 - f. **C-mount TV adapter**
 - g. Power Cord BE
 - h. Halogen Lamp 6V-20W with reflector
 - i. Trinocular port
 - j. Eyepiece with diopter adjustment :10X (f.n 22)
 - k. Trinocular observation tube with inclination at 30 degree, inter pupillary distance adjustment 48mm -76mm. Working Distance Up to 92 mm
 - l. Plane achromatic objective 1X Resolution of at least 600lp/mm.
 - m. Transmitted light stage with halogen illuminator of at least 30 watt.
 - n. **Scientific Digital Camera for microscopy** with control software, progressive scan CMOS/CCD having resolution of 5 M-pixel or better, metal body, 1024X768 live preview with up to 25 images per second, capacity for fast, full Colour live image capture in real time, photographs incolor or in gray steps, online histograms for image optimization, shading correction for live image and captured images, **firewire interface-2 nos.**
 - o. Coaxial course and fine focusing knob mechanism should be built in
 - p. Stand with ESD capability.
 - q. Episcopic illumination integrated epi illuminator with LED base system.
 - r. A suitable operating system with printer and UPS for imaging through digital camera. (Monitor)
 - s. Adapters for camera: -mount adapter for CCD/digital camera.
 - t. Basic Magnification Continuously Variable between 6.5X and 50X.
 - u. Sturdy Stand Capable of taking additional optics and documentation accessories viz, Photomicrography system, Digital Imaging and Image analysis Systems.
 - v. Accessory: Two spare halogen lamp
 - w. Must be FDA class 2 medical device EU or CE approved.
 - x. Should be Nikon/ Olympus/ equivalent make

2.	Hera cell CO2 Incubator :-	Quantity-2
1. Capacity 150 lit – 220 lit		
2. Humidity: Active sterile humidity maintained through vaporizing module operating at 120°C Measuring range 0-98% RH /Range 60-95% RH. System should have easy to set high -low humidity levels		
3. Stainless steel interior		
4. Perforated Shelves for uniform heat distribution/ shelf adjustment		
5. Air-jacketed with good insulation.		
6. LED/LCD Display of chamber temp. and CO2 level. CO2 Control range: 0 to 20% CO2 Control accuracy: + 0.1% Temperature Control: Panel heated interior chamber and door. Intelligent temperature control system for dry inner chamber. Range 30 to 45-degree C. Stability/Uniformity +0.1-degree C/0.3-degree C. Over temperature alarm		
7. System should have built in decontamination cycle for complete elimination of bacteria, fungi, spores, mycoplasma etc.		
8. System must have on board graphic capability /datalogging to enable user to obtain historical performance.		
9. Incubator must have a fully automatic start routine function.		
10. Data Logging facility – Built in		
11. Diagnostic system: Optical and Acoustic alarm. Alarm messages are retained in non permanent memory. Set points should be saved in case of power interruption. Remote alarm. Shortrecovery times: for all adjustable parameters through optimized microprocessors control less than 4 minutes. Incubator must offer direct access port to enable comparative CO2 measurement by external device.		
12. Multiple inner glass doors		
13. Infrared Sensor based system. Specially NDIR/TCD CO2 Sensor.		
14. Lockable main door-preferable.		
15. Integrated Humidity Limit Control (88-97%) with digital display of relative humidity –resolution of display. 0.5%, setting accuracy 1%.		
16. Certified Medical Device. Incubator for human embryo culture		
17. With accessories: CO2 Regulator and inline filter with each incubator.		
18. UPS 3 KVA with each incubator.		
19. Incubator to be provided with stable table.		
20. Classification: Safety Class I, Class IIA for all usage according to EC-Directive /US FDA (Should be LEEC/HERACELL/Heal Force/ equivalent make.)		
3.	Trigas benchtop Incubator for human embryo culture with tri-gas mixer.	Quantity -1
1. Bench Top Incubator with excellent control and accuracy of pH, temperature and humidity.		
2. Four or more chambers for placing Petri Dishes. If make and model has less than FOUR chambers the quantity has to be adjusted to accommodate atleast FOUR petri dishes (1 in each chamber)		
3. Each Chamber must have an excellent heat distribution using fully contact heated plates. Tightly packed, full surface heating elements: to create stable environment from heated base and lid.		
4. Each chamber must have independent display of gas and temperature.		
5. In built disposable humidification system uses Pre mix gas or separate gas cylinders & several bench top incubators can be connected to one source of supply.		
6. 24 hours digital recording of temperature and gas flow		
7. Graphical representation of data for rapid, comprehensive review.(Optional)		
8. Each chamber preferably must have a heated lid.		

9. Automatic gas purge in lid closure to maintain gas environment		
10. Bench top incubator should have reduced oxygen culture capacity.		
11. Constant Temp 37°C in the dishes.		
12. Fast recovery in less than 2 minutes In built alarm alert to low CO2 and temperature		
13. Storage humidity: 5% to 95% relative humidity non-condensing		
14. Operating temperature:		
a. +5 °C to +40 °C for safe operation.		
b. Temperature control range: (ambient + 5 °C) to 40 °C.		
c. Temperature measurement accuracy: ± 0.2 °C,		
d. Flow control range: 0 ml/minute to 900 ml/minute.		
e. Dishes per chamber: Minimum 4		
15. Power- Universal input 100-240 V, 50/60 Hz. With on line ups back up half an hr.		
16. ALARM CONTACTS for remote monitoring. External Alarm system in case of power failure.		
17. Auto mix inbuilt mixer and should be provided with SS304 tubing for gas supply.		
18. Should have UV-C decontamination of air stream		
19. Should have validation outputs and pH electrode port		
20. Should have data logging system, alarm and compartment wise sampling ports.		
21. Accessories on line gas filters and table for placing the incubator.		
22. Must be US FDA or EU CE approved.		
23. Should be provided with US FDA / EU CE certified trigas mixer for benchtop incubator able to supply multiple bench top incubators.		
4.	Pipetter and Denudation system with denudation tips:	2 systems
1. MECHANICAL ADJUSTABLE VOLUME PIPETTOR		
a. Manually operated air displacement digital pipettors to dispense media accurately and safely.		
b. Large, clear display for the set volume.		
c. The volume-setting mechanism to provides secure setting of the desired volume.		
d. Autoclavable		
e. Set of three with Volume dispensing in (micro litre). 1 each		
● 1-10 µl		
● 10-100 µl		
● 100-1000µl		
2. DENUATION SYSTEM: Consisting of:		
A. Denudation Pipette Rack Should have slots for placing at least two denudation holder with pipette.		
B. Denudation Pipette Holder: Adjustable handle to accept all sizes of pipettes		
C. Denudation Pipette		
a. Flexible polycarbonate pipettes used for manipulation of oocytes and embryo		
b. Pipette tips should be suitable to get easily attached & detached with holder		
c. Size: 130 µm (10 packs with each pack containing Ten pipettes)		
d. Size:140 µm (10 packs with each pack containing Ten pipettes)		
e. Size:170 µm (10 packs with each pack containing ten pipettes)		
f. Size:300µm (10 packs with each pack containing ten pipettes)		
Certificate: Should be European CE or US FDA certified.		
5.	Ovum Aspiration Pump:	Quantity- 2
1. Should have low flow, regulated vacuum pressure range: 0- 500 mm of Hg.		
2. Should be precision- built, regulated vacuum pump designed specifically for ovum aspiration, vacuum range changeable by 1mm hg and with digital display.		

3. It should have a foot operated switch with vacuum gauge with pressure control switch, pressuregauge, Occlude switch, main switch, overflow vessel.		
4. Set and Actual pressure: Easy to read LED Digital Display for both available		
5. Volume of overflow vessel 1 x 50ml – 02 nos. (1x50ml for individual vessel)		
6. Pre-filter as standard: Built in for safety		
7. Connecting for aspiration tubing :2 to 4 mm		
8. Power Supply 230V ,50Hz		
9. Should be backed by UPS		
10. Should be compatible to fit with all commercially available oocyte recovery set.		
11. Unit should be placed on trolley (modular) with wheels and brakes.		
12. Accessories: Anodized aluminium blocks for test tubes of 14ml/5 ml.- (05)		
13. The unit should have a rapid suction response at the needle tip when the pedal is activated, and should be able to hold constant vacuum settings accurately for long periods.		
14. Should be Labotech/Cook/Craft/equivalent Aspiration pump.		
6.	Portable test tube warmer:	Quantity- 5
1. Should have clear front panel to allow continuous observation of test tubes contents.		
2. Should have facility to prevent overheating.		
3. Panel should be easily removable for decontamination.		
4. Should accept at least 4 falcon test tubes.		
5. Should have a battery operated platform. Battery chargeable.		
6. Should have Temp accuracy ± 0.2 degree Celsius.		
7. Seamless construction of stainless steel of SS304		
8. Three blocks should have port to check temp.		
9. Should be European CE/US FDA/BIS certified.		
7.	Petri Dish Warmer	Quantity- 4
1. Hot plate & test tube warmer with temp range 30-45°C		
2. Digitally Controlled temperature of hot plate with temp accuracy ± 0.2 °C. – (01).		
3. Heating time < 10 minutes.		
4. Should be European CE/US FDA/BIS certified.		
8.	Inverted Microscope with Micromanipulator and Heating System for ICSI with Camera and Monitor	Quantity- 1
1.	Inverted Microscope basic unit	
2.	Lamp house with 100W Halogen	
3.	Heated platform	
4.	Suitable modulation contrast system (complete) for Intra cytoplasmic sperm injection (ICSI)	
5.	Good optics.	
6.	Sturdy Stand with built in 12V 37W halogen light illumination / LED Transmitted light illumination.	
7.	5x nosepiece to accommodate up to five different Objectives. i.e 4x, 10x, 20x, 40x & 60x	
8.	Objective suitable for phase contrast and bright field.	
9.	Universal Condenser for bright field and phase contrast.	
10.	Oil/air system for pipette setting and control	
11.	Digital Channel Temperature Controller	
12.	Micromanipulator should be compatible for the utility of commonly available LASER and	
13.	Spindle view imaging system	
13.	Must be FDA/ EU approved	

14.	Standard Consumables, Spares and Accessories:	
a.	Bulb; 12v 37 W; Quantity -01	
b.	Spacer Washer; H=15mm; Quantity-01	
c.	Tubing- ICSI tubing; Quantity-06 meter	
d.	Anti-Vibration Platform: Company specific anti vibration table; Should be able to handle micro manipulator system, Quantity -01	
e.	CCD Camera: Still/video capturing card, LCD Monitor 20 to 24 inches Quantity-01 each.	
(i)	High Resolution Camera for ICSI :	
(ii)	USB based camera	
(iii)	25 Frame per second giving it much more clarity	
(iv)	Chip size 1/1.8 or bigger.	
(v)	Sensor is CMOS the latest sensor in the market giving good image.	
(vi)	1.3 Mega pixel camera	
(vii)	No external power supply required, Small in Size so occupies less space.	
(viii)	Laptop: Monitor 15 inches; Original Windows 10, Intel Core i7 5200U	
(ix)	CPU,8 GB RAM,TB HDD-Quantity -01 each.	
(x)	The image shall be displayed on the TFT monitor and also in the TV kept in	
(xi)	the consultation room of the ART centre. The cabling and change over shall be done by the bidder.	
15.	Eye piece should be 10X/15X wide angle.	
16.	Micro tool holder with 2 axis movement for quick setup of micro tools. Pitch/Yaw/angle/Tilt correction from micro tools holder point	
17.	Coarse XYZ micromanipulator with minimum 20mm traverse in each direction.	
18.	XYZ fine micromanipulator with minimum 10mm of traverse in each direction.	
19.	Option to have secondary pipette setup automatic for comfortable working	
20.	Micrometer screw actuated syringes for injections / holdings	
21.	Should be Olympus/Nikon/equivalent make inverted Microscope with Narishighe/ Nikon/equivalent make Micromanipulator and Linkem/Tokai hit/equivalent heating system	
22.	Must be US FDA or European CE approved.	
9.	CO2 cylinder and regulator:	Quantity- 3
1.	Should be D type 47 litres type. Medical grade.	
2.	Should have a gauge to measure the cylinder pressure.	
3.	Cylinder should have ISI mark.	
4.	Cylinder should have explosive safety certificate and should be provided along with each cylinder during installation.	
5.	Suitable regulator shall be supplied along with the cylinders.	
6.	The copper piping shall be done by the bidder as per the layout with proper color coding.	
7.	With automatic inline arrangement to ensure steady, nonstop supply	
8.	Static evaporation gross rate: 0.38 litre/day. Static holding time: 124days	
9.	Manifold for at least 2 (two) cylinders. With required attachments for manifold. With automatic inline arrangement to ensure steady, nonstop supply	
10.	Accessories like pliers, wrenches to work with each cylinder to be provided, 06 extraregulators for each cylinder	
10.	Pre-mix Gas for bench incubators	Quantity- 2
1.	Manifold with at-least 2 cylinders.	
2.	If auto mix system,3 separate cylinders of N2, CO2 and O2.	
3.	Should have European CE/US FDA/BIS certification.	
11.	Gas in line filter	Quantity- 10
1.	For removal of volatile organic contaminants (VOC) and chemical Air contaminants (COC) and other particulates in Gas.	
2.	Should have 2.4-2.8 sq. of Potassium Permanganate & Activated Carbon membrane	

3. Should have additional PE-layer for removing particulates
4. To be fitted in line between Gas cylinder and the incubators
5. Excellent adsorption capacity and very low pressure loss
6. Compact with standard connectors
7. For pressures up to 2 bar
8. All the fitting, tubing and instillation and appropriate sequence including cylinder, gas filter, gas change over unit and incubator lie in scope of bidder.
9. Should be compatible with any CO2 and pre-mixed gas filter
10. Filters should have ease to replace.

12. IVF Anti Vibration Table Qty: 01

S. No.	Item Description
1	Air damped Anti-vibration passive table are designed to meet requirements for all models of inverted Microscopes during ICSI procedure
2	The plate on top should be stainless steel
3	Should be constructed in high density steel with added mass to the table
4	Should be USFDA/European CE certified
5	Dimensions: 780 x 1200 x 790 mm

13.	SS Table	Quantity- 8
	1. SS 304 grade table for placing the Co2 incubator, tri-gas bench top incubator, test tube warmer and pipettes and petri dishes and for andrology lab	
	2. The base stand should be made of S.S 304. (preferably 14gauge)	
	3. TOP should be made up of Stainless Steel.	
	4. The table should be able to withstand the capacity of 90Kg.	
	5. Dimensions: Suitable for placing CO2 incubator, tri-gas top incubator, test tube warmer and petri dishes.	
	6. Pre-acceptance demonstration of the furniture is must.	

14. IVF Test Tube Warmer Qty: 02

S. No.	Technical Specifications
1	IVF test tube warmer ideal for heating of samples in test tubes requiring a stable heating environment
2	Should have at least 18 chambers either for 14ml or 5ml aspiration tubes
3	The highly visible digital LED display indicates the temperature level in either Celsius or Fahrenheit
4	Temperature may be adjusted and is extremely reliable within the range from ambient to 49.9°C
5	Digital read out of temperature with control panel for settings
6	Temperature accuracy $\pm 0.2^{\circ}\text{C}$
7	Easy to clean

15. IVF Air Cleaner

Qty: 01

S. No.	Technical Specifications
1	Advanced equipment designed to purify air of VOC's, CAC's, Particles, micro organisms, toxins, solvents and odour.
2	Consists of HEPA filter, potassium permanganate impregnated activated carbon filter and prefilter.
3	Colour LED on front panel to show carbon filter replacement time
4	2 speed options - Full speed and half speed.
5	Ultra quiet - Noise level is less than 50dB (A) at full speed and less than 42 dB (A) at half speed.

16.	LAB PURIFICATION SYSTEM	Quantity- 2
1. Portable unit – Floor or Wall mounted		
2. Effective removal of VOC & CAC		
3. Use of Photo catalytic Converter system Reaction chamber: Technology of tiny catalyst coated with non-delaminating solution.		
4. Exciting media: UV 254 nm bulbs		
5. UV-C / equivalent light source for cleaning air		
6. No Ozone Generation Green technology: No harmful by-product.		
7. Effective coverage: up to 1000 sqft		
8. Replaceable filters		
9. Filters to be provided for first 5 years 10.		
10. Replacement bulb kit (one set to be available)		
11. Power: 220V, 3Phases, 50-60Hz 12. Certificate : US FDA class2 medical device/CE certified/BIS certified		

17. IVF Laser System Qty: 01

S. No.	Technical Specifications
1	Laser for IVF lab to ablate zona pellucida, hatching, biopsies and blastomere collapse
2	Moveable laser with biopsy mode
3	The laser objective should be designed in such a way that it can focus visible light, but <i>also</i> to focus the infra-red beam at the same plane as the visible light, and to maximise the power transmission for efficient drilling
4	Laser should include both pilot and ablation laser
5	Laser should have a option to indicate heat safety zone
6	Laser power should be between 350-425mW
7	Powerful software should be supplied with laser to ensure that it can have home position setting, measuring tool digital magnification, simulator for training and demo features.

18	SMART MONITORING SYSTEM (Co2, O2 and Temperature analyser)	Quantity- 1
1. Control designed at dedicated application view, monitor and review alarms and events across multiple devices. All in one unit.		
2. Sensor for CO2 measurement 0 to 100%.		
3. Sensor for O2 measurement 0 to 100%.		
4. Temperature sensor – measurement range 0 – 1000C		
5. Should have home screen, live trend, live dashboard		

6. Measurement Accuracy should be at 5% CO ₂ , +/- 0.25%
7. It should have Compensation Range 1000 +/- 256 mbar Response Time should not be more than 2 minutes.
8. Battery usage should be visible on display.
9. History can be viewed. Real -time data logging. Storage capacity should be at least 500 readings. Reading should be downloadable.
10. Alerts should come via SMS, voice call and email
11. Genuine and reliable Server platform should be available.
12. Should work for CO ₂ incubators, O ₂ incubators, cryocans, media/drug refrigerator and ivf labdoor.
13. Data –download via USB.
14. P C –software for analysis & management of measurements
15. Rechargeable battery or mains adaptor.
16. Unit should be European CE/US FDA certified and having a calibration certificate.

19. pH Meter Qty 01

S.No.	pH Meter
1	Hand held, simple pH meter to read the media drops
2	pH accuracy ± 0.03 pH
3	pH calibration atleast 2 points in room temperature
4	Calibration by pH buffers 7-10
5	Temperature accuracy $\pm 0.5^{\circ}\text{C}$
6	Data logging facility

20. VOC Meter Qty 01

S. No.	VOC Meter for ART Lab
1	Handheld monitor capable of detecting contamination at 0.1ppm
2	PID sensor 0-15000ppm
3	Response time < 5 seconds
4	Flow rate 400-500cc/min
5	Data logging facility mandatory
6	Weight less then 1Kg

21.	CRYOCANS:	Quantity- 4
1)	It should be a medical device for use in human IVF to preserve human sperms & embryos.	
2)	High vacuum cryoge. Cryocansnic container built in aluminum with super insulation and resin neck	
3)	Should comply with international regulation of transport of dangerous material.	
4)	Size	
	a) 42 to 48 lit with neck diameter 120mm-160mm---2 no	
	b) 21-26 lit with neck diameter 50mm ----2 nos. (Transport cryocans)	
5)	Static evaporation loss rate- 0.25 – 0.35 liters / day	
6)	Should be provided with SS canister, 11-12canister each with 42 to 48lit container and 6 canisters with 21 lit. Each canister to be provided with Goblets with different color viso tubes. Diameter of canister should range between 65 to 75 mm	
7)	Should have digital temperature indicator with alarm	
8)	Should have capacity level indicator with alarm	
9)	Facility for filling liquid nitrogen Static holding time - 125 -145 days.	
10)	Static evaporation gross rate : 0.25 litre/day	
11)	Accessories:	

a) Transparent Spectacles for eye protection from fumes of liquid nitrogen-four
b) Cryo Gloves to protect hands from cold burn.-4 pairs
c. Liquid nitrogen transfer pump – two
d. Moving Trolley with each canister

22.	Liquid Nitrogen pouring device	Quantity- 4
1. Liquid nitrogen Transfer device used for transferring liquid nitrogen from transport models. (TA26 & TA55)		

23.	WARMER FOR OOCYTE RETRIVAL	Quantity- 2
1. Unit should have stainless steel construction		
2. Unit should have minimum capacity of 18 tubes 14ml		
3. Unit should have view of tube during working		
4. Service free.		
5. Unit should have microprocessor based digital controller.		
6. Should be European CE/US FDA certified.		

24.	GAS CHANGE OVER UNIT (AUTOMATIC)	Quantity- 2
1. Change unit should have Continuity of CO2 supplies to CO2 incubators.		
2. Unit should be compact can be bench or wall mounted using the keyholes on the back of the unit.		
3. The unique pneumatic logic construction of the unit it could be placed anywhere between the gas bottles and the equipment being served,		
4. These units should be suitable for use with all non-corrosive gases.		
5. All tools and accessories needed for functioning of the units should be provided along with.		
6. Instillation of unit at desired site is in scope of turnkey project.		
7. Unit should be battery operated. Extra battery should be provided.		
8. Should have audible and visual alarms.		
9. Should be European CE/US FDA certified.		

25. Positive Pressure Air System: Qty 01

S. No.	POSITIVE AIR PRESSURE SYSTEM
1	Model designed for continuous Fresh Air supply in IVF Lab. To create a positive pressure system in IVF lab. Used air must go out no reuse (circulation) air system is required.
2	Positive Air system have dimension of 640mmx430mmx700mm.
3	A mobile unit with 4 castrose,3 stage Air filtration system. Fine Filter, VOC Filter, HEPA filter.
4	Full Body made up of M.S powder coated, control panel, with light alarm indication, green foron, yellow for caution to change the filter, and red to change the filter,
5	Duct to inser the fresh air in IVF lab through Medical grade Transparent, flexible, copper coated wire PU duct hose, fix with wall mounted duct.
6	Power 220-230 50Hz (V) circuitbreaker/MCB

26: UPS Qty: 01

S.No.	UPS 8-10 KVA ONLINE WITH BATTERY BACK UP
1	SMF battery backup with 1 hours battery backup with SNMP and isolation transformer,battery rack inter connection links (42AH*20 nos)
2	Rectifier & Inverter with IGBT and DSP Technology.
3	Voltage 400 ± 15% V, 3 Phase, 4 Wire.
4	Frequency : 45 to 55 Hz.
5	Display : Control Panel with LCD Screen.
	Battery : Sealed Maintenance Free Rechargeable..
6	Back up : 1 Hr (60 Mts)
7	Protection : Overload & Short Circuit.
8	Ventilation: Forced Air Cooling.

27.	CCD CAMERA CCTV SYSTEM FOR LAB	1 system
	1. Should cover embryology lab, reception, andrology lab and sterile corridor	
	2. 1/3" Color CCD cameras	
	3. 1080p HD Video Resolution (1920 x 1080)	
	4. 960H Resolution in CVBS Mode	
	5. AHD, HD-TVI, HDCVI, and Analog CCTV (CVBS) modes	
	6. Weatherproof	
	7. With infrared LEDs to illuminate up to 20 meters (65 feet)	
	8. 3.4-3.8 mm lens	
	9. 0.2 Lux Day mode / 0 Lux Night Mode	
	10. Tri-Axis Mount for Ultimate Flexibility	
	11. Power & Video Cable Through Mount Design	
	12. Power supply to be included	
	13. Recording ability for at least 1 week	
	14. need to provide processing unit with hard disk built in (1TB or greater)	
	15. Monitor 21"LED full HD for viewing the camera footage.	
	16. Router for network access via app on smart devices.	
	17. Hand remote controlled	
	18. Fitting and wiring to be provided by the vendor.	

28. Sperm Counting Chamber Qty: 01

S. No.	Sperm Counting Chambers
	It should be a medical device for use in Human IVF with the following specification
1	Counting Chamber with cover Slip(Glass)
2	Cover Slip with Grid built in with 100 squares
3	Reusable
4	No Calibration required

5	Optimal depth 10 microns
6	Should be provided with cleaning brush and cleaning paper
7	99% accuracy for pre and post wash semen analysis
8	Valid CE/US FDA/BIS Certification
9	NO DILUTION REQUIRED FOR SPERM COUNT CALCULATION

29. Binocular Microscope

Qty: 01

S.No.	Binocular Microscope for Semen Analysis
1	Standard microscope set complete with built-in 6V20W halogen light illuminator with regular power supply
2	Quadruple ball bearing nosepiece, co-axial coarse and fine focusing controls, high resolution Semi-Plan Achromat objectives 4x, 10x, 20X & 40x (spring)
3	360° rotatable inclined binocular tube, fungus resistant optics for tropical use, widefield paired eyepiece HWF10x (F.N.18), right hand control co-axial low drive mechanical stage and rack & pinion focusable Abbe condenser 0.9/1.25 N.A with iris diaphragm complete set in thermocole packing

30. Trinocular Research Microscope Qty: 01

- ☐ High quality research microscope
- ☐ Mechanical Tube Length 160 mm.
- ☐ Negative phase contrast condenser
- ☐ objectives 10X, 20X, 40X & 100X, with anti fungal treatment.
- ☐ 45° inclined with 360° Rota table Trinocular head.
- ☐ Camera port ready.(can be connected with a PC / monitor)
- ☐ Camera should be of high resolution CCD camera
- Co axial built in Mechanical stage 125 x 150 mm with fine vernier graduation, designed with convenient coaxial adjustment on ball bearing guide ways for smooth slide manipulation through 50 x 70 mm.
- Dust proof quadruple ball bearing revolving nose piece with positive click stops. Co-axial coarse & fine focusing adjustment knobs. Fine motion graduated to .002 mm. Sub stage abbe type N.A. 1.25 condenser focusable with rack & pinion, continuously variable iris diaphragm with built in swing out filter holder. Heavy rectangular sturdy base, with built in illumination 6V – 20W halogen lamp/LED. With dust proof cover packed in Styrofoam packing.
- TFT monitor : should be of 17" monitor

31. Laminar Flow Cabinet for Andrology

Qty: 01

S.No.	Laminar Flow Cabinet for Andrology Qty: 01
1	3 Feet LAF where both user and product are protected against particle and microbial contamination. IVF

2	Quadruple ball bearing nosepiece, co-axial coarse and fine focusing controls, high resolution Semi-Plan Achromat objectives 4x, 10x, 20X & 40x (spring)
3	360° rotatable inclined binocular tube, fungus resistant optics for tropical use, widefield paired eyepiece HWF10x (F.N.18), right hand control co-axial low drive mechanical stage and rack & pinion focusable Abbe condenser 0.9/1.25 N.A with iris diaphragm complete set in thermocolepacking
4	Surgical Stainless Steel (2mm) work surface
5	Toughened glass front window
6	Adjustable luminosity
7	Fully operated with a microprocessor control panel.
8	USB data output
9	Electrical outlets
11	Dimensions: 1000x800x2000 (WxDxH)

32. Clinical Centrifuge for Andrology

Qty: 01

S.No.	Clinical Centrifuge
1	Brushless Motor Capacity (6x10ml) with Swing Out Rotor
2	Max RPM/RCF(xg)-4000RPM/2270g based on the rotor
3	Speed setting as 500-4000 RPM in steps of 10RPM
4	User should be able to set and save upto 99 user defined programs (protocols) with a digital display

33.	Andrology incubator bench top with accessories	Quantity- 1
1.	Capacity 30 to 35 lit	
2.	Precise temperature control 37dc +/- 0.5%.	
3.	Exceptionally stable and accurate	
4.	Every corner inside the incubator chamber should be round	
5.	Automatic CO2 sensor calibration.	
6.	Audible alarms guard specimens against any deviations from the user settings.	
7.	Unit should be compact and easy to handle while keeping on bench.	
8.	Inner Chamber Dimension should be less than W350 x D350 x H350 Capacity: Calibration facility should be there.	
9.	Programmable, display of level of co2 and temperature throughout.	
10.	Should be provided suitable SS304 grade table adequate for incubator.	
11.	Should be European CE/ US FDA certified.	

34. Vibrator/ massager Quantity – 1

35. Test Tube Warmer Quantity- 1

accuracy +/- 0.2°C with 3 anodized aluminium blocks.

- ☐ Fully S.S with autotuned microprocessor based temperature controller, temperature

36. Drug Refrigerator Qty: 01

S.No.	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. The system should have sensors for activation of automatic/manual defrosts cycle to minimize the frost build up.
4	Internal construction should be made of high grade stainless steel (minimum 22G) External construction corrosion resistant sheet at least 1 mm thickness.
5	Internal temperature control: System should have temperature control range from +10 C to +80 C. Temperature control resolution should be better than 10 C. Cooling down time of max of 150 min on half load.
6	External ambient temp should perform in ambient temp up to +430 C.
7	Door System should lockable double doors with double pane with self closing door for better safety.
8	Safety System: a) System should have large and clear Digital displays for the set/run parameters. b) The system should have chart recorder to record temperature changes with battery back up.
9	The system should have key operated set point for the added security Alarms. a) System should have audible/visual warnings for over-temperature under temperature and power failure with visual status reports on critical functions. b) System should have battery back up and connections for remote alarm contacts.
10	Should have adjustments for uneven bases. The adjustments should be easy to use like rotating a screw at the legs in the base.
11	Scratch resistance internal of the cabinet. (stainless steel or aluminum)
12	Should have 6-10 adjustable drawers of stainless steel of 22G
13	Power input to be 220-240VAC, 50Hz fitted with Indian Plug.
14	Voltage corrector/stabilizer of appropriate ratings meeting ISI specifications. (Input 160-260V and output 220-240V and 50Hz)
15	Certificate: Should be European CE or US FDA or BIS certified.
16	Electrical Safety conforms to standards for electrical Safety.
17	User/Technical/Maintenance manuals to be supplied in English.
18	Certificate of Calibration and Inspection.
19	List of Important spare parts and accessories with their part number.

37. Normal refrigerator (280 litres) – Quantity 3

38. DICOM compatible fully digital, compact portable Colour Doppler Ultrasound machine. Qty: 01 **Technical features:**

- The unit should be compact, lightweight and portable. Weight should not exceed 8kg excluding cart and accessories.
- It should be suitable for Gynecology, Obstetrics, abdominal, small parts and vascular applications in adults and pediatric patients.
- Multiple preloaded as well as user configurable application presets should be available.
- Transducers: Three (1) Convex 5-2 MHz for abdominal imaging, (2) Linear 5-12 MHz for intra- op imaging (3) Endocavitary 8-5 MHz for transvaginal and transrectal ultrasonography and end firing biopsy-one each.
- All transducers should be lightweight digital phased array broadband type transducers with at least 128 elements.
- Detachable needle guide should be available with convex and endocavitary probes.
- Imaging modes of Real time 2D, Colour Doppler, Pulsed wave Doppler, Power (energy) Doppler and triplex Doppler should be available.
- Advanced features such as tissue harmonic imaging with contrast media and beam forming technology should be quoted as standard.
- Controls for 2D mode: Total gain, depth, TCG, dynamic range, acoustic power output, number for position of focus.
- Controls for Colour Doppler: PRF, colour gain, position and size of ROI, steering of ROI, colour maps and colour invert.
- Controls for pulsed Doppler: variable sample volume size from 1 to 5mm or more, steer, PRF, baseline, gain angle correction, spectral invert, duplex/triplex on/off
- Measurements for 2D mode: Multiple distances, area and volume.
- Measurements for Doppler modes: Stenosis quantification in percentage, diameter, PSV, EDV, mean, PI, RI, floor volume, acceleration time and index. Automatic and manual measurements and display of pulsed Doppler Calculations should be possible.
- Cineloop memory of minimum 30 seconds on all modes.
- Flat LCD/TFT monitor of 10 inches or more.
- Alphanumeric soft keys keyboard with easy access scans controls
- Onboard storage of at least 1000 images. Storage in JPEG and AVI format should be possible.
- A. Sorting of data base with patient name and date should be possible.
- B. All standard measurements, calculations & report formats should be available for vascular, Gynae & Obs and abdomen applications.
- USB port connectivity to printer or computer.
- Facility for storage on CDR/DVD should be available. Data should be transferable through the network to any other workstation.
- Unit should be compatible with 200-240V, 50 Hz with Indian power requirement.
- In built battery backup for at least 60 minutes use should be available.
- The unit should be compatible with DICOM3 or more and it should be possible to connect to the Hospital network through suitable LAN port. It will be the responsibility of the supplier to ensure hassle free networking as and when requested.
- Essential accessories: Thermal colour printer, UPS, mobile cart with transducer holder, jelly bottle holder and space for printer.

- Paper and cartridges for 1000 image printouts should be provided.
- The unit should be light weight and sturdy.
- The unit offered in the tender will require technical demonstration.
- List of users of unit offered should be enclosed along with the tender. The list should not contain names of users of units other than the one quoted.
- Price of the main unit and accessories to be quoted separately.
- Warranty: The unit, transducers and all accessories should be covered with comprehensive onsite warranty
- Suitable LASER colour printer should be provided. (Separate price to be quoted).
- The system to be USFDA or European CE approved.
- The bidder is expected to demonstrate the system when requested. However the necessary documents should have been submitted with the technical bid.

39. PREMIUM COLOUR DOPPLER ULTRASOUND SYSTEM -REAL TIME 4D Qty: 01

SPECIFICATION FOR PREMIUM COLOUR DOPPLER ULTRASOUND SYSTEM...REAL TIME 4D
SYSTEM OVERVIEW:
System should be the latest "state of the art fully digital Ultrasound equipment capable of performing, OBS GYN, Radiology, MSK, Vascular, Small parts Cardiology Adult and Neonatal.
The system should have the following modes: B-Mode (2D), conventional M-Mode with varying sweep rates, Anatomical M-Mode, PW Doppler with high PRF (PW), High PRF Doppler Mode, (TD)-Tissue Doppler mode, Color Flow Doppler Mode (CFM), Power Doppler Mode (PD), directional power Doppler, HD-Flow Doppler Mode (HD-Flow), and B-Flow (BF). B/ Color/FW Doppler in simultaneous real time. Volume Mode: 3D Static & 4D Real Time on Convex and Intracavity probes. & Matrix technology probes should be compatible with the system.
Power Doppler angio imaging and perfusion studies should be available for visualization of flow in small vessels and should be supported by all transducers.
System should have fully independent triplex multiple mode operation for extraordinary ease during Doppler examination, should be possible on all probes.
23 in High Resolution LCD LED Display with DVI interface, Resolution: Full HD 1920 x 1080 pixel, Image Size:1136 x 786, Fully Articulating Monitor Arm, Tilt angle: +30/-90° • Rotate: +90/-90", Horizontal Range of Motion: >250 mm (9.8 in), Vertical Range of Motion: >100 mm (3.9 in), Digital backlight and colour temperature adjustment. Ten default settings available: Warm: Extra Dark, Dark, Semi Dark, Light, Extra Light, Cold: Extra Dark, Dark, Semi Dark, Light, Extra Light Innovative user interface with high resolution 10.1 in LCD touch panel & 4 Active universal Probe Ports.
Volume imaging, Multi-slice imaging with variable slice thickness and multiplanar imaging on all types of 3D and 4D modes.
System should have facility for volume 3D/4D with Convex and option of taking 4D TV Probe in near future.
Should be capable of performing live 4D imaging with Volume transducers. 4 D imaging should be possible in Gray scale, colour mode, harmonic mode and with contrast agent imaging. Instant rendering of MPR images should be possible that rival acquired 2D resolution.
3D/4D tool Obtain any plane from a 3D or 4D volume by simply drawing a line, curve, polyline or trace through a structure. This valuable technology enables views of even irregularly shaped structures not attainable in 2D imaging. Excellent approach for examination of complex structures with curvilinear or irregular shapes. Benefit Reduces your manipulation of X-Y-Z Allows any slice in any plane-no longer locked into orthogonal planes Ease of understanding of coronal plane when

you simply 'draw one.
System should have 17,00,000 or more digital processing channels, Higher number of channels will be preferred.
Dynamic range should be 260 dB or more, with range adjustability by selecting different Dynamic Contrast Curves. Higher dynamic range will be preferred.
A 2D imaging depth of at Minimum Depth of Field: 1 cm (Zoom, probe dependent) Maximum Depth of Field: 40 cm (probe dependent) More will be preferred.
256 (8 bits) discrete gray levels.
16.8 Million Colors 24 bit.
2D acquisition frame rate more than >1200 frames/sec, color Doppler frame rate more than 400/s.
Multiple focal imaging.
Real time compounding with colour or power Doppler imaging.
Multiple frequency selection for better penetration and resolution for better tissue differentiation and better contrast resolution.
Post processing tools for annotation, measurement, correction of angle, baseline, sweep speed should be possible on stored images.
System should have multivariate Tissue Harmonic imaging facility including coded harmonics on all transducers. It should be able to operate with compound imaging and speckle reduction algorithm. System should have one touch tissue contrast resolution adjustment without altering the set pre-sets levels.
System should have real time compounding image technology with minimum 11 transmitted lines of sight. Real-time Compound Imaging should operate in conjunction with Tissue Harmonic Imaging, volume modes, Panoramic imaging, and duplex Doppler, and in conjunction with speckle reduction imaging.
High resolution algorithms for advanced speckle noise reduction, refined tissue pattern displays, and fine border definition. Should operate in 2D and 2D/CFI/Doppler mixed modes and with 3D and contrast agent imaging. This feature shall have operator selectable settings and be capable of displaying in side-by-side mode with non-speckle reduced image.
Should have trapezoidal imaging and steerable imaging for 2D, color & Doppler with linear probe. Beam Steering should be possible with angles up to 30 Degree on linear probe
Panoramic/extended field of view imaging should be available on 2D mode on convex and linear. transducers. This mode should build the extended field-of-view in a real-time manner, showing the image as it builds.
One button automatic adjustment/optimization for 2D mode, color mode and Doppler mode. With auto correction irrelevant fields of the 3D mode as well.
Incorporates advanced technology like coding excitation transmit technology and Coded harmonics mode for imaging deeper areas for imaging obese patients will be preferred.
The system should have a fast boot up time less than 200 seconds, when switch 'ON' from 'OFF' position, and also less than 18 second from STANDBY position. Specify the system booting time, less will be preferred.
System should have high capacity fans with automatic speed for system cooling
Year of introduction of the specific model-should be as latest as possible, preferably should have been launches within 2-3 years.
Unique user-friendly user interface for comfort and fast throughput.
SYSTEM CONTROLS:
System should have at least 45 automated and user programmable pre-sets (output power, signal

processing and calculations).
System should have facility to adjust 2D performance instantly for different patient types (Thin, average, obese).
The system shall display thumbnails on a clipboard with live gray mode while scanning to facilitate exams.
Pan and zoom facility with high resolution results in both live & frozen images. Higher zoom will be preferred. with HD-Zoom functionality up to 22x Zoom.
Cine loop review facility in individual and mixed modes (frame by frame and in video mode), 20: up to 10 min (depending on B-image size and FPS); typical: about 3min/4000 images (with curved array: 15cm depth, • M-Mode: up to 20 min motion time (depending on sweep speed and depth) Doppler mode- up to 10 min motion time (depending on sweep speed).
Post processing in Freeze mode (Dynamic Range adjustment, CoFor display on/off, Color/ Doppler invert, Color/ Doppler baseline adjustment, sweep speed, measurement, annotation and pictogram). Post processing of B-mode images with Speckle Reduction algorithm.
Real-time automatic Doppler calculations on touch of a button. Should provide facility to apply automatic Doppler analysis retrospectively to frozen spectral data or data retrieved from Doppler scrolling. Possibility of manual Doppler trace.
System should have at least 8 callipers with depth information and extensive, customizable measurement and report packages including Vascular, Abdominal, Small-Parts, Urology, Paediatrics, Ortho, Neurology, complete Obstetrics, multi-gestational Calculations, Gynaecology, and Fetal Heart report packages.
Callipers should have minimum precision of 0.1 mm, Small size callipers for measuring < 5 mm.
Callipers of dynamically varying contrast compared to background. Delete last measurement option, curved linear distance measurement.
Measurements (distance & area) should be possible in real time (non-frozen), frozen & on saved images as well.
Facility to save reports along with patient data which can be retrieved later. Measured parameters must be printed directly in form of a report through laser printer.
System should have facility of electronic biopsy guide and algorithm for clear needle visualization. The system should be capable of displaying biopsy lines (for all Transducers) while performing a fusion of B mode and color mode.
Speed & Volume Angle adjustment on volume imaging.
Different render direction to view the volume image
Advanced tool for accurate quantification of irregular regions in 3 D & automatically calculates the number and volume of hypo-echoic structures to speed follicular assessments
Ability to restrict firing of the probe to a particular slice thickness of the region of interest
Advanced tool for selection of slice thickness out of complete volume dataset
4D fetal Echo-2D +COLOR+B flow, STIC+ Power Doppler Mode STIC+CFM Doppler Mode, STIC+ HD-Flow Mode STIC+CRI STIC+ CRI+ CFM STIC+ CRI + PD STIC+CRI+HD-Flow STIC+ B-Flow STIC+ multi-slice mode with cine movement.
Advanced imaging mode for visualisation of hypo-echoic areas and get automatic precise volume followed with the measurements of each region and proper reporting.
Simultaneous visualisation of 3 planes and Realtime 4D to guide the needle to the lesion
Additional Software related to follicle, Biometry. Advanced 4D, Scan Assist, Render should be quoted as standard part of the Scope of supply Transforming Nuchal Thickness measurement with automation within fraction of seconds for the fast and accurate scanning supporting sonographers or radiologist to finish their scan within short time.

Should have auto 3D/4D rendering as well to get the best reproduction of 3D image in fraction of second with one touch
Advanced Spatio Temporal Image correlation with STIC & Anatomical-M mode for the diagnoses of atrial and ventricle synchronisation/ dysfunctionality of the Fetal heart. Automated sonography based technology helps streamline the acquisition of volumetric images of the fetal heart, displaying all eight recommended views with two steps after accusation of volume data set
PHYSICAL DIMENTIONS:
The equipment should be a room based wheeled unit with integrated brake, foot rest, transducer, cable and gel bottle holder, and with hydraulic height adjustment facility for control panel and monitor independently. Transducer and gel bottle holders should be provided from both sides of the keyboard for the user friendliness of the machine.
23 in High Resolution LCD LED Display with DVI interface, Resolution: Full HD 1920 x 1080 pixel, Image Size: 1136 x 786, Fully Articulating Monitor Arm, Tilt angle: +30°/-90* Rotate: +90/-90, Horizontal Range of Motion: >250 mm (9.8 in), Vertical Range of Motion: >100 mm (3.9 in), Digital backlight and color temperature adjustment. Ten default settings available: Warm: Extra Dark, Dark, Semi Dark, Light, Extra Light, Cold: Extra Dark, Dark, Semi Dark, Light, Extra Light
Innovative user interface with high resolution 10.1 in LCD touch panel & System should have a full size Alphanumeric Key board with interactive back-lighting. The key board should be floating with rotation of +/-40 from centre, and with adjustable Height of + 200mm.
Integrated recording keys for remote control of up to 4 Peripherals or DICOM devices, one dedicated DVD recording key.
The system shall have 4 universal probe ports easy to access location with electronic switching facility. 4.Active universal Probe Ports.
IMAGE STORAGE, DOCUMENTATION DEVICES & CONNECTIVITY ISSUES:
Must allow digital storage of gray scale as well as color images (both frozen & cine loops). Facility of reviewing and exporting in different formats.
System shall support the ability to store digital raw data that allows optimizing imaging parameters such as B Gain, TGC, Color Gain, Dynamic Range, Speckle Reduction levels, Doppler Gain, Doppler Base Line on image recalled from the image archive.
The system should have on board storage facility for at least 500 GB. The hard drive should be inbuilt. Cine Features: Dual/Quad image CINE Display CINE Gauge and CINE image number display CINE Review Loop Selectable CINE Sequence for CINE Review (by Start) Frame and End Frame) Side Change in dual CINE Mode Measurements /Calculations & Annotations on CINE Length: 512MB: up to 10 min and 13,200 frames (depending on B-image size & FPS); typical: about 3 min/4000 images (with curved array: 15cm depth, angle 81, 22 FPS).M-Mode: 32MB up to 1 min motion time (depending on sweep and depth) PW/CW-Mode: 32MB: up to 1 min motion time (depending on sweep speed).
The system shall provide the ability to sort images stored on board based on patient name, exam date, patient ID and exam types. Patent directory should show network status as print status, archive status, commit status and export to DVD status. Integrated Software DVR Digital recording. One drive for data export and recording DVD Formats: DVD+R, -R, +RW, RW for recording, DVD and CD support for data export FAT32 compatibility.
Possibility to modify/ edit patient data during and after exam has been stored and saved
Must have an integrated CD/DVD writing- burning facility and it could be viewed on any ordinary PC. Machine previous patient during scanning to save must have capability to write CD/DVD separately of be able to archive data from previously stored CD/DVD. DVD/CD drive to store / retrieve images in different i formats (TIFF/JPG/AVI/ DICOM)/ Patient reports.
System should be DICOM (higher version) ready (Storing, Transfer, Print

USB PORT: minimum 4 USB ports in machine and must be providing with USB memory stick to transfer images.
System should be easily intergraded in hospital PACS without any extra cost.
TRANSDUCERS & BIOPSY ATTACHMENTS:
Transducers should be of broadband technology for extreme high resolution images. Please specify model number, footprint, bandwidth, Imaging frequency, Doppler frequency, FOV and weight of each transducer Light weighted transducers with flexible cables will be preferred. Biopsy guides should allow various size needles
Multifrequency 2 D convex transducer: Wideband Convex Probe-Applications Abdomen, Obstetrics,Gynecology Maximum Bandwidth 2-5 MHz Number of Elements 192 FOV 69 Wide 113 Depth Max. 42 cm Biopsy Guide Available Multi-Angle, disposable with reusable bracket
Broadband 4D convex probe small and light weight will be preferred. Wideband Convex Volume Probe Applications Abdomen, Obstetrics, Gynecology, Pediatrics Maximum Bandwidth 2-8 MHz Number of Elements 192 Volume Sweep Radius 24.11 mm. FOV 639 (B), 850 x 639 (Volume Scan) Wide 90° (B), 85" x 90° (Volume scan) Depth Max. 26 cm Biopsy Guide Available Multi-Angle, disposable with reusable bracket
Wideband Micro-Convex 4D TVTR Volume Probe, Applications Obstetrics, Gynecology. Transrectal Maximum Bandwidth (-20 dB) 3.8-9.3 MHz, Number of Elements 192 Convex Radius 10 mm, Volume Sweep Radius 11.7 mm, FOV 146" (B), 120 x 146 (Volume scan), Wide 180 (B), 120 x 180 (Volume scan).
Wideband Phased Array Probe Applications Small Parts, Cardiology, Paediatrics Maximum Bandwidth (-20 dB) 4-12 MHz, Number of Elements FOV 90' Depth Max, 13.7 cm.
Wideband Linear Probe Applications Small Parts, Obstetrics, Peripheral Vascular. Paediatrics, MSK Maximum Bandwidth 3-8 MHz Number of Elements 192 FOV 44 mm Footprint 53.0 x 14.1mm Depth Max. 14 cm with reusable bracket
Wideband Matrix Linear Probe Applications Small Parts, Peripheral Vascular, Pediatrics,MSK, Breast Maximum Bandwidth (-20 dB) 4-13 MHz Number of Elements 1008 FOV (Width) 50 mm Footprint 60.7 x16.0 mm Depth Max. 16 cm Centre.
ACCESSORIES
B/W thermal printer of latest model (with CE or FDA mark) for image printouts. Please specify the brand, model and specification details.

40. Electro hydraulic OT Table - Multipurpose electro hydraulic with manual override mobile Table with divided leg sectionsuitable for all Gynecological surgical procedures, complete with 5cm mattress and corded handset. **Qty: 02**

S. No.	Technical Specifications
A).	Full-length radio-translucent top.
	4 or 5 sections tabletop, which should be made of a special scratch resistant, hardwearing and easy to clean material. Base column cover to be made of 100% stainless steel alloy and stainless steel.
	Removable head and leg sections to suit different applications, with cassette tunnel.
	Battery powered, with facility for connection to mains electricity for immediate use. Battery Exhaustion protection and low battery warning via an audible 'beep'/displayindicator should be available.
	Table should not have a thread/sharp edge for ensuring proper cleaning and user safety.
	Mattress should be of high quality that spans tabletop break for improved patient support. Its depth should be 50mm. Mattress must be Latex free.

	The robust handset should offer 8 controls namely Trend. /Reverse Trend, Lateral Tilt, Flexion/ Extension and Height functions.
	Brakes, 4nos Wheels
	Table should have a narrow T-shaped base allowing optimum access and greater stability.
	The table top should not be fitted with transverse members casting shadows on the X-ray images except for the release brackets for adjustment on either side.
	The Table should be operated by the following operating elements: corded hand control, Manual override panel with manual override facility.
	There should be 'U' cut compatible for Gynae surgery.
B).	Electrical specification: Special-design, maintenance-free rechargeable batteries with capacity for about a week's use in the operating room. Recharging of the batteries and supply of the operating table by means of a mains cord Nominal mains voltage (selectable) 220/230-240V AC via mains cord with inbuilt stabilizer.
C)	Technical Data: Length: 6-6.5 ft Width : 3.5 ft Minimum height (without mattress) : 600± 50 mm Maximum height (without mattress): Minimum of 1050 mm. Maximum lateral tilt: 20-30 deg. (either side) Trendelenburg: atleast 25 deg. Reverse Trendelenburg : atleast 25 deg. Head section adjustment : ±40-45 deg. Leg section adjustment : +50 deg to -110 deg Break (extension) position : 200-220 deg. Break (flexion) position : 110-130 deg Cranial & caudal traversing: 200-300 mm Back Section adjustment: (-15 to +70 deg) Maximum Patient weight : 250kg or More
	Accessories:- <ol style="list-style-type: none"> Arm Board - 2 Lithotomy leg Holders "Geopie type" (Adult and paediatric)- 1 set each Body Strap-3 Anaesthesia screen with clamps-2 Side Supports with clamps -2 pcs Knee crutches with clamps- 2 pcs Clamp, Rotary- 4pcs Clamp, circular-4 pcs Accessories stand mobile on castors-1pcs Arm Support, perplex-2pcs Infusion rod with clamp Drain Tray
D)	Environmental Factors Shall meet IEC-60601-1-2:2001(Or equivalent BIS) General requirements of safety for Electromagnetic compatibility or should comply with 89/366/EEC; EMC-directive. <ol style="list-style-type: none"> The unit shall be capable of operating continuously in ambient temperature of 20-30 degree C and relative humidity of 15-90%. The unit shall be capable of being stored continuously in ambient temperature of 0-50 degree C and relative humidity of 15-90%.

E)	Power supply. <ol style="list-style-type: none"> 1. Power input to be 220-240V AC, 50HZ fitted with Indian Plug. 2. UPS of suitable rating with voltage regulation and spike protection for 60minutes back up.
F)	Standards. Safety and training. <ol style="list-style-type: none"> 1. Should be USFDA or European CE approved product. 2. Manufacture should have ISO certification for quality standards. 3. Comprehensive training for alb staff and support services till familiarity withthe system. 4. Demonstration on table. 5. Comprehensive warranty for 5 years with no fault warranty in the first year and5 years CMC after warranty including UPS.
G)	Documentation. <ol style="list-style-type: none"> 1. User/Technical/Maintenance manual to be supplied in English. 2. List of Important spare parts and accessories with their part number andcosting. 3. It is submitted that the specifications are not tailor made to any Company.

41. LED Procedure Light: 01

S. No.	Technical Specifications
1	LED Procedure Light should have color temperature of 4,400 K offers a natural, white light
2	Illumination At 39" (1 m) Focal Length: 7,500 fc (80,700 lux)
3	Pattern Diameter: 7.5" (19 cm)
4	Depth of Field: 75cm
5	Diameter of light head 51cm
6	LED Light module: 16 LEDs arranged in 4x4 array, 32 W rating

42.	LAPTOPS	Quantity- 2
1. Display size:	15.6"	
2. Display resolution max:	1920x1080	
3. Processor Brand	Intel	
4. Processor:	Core i7 7th Generation or newer Type	
5. Processor Speed	3.50 GHz	
6. RAM Size	16 GB	
7. Memory Technology	DDR4	
8. Computer Memory Type	DDR3 SDRAM	
9. Hard Drive Size	2 TB	
10. Hard Disk Technology	Serial ATA	
11. Hard Drive Interface	Serial ATA	
12. Hardware Platform	Windows	
13. Operating System	Windows10 preloaded	
14. Included Components	Laptop, AC adapter, User Manual	

43.	ALL IN ONE MULTI-FUNCTIONAL PRINTER WITH SCAN, COPY AND FAX FACILITY	Quantity- 2
1.	Connectivity Ports: Hi-Speed USB 2.0 port (device); built-in Fast Ethernet 10/100Base-TX network port, Wireless	
2.	Wireless capability Standard (Wi-Fi 802.11b/g/n)	
3.	Copier settings: Number of Copies; Lighter/Darker; Optimize; Paper; Multi-Page Copy; Draft Mode	
4.	Maximum number of copies: Up to 99 copies	
5.	Copy reduce / enlarge settings:25 to 400%	
6.	Copy speed (black, normal) : Up to 23 cpm	
7.	Copy resolution: 600 x 400 dpi	
8.	Acoustic power emissions: 6.5 B(A) (printing at 23 ppm)	
9.	Operating humidity range:30 to 70% RH	
10.	Storage humidity: 10 to 90% RH	
11.	Environmental specifications: Mercury free	
12.	Memory : Memory, standard 256 MB	
13.	Mobile printing capability	
14.	Mobile printing services: Apple AirPrint; HP ePrint; Google Cloud Print 2.0; Mopria-certified; Wi-FiDirect	
15.	Network protocols, supported: TCP/IP: IPv4; IPv6; IP Direct Mode; LPD; SLP; Bonjour; WS-Discovery; BOOTP/ DHCP/ AutoIP; WINS; SNMP v 1/2/3; and HTTP/HTTPS	
16.	Input capacity: Up to 150 sheets	
17.	Output capacity: Up to 100 sheets	
18.	Media sizes supported (metric) A4; A5; A6; B5 (JIS)	
19.	Media types: Paper (laser, plain, photo, rough, vellum), envelopes, labels, cardstock, postcards	
20.	Energy savings feature	
21.	Power supply: 220-volt input voltage: 220 to 240 VAC (+/- 10%), 60 Hz/50 Hz, 2.8 A	
22.	Print technology: Laser	
23.	Duplex printing: Manual duplex	
24.	Print resolution (best): Up to 600 x 600 dpi, FastRes 1200 (1200 dpi quality)	
25.	Monthly duty cycle: Up to 10,000 pages	
26.	Print languages :PCLmS, URF, PWG	
27.	Regulatory specifications: Should have requisite regulatory/CE/EN certificates for safety, Electromagnetic compatibility, fax capability and wireless communications	
28.	Scan technology: CIS	
29.	Scan resolution, hardware: Up to 600 x 600 dpi (colour, flatbed), Up to 1200 x 1200 dpi (mono, flatbed)	
30.	Levels of grayscale:256	
31.	Maximum flatbed scan size (metric) :215.9 x 297 mm	
32.	Twain version: Version 2.1	
33.	Security management: Password-protected network embedded Web server; enable/disable network ports; SNMPv1 community password change	
44.	TV FOR RECEPTION AND SEMEN COLLECTION ROOM	Quantity- 2
1.	Screen Resolution 1920 x 1080 pixels	
1.	HD Type Full HD	
2.	Screen Type LED	
3.	Refresh Rate 50Hz or more	
4.	Supported Video Formats DivX	
5.	Number of Speakers 2	

6.	Speakers Output (RMS): 20W or more
7.	Sound Technology: Dolby Digital Decoder, DTS Decoder
8.	Audio Feature Details: Auto Volume Leveller
9.	Supported Audio Formats: AC3, MP3, PCM
10.	Connectivity: Built-in WiFi, Ethernet, Wi-Di
11.	HDMI: 2 or more
12.	USB: 2 or more
13.	Headphone Jack: Yes, 1
14.	Composite In: Yes
15.	Component In: Yes
16.	Connectivity Input: Yes
17.	TV for reception area 42 inches in display size
18.	TV for semen collection room 32 inches in display size

45.	DVD PLAYER/MULTI-MEDIA PLAYER	Quantity- 1
	1. Should play multiple video content formats like MPEG-1,MPEG-2 PS/TS,MPEG-4,VOB,DivX	
	2. Should have Audio Capabilities which include, Digital /Analogue Conversion,5.1 Ch. Dolby Digital Output,MP3 &WMA playback	
	3. Should play directly from USB	
	4. Should Playback multiple format discs including, DVD (PAL) / NTSC, CD-R/-RW, Audio CD, Dual Disc	
	5. Should have HDMI and Composite video and stereo Audio port connectivity to any Television / Monitor/ Projector.	
46.	Wireless Two way Audio System: (Between procedure/ transfer room and IVF lab	Quantity- 1
	1. An active loudspeaker shall be installed.	
	2. 3-Channel Loudspeaker with Digital volume control and Audio mixer and Audio equalizer should be installed at a most suitable place.	
	3. Suitable cable material and a patch panel should be offered as per the position of the Loudspeaker.	
	4. The surgeon and his team should be able to do Bi-Directional Audio communication from OT to IVF lab and IVF lab and embryo transfer room	

47. Barcode Matcher - Quantity 1

Barcode based electronic witnessing, labeling, workflow scheduling and traceability system , specifically created for IVF clinics to help prevent errors through misidentification of patients and their gametes and embryos by replacing human double checking, reducing the risks of error

48. UV sterilizer 2

49 Hot air oven (91 litres) 1

50. Anesthesia smart workstation 1

51 Hard disc 1TB – 2 nos.

2.Consumable List

Consumables for 3 Years based on 300 Cycles/year

Sperm Washing Media	250 Bottles
Sperm Gradient 40/80	30 Bottles
Handling Media	100 Bottles
Culture Media – Single Step	170 bottles
Culture Media for Recurrent Implantation	50 bottles
Failure Patients – Single Step	
Polyvinylpyrrolidone (PVP)	50 Packs
Hyaluronidase	100 Pack
Oil	150 bottles
Vitrification Media	50 Kits
Vitrification Warming	50 Kits
Sperm Freezing	50 Vials
Dishes for Sperm Selection	500 Dishes
Biopsy Pipette	30 Boxes
ICSI Pipette	100 Boxes
Holding Pipette	100 Boxes
Tips for Denudation 135-140um	150 Boxes
Tips for Denudation 170-180um	150 Boxes
Tips for Denudation 250-300um	150 boxes
Cell Culture Dish 35mm	20 Boxes
Cell Culture Dish 100mm	20 Boxes
Center Well Dish	20 Boxes
4-Well Dish	20 Boxes
5ml test for Oocyte aspiration	20 Boxes
14ml Test tube for Oocyte aspiration	20 Boxes
15ml conical centrifuge tube Semen analysis	20 Boxes
10ml Serological Pipette, Orange Plug, 400/Cs	10 Boxes
1ml Serological Pipette, Orange Plug, 400/Cs	10 Boxes

3.FURNITURE

ALL FURNITURE ITEMS SHOULD BE FROM REPUTED BRAND PREFERABLYFROM GODREJ, HERMAN MILLER, FEATHERLITE AND HAVE WARRANTY

1.	Andrology lab <ul style="list-style-type: none">• Overhead build in cabinet• Chairs-3• SS table 4
2.	Reception <ul style="list-style-type: none">• Reception desk L or C shaped-1• Receptionist Chair-2• Cabinets behind the desk-1• Sitting facility-15• Centre table• Magazine rack
3.	USG room <ul style="list-style-type: none">• Work station with desktop• Consultant Chair-1• Build in overhead cabinets for storage• Obstetric couch -1
4.	Counseling room <ul style="list-style-type: none">• Table with desktop• Consultant Chair 1• Patient stool /chair 4• Overhead cabinets• 4.1-Two seater sofa, 1 one seater sofa
5.	Consultation room <ul style="list-style-type: none">• Table• Consultant Chair 1• Patient stool /chair 4• Overhead cabinets• 1-Two seater sofa, 1 one seater sofa
6.	Patient changing rooms <ul style="list-style-type: none">• Chair 2• Hanger points• Cabinets for keeping linen• OT dress– 30 sets• changing slippers – 50 sets
7.	Doctors changing rooms <ul style="list-style-type: none">• Chair 4• Hanger points• Cabinets for keeping linen

8.	Semen collection room and IUI: <ul style="list-style-type: none"> • Recliner-1 • Chairs-2 • Cabinets for storage • Height adjustable doctor chair with arm rest -5 • Drug Trolley-3 • Dust bin with lid in each area • Obstetric couch for IUI procedure
9	Recovery room <ul style="list-style-type: none"> • Patient recovery beds 4 (electric operated) • Bedside locker 4 • Nursing station table 1 • Doctors chair -1 • Chairs -3 • Patient attendant stool 4 • Instrument trolley – 4 • Drug trolley 4
10.	RECEPTION TABLE <ul style="list-style-type: none"> • C/L shaped • Modular design • Cork 18mm thick rubberized • Glass Top: 10 mm thick diamond cut edges • Modesty Panel: MS perforated sheet size at least 0.8mm thick • Legs: 1.6 mm M5 tube of 50 mm diameter and 600 mm length • in built storage in form of drawers on sliding rail system (3 on each side) • Reception table should have built in wire management system • Pre acceptance demonstration of furniture is must.
11.	RECEPTIONIST CHAIR: <ul style="list-style-type: none"> • Medium back junior executive type chair • Gas height adjustment • PP armrest with nylon base • Epoxy powder coated extruded aluminium 5 spokes base (circumscribing diameter 60 cm) • Antistatic castors, approx. 75 mm diameters, at least 2 with brakes • Seat size and backrest size for standard adult • Seamlessly upholstered seat and backrest, • Colour of upholstery-blue / grey • Colour of base-black • With height adjustable, broad. padded and upholstered arm rests and comfortable back rest • Pre acceptance demonstration of furniture is must.
12.	FILING CABINET BEHIND RECEPTION DESK: <ul style="list-style-type: none"> • Height approximately 6 feet • Having at least 4 racks with individual doors and locking mechanism for each rack • Vertical filing cabinet • Godrej or equivalent • Pre acceptance demonstration of furniture is must.

13.	PATIENT SEATING FACILITY: <ul style="list-style-type: none"> • Three in one combi chair-airport model Metal Chair • Shall have tubular Frame made of 19mm dia and 16mm thick M.S. ER.W Tube. The Seat and back should be puff cushioned and polyester coated • Color grey/black • All steel components shall be Epoxy • Pre acceptance demonstration of furniture must
14.	MAGAZINE RACK (Godrej or Durian make)
15.	CENTRE TABLE: <ul style="list-style-type: none"> • Material wood, shade to match rest of furniture in reception based on concept of coffeetable). • Dimensions:30 34 inch (1), 14-16 inch (1), 19-22 Inch (W) • Must have 2 storage in built drawers to accommodate magazines4 Pre acceptance demonstration of furniture is must.
16.	CHAIRS <ul style="list-style-type: none"> • Medium back junior executive type chair 2 Gas height adjustment • PP armrest with nylon base • Epoxy powder coated extruded aluminium 5 spokes base (circumscribing diameter 60 cm) • Antistatic castors, approx 75mm diameter, at least 2 with brakes6 Seat site and backrest size for standard adult • 7 Seamlessly upholstered seat and backrest,8 Colour of upholstery- blue/grey • Colour of base-black • With height adjustable, broad, padded and upholstered arm rests and comfortable back rest11 Pre acceptance demonstration of furniture is must
17.	CONSULTANT CHAIR: <p>1 Revolving executive chair (High back), Should be from Godrej), featherlite or equivalent.</p> <p>2 Gas height adjustment</p> <p>3 PP armrest with nylon base</p> <p>4 Epoxy powder coated extruded aluminium 5 spokes base (circumscribing S</p> <p>Antistaticcastors, approx. 75mm diameter, at least 2 with brakes</p> <p>6 Seat size and backrest size for standard adult7 Seamlessly upholstered seat and backrest,</p> <p>8 Colour of upholstery- blue/grey9 Colour of base-black</p> <p>10 With height adjustable, broad, padded and upholstered arm rests and comfortable back rest11 Pre acceptance demonstration of furniture is must.</p>

18.	WALL MOUNTED STORAGE 1 Wall mounted wooden cabinets with individual lockable doors (Godrej Stare up orequivalent) sturdy, aesthetically appealing color and finish, ergonomic design 2 To be provided in reception, usg room, semen production room and andrology lab 3 Size: depth approximately 110 mm, height-750-800 mm, length according to roomspecification to cover one entire wall 4 Procurement, installation and work needed for fitting and installation included in thescope of turnkey
19.	OFFICE TABLE: 1 The office table should be made up of steel. 2 Should be of high quality, aesthetic and ergonomic design 3 Top made up pre laminated, beige or pine coloured material of high density 4 ressed wood, properly treated Flame and water retardant. 5 Should be with one drawer and one shelf on right hand side 6 Size (approx) Height 750 mm Width-800 mm Length-1200 mm 7 Pre acceptance demonstration of the furniture is must.
20.	WEIGHING SCALE 1 Should be battery operated 2 Should have LCD Display 3 Should have large foot space 4 Should have Tap On & Auto Off 5 Should have Overload & Low Battery indicator
21.	SMALL CONSUMABLE TROLLEY 1 made of stainless steel 14301 2 lour same size drawers under the table top 3 the drawers on ball bearing slides, full extension, self-closing 4 table top with upraised back and sides edges 5 manoeuvring handle situated at front side of the trolley 6 base on four castors with diameter 100 min, two of them with brakes 7 all edges rounded and safe 8 table top dimensions 650 x 600mm 9 Measurements: 600x 700 x 985 mm
22	CONSUMABLE TROLLEY FOR EMBRYO TRANSFER ROOM 1 made of stainless steel 1.4301 2 three drawers under the table top, plus one heating drawer for warming infusion fluids at the 3 bottom of the heating drawer perforated to facilitate heat distribution 4 thermoregulation placed above the heating drawer front, allowing temperature adjusting bottom of the trolley within the range from 35°C to +45°C 5 the drawers on ball bearing slides, full-extension, self-closing 6 manoeuvring handle situated at front side of 7 table top with upraised back and sides edges 8. all edges rounded and safe the trolley 9. base on four castors with diameter 100 mm, two of them with brakes 10 Table top dimensions 650x600 mm 11 Measurements: 690x700x585 mm

23	ULTRASOUND EXAMINATION COUCH 1. holes of 1 cm dia to allow fluid drainage, 2. Lower frame and intermediate frame of steel tubes of rectangular and square sections,multiple pre-treated and epoxy powder coated 3. Size (approximate): Length: 2050 mm bed surface, 2125 mm with frame. Width: 750 mm. Bed surface size: 705 mm Wx 1950 mm L 4 Mattress-High-density foam mattress anti-microbial retardant, antimicrobial, leather likeupholstery treated with waterproof flame 5 Backrest operated by gas system from horizontal to seated position 15 Trendelenburg 6 Height adjustable leg rests 7 Trendelenburg position operated by gas system 8 Pre acceptance demonstration of furniture is must.
24.	RECLINER FOR SEMEN COLLECTION ROOM: 1.Smooth Reclining Mechanism 2. Rubber wood frame 3. Slab stock foam seat:24kg/cubic m back: 24kg/cubic m 4. Brown PVC upholstery, durable, stain resistant and easily cleanable 5 Excellent lumbar support & Width 950mm, Depth-740, Height-1050mm, seat height 450mm
25	SOFAS 1-Two Seater sofa, 1-Single seater sofa in counselling room I High back restExcellent lumbar support Upholstery washable, breathable, stain resistant material
26	DUST BIN WITH LID IN EACH AREA
27.	MAIN SIGN BOARD OF REPRODUCTIVE UNIT, NAME BOARDS FOR ALL ROOMS- RECEPTION, USG ROOM, COUNSELING ROOM, ANDROLOGY LAB, IVF lab, Procedure/transfer room etc

4. CIVIL AND ELECTRICAL MODIFICATION WORKS IN EXISTING BUILDING AND OT SET UP:

Modification in Civil and electrical works, as required, in the already existing 2 functional Operation theatres and ancillary areas to meet the need/ prerequisites of IVF lab and embryo transfer room and IVF set up (wall panel, ceiling, doors, flooring, coving, hatch box, counter tops, earthing, light fitting, UV light , electrical, gas and data conduits, main electrical supply panels, storage cabinets, air return modules and pressure relief dampers, as per site requirement)

Modifications proposed in existing OT set up and ancillary areas

- **Door:** Door with specifications as follows to be provided between IVF lab and embryo transfer room
 - Supply and fixing 49mm thick puff insulated door with puff insulation under high pressure (PUF @ 40 kg / cum) laminated by 0.8mm powder coated aluminium towards lab side and 0.8mm on the outer side.
 - Door size: 4 feet in width, should be provided with suitable door frame,
 - Handle (Providing and fixing aluminium handles ISI marked anodized, anodic coating not less than grade AC 10 as per IS: 1868, transparent or dyed to required colour or shade with nuts and screws etc. complete- 125 mm size) opening inside.
 - Doors must be tight-fitting with bottom 'sweeps' and perimeter seals (top and edges).
 - A vision panel 1*1 feet at height of 4.5 feet should be provided; it must be double glazed, air-tight and gasketed.
 - Door should have electronic/ RFID/pass-cord operated entry to restrict entry into lab. The gasket used shall comply with clean room standards.
- **Hatch Box/Pass Box:** A hatch box should be provided between OT and IVF lab with specifications as follows
 - The hatch should be designed in such a way that only one door should be opened at one time.
 - The UV light should be so installed that it is kept on while both the doors are closed. This UV light has to be automatically turned off in case of opening of either of the doors.
 - Indicators should be provided on both sides of the OT so that door open / close status can be monitored from both sides
 - Hatch Box should have a manual over-ride to allow opening of both doors together if need be
 - Providing and fixing static SS pass box of size 450x450mm in between IVF Lab and OT, for material transfer (Inclusive of cutting and making good the same).
- To provide the door and hatch box between proposed procedure transfer room and IVF lab, rerouting and refixing of existing wall paneling and wall needs to be carried out along with rerouting and refixing of existing wiring and switches /sockets
- Existing Door in the site of proposed IVF lab may be locked permanently to prevent direct contact with external environment and can be used in case of emergency.
- **Providing and fixing static SS pass box** of size 450x450mm in provided between the Semen collection room and Andrology lab, for material transfer
- **Connection from semen collection room to adjacent toilet** with a door to be done, to convert it to attached toilet.
- To provide the door between proposed semen collection room and toilet and SS pass box between semen collection room and Andrology lab, rerouting and refixing of existing wall needs to be carried out along with rerouting and refixing of existing wiring and switches /sockets

- Provision of split AC in the proposed semen collection room and cryopreservation room
- **Wall panel in IVF lab (Modifications in existing OTs as per site requirement)**
 - Supply and installation of 80mm thick puff insulated wall panel with 0.8mm powder coated aluminium on visible side and 0.8mm aluminium on other side.
 - Finished to a clean room standards.
 - The core of sandwich panel shall be filled with ridged poly-urethane foam which has to be injected under high pressure with minimum density of 40kg/m³. The individual wall panels shall be fixed using tongue and groove technology. The gaps between panels shall be suitably filled with metal filler/ epoxy
- **Ceiling panel in IVF lab (Modifications in existing OTs as per site requirement)**
 - Supply and installation of 60mm thick and puff insulated ceiling panel with In-side 0.8 mm powder coated aluminium and outside with 0.8mm aluminium.
 - Finished to a clean room standards.
 - The core of sandwich panel shall be filled with ridged poly-urethane foam which has to be injected under high pressure with minimum density of 40kg/m³. The individual ceiling panels shall be fixed using tongue and groove technology. The gaps between panel shall be suitably filled with metal filler / epoxy
- **Storage cabinets:**
 - A storage cabinet made up of powder coated material or stainless steel at least 3x2x1.5 feet in size, in build in modular panelling, smooth finish, easily cleanable. 2 for IVF lab and 1 for embryo transfer room
- **Counter-tops:** Non-porous materials that do not release VOC should be used for countertops. Material used is corian.
- **Light Fitting and UV LIGHT as per specifications in IVF lab:** Modifications as per site requirement
 - Supplying and fixing of LED light fitting with of lux level equal to 1000 lumens as per design with dimmable control at the working table Light fittings must be air-tight, designed for cleanrooms, so no air leakage occurs into the plenum void above the ceiling. Light fittings can be surface-mounted provided that the cable access is sealed, and there is no horizontal rim or flange where dirt can accumulate.
 - **UV LIGHT:** Supply and fixing of Ultraviolet lights comprising of 30 watts. UV tubes are fixed to the Frame. The SS frame is manufactured from 1.2 mm, Type 304, stainless steel. The unit is easy to disinfect and maintain.

Proposed IVF lab and embryo transfer rooms are already having PVC flooring, Aluminium ducting with NBR insulation, HEPA filters and dampers for controlling the cooling. The scope of the work includes provision/replacement of any of these in the proposed IVF lab, if the same does not pass the efficiency /evaluation test.

In addition to the above, the scope of work includes any modifications in existing OTs, if required, to suit the need / prerequisites for IVF lab (if the same does not pass the efficiency /evaluation test) in following aspects:

- Coving
- Earthing
- Medical gas pipeline system
- Electrical, gas and data conduits:
- Main electrical supply panel

- Pressure relief dampers
 - Air Return Modules: Modifications in existing OTs as per site requirement, if any
 - Pressure Relief Dampers: Modifications in existing OTs as per site requirement, if any
 - HEPA filters
- Vendors need to check whether the electrical load requirement for IVF lab and other areas will be able to be met by existing cabling and electrical panels.
 - The scope of work includes provision of additional 5A , 16A power sockets/switches required in the various rooms of the marked area for the lab set up.
 - The scope of the work includes intercom and IT related services, fire detection alarm system and water sprinkler system, as required for the setting of the lab.

TRAINING

The company who will be given the responsibility should provide:

- Off-site training of 3 clinicians at good and recognized training lab. The company will also bear the cost of off-site travel, lodging and food expenses of clinicians during the tenure of training.
- The company will provide on-site/off-site training to One Gynecologist, Three staff nurses, 2 Lab Technician and Two OT Technicians.
- Should provide clinical embryologist services support for first 100 cases at the AIIMS, Mangalagiri Reproductive Medicine Centre . All expenses including travel, lodging and food for the Above will be borne by the company.
- Should provide all consumables, media and other requirements for of first 100 cases.
- Should provide necessary training to clinical embryologist, andrologist once appointed by AIIMS, Mangalagiri at a recognized training center

MAINTENANCE

- Maintenance and cleaning of AHU ducts every 6 months for warranty period.
- Lab quality certification every 6 months for warranty period.

