List of required machineries and equipment

Category 1

S. No	Equipment	Qty
1	Laboratory Centrifuge	4
2	Binocular Microscope	3
3	Blood Collection Monitor	4
4	Blood Bag tube Sealer	4
5	Blood Bag stripper	1
6	Hot Air Oven (100-120L)	1
7	Water Bath	2

Technical specification for the machineries and equipment

1. LABORATORY CENTRIFUGE (BENCH MOUNTED)

GENERAL SPECIFICATION

- It should be Microprocessor Controlled with large Display of time, speed and error with buttons.
- Digital countdown timer with continuous run with range of 0 to 10 minutes of user selectable settings.
- Operation to change from rpm/rcf setting should be present.
- Brushless maintenance free motor drive with frequency drive, low noise level less than 58dB at Max speed.
- Automatic rotor recognition and automatic imbalance detection.
- Rotor and centrifuge Chamber should be made of chemical resistant and rust -free (stainless steel) and easy to clean.
- The body and lid can be Epoxy-polyester Powder Coated Steel.
- Safety lid interlock to prevent lid opening during centrifugation.
- Automatic door opening with emergency lid lock release facility.
- The higher Speed can be: Swing-out Rotor: 4500 rpm Angle Rotor: 16000 rpm
- Maximum RCF: Swing-out Rotor: 3,082xg Angle Rotor: 20170xg
- Tube Capacity Swing-out Rotor: 4x280 ml Angle Rotor: 6x100 ml
- Speed Accuracy: ±1rpm or ±1 x g
- Speed output should be stable even under fluctuating voltage conditions
- Profile selection: At least 3 user selectable acceleration & deceleration profiles
- It should have an option to store user defined program /minimum of 6 program.
- Inverter fault detection with auto shutdown, Dynamic brake for quick deceleration
- Gas hinge to prevent door falling
- Acceleration / braking profiles, 9 acceleration and 10 braking curves
- Speed Set range: 500-14000 rpm
- Speed Set step: 10 rpm
- Run time 9 hr. 99minutes plus Hold Position
- Timer Set Step1 minute

POWER SUPPY REQUIREMENT

- Power input to be 220-240 VAC, 50Hz fitted with UK Plug.

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SAFETY STANDARD AND TRAINING

- Should be UFDA, CE, UL of BIS approved (valid documentation should be submitted in technical bid).
- Manufacture should have ISO certificate for quality standards (valid documentation should be submitted in technical bid).
- Comprehensive training for Operator and Services Support for In- House Biomedical Engineer.
- 24 months warranty after the successful installation (Mandatory).
- Availability Spare parts and all other accessories must be for 10 years.

DOCUMENTATION

- Certificate of calibration and inspection.
- List of Equipment available for providing calibration and routine Preventive maintenance support as per manufacturer guideline.
- List of important spare parts and accessories with part number and costing.
- Log book with instruction for daily weekly monthly and quarterly maintenance checklist.

ADDITIONAL CONDITIONS

- Detailed service manual and operation manual should be provided by the supplier or manufacturer.
- Original catalogue with detailed literature should be provided.
- A written commitment of maintenance during and after the warranty period.
- Manufacturer/Supplier should install and successfully run and demonstrate the instrument.
- The unit should only be supplied with specific rotor, all required adaptors, sealing caps and bucket, prefer to have **swing out rotor**

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2. BINOCULAR MICROSCOPE

GENERAL SPECIFICATION

- The Optical system must be colour Corrected Infinity Optical System (CCIS).
- The Observation tube should be binocular head with feature of Siedentopf type.
- The Inclination is 30º inclined and 360º rotatable.
- The Interpupillary distance should be 50-75mm.
- The Diopter adjustment should be possible on both eyepieces, +/- 5 diopter.
- There should be a Widefield Eyepieces N-WF10X/22mm with diopter adjustment.
- Nosepiece: Reversed sextuple.
- The mandatory Objective lenses are 4X/0.10 (WD 15.9mm), 10X/0.25 (WD 17.4mm), 40X/0.65/S (WD 0.5mm), 100X/1.25/S-Oil (WD 0.15mm)
- The Objective mounting thread W 4/5"x1/36" (RMS standard)
- Stand type – Upright.
- The Mechanical stage should be built-in low position rackless coaxial stage control, ceramic insert and sample holder.
- The preferred Stage size 180x170mm
- Travel range X&Y 80x55mm
- The Condenser must be Focusable and centerable Swing-out Abbe condenser N.A. 0.90/0.13
- The Diaphragm must be Iris diaphragm
- Focus mechanism Coaxial coarse and fine focusing system with tension adjustment.
- Fine focus precision 1µm
- Focusing stroke 27mm
- Standard contrast technique -Brightfield.
- Upper limit stop must be preset and adjustable.
- Filter holder on top of the illuminator with fixing cap.
- Transmitted illumination Koehler Quartz halogen 12V/100W with intensity control.
- There should be a special attention called Illumination feature, Auto-OFF and Light Memory function, External lamphouse.
- Accessories included Dust cover, power cord, Allen key, immersion oil (5ml), blue filter, spare fuse, arm rest
- The preferred dimensions 592x242x435mm (LxWxH)
- Net weight 14.2kg.

POWER SUPPY REQUIREMENT

- Power input to be 220-240 VAC, 50Hz fitted with UK Plug.

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SAFETY STANDARD AND TRAINING

- Should be FDA, CE, UL of BIS approved (valid documentation should be submitted in technical bid).
- Manufacture should have ISO certificate for quality standards (valid documentation should be submitted in technical bid).
- Comprehensive training for Operator and Services Support for In- House Biomedical Engineer.
- On site Comprehensive warranty for 2 years (Mandatory).
- Availability Spare parts and all other accessories must be for 10 years.

DOCUMENTATION

- Certificate of calibration and inspection.
- List of Equipment available for providing calibration and routine Preventive maintenance support as per manufacturer guideline.
- List of important spare parts and accessories with part number and costing.

ADDITIONAL CONDITIONS

- An English version of detailed service manual and operation manual should be provided by the supplier or manufacturer.
- Original catalogue with detailed literature should be provided during proposal submission.
- A written commitment of maintenance during and after the warranty period.

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3. BLOOD COLLECTION MONITOR

GENERAL SPECIFICATION

- Bag holder tray must be suitable for all type of blood bags as well as the cradle tray should be magnetic removable for easy cleaning.
- It should have facility to preset total volume of blood to be collected and accordingly monitor and display amount collected.
- The automatic clamp functions must be enabled, if the flow rate is less than 20 ml per minute for more than 2 minutes during the blood collection.
- It should have provision of clamp to stop the collection of blood as soon as preset volume is collected and not allow over collection.
- Manual clamping should be available in case of any emergency.
- It should have standby/pause mode manual clamp facility to abort collection Automatic release of clamp when the bag is lifted.
- It should be able to operate at temperature of +5 to +45 C and relative humidity of 5 to 95%.
- There should be continuous digital display of preset volume, Blood flow rate and total time taken at the end of collection.
- Oscillation 12 ± 2 rpm, motor-driven oscillation

There should be visual display and audible alarm when the following occur.

1. When flow rate goes below 20ml/minute or high flow rate above 100ml/minute.
2. At the end of collection.
3. When battery low.
4. During pause function.
5. At any abnormal condition.

STANDARD ACCESSORIES

- Floor stand.
- Transport Case with Built -in Charger.
- All available calibration weights.

POWER SUPPY REQUIREMENT

- Power input to be 220-240 VAC, 50Hz fitted with UK Plug.
- It should be battery Operated with backup of >8hour.
- Classification Protection against electrical shock: Class II; internally powered

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SAFETY STANDARD AND TRAINING

- Should be FDA, CE, UL of BIS approved (valid documentation should be submitted in technical bid).
- Manufacture should have ISO certificate for quality standards (valid documentation should be submitted in technical bid)
- Comprehensive training for Operator and Services Support for In- House Biomedical Engineer.
- On site Comprehensive warranty for 2 years (Mandatory). The warranty should start from the date of installation only.
- Availability Spare parts and all other accessories must be for 10 years.

DOCUMENTATION

- User/Technical/Maintenance manuals to be supplied in English.
- Certificate of calibration and inspection.
- List of Equipment available for providing calibration and routine Preventive maintenance support as per manufacturer guideline.
- List of important spare parts and accessories with part number and costing.
- Log book with instruction for daily weekly monthly and quarterly maintenance checklist.

4. BLOOD BAG TUBE SEALER

GENERAL SPECIFICATION

- The system should be heavy duty and should be able to seal the blood bag quickly and effectively, acceptable time less than 1 second.
- Minimum RF power should be 20 watts and Sealing operation should activate automatically with the help of sensor when the tube is placed in between the sealing electrode.
- It must have a light Indication for the following, **Cover Open, Power, Ready, Seal.**
- It should be Compatible with tubes of various manufacturers.
- **Mode of operation** Once it is turned on, the device must be ready to use.
- It should be capable of making wide seal of 2-6mm thickness.
- Prefer to have extended portable hand unit sealing hand with coaxial cable of 1.5 to 2 mtr.it should have indication for sealing process on handle as well as main unit.
- Electrodes must be well protected by a cover to prevent blood splutter.
- Number of seals per charge should be more than 1000 continuous seal from a fully charged battery.
- The design must meet all international safety requirements of EN61010-1 It ensures safety against electrical shock hazards, fire hazards, mechanical hazards, electro-magnetic interference, etc.

POWER SUPPY REQUIREMENT

- Power input to be 220-240 VAC, 50Hz fitted with UK Plug.
- It should be battery Operated with backup of >8hour.

SAFETY STANDARD AND TRAINING

- Should be FDA, CE, UL of BIS approved (valid documentation should be submitted in technical bid).
- Manufacture should have ISO certificate for quality standards (valid documentation should be submitted in technical bid)
- Comprehensive training for Operator and Services Support for In- House Biomedical Engineer.
- On site Comprehensive warranty for 2 years (Mandatory).
- Availability Spare parts and all other accessories must be for 10 years.

DOCUMENTATION

- User/Technical/Maintenance manuals to be supplied in English.
- Certificate of calibration and inspection.

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- List of Equipment available for providing calibration and routine Preventive maintenance support as per manufacturer guideline.
- List of important spare parts and accessories with part number and costing.
- Log book with instruction for daily weekly monthly and quarterly maintenance checklist.

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5. BLOOD BAG TUBE STRIPPER

Purpose of Equipment:

The blood bag tube stripper is a “plier-like” tool, intended to be used with PVC blood tubing, to strip undiluted blood from the donor tubing. It can be used with different sizes of blood bag tubes due to the screw mechanism that allows to adjust the distance between the rollers.

GENERAL SPECIFICATION

- It must be lightweight (~125 g)
- Diameter of the rollers: 12 mm
- It must be compatible for various size of blood tube

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6. HOT AIR OVEN (100-120L)

Purpose of Equipment:

A hot air oven is a laboratory instrument that uses dry heat to sterilize laboratory equipment and other materials. Dry heat causes most of the injury by oxidizing particles. The primary cell components are damaged and the organism dies. The temperature is kept for about an hour to eliminate the most ambitious of the resistant spores.

GENERAL SPECIFICATION

- The oven should be table top model and net weight of the unit (empty) should not be more than 80kg.
- Interior volume should be 100-120 L
- The Oven should work under forced convection technology.
- Should have unique heating system that ensures homogeneous temperature distribution inside chambers even under full load.
- Interior design: Aero dynamic internal design for achieving horizontal air circulation.
- The Inner body made of Stainless steel with clear bottom.
- Heating-up time to 150 °C not more than 20 min.
- The temperature range of a hot air oven is +5˚C to 300 ° C. It can be controlled by using a temperature regulator.
- There should be provision to adjust temperature (°C or °F)
- Temperature variation at 150 °C not be more than ± 2˚C
- Temperature fluctuation at 150 °C not be more than ± 0.5˚C
- Recovery time after 30 seconds door open at 150 °C should be below 5 min.
- The oven structure should have Powder-coated housing.
- 3 chrome-plated racks should be provided.
- Minimum 3 No. of Shelves with height adjustable in 25mm steps.
- Minimum load per racks should be 30kg or more.
- It must have an automatic cut off of heater & blower when door opened.
- It should have digital PID temperature controller with timer, alarms and auto tuning.
- The Outer body should made of G.I Epoxy Coated.
- Should have USB port for recording data
- Energy consumption at 150 °C should be below 350Wh/h

POWER SUPPY REQUIREMENT

- Power input to be 220-240 VAC, 50Hz fitted with UK Plug.

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STANDARD AND TRAINING

- Should be FDA, CE, UL of BIS approved (valid documentation should be submitted in technical bid).
- Manufacture should have ISO certificate for quality standards (valid documentation should be submitted in technical bid).
- Comprehensive training for Operator and Services Support for In- House Biomedical Engineer.
- Availability Spare parts and all other accessories must be for 10 years.

DOCUMENTATION

- User/Technical/Maintenance manuals to be supplied in English.
- Certificate of calibration and inspection.
- List of Equipment available for providing calibration and routine Preventive maintenance support as per manufacturer guideline.
- List of important spare parts and accessories with part number and costing.

ADDITIONAL CONDITIONS

- An English version of detailed service manual and operation manual should be provided by the supplier or manufacturer.
- Original catalogue with detailed literature should be provided during proposal submission.
- A written commitment of maintenance during and after the warranty period.
- On site Comprehensive warranty for 24 months.

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7. BLOOD BAG TUBE SEALER

GENERAL SPECIFICATION

- The water bath must be equipped with a microprocessor system to achieve a precise temperature, also a timer to observe the set protocol.
- Over-temperature safety circuitry is necessary to prevent thermal runaway.
- The product exterior mut be epoxy powder-coated it benefit from outstanding chemical and corrosion resistance also the inner surface structure must be made from high quality stainless steel.
- It should have a monochrome LCD to display the set temperature and time.
- The alarm must be audible when the set protocol is completed.
- The prefer tank volume should not exceed 20L.
- Temperature range Ambient to 100degree Celsius., Time range -1 minute to 99,9 Hours + hold position
- Heating time：≤ 30 min (25℃~100℃)
- It should have a built-in water level detection device to prevent the danger of dry burning.
- It should have provision for drainage.

POWER SUPPY REQUIREMENT

- Power input to be 220-240 VAC, 50Hz fitted with UK Plug.
- If stabilizer is required it must come with instrument.
- Power consumption should not cross more than 1500W

SAFETY STANDARD AND TRAINING

- Should be FDA, CE, UL of BIS approved (valid documentation should be submitted in technical bid).
- Manufacture should have ISO certificate for quality standards (valid documentation should be submitted in technical bid).
- Comprehensive training for Operator and Services Support for In- House Biomedical Engineer.
- On site Comprehensive warranty for 2 years.
- Availability Spare parts and all other accessories must be for 10 years.

DOCUMENTATION

- User/Technical/Maintenance manuals to be supplied in English.
- Certificate of calibration and inspection.

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- List of Equipment available for providing calibration and routine Preventive maintenance support as per manufacturer guideline.
- List of important spare parts and accessories with part number and costing.
- Log book with instruction for daily weekly monthly and quarterly maintenance checklist.

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