

Annexure – A**1. Biosafety cabinet****Specifications:-**

Certification: NSF 49/EN1249 or Equivalent standard

Design: Approximately 4 Feet length X 2 feet Depth

Bio safety cabinets Class II, Type A2; 304 stainless steel interior

Epoxy-coated steel exterior. Removable, seamless, dished work surface with lift out knobs. Door-Fully closing, clear ¼" tempered safety glass sash. Counter balanced with base stand.

Circulation: Class 100, Supply and exhaust through HEPA filters. Inflow velocity of 105 fpm (0.5 m/sec) ,

Down flow velocity of 55 fpm (0.3 m/sec) 70 % air recirculation

Light: UV and sufficient illumination for work space.

Gauges: For monitoring the condition of all HEPA filters as well as work space.

Services Required: Installation & onsite validation

Calibration certificates

Manuals: Operation, maintenance & part list with detailed specifications. Operational & maintenance Training

Power Supply: Should include 210-240V/50 Hz

Recommendation:

Bio safety cabinets of Class II, Type A2

2. Water Purification System**Specifications:**

A compact water purification system with ISO 9001 certified designed to be fed directly by potable tap water visual display for quality parameter, filter condition etc. Reservoir capacity of approx. 30 ltr. Necessary pre-filters, cartridges and accessories to get ultra pure, laboratory grade water for molecular biology work

Quality of ultra pure water provided by system should fulfill following criteria:-

Resistivity: 18 or more meg-ohms-cm. 2

Conductivity: 90 –100 micro-ohms

Pyrogen level: To the levels 0.001 eu/ml with disposable / add on ultra filtration cartridge.

Microorganisms: <1 cfu/ml. TOC values: <5 ppb. Final filtration: Through 0.22 micron filter

Volume of pure and ultrapure water/day: 100-150 lit/day

Power Supply: 210-240V/50-60 Hz

3. -70°C Vertical Ultra low Freezer**Specifications:**

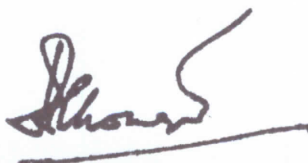
Galvanized steel sheet body with epoxy paint and vacuumed polyurethane foam panels, outer double door with locking facility. Alarm for audible & visual fault acknowledgement, low & high temperature audio visual alarms, condenser fault alarm, remote contact alarm, open door alarm, clean filter Indicator and power failure alarm. Castor wheels & leveling adjustor should be provided for adjustment and installation.

Capacity:

Approximately 570 – 700 L

Refrigerant:

CFC & HCFC



Cooling system:	Cascade cooling system
Doors:	Triple silicon section seal, Fitted with decompression valve facility to lower air pressure inside the freezer for easy door opening.
Inner Compartment:	Minimum 5 compartments with doors
Temperature:	Range -55 to -80°C, Stability +/-1°C , uniformity +/-3°C
Additional Accessories:	SS Racks and cardboard boxes
Power Supply:	210-240V/50-60 Hz

4. Fluorescent microscope

Specifications:

Basic Components

1. Objectives:

With a par-focal distance of 60 millimetres and an objective thread size of 25 millimetres. Phase Contrast objectives-4x, 10x, 20x & 40x and 100x with NA value of minimum 1.45 (without phase) (optional) oil immersion.

2. Condenser: ELWD (extra long working distance).

3. Nose piece: Extra Large Working Distance, adjustable.

4. Eyepiece 10X (F.O.V. 20-22mm) with Rubber eye guard. The eyepiece tube interpupillary distance should be 50–75mm, with Inclination of 45° from horizon.

5. Illuminator: High luminescent white LED illuminator.

Lamphouse for 50 W mercury lamps, UV Light shielding plate, UV-cut filter (detachable).

6. Mechanical stage with holders: attachable with different holders like, Terasaki holder (accepts 65mm petri dish); Slide glass holder (accepts 54mm petri dish); Hemacytometer holder etc.

7. Filters: Epi-fluorescence Attachment, with field diaphragm, Fluorescence filter block holder, (2 filter blocks mountable, 1 empty position), Barrier filter, Heat absorbing filter, Fluorescence Filters for DAPI, FITC & TRITC.

Additional Requirements:

1. Photographic attachment:

Trinocular model (with light distribution, bino/photo: 100/0, 0/100) to accommodate image documentation, a photo port that accepts various photo micrographic systems.

2. Digital Camera with not less than 7 Megapixel. High Resolution,

Power Supply: Should include 210-240V /50-60Hz.

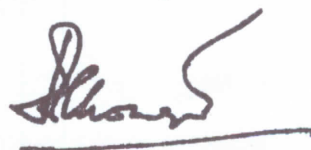
Spares: Lamps 2 Nos.

5. Real time RT-PCR

Specifications:

1) Table top model.

2) Complete system including basic system, essential accessories, the state-of-art computer workstation, acquisition and analysis software, startup kit inclusive of calibration standards etc.



- 3) Open system to accommodate Taqman, SYBR green and all other fluorescent dye based chemistries.
- 3) Standard optical 96 well plates/rotor, 0.2 ml strips, 0.2ml tubes compatibility
- 4) Min sample value requirement - 0µl - 50 µl
- 5) CCD/PMT camera with halogen/LED and at least five excitation and five emission filters.
- 6) Multiplexing ability up-to five dyes in a single run.
- 7) Calibrated dyes at installation: FAM/SYBR Green, VIC/JOE, NED/TAMRA/Cy3, ROX/Texas Red®, and Cy5, Should offer flexibility in dye selection.
- 9) Facility to calibrate new dye within the wavelength range without addition of new filters
- 10) Passive reference dye ROX or any other calibrated dye and should be optional.
- 11) Option for melt curve analysis with inbuilt hardware & software features.
- 12) Temperature range 40°C to 100°C
- 13) Sensitivity: Detection of 10 copy of template
- 14) Software applications: Comparative Ct, Standard Curve, Relative Standard Curve, Allelic Discrimination / SNP Genotyping, Plus/Minus, dissociation / melt curve. Manufacturer should have own IVD kit HBV, HCV, HIV, TB
- 15) 220 V /50Hz. All accessories
- 16) CE mark or equivalent

6. Automated nucleic acid extraction system

- The instrument is designed to perform fully automated walk away system for the purification of nucleic acids and proteins for research use in molecular biology applications. The system is intended for use by any professional users, trained in molecular biological techniques.
- Up to 12 samples can be processed per run using proven spin-column technology. The instrument controls integrated components including a centrifuge, heated shaker, pipetting system, and robotic gripper.
- The instrument is preinstalled with a range of protocols for purification of RNA, genomic DNA, plasmid DNA, viral nucleic acids, and proteins, plus DNA and RNA cleanup.
- No external PC is required to operate the instrument, saving valuable laboratory space. An integrated TFT touch screen simplifies protocol selection and clear on-screen messages guide the user through worktable setup.
- For increased ease of use and high process safety, labware and accessories fit onto the worktable only in the correct orientation. In addition, a fully automated load check helps to ensure that samples, reagents, and labware are correctly loaded.
- A comprehensive load check is performed prior to sample processing to check worktable setup and to help to ensure correct loading of the instrument.
- During the load check, an optical sensor automatically detects the number of samples in the shaker, checks that the shaker, number of rotor adapters, corresponding filter tips and is correctly loaded.
- An ultrasonic sensor checks the reagent bottle rack to make sure that it is correctly loaded and that there is sufficient buffer in the reagent bottles.
- The fully integrated centrifuge is equipped with 12 swing-out buckets, each of which can hold a disposable rotor adapter. Up to 12 samples can be processed per run. 12,000 x g maximum Swing-out rotor, maximum 45° 12 rotor positions



- Integrated shaker with a configuration of:
Speed 100–2000 rpm
Amplitude 2 mm
Heating range of room temperature to 70°C (158°F)
Ramp-up time of <5 minutes from room temperature to 55°C (±3°C)
- Vendor will support with proven spin column technology as per your requirement.
- Vendor will provide the service & training.

7. a) Horizontal Gel Electrophoresis system

Specifications:

1. Submerged gel electrophoresis apparatus with clear plastic construction for easy sample visualization
2. Tray should be UV transparent, length 13-13 cm and width 13-13 cm
3. Combs: 8 wells and 15 wells, All combs of 1.5 mm thickness
4. The unit should bear minimum 3 years comprehensive and 2 years non-comprehensive warranty.

b) Gel Documentation System

Specifications:

- 1) Gel imaging system to visualize i) Stained protein gels (coomassie, silver, UV light-excited fluorescent stains) and ii) Stained nucleic acid gels (ethidium bromide and other UV light-excited fluorescent stains).
- 2) Compact benchtop instrument
- 3) With UV and visible light transillumination, motorized zoom lens; Transillumination and epi-illumination.
- 4) Camera- high speed USB 3.0 interface for faster real-time image transfer, capture and download Auto focus configuration.)
- 5) Auto exposure setting for optimum image exposure time.
- 6) CCD resolution- 5 megapixel or more with 16-bit image and 65,536 Grey scale levels
- 7) Excitation source- Trans-UV, 312 nm; Wide transillumination area;
- 8) Provided with PC, Software compatibility: Windows

8. Laminar Air Flow

Specifications:

Certification: EN12469 OR equivalent

Design: Vertical laminar flow cabinet

Approximately 4 Feet length X 2 feet depth, 304SS interior, epoxy/powder coated exterior
Door fully closing with hinged sash.

Support stand, solid one piece dished work surfaces

Circulation: Down flow velocity of 40-70 fpm, ISO Class 5 or higher air

Filters: HEPA filter, (99.99% efficient on particles 0.3 micron)/ULPA filter
(efficiency of >99.999% at 0.1 to 0.3 micron sizes) provided with pre-filter)

Light: UV and sufficient illumination for work space

Gauges: For monitoring the condition of all HEPA filters as well as work space.

1. Power Supply: Should include 210-240V/50-60 Hz



9. CO₂ Incubator

Specifications:

Design: Water jacketed unit with 3-4 adjustable stainless steel shelves with inner glass door.

Capacity: 180-200 lit.

Temperature: Range: ambient to 50°C;

Uniformity $\pm 0.2^{\circ}\text{C}$ at 37°C.

Co₂ concentration: Adjustable from 0-20%

Sensor: Thermal conductivity sensor for CO₂ regulation

Relative humidity: Up to 93-95% at 37°C.

Alarm: Audiovisual alarm for adjusted CO₂, temperature and relative humidity levels.

Filters: Chamber HEPA filter and microbiological filters on all gas inlets and outlets and sample port.

Display: Digital; microprocessor controlled

Accessories: Humidity pan (3-3.5 lit capacity), 2 stage CO₂ gas regulator with pressure gauges, tubing and roller based stand


Power Supply: 210-240V/50-60 Hz

Optional: Separate quotes for all necessary filters

10. Laboratory refrigerator (temperature range: +1°C to +11°C)

Specifications:

- a. Integrated controller
- b. Digital display
- c. High and low temperature alarms
- d. Door ajar alarm
- e. Remote alarm contacts
- f. Standard door locks
- g. Access ports
- h. CE/ATEX marking
- i. Reversible doors
- j. Hydrocarbon refrigerants
- k. HCFC- and CFC-free insulation
- l. Capacity: 700 litres
- m. Voltage: 230V/50Hz
- n. Door type: Glass/solid
- o. Plug type: EU
- p. Includes: 3 shelves
- q. Defrost type: automatic
- r. Energy consumption: 3.4 Kwh/day – 5.3 Kwh/day
- s. Internal dimension WxDxH (mm): 600x660x1300
- t. External dimension WxDxH (mm): 700x817x1972
- u. Shipping weight kg (lbs): 130 (287) - 120 (265)



11. Autoclave (steam jacketed & vertical)

Specifications:

- Fully automatic vertical autoclave, suitable for sterilization under working steam pressure up to 15
- PSI or more and temperature of 121°C or more.
- Design: Unit made of SS 304 chamber, approx inner dimensions
- 16''' to 25'''(diameter x depth). Lid made of heavy gauge lid, die pressed S.S.304 with pressure gauge, steam release valve & necessary Safety valves, with foot lifting arrangement to open lid, programmable, with all functional accessories.
- Capacity: 70 to 80 lit
- Display: Time and temperature LCD display
- Alarm: Low water level alarm and cut off / Sensor open alarm
- Accessories: Perforated carriers made up of SS 304 (3-4 Nos.)
- Power Supply: 220/230 volts AC-50 Hz or Suitable power supply

12. Thermal Cycler

Specifications:

Design:	96 well, with 6 separate peltier blocks to provide independent temperature zones to run gradient PCR with hot bonnet.
Capability:	0.2ml, 0.5ml PCR tubes or microplates; to accommodate PCR volumes ranging from 10-100ul.
Run Mode:	Standard and fast run
Temperature:	Range +4-100°C Accuracy +/-0.25 from 35-99°C Uniformity <0.5°C (20 sec after reaching 95°C)
Ramp rate:	Maximum should be 5°C / sec and adjustable between 3-5°C /sec
Program:	Around 800 typical programs; with USB flash drive expansion
Power Supply:	Should include 210-240V/50-60 Hz

13. Refrigerated Microcentrifuge

Specifications:

- Bench top, compact, Refrigerated
- Temperature setting: 0 to 40°C
- Fast Pre cooling and should maintain +4°C at maximum speed
- Up to 10 programs or more
- Digital display showing rpm, RCF and time
- Speed Up to 15000 rpm
- Rotor for 24X1.5 to 2 ml tubes,
- Adaptors for 0.5 ml and 0.2 ml tubes
- Auto balancing in situation of minor imbalance
- Electrical Requirements: 120V/60Hz and 230V/50 Hz or Suitable electrical supply
- CE certified or equivalent



14. Electronic Multichannel Pipette

Specifications:

3 pipettes with volumes: 0.5 to 10 µl, 5 to 10µl & 50 to 1200µl

Short Description	Electronic multichannel pipette with Spring loaded nose cone and Secondary adjustment			
1	Channel format	8-channel	8-channel	8-channel
2	Adjustable Volume	0.5-10 µL	5-100 µL	50-1200 µL
3	Imprecision/Volume (≤%/µL)	±3.0%/±0.03µL/1µL	±3.0%/±0.03µL/1µL	±0.9%/±1.08µL/120µL
4	Inaccuracy/Volume(±%/µL)	±3.0%/±0.03µL/1µL	±2.0%/±0.2µL/10µL	±6.0%/±7.2µL/120µL
5	Pipette type	Electronic air cushion	Electronic air cushion	Electronic air cushion
6	Volume selection	Adjustable	Adjustable	Adjustable

15. -20°C Vertical Deep Freezer

Specifications:

- Capacity : 600-700 litre
- Inner shelf: 6-9
- Refrigerant: CFC free Temperature control: Micro-processor controlled, Digital display with temperature resolution of 0.1°C.
- Alarms: Low/high temperature, power failure.
- Door closing and locking: Adjustment: self closing door with key door lock. Adjustable levelling feet standard (optional casters).
- Power supply: 210-240V/50-60 Hz

16. Automated ELISA Microplate Washer

Capability: 96 well microplates and strips, with flat, round, or “V” bottom well
Manifold: 12 Channels Vacuum and fluid delivery Systems: In built with Positive displacement syringe pump, drive with adjustable flow rates

Program: Memory for around 50 programs including dispensing Volume (50 to 300ul/well) and multispeed microplate shaking program

Bottles: Wash, rinse and waste (volume 4-6 litre)
Safety devices: Aerosol cover, removable Plate carrier, spill over protection and overflow protection safety system

Display: LCD Display with Membrane Keypad
Power Supply: 210-240V/50-60Hz



17. ELISA reader

Specifications:

Capability:	24, 48 or 96 well micro plates
Spectral Range:	400-750nm, Accuracy ± 1 nm
Absorbance:	0-4 O.D.
Range:	
Accuracy:	Up to 0.001 O.D.
	Provision: Curve fittings formulas transformations & control assay validation, with compatible interface with PC & external printer.
Accessories:	Spare Lamps 2 Nos.
Power Supply:	210-240V/50-60 Hz

18. Adjustable Volume Single Channel Pipettes

Specifications:

ISO 8655 CERTIFIED, fully autoclavable, single channel pipettes of variable volume compatible with universal tips.

Range	Increment	Accuracy	Precision
0.2 to 2 μ L	0.01 μ L	± 12.0 to 2.5%	10.0 to 2.0%
1 to 10 μ L	0.1 μ L	± 2.5 to 1.0%	2.0 to 0.5%
2 to 20 μ L	0.1 μ L	± 3.0 to 1.0%	2.5 to 0.4%
20 to 200 μ L	1 μ L	± 1.8 to 0.6%	0.7 to 0.2%
100 to 1000 μ L	5 μ L	± 1.0 to 0.6%	0.6 to 0.2%

19. Adjustable Volume Digital Multi Channel Pipettes

Specifications:

Technical specifications: Must be of a reputed brand, from manufacturer/authorized dealers having calibration facility in Maharashtra. Necessary evidence to be provided.

ISO8655 certified digital multichannel pipettes of variable volume compatible with universal tips.

Applications: provision for 6, 24, 96 well applications

Range	Increment	Precision	Type
5 to 50 μ L	0.5 μ L	2.0 to 0.7%	8 channel 12 channel
30-300 μ L	5 μ L	1.5to 0.3%	8 channel 12 channel

20. Fine Analytical Balance

Specifications:

Single pan Analytical Balance with highest accuracy for weighing processes; readouts to have at least four decimal places. Equipped with a draft shield chamber to eliminate interfering ambient effects.

Weighing Range: 0.01 – 60 g
Readability: 0.1 mg
Calibration: External
Display: LCD Display
Verification interval: 0.001 g
Pan Size: 80 -100 mm
Power Supply: 210-240V/50-60 Hz

21. Water Bath Specifications:

Water Bath made of stainless steel, from manufacturer/authorized dealers having installation in reputed institutes/ firms.

Capacity: Anti-corrosive 4 chambers each with capacity of 3-4 lit.
Temperature: ambient to 100 °C, with Digital temperature display and 0.1 °C readability, microprocessor controlled
Power Supply: 210-240V/50-60 Hz

22. Magnetic Stirrer

Specifications:

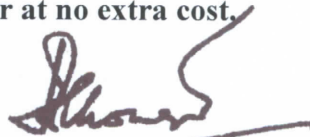
Design: Compact, light weight, SS body, chemical and corrosion resistant construction ;Approximately 40L X 30W X 5H(cm) Certification CE/ISO 9001
Speed: Range 0-1200 rpm; Control-Analog;
Stirring Volume: Upto 1000 ml
Display: Digital, microprocessor controlled
Power Supply: Should include 210-240 V/50-60 Hz

23. Online UPS

- 2 KVA (one hour back up)
- 3.5 KVA (one hour back up)
- 5 KVA (one hour back up)
- Batteries stand and Accessories

24. Manual Control Stabilizer with auto cut of appropriate rating should be supplied along with the equipments which require voltage stabilizer at no extra cost.

25. Servo Control Stabilizer of appropriate rating should be supplied along with the equipments which require servo control stabilizer at no extra cost.



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