

INDICATIVE LIST OF EQUIPMENTS FOR REGIONAL LEVEL VIRAL RESEARCH & DIAGNOSTIC LABS (VRDLs)

GENERAL AND CULTURE FACILITIES:

S.No.	Item	Companies for Reference
1.	Biosafety cabinet	ESCO Global, Haier BioMedical, Thermo Fisher Scientific
2.	Laminar air flow	ESCO GLOBAL, Haier BioMedical, Thermo Fisher Scientific
3.	CO2 incubator	NuAire Limited,
4.	Inverted Microscope	Nikon Corporation, Olympus Corporation, Fisher Scientific
5.	Centrifuge-Refrigerated high speed	Hettich India Pvt. Ltd, Eppendorf AG, Sartorius AG, REMI LAB WORLD
6.	Liquid Nitrogen Can – 47L capacity	Marshal Scientific, ThermoForma, Cryocan
7.	Liquid Nitrogen Can – 33L capacity	
8.	Millipore Positive Pressure Filtration/ Water Purification System	Merck Merck Millipore, Thermo Fisher Scientific, Sartorius AG
9.	Autoclaves (Steam Jacketed & Vertical)	Modis Enterprise Pvt. Ltd., Enclave, Accumax India
10.	Incubator	Nuve, Thermo Fisher Scientific,
11.	Fluorescent Microscope	Nikon Corporation, Olympus Corporation, Fisher Scientific, Bio-Rad Laboratories, Inc.
12.	Miscellaneous equipments	Tarsons Products Pvt. Ltd., Axygen Scientific, Sartorius AG, Corning Technologies India Pvt. Ltd.,

PCR:

1.	PCR workstation	Sigma Aldrich, Erlab, Fisher Scientific
2.	Thermo cycler	Applied Biosystems- Thermo Fisher Scientific, Eppendorf, Bio-Rad Laboratories, Inc.
3.	Gel electrophoresis & documentation unit	Applied Biosystems- Thermo Fisher Scientific, Bio-Rad Laboratories, Inc., Syngene, Axygen Scientific
4.	Refrigerated Microfuge	Hettich India Pvt. Ltd, Eppendorf AG, NuWind,
5.	Real- Time(Q) RT-PCR Machine	Applied Biosystems- Thermo Fisher Scientific, Eppendorf AG, Bio-Rad Laboratories, Inc.
6.	Sequencing Machine	
7.	Automated Nucleic Acid E xtraction Centrifuge	Thermo Fisher Scientific
8.	Electronic pipettes	Eppendorf AG, Gilson, Thermo Fisher Scientific, Sartorius AG
9.	Miscellaneous equipments	Tarsons Products Pvt. Ltd., Axygen Scientific, Sartorius AG, Corning Technologies India Pvt. Ltd.,

SEROLOGY:

S.No.	Item	Companies for Reference
1.	Freezer -20 X 1	Thermo Fisher Scientific, Crispcold, Blue Star
2.	Freezer -70 X 2	Thermo Fisher Scientific, Celfrost, Labocon Inc
3.	ELISA Plate Washer	Lisa Wash(Tulip Diagnostics Pvt. Ltd.), Biotek Instruments (I) Pvt Ltd., Titertek
4.	ELISA Plate Reader	Thermo Scientific, Biotek Instruments (I) Pvt Ltd., Bio-Rad Laboratories Inc., Tecan Inc
5.	Unichannel & Multichannel Pipettes	Eppendorf AG, Thermo Fisher Scientific, Sartorius AG
6.	Pan electronic weighing balance	Mettler Pvt. Ltd., Sartorius AG, Contech India
7.	Miscellaneous equipments	Tarsons Products Pvt. Ltd., Anxgen, Corning Technologies India Pvt. Ltd., Sartorius AG

ADDITIONAL EQUIPMENTS:

Sl.No.	Item	Companies for Reference
1.	DNA Sequencer	Applied Biosystems-Thermo Fisher Scientific, Illumina, Inc.
2.	Peptide Synthesizer	Peptide Machines Inc., Biotage AB, Aapptec LLC.
3.	2 D Gel Electrophoresis	Thermo Fisher Scientific, Bio-Rad Laboratories, Inc., Hoefer Inc.
4.	Micro array	Agilent Technologies, Genepix, LabX
5.	Advanced flowcytometry	Thermofisher Scientific, Beckman Coulter, BD Biosciences
6.	Confocal Microscope	Zeiss India, Bruker, Leica
7.	LCMS	Agilent Technologies, Thermo Fisher Scientific, AB Sciex LLC

ADDITIONAL EQUIPMENT: (Would be given after complete assessment of Regional Level VRDL)

- 2D Gel Electrophoresis
- Advanced Flowcytometry
- Confocal Microscopy

General Comments: All above equipments are highly specialized machines and required for highly specialized research needs. Regional VRDLs may be asked to justify purchases of these equipments with precise purpose and proposed experiments, if at all any of the labs requires any of these machines. Operation of all these machines will require training and will also require very expensive consumables on regular basis.

SPECIFICATION OF EQUIPMENTS:

1) Biological safety cabinet Specifications

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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 is recommended for all Viral Research Diagnostic labs (VRDL). Type B2 biosafety cabinets are recommended only for Biosafety Level 3 work

2) Laminar Air Flow

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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

3) CO2 Incubator

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

Design	:	Hot air Water jacketed unit with at least 3 adjustable stainless steel shelves with inner glass door.
Capacity	:	150-200 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, 2 stage CO2 gas regulator with pressure gauges, tubing, roller based stand with CO2 gas cylinder.
Power Supply	:	210-240V/50-60 Hz
Optional	:	Separate quotes for all necessary filters

4) Inverted Microscope

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

*Basic Components:

1. Objectives	:	Phase Contrast objectives 4x, 10x, 20x & 40x
2. Eyepiece tube	:	Trinocular tube (light distribution, bino/photo: 100/0, 0/100); Interpupillary distance: 50–75 mm, Inclination: 45° from horizon. Eyepiece lens: 10X (F.O.V. 22mm)
3. Nosepiece	:	Quintuple nosepiece, backward-facing type
4. Stage size	:	160-170 x 220-225 mm, Acrylic window provided for better view of objective. External attachable mechanical stage: with universal holder.
5. Condenser	:	ELWD condenser: N.A. 0.3 (O.D. 75mm) Non

Additional Requirements:

1. Epi-fluorescence attachment	:	Epi-fluorescence attachment, with field diaphragm, Fluorescence filter block holder, (2 filter blocks mountable, 1 empty position), Heat absorbing filter, Lamphouse for 50W mercury lamp, optional mercury fiber optic illumination for better illumination along with green red filter.
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- 2. Photographic attachments** : Digital Camera with not less than 7 Megapixel. Resolution, 2/3” High Density CCD, Firewire Interface, facility to work in Color as well as monochrome mode which can be controlled through Control Unit. Connected with the Computer fitted with image acquisition software.
- 3. Power Supply** : Should include 210-240V /50-60Hz
- 4. Spares** : Lamps 2 Nos

*A single quote for basic model including of all requirement would be preferred. Additional items may be quoted separately.

Note: Photographic attachment may be allowed for State and Regional labs. (For Medical College Level it might not be required). For non-photographic microscope point no: 2 to be binocular tube.

5) Refrigerated high speed centrifuge

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

- Certification** : CE or UL certified or conformity
- Temperature range** : European -4 to +40°C
- Speed** : 14000 RPM or more
- Display** : Digital for temperature for air and chamber, time and RPM/RCF, Microprocessor controlled
- Drive system** : Brushless drive
- Programmable** : Programs-90-99 and with program recall facility
- Rotors** : Fixed angle rotor: 24x1.5-2.0ml
- Optional Rotors** : Fixed angle rotor: 24X1.5 ml tubes, 250 ml, Swing out Rotor and adopters for: 5-10 ml tubes,15ml, 50ml and 250 ml tubes, micro plate.
- Power Supply** : 210-240V/50-60 Hz or Suitable power supply
- Warranty** : 5 years from till date of installation.
- AMC** : 5 years from date of expiry of warranty.

6) Liquid Nitrogen storage container

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

- Certification** : ISI/European/CE or Conformity certification
- Design** : Compact light weight, double walled vacuum insulated aluminum vessel, polyurethane coated, with a narrow mouth neck that minimizes liquid nitrogen losses. Secure locking arrangements to be provided.
- Capacity** : 35-40 liters
- Static evaporation rate** : 0.3-1 litre/day
- Static Holding Time** : 50-120 days

Racks & Boxes for Storage	:	Suitable racks & boxes for storage of 1.8-2ml cryovials (for one cylinder)
Optional	:	2Cryogloves and gum boots
Warranty	:	5 years from till date of installation/supply.

7) Liquid Nitrogen transport container

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

Certification	:	ISI/European/CE or conformity
Design	:	Compact light weight, double walled aluminium vessel, polyurethane coated, provided with vacuum insulation and a narrow mouth neck that minimizes liquid nitrogen losses.
Capacity	:	50- 60 liter
Static evaporation rate	:	0.3-1 litre/day
Static Holding Time	:	50-120 days
Optional	:	Transport & tilting Trolley
Warranty	:	5 years from till date of installation/supply.

8) Water Purification System

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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
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	:	~2lit/hr
Power Supply	:	210-240V/50-60 Hz
Warranty	:	5 years from till date of installation/supply
CMC	:	5 years from till date of installation Which includes cartridges

9) Vertical Autoclave

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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

10) Incubator

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

Double walled body with inner chamber of Stainless Steel and outer galvanized steel with non- corrosive epoxy powder coated; full view glass door.

Capacity	:	100-120L with an internal fan for uniform air circulation
Inner chamber	:	3-4 shelves and with illumination
Temperature	:	Control: microprocessor based with digital display, Range: 5°C to 50°C with an accuracy of +/-0.5°C Uniformity: +/-1.0°C throughout the chamber
Door alarm	:	Low/high temperature alarm
Cooling	:	CFC free refrigeration
Power Supply	:	210-240V/50-60 Hz

11) Fluorescent Microscope

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

Basic Components:

- 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. Eye Piece :** 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 :** Not less than 7 Megapixel. High Resolution

- Power Supply :** Should include 210-240V /50-60Hz
- Spares :** Lamps 2 Nos.

EQUIPMENTS LISTED UNDER PCR LAB FACILITIES:

1) PCR Workstation:

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

Size	:	2' X 3'
Construction	:	Powder coated/ epoxy-coated SS. Work surface-Good quality Stainless steel
Lighting system	:	A built-in ultraviolet light for decontamination of consumables and equipment and fluorescent light for working

Vertical laminar flow:-

Filters	:	Combines an ISO 5 (FS209E) Class 100 clean air environment. 99.99%-efficient HEPA filter and disposable prefilter
Alarms	:	Monitors the effectiveness of the workstation and alerts the operator if the HEPA filter or UV bulb needs replacement folding sash turns off the UV light and activates the blower and fluorescent light
Power supply	:	Should include 220 V/50 Hz
Optional	:	Utility ports

Note: Cost of PCR workstation and laminar airflow is almost same; hence, it is advisable that the laminar airflow can be procured instead of PCR work station.

2) Thermal Cycler

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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

3.a) Horizontal Gel Electrophoresis system

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

1. Submerged gel electrophoresis apparatus with clear plastic construction for easy sample visualization
2. Tray should be UV transparent, length 12-15cm and width 12-15cm
3. Combs: 10-15 wells and 25-30 well. All combs of 1mm thickness.
4. The unit should bear minimum 3 years comprehensive and 2 years non-comprehensive warranty.

3.b) Gel Documentation System

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

1. Gel imaging system to visualize:
 - i) Stained protein gels (coomassie, silver, UV light-excited fluorescent stains)
 - 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 technology for faster image capture and download Auto focus configuration.
5. Auto exposure setting for optimum image exposure time.
6. CCD resolution- 5 megapixel or more
7. Excitation source- Trans-UV, 254, 365nm; Wide transillumination area;
8. Provided with PC, Software compatibility: Windows

4) Refrigerated Microfuge

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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

5) Real time RT-PCR

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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.
4. Peltier based 96 well block
5. Standard optical 96 well plates, 0.2 ml strips, 0.2ml tubes compatibility
6. Min sample value requirement - 5µl
7. CCD camera with halogen/LED and at least five excitation and five emission filters
8. Multiplexing ability up-to five dyes in a single run
9. Calibrated dyes at installation: FAM/SYBR Green, VIC/JOE, NED/TAMRA/Cy3, ROX/Texas Red®, and Cy5, Should offer flexibility in dye selection.
10. Facility to calibrate new dye within the wavelength range without addition of new filters
11. Passive reference dye ROX or any other calibrated dye and should be optional
12. Option for melt curve analysis
13. Temperature range 4°C to 100°C
14. Sensitivity: Detection of 1 copy of template
15. Software applications: Comparative Ct, Standard Curve, Relative Standard Curve, Allelic Discrimination / SNP Genotyping, Plus/Minus, dissociation / melt curve
16. 220 V /50Hz. All accessories
17. CE mark or equivalent

6) Automatic nucleic acid sequencing machine

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

1. Analysis of fluorescent labeled fragments by capillary electrophoresis
2. Maximum capillaries sixteen and upgradable up to 96 capillaries.
3. The machine must read long sequence up to 800 bp with more than 98% accuracy.
4. The capillary length should be more than 70 cm.
5. The sample capability is 96 as well as 384 wells plate
6. The instrument must detect more than four fluorescent dyes.
7. The detector cooled CCD based.
8. It should have virtual filters for fluorescent detection and it should readily accommodate new dyes and applications as they become available without requiring changes in the optical hardware
9. The light source solid laser.
10. Suitable software for sequence analysis, sequence scanner.
11. Application: DNA sequencing, genotyping and mutation detections.
12. Supply of high capacity state-of-the art workstation operating in Windows based software (not below than Windows XP) supplied along with a sequencer with laser colour printer, 3KVA UPS with 30 min back up (online UPS)

13. Consumables for at least 5000 run over the period of 5 years

14. Power supply 220-240 volts

7) Automated Nucleic Acid Extraction Centrifuge

Note: There is no equipment available by this name. Automated nucleic acid extraction system/workstation is available. The name of the equipment may therefore be changed accordingly.

8) Electronic Multichannel Pipette

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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/Volu me (±%/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
7.	Volume display	4 digits	4 digits	4 digits

EQUIPMENTS LISTED UNDER SEROLOGY LAB FACILITIES:

1) -20°C Vertical Deep Freezer

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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 leveling feet standard (optional casters)
Power supply	:	210-240V/50-60 Hz

2) -80°C Vertical Ultra low Freezer

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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 650– 700L
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 3 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

3) Automated ELISA Microplate Washer

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

Capability	:	96 well microplates and strips, with flat, round, or “V” bottom well
Manifold	:	12 Channels
Vacuum and fluid delivery	:	In built with Positive displacement syringe pump, drive Systems 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 liter)
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/50-60 Hz

4) ELISA Reader

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

Capability	:	24, 48 or 96 well micro plates
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Spectral Range	:	400-750nm, Accuracy +/-1nm
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

5.a) Adjustable Volume Single Channel Pipettes

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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	\pm 12.0 to 2.5%	10.0 to 2.0%
1 to 10 μ L	0.1 μ L	\pm 2.5 to 1.0%	2.0 to 0.5%
2 to 20 μ L	0.1 μ L	\pm 3.0 to 1.0%	2.5 to 0.4%
20 to 200 μ L	1 μ L	\pm 1.8 to 0.6%	0.7 to 0.2%
100 to 1000 μ L	5 μ L	\pm 1.0 to 0.6%	0.6 to 0.2%

5.b) Adjustable Volume Digital Multi Channel Pipettes

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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

6) Fine Analytical Balance

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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

7) 4 Laser Bench-top Flow Cytometer Analyzer

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

Certification	:	CE or equivalent certification
Design	:	A Bench top Flow cytometer analyser
Laser excitation	:	488 nm, 640 nm, 405 nm and 355nm lasers
Optical alignment/ Plat form	:	Fixed optical assembly with spatially separated laser beams for less spillover
Fluorescence sensitivity and resolution	:	Less than or equal to FITC < 90 to 200, PE < 40 to 100, MESFs (CV < 5-6%)
Fluorescence detectors	:	High-performance solid state silicon detector a blue laser and a red laser, two scatter detectors, and four fluorescence detectors with interference filters optimized for the detection of FITC, PE, PerCP-Cy™5.5, and APC.

Description:

Plate/ tube compatibility	:	Inbuilt walk away automation for analysis from Standard 96-well (flat, round, and v-bottom) plate to 384 well plates/ Deep-well 96-well plates/12 x 75-mm tubes.
Minimal sample volume	:	20 to 25 µL
Minimum sample particle size	:	0.5 µm to 1 µm
Sample flow rate	:	25–100 µL/minute plus automated flow rate to acquire 35,000 to 70000 events/second or more i.e. should have low, medium and high flow rates
Sample uptake	:	Uptake port with an automated washing station
System maintenance	:	Automated startup & calibration, cleaning cycles, and shutdown

Data Management:

1. PC workstation (LCD monitor) with Microsoft Windows and at least 3.0 ghz, 160 Gb hard drive, dvd/cd-rom read/write combo drive, two 22" LCD monitor. Optical drive and USB port.
2. With compatible work station and necessary software for data acquisition and analysis and color printer.

Measurement parameters:

1. Area, width, height for all parameters, with time and volume.
2. Capability of simultaneous 18 fluorescence (20 parameters) measurement.
3. It should be upgradable with 3 more lasers and the instrument should have seven beam spot for using all 7 lasers simultaneously.

Signal processing:

- Digital acquisition system for signal processing ie: >18 bit dynamic range in area with 32 bit floating point signal processing

Power requirements : 100–240 VAC, 50/60 Hz and UPS back-up of at least 30 minutes

Quality Control:

- Internal quality control for establishing baseline settings of system performance and able to adjust for instrument variability for consistent & reliable results. Or QC feature which would help to track system performance and be able to adjust for instrument variability.

Other Services Required:

1. Onsite training for scientists and application training to three scientists, free of charge, including travel.
2. The company should shift the complete instrumental set up and reinstall from one campus to another campus, free of cost as and when required.
3. Company should supply all the start up reagents free of cost.
4. Company should provide Flow advanced offline analysis software (Licensed version).
5. The company should provide regular software updates, whenever released, free of cost for the entire life of the instrument.
6. The company should have full-fledged flowcytometry training centre in India providing regular training courses on research applications with documented proof.
7. Company should have minimum of 100-150 installations in the country and should provide the list of installations, full address.

Accessories : Company should provide all Accessories for installation & initial training

Warranty Period : 2 years" warranty from the date of installation and 3 years" CMC after the expiry of the warranty free of cost.

Optional : Other optional requirements should be quoted separately

INDICATIVE LIST OF EQUIPMENTS FOR STATE LEVEL VIRAL RESEARCH & DIAGNOSTIC LABORATORIES

S.No	Name of the Equipment	Company Name for Reference
General and Culture Facilities:		
1.	Biosafety cabinet	ESCO Global, Haier BioMedical, Thermo Fisher Scientific
2.	Laminar air flow	ESCO GLOBAL, Haier BioMedical, Thermo Fisher Scientific
3.	CO2 incubator	NuAire Limited,
4.	Inverted Microscope	Nikon Corporation, Olympus Corporation, Fisher Scientific
5.	Centrifuge-Refrigerated high speed	Hettich India Pvt. Ltd, Eppendorf AG, Sartorius AG, REMI LAB WORLD
6.	Liquid Nitrogen Can – 47L capacity	Marshal Scientific, ThermoForma, Cryocan
7.	Liquid Nitrogen Can – 33L capacity	
8.	Millipore Positive Pressure Filtration	Merck Merck Millipore, Thermo Fisher Scientific, Sartorius AG
9.	Autoclaves (Steam Jacketed & Vertical)	Modis Enterprise Pvt. Ltd., Enclave, Accumax India
10.	Incubator	Nuve, Thermo Fisher Scientific,
11.	Fluorescent Microscope (including with camera attachment)	Nikon Corporation, Olympus Corporation, Fisher Scientific, BioRad Laboratories, Inc.
12.	Miscellaneous equipments	Tarsons Products Pvt. Ltd., Axygen Scientific, Sartorius AG, Corning Technologies India Pvt. Ltd.,
PCR		
1.	Laminar flow vertical 2 feet (recommended instead of PCR Workstation)	ESCO GLOBAL, Haier BioMedical, Thermo Fisher Scientific
2.	Thermocycler	Applied Biosystems- Thermo Fisher Scientific, Eppendorf, Bio-Rad Laboratories, Inc.
3.	Gel electrophoresis & documentation unit	Applied Biosystems- Thermo Fisher Scientific, Bio-Rad Laboratories Inc., Syngene, Axygen Scientific
4.	Refrigerated Microfuge	Hettich India Pvt. Ltd, Eppendorf AG, NuWind,
5.	RT-PCR Machine	Applied Biosystems- Thermo Fisher Scientific, Eppendorf AG, Bio-Rad Laboratories, Inc.
6.	Sequencing Machine (16 Capillary)	
7.	Automated Nucleic Acid Extraction Centrifuge	Thermo Fisher Scientific
8.	Electronic pipettes + Micropipettes (2X0.5-10ul, 3X10200ul, 2X50-1000, 1X5-100ul)	Eppendorf AG, Gilson, Thermo Fisher Scientific, Sartorius AG
9.	Miscellaneous equipment	Tarsons Products Pvt. Ltd., Axygen Scientific, Sartorius AG, Corning Technologies India Pvt. Ltd.,
Serology:		
1.	Freezer -20 X 1	Thermo Fisher Scientific, Crispcold, Blue Star
2.	Freezer -70 X 2 (with accessories)	Thermo Fisher Scientific, Celfrost, Labocon Inc
3.	ELISA Plate Washer	Lisa Wash(Tulip Diagnostics Pvt. Ltd.), Biotek Instruments (I) Pvt Ltd., Titertek

4.	ELISA Plate Reader	Thermo Scientific, Biotek Instruments (I) Pvt Ltd., Bio-Rad Laboratories Inc., Tecan Inc
5.	Unichannel & Multichannel Pipettes (1-20ul X2, 10-200ul X2, 50-1000ul X1 and Multichannel 50-200ul X1)	Eppendorf AG, Thermo Fisher Scientific, Sartorius AG
6.	Pan electronic weighing balance	Mettler Pvt. Ltd., Sartorius AG, Contech India
7.	Miscellaneous equipments	Tarsons Products Pvt. Ltd., Axygen Scientific, Corning Technologies India Pvt. Ltd., Sartorius AG
Additional Equipments:		
1.	Gel Electrophoresis set up+ gel drier + Semi dry blot for Western Blot (<i>Newly recommended</i>)	Thermo Fisher Scientific, Bio-Rad Laboratories, Inc., Hoefer Inc, Axygen Scientific
2.	Molecular biology set up: Shaker incubator + spectrophotometer + spectrofor nano drop DNA estimation + 20000rpm refrigerated centrifuge and accessories + Table top refrigerated centrifuge and accessories (<i>Newly recommended</i>)	Thermo Fisher Scientific, Bio-Rad Laboratories, Inc., Hoefer Inc, Axygen Scientific, Hettich India Pvt. Ltd, Eppendorf AG
3.	Liquid Chromatography set up: Fraction collector, recorder, columns, peristaltic pump, etc. (<i>Newly recommended</i>)	Agilent Technologies, Thermo Fisher Scientific, AB Sciex LLC

EQUIPMENTS LISTED UNDER GENERAL & CULTURE FACILITIES:

1) Biological safety cabinet:

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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 is recommended for all Viral Research Diagnostic labs (VRDL). Type B2 biosafety cabinets are recommended only for Biosafety Level 3 work

2) Laminar Air Flow

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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

3) CO2 Incubator

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

Design	:	Hot air Water jacketed unit with at least 3 adjustable stainless steel shelves with inner glass door.
Capacity	:	150-200 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, 2 stage CO2 gas regulator with pressure gauges, tubing, roller based stand with CO ₂ gas cylinder.
Power Supply	:	210-240V/50-60 Hz
Optional	:	Separate quotes for all necessary filters

4) Inverted Microscope

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

*Basic Components:

- 1. Objectives** : Phase Contrast objectives 4x, 10x, 20x & 40x
- 2. Eyepiece tube** : Trinocular tube (light distribution, bino/photo: 100/0, 0/100); Interpupillary distance: 50–75 mm, Inclination: 45° from horizon. Eyepiece lens: 10X (F.O.V. 22mm)
- 3. Nosepiece** : Quintuple nosepiece, backward-facing type
- 4. Stage size** : 160-170 x 220-225 mm, Acrylic window provided for better view of objective. External attachable mechanical stage: with universal holder.
- 5. Condenser** : ELWD condenser: N.A. 0.3 (O.D. 75mm) Non

Additional Requirements:

- 1. Epi-fluorescence attachment** : Epi-fluorescence attachment, with field diaphragm, Fluorescence filter block holder, (2 filter blocks mountable, 1 empty position), Heat absorbing filter, Lamphouse for 50W mercury lamp, optional mercury fiber optic illumination for better illumination along with green red filter.
- 2. Photographic attachments** : Digital Camera with not less than 7 Megapixel. Resolution, 2/3" High Density CCD, Firewire Interface, facility to work in Color as well as monochrome mode which can be controlled through Control Unit. Connected with the Computer fitted with image acquisition software.
- 3. Power Supply** : Should include 210-240V /50-60Hz
- 4. Spares** : Lamps 2 Nos

*A single quote for basic model including of all requirement would be preferred. Additional items may be quoted separately.

Note: Photographic attachment may be allowed for State and Regional labs. (For Medical College Level it might not be required). For non-photographic microscope point no: 2 to be binocular tube.

5) Refrigerated high speed centrifuge

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

Certification	:	CE or UL certified or conformity
Temperature range	:	European -4 to +40°C
Speed	:	14000 RPM or more
Display	:	Digital for temperature for air and chamber, time and RPM/RCF, Microprocessor controlled
Drive system	:	Brushless drive
Programmable	:	Programs-90-99 and with program recall facility
Rotors	:	Fixed angle rotor: 24x1.5-2.0ml
Optional Rotors	:	Fixed angle rotor: 24X1.5 ml tubes, 250 ml, Swing out Rotor and adapters for: 5-10 ml tubes, 15ml, 50ml and 250 ml tubes, micro plate.
Power Supply	:	210-240V/50-60 Hz or Suitable power supply
Warranty	:	5 years from till date of installation.
AMC	:	5 years from date of expiry of warranty.

6) Liquid Nitrogen storage container

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

Certification	:	ISI/European/CE or Conformity certification
Design	:	Compact light weight, double walled vacuum insulated aluminum vessel, polyurethane coated, with a narrow mouth neck that minimizes liquid nitrogen losses. Secure locking arrangements to be provided.
Capacity	:	35-40 liters
Static evaporation rate	:	0.3-1 litre/day
Static Holding Time	:	50-120 days
Racks & Boxes for Storage	:	Suitable racks & boxes for storage of 1.8-2ml cryovials (for one cylinder)
Optional	:	2Cryogloves and gum boots
Warranty	:	5 years from till date of installation/supply.

7) Liquid Nitrogen transport container

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

Certification	:	ISI/European/CE or conformity
Design	:	Compact light weight, double walled aluminium vessel, polyurethane coated, provided with vacuum insulation and a narrow mouth neck that minimizes liquid nitrogen losses.
Capacity	:	50- 60 liter
Static evaporation rate	:	0.3-1 litre/day
Static Holding Time	:	50-120 days
Optional	:	Transport & tilting Trolley
Warranty	:	5 years from till date of installation/supply.

8) Water Purification System

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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
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	:	~2lit/hr
Power Supply	:	210-240V/50-60 Hz
Warranty	:	5 years from till date of installation/supply
CMC	:	5 years from till date of installation Which includes cartridges

9) Vertical Autoclave

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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

10) BOD Microbiological Incubator (28°C)

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

Double walled body with inner chamber of Stainless Steel and outer galvanized steel with non- corrosive epoxy powder coated; full view glass door.

- Capacity** : 100-120L with an internal fan for uniform air circulation
- Inner chamber** : 3-4 shelves and with illumination
- Temperature** : Control: microprocessor based with digital display, Range: 5°C to 50°C with an accuracy of +/-0.5°C Uniformity: +:/1.0°C throughout the chamber
- Door alarm** : Low/high temperature alarm
- Cooling** : CFC free refrigeration
- Power Supply** : 210-240V/50-60 Hz

11) Fluorescent Microscope

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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. Eye Piece :** 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 :** Not less than 7 Megapixel. High Resolution

- Power Supply :** Should include 210-240V /50-60Hz
- Spares :** Lamps 2 Nos.

EQUIPMENTS LISTED UNDER PCR LAB FACILITIES:

1) Laminar Air Flow (2 feet)

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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

2) Thermal Cycler

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

- 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

3.a) Horizontal Gel Electrophoresis system

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

1. Submerged gel electrophoresis apparatus with clear plastic construction for easy sample visualization
2. Tray should be UV transparent, length 12-15cm and width 12-15cm
3. Combs: 10-15 wells and 25-30 well. All combs of 1mm thickness.
4. The unit should bear minimum 3 years comprehensive and 2 years non-comprehensive warranty.

3.b) Gel Documentation System

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

1. Gel imaging system to visualize:
 - i) Stained protein gels (coomassie, silver, UV light-excited fluorescent stains)
 - 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 technology for faster image capture and download Auto focus configuration.
5. Auto exposure setting for optimum image exposure time.
6. CCD resolution- 5 megapixel or more
7. Excitation source- Trans-UV, 254, 365nm; Wide transillumination area;
8. Provided with PC, Software compatibility: Windows

4) Refrigerated Microfuge

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

1. Bench top, compact, Refrigerated o Temperature setting: 0 to 40°C

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

5) Real time RT-PCR

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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.
4. Peltier based 96 well block
5. Standard optical 96 well plates, 0.2 ml strips, 0.2ml tubes compatibility
6. Min sample value requirement - 5µl
7. CCD camera with halogen/LED and at least five excitation and five emission filters
8. Multiplexing ability up-to five dyes in a single run
9. Calibrated dyes at installation: FAM/SYBR Green, VIC/JOE, NED/TAMRA/Cy3, ROX/Texas Red®, and Cy5, Should offer flexibility in dye selection.
10. Facility to calibrate new dye within the wavelength range without addition of new filters
11. Passive reference dye ROX or any other calibrated dye and should be optional
12. Option for melt curve analysis
13. Temperature range 4°C to 100°C
14. Sensitivity: Detection of 1 copy of template
15. Software applications: Comparative Ct, Standard Curve, Relative Standard Curve, Allelic Discrimination / SNP Genotyping, Plus/Minus, dissociation / melt curve
16. 220 V /50Hz. All accessories
17. CE mark or equivalent

6) Automatic nucleic acid sequencing machine

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

1. Analysis of fluorescent labeled fragments by capillary electrophoresis
2. Maximum capillaries sixteen and upgradable up to 96 capillaries.
3. The machine must read long sequence up to 800 bp with more than 98% accuracy.
4. The capillary length should be more than 70 cm.
5. The sample capability is 96 as well as 384 wells plate

6. The instrument must detect more than four fluorescent dyes.
7. The detector cooled CCD based.
8. It should have virtual filters for fluorescent detection and it should readily accommodate new dyes and applications as they become available without requiring changes in the optical hardware
9. The light source solid laser.
10. Suitable software for sequence analysis, sequence scanner.
11. Application: DNA sequencing, genotyping and mutation detections.
12. Supply of high capacity state-of-the art workstation operating in Windows based software (not below than Windows XP) supplied along with a sequencer with laser colour printer, 3KVA UPS with 30 min back up (online UPS)
13. Consumables for at least 5000 run over the period of 5 years
14. Power supply 220-240 volts

7) Automated Nucleic Acid Extraction Centrifuge

Note: There is no equipment available by this name. Automated nucleic acid extraction system/workstation is available. The name of the equipment may therefore be changed accordingly.

8) Electronic Multichannel Pipette

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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/Volu me (±%/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
7.	Volume display	4 digits	4 digits	4 digits

EQUIPMENTS LISTED UNDER SEROLOGY LAB FACILITIES:

1) -20°C Vertical Deep Freezer

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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 leveling feet standard (optional casters)
Power supply	:	210-240V/50-60 Hz

2) -80°C Vertical Ultra low Freezer

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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 650– 700L
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 3 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

3) Automated ELISA Microplate Washer

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

Capability	:	96 well microplates and strips, with flat, round, or “V” bottom well
Manifold	:	12 Channels
Vacuum and fluid delivery	:	In built with Positive displacement syringe pump, drive Systems 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 liter)
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/50-60 Hz

4) ELISA Reader

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

Capability	:	24, 48 or 96 well micro plates
Spectral Range	:	400-750nm, Accuracy +/-1nm
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

5.a) Adjustable Volume Single Channel Pipettes

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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	\pm 12.0 to 2.5%	10.0 to 2.0%
1 to 10 μ L	0.1 μ L	\pm 2.5 to 1.0%	2.0 to 0.5%
2 to 20 μ L	0.1 μ L	\pm 3.0 to 1.0%	2.5 to 0.4%
20 to 200 μ L	1 μ L	\pm 1.8 to 0.6%	0.7 to 0.2%
100 to 1000 μ L	5 μ L	\pm 1.0 to 0.6%	0.6 to 0.2%

5.b) Adjustable Volume Digital Multi Channel Pipettes

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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

6) Fine Analytical Balance

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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

**INDICATIVE LIST OF EQUIPMENT FOR MEDICAL COLLEGE LEVEL VIRAL
RESEARCH & DIAGNOSTIC LABORATORIES**

S.No.	Name of the Equipment	Companies
General and Culture Facilities:		
1	Biosafety cabinet	ESCO Global, Haier BioMedical, Thermo Fisher Scientific
2	Centrifuge-Refrigerated high speed	Hettich India Pvt. Ltd, Eppendorf AG, Sartorius AG, REMI LAB WORLD
3	Autoclave	Modis Enterprise Pvt. Ltd., Enclave, Accumax India
4	Laboratory Incubator	Nuve, Thermo Fisher Scientific
5	Label Printer	Brady Worldwide Inc., Epson India, Casio India
6	Miscellaneous equipments	Tarsons Products Pvt. Ltd., Axygen Scientific, Sartorius AG, Corning Technologies India Pvt. Ltd.,
7	Laminar air vertical flow 2 feet	ESCO GLOBAL, Haier BioMedical, Thermo Fisher Scientific
8	pH meter	Thermo Orion, Sartorius AG, Lab India Pvt. Ltd.
9	Desktop computer with printer (dedicated VRDL Data entry, inventory, e-mail, etc)	Dell India, HP India, LG India
10	Multifunctional copier/printer/scanner (for office work)	Cannon India, HP India , Epson India, Xerox Inc.
11	Refrigerator (sample receiving, temporary storage)	Samsung India, LG India, Whirlpool
12	Microwave Oven (For agarose gels)	Samsung India, LG India, IFB
PCR:		
1.	Laminar flow vertical 2 feet	ESCO, Thermo Scientific, Haier
2.	Thermocycler	Applied Biosystems- Thermo Fisher Scientific, Eppendorf, Bio-Rad Laboratories, Inc.
3.	Gel electrophoresis & documentation unit	Applied Biosystems- Thermo Fisher Scientific, Bio-Rad Laboratories, Inc., Syngene, Axygen Scientific
4.	Refrigerated Microfuge	Hettich India Pvt. Ltd, Eppendorf AG, NuWind,
5.	RT-PCR Machine	Applied Biosystems- Thermo Fisher Scientific, Eppendorf AG, Bio-Rad Laboratories, Inc.
6.	Micropipettes (2x0.5-10ul, 3x10-200ul, 2x50-1000, 1x5-100ul) Many micropipettes are required for PCR. These are strongly recommended instead of 4 electronic pipettes.	Eppendorf AG, Gilson, Thermo Fisher Scientific, Sartorius AG
7.	Miscellaneous equipment (eg: Vortex mixer, coolers & quickspin) Amount reduced by 2.0 lakh adjusted in serology section)	Tarsons Products Pvt. Ltd., Axygen Scientific, Sartorius AG, Corning Technologies India Pvt. Ltd.,
Serology:		
1.	Water Bath	Grant, Corning Technologies India Pvt. Ltd., REMI LAB WORLD
2.	Freezer -20	Thermo Fisher Scientific, CrispCold, Blue Star
3.	Freezer -70	Thermo Fisher Scientific, Celfrost, Labocon Inc
4.	ELISA Plate Washer	Lisa Wash(Tulip Diagnostics Pvt. Ltd.), Biotek Instruments (I)

		Pvt Ltd.,Titertek
5.	ELISA Plate Reader	Thermo Fisher Scientific, Biotek Instruments (I) Pvt Ltd., Bio-Rad Laboratories Inc., Tecan Inc
6.	Unichannel & Multichannel Pipettes (1-20ul X2, 10-200ul X2, 50-1000ul X1 and Multichannel 50-200ul X1)	Eppendorf AG, Thermo Fisher Scientific, Sartorius AG
7.	Pan electronic weighing balance	Mettler Pvt. Ltd., Sartorius AG, Contech India
8.	Magnetic stirrer	Tarsons Products Pvt. Ltd., Axygen Scientific, Eppendorf AG

EQUIPMENTS LISTED UNDER GENERAL & CULTURE FACILITIES:

1) Biological safety cabinet:

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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 is recommended for all Viral Research Diagnostic labs (VRDL). Type B2 biosafety cabinets are recommended only for Biosafety Level 3 work

2) Refrigerated high speed centrifuge

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

Certification	:	CE or UL certified or conformity
Temperature range	:	European -4 to +40°C
Speed	:	14000 RPM or more
Display	:	Digital for temperature for air and chamber, time and RPM/RCF, Microprocessor controlled
Drive system	:	Brushless drive
Programmable	:	Programs-90-99 and with program recall facility
Rotors	:	Fixed angle rotor: 24x1.5-2.0ml
Optional Rotors	:	Fixed angle rotor: 24X1.5 ml tubes, 250 ml, Swing out Rotor and adapters for: 5-10 ml tubes,15ml, 50ml and 250 ml tubes, micro plate.
Power Supply	:	210-240V/50-60 Hz or Suitable power supply
Warranty	:	5 years from till date of installation.
AMC	:	5 years from date of expiry of warranty.

3) Vertical Autoclave

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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

4) BOD Microbiological Incubator (28°C)

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

Double walled body with inner chamber of Stainless Steel and outer galvanized steel with non- corrosive epoxy powder coated; full view glass door.

Capacity	:	100-120L with an internal fan for uniform air circulation
Inner chamber	:	3-4 shelves and with illumination
Temperature	:	Control: microprocessor based with digital display, Range: 5°C to 50°C with an accuracy of +/-0.5°C Uniformity: +:+/1.0°C throughout the chamber
Door alarm	:	Low/high temperature alarm
Cooling	:	CFC free refrigeration
Power Supply	:	210-240V/50-60 Hz

7) Laminar Air Flow (2 feet)

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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

8) Digital pH Meter

Technical Specifications: Must be of reputed brand, from manufacturer/Authorized dealer having installation in reputed institutes/firms.

Design	:	Compact, Table top
Electrodes	:	Dual
Capability	:	To measure pH, Temperature, mV & relative mV
pH	:	Range 0 to 16.00, pH, Accuracy, + 0.01 Resolution 0.002
Temperature	:	Approximately 0 to 120o C, Accuracy + 0.5o C
MV/Rel.mV	:	+ 1999, Resolution 0.1
Display	:	LCD for pH and temperature readings simultaneously
Buffer	:	Unit able to recognize auto buffer along with custom buffer options
Calibration	:	Automatic as well as manual
Temperature Compensation	:	Automatic
Power Supply	:	Should include 210-240V/50-60 Hz

9) All in one Desktop Computer with Printer

Technical specifications: Must be of a reputed brand, from manufacturer/authorized dealers having installation in reputed institutes/ firms, preferably in Maharashtra and service centers located in India. Necessary evidence to be provided.

Hardware:

- Operating System** : Windows 8 (64-bit)
- Processor** : 3rd Generation Intel Core i7 - (2.4 GHz / 6 MB L2 Cache) or better
- Motherboard** : Intel Chipset (or) ASUS
- RAM** : 6 GB DDR-3 or more
- Hard-Drive** : 500 GB SATA (or more), 7200 RPM (or) 500 GB SSD
- Graphics Card** : NVIDIA GeForce with Dedicated 2GB Video Memory with HDMI In & Out
- Monitor** : 21" Full HD 0.28 pitch Anti-Glare with optional 10 point touch
- Optical Drive** : Integrated DVD RW 52X drive
- Accessories** : USB 3.0 ports, USB 2.0 ports, Card Reader, Integrated Speakers, Web-Camera
- Security** : Integrated Finger Print Reader
- Network** : 10/100/1000M LAN, 802.11 b/g/n Wi-Fi with optional Bluetooth
- I/O Devices** : Wireless Keyboard and Mouse

Software:

- System Recovery manager
- System Security and Protection
- DVD Burner/Label Creator
- Microsoft Office 2008
- Chrome Browser

6. Adobe PDF (or) PDF Exchange Viewer

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

10) Photocopier cum scanner machine

Technical specifications: Must be of a reputed brand, from manufacturer/authorized dealers having installation in reputed institutes/ firms, preferably in Maharashtra and service centers located in India. Necessary evidence to be provided The machine should be of compact design, programmable and PC compatible

Copies per minute : 20-25 cpm
Resolution : scan copy and print should be 600X600 dpi. 1200 x 600 dpi &1200 x1200 dpi
Magnification : Range 25% to 400% - Platen, 25% to 200% - Feeder (in 1% increments)
Document Feeder : Automatic
User interface : Touch-screen panel
Connections : USB 2.0
Network printing
Memory : RAM 1GB or more; HD 80 GB or more
Power Supply : Should include 210-240V/50-60 Hz

11) Laboratory Refrigerator

Technical specifications: Must be of a reputed brand, from manufacturer/authorized dealers having installation in reputed institutes/ firms, preferably in Maharashtra and service centers located in India. Necessary evidence to be provided.

Design : Double door refrigerator, Inner chamber stainless steel 304 grade, Door locking system, magnetic door gasket, adjustable shelves , auto defrost facility.
Capacity : 275-300 L
Refrigerant : CFC Free
Controls : moisture and humidity
Alarm & Indicator : audio-visual alarm for door open and temperature fluctuation compressor on/off indicator
Power Supply : Should include 210-240 V/50-60 Hz

12) Microwave Oven

Design : Chamber dimension – (WXHXD) app. 12 X 7 X 13 Inch. Stainless steel chamber with ceramic interior, see-through panel in door. Audible tone signals after finishing the programme operation.
Heating Mode : Non Convection ,non grill
Timer : Electronic; Adjustable upto 30 mins
Display : LED/LCD with selectable power level
Power Supply : Should include 210-240 V/50-60 Hz

EQUIPMENTS LISTED UNDER PCR LAB FACILITIES:

1) Laminar Air Flow (2 feet)

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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

2) Thermal Cyclers

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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

3.a) Horizontal Gel Electrophoresis system

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

1. Submerged gel electrophoresis apparatus with clear plastic construction for easy sample visualization
2. Tray should be UV transparent, length 12-15cm and width 12-15cm
3. Combs: 10-15 wells and 25-30 well. All combs of 1mm thickness.
4. The unit should bear minimum 3 years comprehensive and 2 years non-comprehensive warranty.

3.b) Gel Documentation System

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

1. Gel imaging system to visualize:
 - i) Stained protein gels (coomassie, silver, UV light-excited fluorescent stains)
 - 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 technology for faster image capture and download Auto focus configuration.
5. Auto exposure setting for optimum image exposure time.
6. CCD resolution- 5 megapixel or more
7. Excitation source- Trans-UV, 254, 365nm; Wide transillumination area;
8. Provided with PC, Software compatibility: Windows

4) Refrigerated Microfuge

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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

5) Real time RT-PCR

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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.
4. Peltier based 96 well block
5. Standard optical 96 well plates, 0.2 ml strips, 0.2ml tubes compatibility
6. Min sample value requirement - 5µl
7. CCD camera with halogen/LED and at least five excitation and five emission filters
8. Multiplexing ability up-to five dyes in a single run
9. Calibrated dyes at installation: FAM/SYBR Green, VIC/JOE, NED/TAMRA/Cy3, ROX/Texas Red®, and Cy5, Should offer flexibility in dye selection.

10. Facility to calibrate new dye within the wavelength range without addition of new filters
11. Passive reference dye ROX or any other calibrated dye and should be optional
12. Option for melt curve analysis
13. Temperature range 4°C to 100°C
14. Sensitivity: Detection of 1 copy of template
15. Software applications: Comparative Ct, Standard Curve, Relative Standard Curve, Allelic Discrimination / SNP Genotyping, Plus/Minus, dissociation / melt curve
16. 220 V /50Hz. All accessories
17. CE mark or equivalent

6) Electronic Multichannel Pipette

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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/Volu me (±%/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
7.	Volume display	4 digits	4 digits	4 digits

EQUIPMENTS LISTED UNDER SEROLOGY LAB FACILITIES:

1) Water Bath (For Medical College Labs)

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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

2) -20°C Vertical Deep Freezer

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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 leveling feet standard (optional casters)
Power supply	:	210-240V/50-60 Hz

3) -80°C Vertical Ultra low Freezer

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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 650– 700L
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 3 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) Automated ELISA Microplate Washer

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

Capability	:	96 well microplates and strips, with flat, round, or “V” bottom well
Manifold	:	12 Channels

Vacuum and fluid delivery	:	In built with Positive displacement syringe pump, drive Systems 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 liter)
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/50-60 Hz

5) ELISA Reader

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

Capability	:	24, 48 or 96 well micro plates
Spectral Range	:	400-750nm, Accuracy +/-1nm
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

6.a) Adjustable Volume Single Channel Pipettes

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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

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

6.b) Adjustable Volume Digital Multi Channel Pipettes

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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

7) Fine Analytical Balance

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

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

8) Magnetic Stirrer(For Medical College Labs):

General: Tender is invited from reputed original manufacture or their authorized agents/dealers only. Information regarding installation in India and satisfactory service and maintenance may be forwarded with all the details for verification.

Technical:

- Design** : Compact, light weight, SSbody, chemical andcorrosion resistant construction ;
Approximately40LX 30WX 5H(cm)
- Certification** : CE/ISO 9001
- Speed** : Range0-1200 rpm; Control-Analog;
- Stirring Volume** : Upto 1000 ml
- Display** : Digital, microprocessor controlled
- Power Supply** : Should include210-240 V/50-60 Hz