

**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)

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 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.

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:

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

Software:

1. System Recovery manager
2. System Security and Protection
3. DVD Burner/Label Creator
4. Microsoft Office 2008
5. Chrome Browser

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.

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

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 ± 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

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 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%

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: