

### List of equipments for the department of Microbiology

Sl. No.	Name of Equipments
1	-20 deg.C Deep Freezer
2	- 80 deg. C Ultra Low temperature Freezer
3	Elisa Reader
4	Elisa Washer
5	Table top centrifuge
6	Multichannel Pipettes
7	Single channel micropipettes
8	Magnetic Stirrer
9	Water bath
10	Ph meter
11	Minicentrifuge
12	Horizontal Electrophoretic Chamber
13	Triple distilled water
14	Horizontal Autoclave
15	Vertical Autoclave
16	Upgradation of exsting real time PCR with cobas Taqman 48 system ROCHE

## TENDER SPECIFICATION FOR HIGH SPEED CENTRIFUGE

- The instrument should be quoted with light weight 6 place 15ml and 50ml fixed angle rotor having 7,100xg and 30 place of 1.5/2 ml tube capacity Aerosol tight rotor head having 20,800xg force no rotor made by carbon fiber/similer material is not been considered
  - Along with the centrifuge the compatible 1.5 ml tube should be supplied 1000 no, s which can sustain in that high centrifugal force without any deformities.
  - The centrifuge speed can be set from 500 RMP with an Increment of 100 RPM.
  - Temp range should be: -11°C to +40°C.
  - The instrument acceleration time should be: <14s and Breaking Time Should Be: <15s for doing experiment with sensitive samples
  - The instrument should be very compact and fits in bench space and also access able in low hanging shelves.
  - The Centrifuge must be stored 50 no's of User defined program
  - The centrifuge timer can be set from 10sec to Continuous mode.
  - The Centrifuge should be equipped with automatic rotor recognition and rotor imbalance detection features.
  - The centrifuge should have some pre defined Programme keys for easy access for routine program.
  - The instrument should be capable to maintain constant 4°C at his MAX speed.
  - The centrifuge must be CE and IVD certified for research Purpose.
  - The instrument should be equipped with a separate SHORT spin key and SOFT break function.
  - The centrifuge should be equipped with Fast Temp Function and Standby cooling Function.
  - The centrifuge should be capable of ECO shut off function for Extended Compressor life.
  - As a safety feature the instrument should have a build in condensation drain that eliminate water accumulation in rotor chamber and prevent corrosion,
- The instrument should be optionally quoted with MTP rotor optionally for future up gradation

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## TENDER SPECIFICATION FOR INSTRUMENTS:

### ✓ 1. -20°C Deep Freezers

- **Temperature Control**
  - Mechanical temperature control.
  - Digital temperature display.
  - Adjustable temperature range from -10°C to -25 °C.
- **Refrigeration System**
  - Highly efficient compressor.
  - CFC-free refrigerants.
  - Fully CFC-free polyethylene insulation,
  - Superior cooling performance with optimized evaporator and condenser designs.
- **Ergonomic Design**
  - Double door upright
  - Capacity: approx 300-400 litres
  - Storage Box designs for convenience of vaccines and icepack.
  - LED digital temperature display for easy observation.
  - Widely applicable voltage tolerance .
  - Door handle design for easy operation.
  - Water drainage for easy cabinet cleaning.
- UPS backup for uninterrupted power supply.

### ✓ 2. -80°C Ultra Low Temperature Freezer

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### ●Temperature Control

- Microprocessor control
- Digital display with an increment of 1°C
- Cabinet temperature adjustable in a range of -40°C to -86°C

### ●Safety Control System

- Malfunction alarms: temperature exceeding the set range, power failure, sensor error, voltage exceeding the range, condenser under efficiency, ambient temperature exceeding the range
- Alarm Indications (Audible and visible): buzzer, flashing light
- Multiple protection function: password protection, start-up delay protection, **voltage protection in case of low or high voltage**
- All separate parts are safely connected to ground

### ●Refrigeration System

- Optimized cascade refrigeration technology,
- High density and effective heat insulation
- Unique patented sealing design working together with heat retardant system keeps the cabinet from frosting
- Specially designed low-temperature grade computer controlling system avoids the common errors happened to the low-temperature grade compressor

### ●Ergonomic Design

- Single door upright
- Capacity: 650-800 litres
- 230V, 50/60 Hz
- Internal dimensions (H x W x D inches): approx 51 x 36 x 27
- External dimensions (H x W x D inches): approx 78 x 47 x 37
- LED display for easy observation of cabinet temperature, set temperature, ambient temperature, input voltage, alarming temperature setting value and early warning for malfunctions
- Adjustable multi-level shelf for easy operation
- Safe door lock to prevent the unauthorized opening
- Broad climate tolerance, applicable within an ambient temperature range of 10°C~32°C

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- Innovative integrated door handle and lock; compacted casters; flexible and easy operation
- Intelligent condenser design to save energy
- Storage boxes and racks for ease of operation

● **Vacuum Insulation Panel Technology**

✓ **3. ELISA Reader**

- Open system
- Fully automated reading and analysis
- Wave length – 400 to 750nm
- Short warm up time approx 90 second
- 8-channel optical system and Multi beam detector enable a 96 well plate to be read in as little as 5 seconds
- Multi-assay feature enables up to 12 assays on one plate
- Random positive and negative control setting
- Shaking mode allows brief mixing of plate before read to ensure consistent results
- Large built in memory allows on board storage of 100 programs and up to 10,000 results
- 9 different on-board calculation including Absorbance model, % absorbance mode ,cut-off mode, Single standard mode, point to point, linear regression, Index regression mode , Logarithm regression mode, Exponent regression mode
- 6" LCD display with Touch screen interface to allow easy plate layout setup, control of instrument and visualization of data
- Lamp energy saving mode
- Multi-format reports
- Direct print facility, capable of interfacing with PCL laser printers via USB
- Wide range of filters with 405, 450, 492 and 630 nm filters as standard.
- Low maintenance design. Built in dust cover for plate carrier

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- Software tool for microplate based assays in diagnostic or research applications .
- Complete control of all reader functions with a choice of either endpoint or kinetic reads using single or dual wavelengths. Option of setup.
- Real-Time display of readings
  - Flexible and comprehensive data analysis and transformation
- CE/ FDA approved

#### ✓ 4. ELISA Washer

- Co-axial wash heads to ensure high washing efficiency and contamination-free results
- Pre-programmed wash cards
- Programmable program cards and interchangeable 8-and 12-way wash heads
- Convenient, quick release bottle caps ensuring easy buffer change
- Automatic pump shut down after 30 seconds to reduce wear and noise levels
- Open system

#### ✓ 5. Table Top Centrifuge

- Temperature selectable on °C / F.
- RCF-3000g, Timer 0-90 mins
- RCM – 100-6000 rpm
- Imbalance safety during rotation
- Short cycle speed selectable
- 5 speed control-Touch up/down arrow key type.
- Easy To Use: TFT touch full color screen to show the values or graphics of set and update. Messages on screen indicating the centrifuge and accessories state
- Touch type operation keys
- Interchangeable rotor: 8\*15, 16\*15, fixed angle type
- Rotors adaptable for conical/round bottom tubes

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- Adaptors for 5 ml tubes to be provided
- Autoclavable rotors/ rotor lid/ adaptors.
- Buzzer on at end of cycle
- Soft Brake on/off
- 240V, 50 Hz, single phase
- 1 spanner wrench to mount/remove rotor.
- Countdown starts at set RPM/RCF selected.
- Switches for open lid, start, stop, enter and exit.
- Motorized lid latch. .
- Rotors and adapters list on memory.
- Safety Features:
  - Initial checking of the device and its accessories.
  - Centrifugation chamber in stainless steel, guard ring around chamber.
  - Lid dropping protection
  - Unbalance cut off
  - Double manual emergency release. Does not allow run the rotor with open lid, neither opens the lid while the rotor runs.

✓ 6. Multichannel Pippetes

- Manual
  - Autoclavable
  - Variable volume
  - Single handed volume setting
  - Click Stops
  - Freely rotating button Cap
  - Volume 20-200 $\mu$ l/ 0-200  $\mu$ l
  - Volume Display
- |               | Min           | Max           |
|---------------|---------------|---------------|
| • Inaccuracy  | $< \pm 0.9\%$ | $< \pm 0.7\%$ |
| • Imprecision | $< \pm 0.6\%$ | $< \pm 0.3\%$ |

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✓ 7. Single channel micropipette

<b>Volume(μl)</b>	<b>2-20</b>	<b>20-200</b>	<b>200-1000</b>	<b>0.5-10</b>
<b>Max Vol</b>	<b>20</b>	<b>100</b>	<b>1000</b>	<b>10</b>
<b>Min Vol</b>	<b>2</b>	<b>10</b>	<b>100</b>	<b>0.5</b>
<b>Accuracy</b>	<b>±1%</b>	<b>±0.8%</b>	<b>±0.6%</b>	<b>±1%</b>
<b>Calibration</b>	<b>User</b>	<b>user</b>	<b>user</b>	<b>User</b>
<b>Autoclavable</b>	<b>Yes</b>	<b>yes</b>	<b>yes</b>	<b>Yes</b>
<b>Increments(μl)</b>	<b>0.02</b>	<b>0.1</b>	<b>0.2</b>	<b>0.01</b>
<b>Precision</b>	<b>±0.3%</b>	<b>±0.2%</b>	<b>±0.2%</b>	<b>±0.04%</b>
<b>Tip ejector</b>	<b>Yes</b>	<b>yes</b>	<b>yes</b>	<b>Yes</b>

✓ 8. Magnetic Stirrer

- PMDC motor for higher torque even at low speeds
- Better low speed stirring even with small volume
- Accurate stepless speed control to maintain excellent speed stability.

Stainless steel hot plate.

Maintains speed stability despite viscosity or volume changes.

<b>Stirring Capacity</b>	<b>Heating Capacity</b>	<b>External Dimensions</b>	<b>Stirring Paddle (PTFE Coated)</b>
<b>2 Ltrs</b>	<b>300 Watts</b>	<b>160 x 200 x 160 mm</b>	<b>9 x 35 mm length</b>

✓ 9. Water Bath

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Description

Glass window is fixed on the front for both sides clear observations while immersion test The gap between the chambers filled with high grade glass wool to minimize the heat loss Temp

<b>Technical Data</b>	
Construction	Double Walled
Inner Chamber	Stainless Steel
Capacity	15 Ltr
Outer Chamber	Mild Steel / Stainless Steel
Lid	Stainless Steel Pyramid Lid.
Size (W*D*H)	(35*29.5*16 inches)
Shaking	AC / DC Geard Motor

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### ✓ 15 Minicentrifuge


Small and compact –

Max. rotor capacity (1.5/ 2.0 mL)	12
Max. RCF	12,100 × g / 14,100 × g
Max. RPM	13,400 / 14,500
Rotors	2
Dimensions (W × D × H) in cm	23 × 24 × 13
Height with lid open	25 cm
Rotor options, incl. max. RCF	
12-place for 1.5/2.0 mL tubes	12,100 × g / 14,100 × g
PCR strip rotor	9,840 × g / 11,520 × g
Short spin option	
IVD	
Digital display	
Autoclavable rotor & rotor lid	
Noise levels < 52dB	

### ✓ 18. Horizontal Electrophoretic Chamber

Durable acrylic construction

- Corrosion-resistant platinum electrodes and gold-plated banana plugs
- Electrode placement ensures a uniform electric field and clear banding
- UV Transmissible (UVT) gel tray allows user to view bands on a transilluminator without removing the gel from the tray.
- The tray can withstand hot agarose (as high as 75°C) during casting. A leak-resistant gasket allows for casting in buffer chamber without taping.
- Can run 3 different gels & screen up to samples at a time.
- Two comb positions allow user to run one or two series of samples for sample flexibility.

  
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- The integrated fluorescent rulers screened on each gel tray allow for run length comparisons.
- Safety interlocking lid features attached three-foot long power supply leads. Buffer exchange ports are available as an option.
- Systems include buffer chamber; perforated lid with attached power supply leads; Easy cast gasketed UVT gel tray; and four combs of different sizes, each more than two in no.
- Stabilized DC power supply.
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## ✓ 22 Triple distilled water

### Water specifications

System designed to be fed by potable tap water

#### Parameter

Resistivity	> 5 MΩ.cm @ 25 °C
TOC	< 30 ppb (µg/l)
Bacteria	< 1 cfu / ml
Particulates	> 0.2 µm < 1 Particulates/ ml
Pyrogens (Endotoxins)	< 0,001 EU / ml
RNases	< 0,01 ng /ml
DNases	< 4 pg/ µl

### Water delivers

Ultrapure water production

360 0, (Max l/day)

Ultrapure water delivery

05 – 2,0 (l/min)

  
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Specification of High Pressure Vertical Autoclave (Triple Walled) Sterilization – Fully Automatic

- For Dry Sterilization. • Digital display of temperature and timer.
- Inner chamber, outer wall, boiler & steam jacket are made of S. S. 304 grade.
- Middle Chamber : Stainless Steel 304
- Lid : Stainless steel 304
- Radial Locking system : Made of steel bars
- Legs : Made of Mild Steel
- Control Panel : Made of Mild Steel

Following Accessories to be included:


- 1) Automatic pressure control switch (APC)
- 2) Automatic Low water cut off arrangement (ALW)
- 3) Vacuum Breaker , 4) Pressure Gauge , 5) Water level indicator
- 6) Safety Valve , 7) Steam Release Valve , 8) Paddle lifting Device, 9) S. S. Basket

Special Features of Autoclave

- 1) Single panel feather touch LED microprocessor controller
- 2) Simultaneous display of temperature & time.
- 3) Timer starts automatically as soon as the set temperature is attained & stop the cycle automatically as soon the time is over.
- 4) Automatic priming: The air valve remains open up to 100°C for priming. As soon as the unit achieves Temperature. of 100°C, the Solenoid Valve gets closed and starts generating pressure
- 5) As soon as the cycle is complete , the steam is released automatically through Solenoid valve
- 6) Water may be finish & water level maintained automatically

Chamber Size (Dia. x Ht.) mm	Cap. Liter.	Load Kw
600 x 450 (24"x 18")	98	6.0
<b>Desirable for Autoclave –</b>		

- (a) Digital Temperature Controller calibration certificate by test house traceable to NPL or NABL accredited Lab.
- (b) Qualification Certificates for – Installation, Operation, Performance, Design
- (c) Port for printer
- (d) Port for Computer interface for recording
- (e) Gauge calibration certificate by test house traceable to NPL or NABL accredited Lab

  
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(Nucleic Acid) Extraction system's Specification

Automated US FDA and CE IVD approved sample extraction, nucleic acid isolation and PCR reaction setup

Sealed, ready-to-use bar-coded reagents reduce instrument set-up time

Sample processing takes place in a disposable sample processing unit (SPU)

Closed sample input tubes to reduce cross contamination.

Perform general DNA/RNA sample extraction with Total Nucleic Acid Isolation (TNAI) reagents

Convenient loading of up to 72 samples at the same time & process within 4 hours. Processing of multiple parameter simultaneously.

Flexible batch sizing from 9 to 21 patient samples per sample pack


Continuous loading of additional samples, reagents and consumables during operation

Extraction process should be solution phase magnetic bead separation based technology

Throughput up to 140 specimens per day, based on testing combination & lab workflow

Sample volume  $\leq 1100 \mu\text{L}$  (depending on extraction protocol)

At least 6 independently programmed incubators with at least 24 positions each, at least 3 position at  $60^{\circ}\text{C}$  & 3 maintained at  $37^{\circ}\text{C}$

  
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