

**1) Technical specification of Digital pH meter**

S. No.	Requirement	Specification	Remarks
1.	<b>Measurement Range</b>	pH 0.00-14.00      mV ±999.9      Temperature (-5 to 100)°C	
2.	<b>Resolution</b>	pH 0.01      mV 1      Temperature 0.1°C or better	
3.	<b>Relative accuracy</b>	pH ±0.01      mV ±1      Temperature ±0.5°C or better	
4.	<b>pH Calibration</b>	3 point, Automatic buffer recognition	
5.	<b>Isopotential Point</b>	7.00 pH	
6.	<b>Calibration Buffer</b>	4.00,7.00,10.00	
7.	<b>Automatic Temperature Compensation</b>	Should be present	
8.	<b>Display</b>	Liquid crystal Display	
9.	<b>Outputs</b>	RS 232 Interface,	
10.	<b>Data storage</b>	Minimum storage of 500 data	
11.	<b>Accessories</b>	Should have electrode holder/arm with smooth movement, Calibration Standard	
12.	<b>Power Supply</b>	230 VAC ± 10%, 50Hz	

## 2) Technical specification of Digital analytical Balance

S. No.	Requirement	Specification	Remarks
1.	Capacity	220gm	
2.	Readability	0.0001mg or better	
3.	Repeatability	0.0001mg or better	
4.	Linearity	±0.001g or better	
5.	Pan Size(mm/inch)	90Ø /3.5"Ø	
6.	Response time	2-3 Sec	
7.	Display	Alpha numeric LCD Display	
8.	Unit of measure	Gram, milligram	
9.	Operating Temperature	+(10 to 40°C)	
10.	Compliance	ISO, GLP/GMP Compliance	
11.	Interface	RS232 Interface	
12.	Automatic temperature compensation(ATC) facility	Should be present	
13.	Power Supply	230 VAC ± 10%, 50Hz	

### 3) Table top Centrifuge

SNO.	Requirement	Specification	Remarks
1.	Display	Instrument should have fully digital LCD display with rcf/rpm conversion keys.	
2.	Safety	Compact foot of bench space with automatic lid opens at the end of sample run.	
3.	Rotor detection	Automatic rotor recognition with rotor imbalance safety feature	
4.	Programme storage	Capacity to store 50 user define programme.	
5.	Alarm Facility	Adjustable end of run alarm	
6.	RCF(g-force)	(10 – 30,130) x g	
4.	Speed	(10-17,500) rpm	
7.	Maximum capacity	30 x 1.5/2.0 ml 6 x 50 ml	
8.	No. of rotors	Rotor for 30 x 1.5/2.0 ml (2 no.) Rotor for 6 x 15/50 ml tube rotor (2 no.)	
9.	Acceleration Time	14s or better	
10.	Braking time	15 s of better	
11.	Soft break function	Should have soft break function	
12.	Timer	30 s to 99:59h	
13.	Noise level	Less than 58 dB	
14.	Tubes	Should have to supply suitable tubes with respect to mention rotors	
15.	Power Supply	230V,50-60Hz	

#### 4) Technical Specification of Compound Microscope

SNO.	Requirement	Specification	Remarks
	<b>General Requirement</b>	A binocular optical head based inclined viewing & interocular adjustment. Dioptre compensation with compensation scale	
1.	<b>Total Magnification</b>	40 X to 1600X or better	
2.	<b>Eye Piece</b>	10 x plane eye piece objective : 1) 4 x / NA 0.10 2) 10 x / NA 0.25 3) 40 x / NA 0.65 4) 100 x /NA 1.25 oil or better	
3.	<b>Source of light</b>	15V,150W Adjustable light source. Dark field condenser for blood study	
4.	<b>Coarse and fine focusing range</b>	1) Double coaxial (0-200) $\mu$ m 2) Coarse focusing range=30 mm or better 3) Fine focusing range= 30 mm or better	
5.	<b>Related feature</b>	1) Low-voltage illumination with lighting control and removable pre-condenser. 2) Twin-lens Abbe condenser: NA 1.25. 3) Iris diaphragm . 4) Pivoting filter holder. 5) Height adjustment	
6.	<b>Filters</b>	Glass filters: blue, yellow, green	
7.	<b>Power Supply</b>	230 VAC $\pm$ 10%, 50Hz	

### 5) Technical specification of Stereomicroscope

SNO.	Requirement	Specification	Remarks
1.	<b>General layout</b>	Should have good depth of field and contrast with binocular stereo zoom optical body	
2.	<b>Magnification</b>	Magnifications of 10X to 30X.	
3.	<b>Source</b>	LED based illumination	
4.	<b>Optical system</b>	1) Paired wide field eyepieces are 45° inclined, with diopter Adjustment. 2) Viewing head rotates 360°, locks in place by tightening thumb screw. 3) Paired objectives are parfocalled, parcentered, and achromatic. 4) Magnification changed by rotating magnification dia	
5.	<b>Illumination</b>	Variable turret (6 LED) and top illumination. Two illumination switches allow for 5 light settings, turret, top, bottom, simultaneous turret and bottom or simultaneous top and bottom.	
6.	<b>Focusing</b>	1) Rack and pinion focusing with slip clutch and tension adjustment. "Slip-clutch" system protects against over-focusing	
7.	<b>Stage</b>	1) 80 mm reversible black/white plastic contrast plate and 80 mm frosted glass stage plate. 2) Blue filter for transmitted light. Locked-on stage clips	
8.	<b>Eye piece</b>	Should have pair of 10 x eye pieces	
9.	<b>Zoom ratio</b>	7:1 ratio	
10.	<b>Power Supply</b>	230 VAC ± 10%, 50Hz	

### 6) Specification of Vacuum Oven

S.NO.	Requirement	Specification	Remarks
1.	Temperature	( 30-200)°C	
2.	Temperature display unit	Fahrenheit or Celsius	
3.	Temperature Accuracy	±0.2°C or better	
4.	Material of Construction	Inside chamber made of stainless steel	
5.	Exterior diamenson (w x d x h)	(39 x 48 x 57) cm	
6.	Inside chamber dimension(w x d x h)	(22 x 30 x 22) cm	
7.	Oven capacity	20 litre	
8.	Design	Front viewing glass window based	
9.	Front vacuum gauge	1	
10.	Number of Shelves in chamber	At least 3	
11.	Heating rate	10°C per Minute or better	
12.	Control system	PID Controller by Micro Processor or better	
13.	Operating Pressure Range	(101-0.1)k Pa (760 to 1 Torr ) or better	
14.	Atmosphere pressure recovery time	Within 5 to 8 Min or better	
15.	Timer	1 min to 99 hrs or better	
16.	Safety device	Short circuit breaker, Self diagnostic function or better	
17.	Power requirement	AC 230V,50-60 Hz	

### ***7) Specification of Auto clave***

<b>SNO.</b>	<b>REQUIREMENT</b>	<b>SPECIFICATION</b>	<b>Remarks</b>
<b>1.</b>	<b>Capacity (Liters)</b>	20 Liters with Lid	
<b>2.</b>	<b>Finishing</b>	Mirror finish or Epoxy powder coated finish or better	
<b>3.</b>	<b>Furnish</b>	All aluminum deep drawn seamless construction size or better	
<b>4.</b>	<b>Power Supply</b>	220 V,50Hz,Single phase	

### 8) Specification of Ultrasonicator

<b>SNO.</b>	<b>REQUIREMENT</b>	<b>SPECIFICATION</b>	<b>Remarks</b>
<b>1</b>	<b>General Requirement</b>	1)The system shall be a table top model, compact design, lightweight with advanced ergonomics, robust in construction, simple to operate and easy to maintain. The system shall support the use of containers to be suspended in the bath.	
<b>2.</b>	<b>Capacity</b>	5 Liter	
<b>3.</b>	<b>Maximum power input</b>	130 W	
<b>4.</b>	<b>Frequency</b>	40 kHz or better	
<b>5.</b>	<b>Timer and temperature readout accuracy</b>	±4 °C or Better	
<b>6.</b>	<b>Noise Level</b>	Less than 80 Decibels	
<b>7.</b>	<b>Power Supply</b>	230V±10%,50±2 Hz, Single Phase Supply The system shall be protected from transient power disruptions during use. The disruption shall not affect the performance of the unit.	
<b>8.</b>	<b>Safety requirement</b>	The enclosure shall be secure and provide adequate protection against moving and electrically energized parts. System should be equips with facility of drain.	



### ***9) Technical Specification of Vacuum Desiccators***

<b>S.NO.</b>	<b>REQUIREMENT</b>	<b>SPECIFICATION</b>	<b>Remarks</b>
<b>1.</b>	<b>Interior diameter</b>	200 mm or better	
<b>2.</b>	<b>Total height</b>	150 mm or better	
<b>3.</b>	<b>Body Material</b>	Polycarbonate cover and polypropylene body	
<b>4.</b>	<b>Chamber Volume(Liters)</b>	20 Liters or better	
<b>5.</b>	<b>Seal Mechanism</b>	Must have O-ring based seal Mechanism	

### ***10) Digital Hot Plate***

<b>S.No.</b>	<b>Name of instrument</b>	<b>Qty(no.)</b>
<b>1.</b>	<b>Hot plate with stirrer</b>	<b>2</b>
<b>2.</b>	<b>Hot plate with digital display (up to 100°C temperature) 310 x 620 mm ceramic-coatede plate</b>	<b>2</b>

### *11) Solvent filtration assembly*

<b>S.NO.</b>	<b>REQUIREMENT</b>	<b>SPECIFICATION</b>	<b>Remarks</b>
1.	Assembly	Filtration assembly consisting of S.S Filter Holder with filter support for 47 mm dia and Borosil Glass filtration flask, Capacity 1 Ltr Vacuum Pipe, Oil Free Vacuum pump.	
2	Vacuum pump	Oil Free Vacuum Pump 25 liter	
3	Filter paper	Filter Paper 47 mm ,0.22 Micron	
4	Pipe	3 meter Pipe	

### *12) Water distillation Assembly*

<b>S.NO.</b>	<b>REQUIREMENT</b>	<b>SPECIFICATION</b>	<b>Remarks</b>
1.	Out put	5 Litre/ hour	
2	Distilled water quality	1)Conductivity= (1.5-2.0) $\times 10^{-6}$ S/cm 2) pH =5.5-6.0 3) Distillate quality= Pyrogen free	
3	Cooling water rate	(220-240)V,(50-60)Hz	
4	Safety	Automatic low water low level cut off feature	

## ***12) Refrigerator***

<b>S.NO.</b>	<b>REQUIREMENT</b>	<b>SPECIFICATION</b>	<b>Remarks</b>
<b>1.</b>	<b>Minimum gross storage capacity</b>	300 litres	
<b>2</b>	<b>Model Type</b>	Double door	
<b>3</b>	<b>Voltage range at 40°C</b>	Capable on working at 220 V,50 Hz	
<b>4</b>	<b>Power Source AC</b>	220 Volts,50Hz	
<b>5.</b>	<b>Compressor</b>	Power saver compressor	
<b>6.</b>	<b>Accessories Required</b>	Adjustable shelves , chiller Tray , Temperature controller, Auto lamp On/off feature , should be supplied with all standard accessories as per manufacturer catalog for the model supplied	
<b>7.</b>	<b>Warranty with 3 year Comprehensive Warranty</b>	With 3 year Comprehensive Warranty	
<b>8.</b>	<b>Colours</b>	Steel grey with metallic finish ( Metallic Color)	