

**CONTRACT NO.**

**GUJARAT WATER SUPPLY & SEWERAGE BOARD**

**GANDHINAGAR**

**(A WHOLLY OWNED GOVERNMENT OF GUJARAT UNDERTAKING)**



Bid documents for “Procurement, Supply, Installation, and Commissioning of Water Testing Laboratory Instruments/Equipment with Accredited Calibration Certificates and One-Year Warranty, Including Supply of Glassware, Certified Reference Materials (CRM), Miscellaneous Laboratory Items, Computers, and Printers for Water Quality Testing Laboratories.”

**Estimated Cost: Rs. 1,82,35,348/-**

**VOLUME – 2**

**Item wise Specifications**

**Director**

**Gujarat Jalseva Training Institute**

**Sector-15, Gandhinagar**

## **ABSTRACT**

<b>Schedule</b>	<b>Description of the work (s)</b>
Schedule B-1	Providing , Supplying and Installation of water testing laboratories Instruments for 15 New Laboratories with Accredited Calibration Certification and one year comprehensive onsite warranty
Schedule B-2	Procurement and supplying of the glasswares for 15 New Water Testing Laboratory Laboratories with necessary certificates
Schedule B-3	Procurement and supplying of the CRM (Certified Reference Material ) as per ISO 17034:2016 for 15 New Water Testing Laboratories with necessary certificates
Schedule B-4	Procurement and supplying of the miscellaneous items for 15 New Water Testing Laboratories
Schedule B-5	Providing , Supplying and Installation of Computers and Printers with 03 (Three) years of the comprehensive warranty

**Schedule-B-1:-** Providing, Supplying and Installation of water testing laboratories Instruments for 15 New Laboratories with Accredited Calibration Certification and one year comprehensive onsite warranty

**1.1 Weigh Box E2 Type with Accredited laboratory calibration certificate 1 mg to 200 gm**

Parameter	Specification
Type	Standard Weight Box
Accuracy Class	E2
Standard	OIML R111-1 (Latest Version)
Weight Range	1 mg to 200 g
Number of Weights	22 Pieces (or nearest standard set)
Nominal Values	1mg, 2mg, 5mg, 10mg, 20mg, 50mg, 100mg, 200mg, 500mg, 1g, 2g, 5g, 10g, 20g, 50g, 100g, 200g and intermediate standard denominations as per OIML set
Material	High-grade non-magnetic stainless steel conforming to OIML R111 requirements
Density	7.9 – 8.0 g/cm <sup>3</sup>
Magnetic Susceptibility	≤ 0.02
Residual Magnetization	≤ 2.5 μT
Surface Finish	Mirror polished / High gloss finish
Corrosion Resistance	High corrosion resistant
Weight Construction	One-piece construction without adjustment cavity
Identification	Laser engraved denomination marking
Handling Accessories	Non-magnetic forceps, cotton gloves, cleaning brush
Storage Box	High-quality wooden or impact-resistant protective case with individual slots
Operating Environment	Suitable for laboratory conditions

Volume-2 Item wise Specification

Parameter	Specification
Traceability	Traceable to National/International Standards (NPL/NIST/PTB or equivalent)

**1.2 Hot Air Oven of size 24"x24"x24" inside Chamber with >250°C temperature with calibration Certificate by NABL Accredited laboratory after installation on site.**

<b>Size</b>	Inner Volume 200-250 L
<b>Double walled chamber</b>	Size 24"x24"x24"
<b>With inner chamber made</b>	SS304 outer chamber of G.I powder coated with 65mm insulation of glass wool.
<b>Door</b>	<ol style="list-style-type: none"> <li>1. Inner: Stainless Steel 304 Grade/Glass</li> <li>2. Outer: Powder coated Mild Steel/Stainless Steel 304 Grade</li> <li>3. Self -closing magnetic lock having door sealing material suitable to high temp.</li> </ol>
<b>Adjustable Shelf</b>	2-3 Perforated Stainless-Steel shelves (Removable) 304 Grade
<b>Shelf Rest Pitch</b>	30 mm
<b>Temperature range in °C</b>	Ambient +10 °C to 275°C
<b>Least Count</b>	0.1° C
<b>Temperature Accuracy in °C</b>	±0.5°C or better at 250 °C
<b>Temperature</b>	Temperature-5- degree C above ambient to room 300°C with 3 side heaters.≤ 0.0001 Abs or better
<b>Temperature Uniformity</b>	±5°C or better at 250 °C
<b>Heating Element</b>	Nichrome wire/Kanthal A1/SS tube/pipe heater
<b>Temperature controlled</b>	Digital Microprocessor based PID control preferably on the top.
<b>Maximum Temperature Control Panel</b>	Door mounted Digital LCD display for set temperature attained temperature, set time, heating ON/OFF
<b>Preset Timer</b>	<ul style="list-style-type: none"> <li>• With buzzer</li> <li>• Digital display of time</li> <li>• Least count- 1 minute</li> </ul>
<b>Circulation Method</b>	Blower

<b>Exhaust Port</b>	25/30 mm ID on opposite side walls
<b>Safety Device</b>	<ol style="list-style-type: none"> <li>1. Self -diagnosis function including over shoot/under shoot of temperature and over current protection</li> <li>2. Audio Visual alarm for door opening after 2 minutes</li> </ol>
<b>Operating manuals, service manuals, other manuals</b>	<ol style="list-style-type: none"> <li>1. User, technical and maintenance manuals in English language.</li> <li>2. List of equipments and procedures required for local calibration and routing maintains</li> <li>3. Service and operation manuals to be provided advanced maintenance tasks documentation if any</li> </ol>
<b>List of spares and Accessories</b>	List of all spares and accessories (including minor) with part numbers and price, required for maintenance and repairs in future after guarantee/warranty period should be attached.
<b>Quality requirement</b>	<ol style="list-style-type: none"> <li>1. Should be complaint with the requirement of FDA/CE/BIS/NABL Quality certification: ISO certified.</li> <li>2. Equipment should be FDA/CE certified or equivalent standard of repute.</li> <li>3. It should be ISO 9001:2000 or other equivalent</li> <li>4. All calibration certificates must be from ISO 17025:2017 certified laboratory.</li> </ol>
<b>Door Closer</b>	With Locking arrangements

<b>Calibration</b>	9 point, 3 temp (105-degreeC,180-degreeC,250 Degree C) calibrations Certificate by NABL
<b>Manufacturer</b>	Provided CE certification for the product & also Should have IEC61010 certificate for electrical safety.

**1.3 Digital Thermo Hygrometer (-10-degree C to 50-degree C) with calibration Certificate by NABL Accredited laboratory.**

<b>Parameter</b>	<b>Specification</b>
<b>Equipment Type</b>	Digital Thermo Hygrometer
<b>Temperature Range</b>	-10°C to +50°C or Better
<b>Humidity Range</b>	10% RH to 99% RH or Better
<b>Temperature Resolution</b>	0.1°C
<b>Humidity Resolution</b>	1% RH
<b>Temperature Accuracy</b>	±0.5°C or Better
<b>Humidity Accuracy</b>	±3% RH or Better
<b>Display</b>	Simultaneous Indoor Temperature, Outdoor Temperature and Relative Humidity Display
<b>Temperature Unit</b>	°C and °F Selectable
<b>Outdoor Sensor</b>	Wired Remote Probe with Minimum 2 Meter Cable Length
<b>Clock Function</b>	Real Time Clock (12/24 Hour Format)
<b>Calendar Function</b>	Date and Day Display
<b>Alarm Function</b>	Daily Alarm Function
<b>Mounting</b>	Table Top and Wall Mounting Arrangement
<b>Data Display</b>	Indoor Temperature, Outdoor Temperature, Humidity, Time and Date

Parameter	Specification
Power Source	Battery Operated
Battery	Batteries to be Supplied Along with Instrument
Housing Material	Durable ABS Plastic Body
Calibration Requirement	NABL Accredited Calibration Certificate
Calibration Range (Temperature)	-10°C to +50°C
Calibration Range (Humidity)	10% RH to 99% RH
Calibration Laboratory	ISO/IEC 17025:2017 NABL Accredited Laboratory
Traceability	Traceable to National/International Standards
Operating Manual	User Manual to be Supplied
Warranty	Minimum 1 Year Warranty
Scope of Supply	Instrument, Sensor Probe, Batteries, Calibration Certificate and User Manual

**Note:** The instrument/Equipment offer under the tender shall be compatible to above technical specifications for standard make and should follow the regulations of the NABL, EPA and other competent authorities of the country.

**1.4 Density Hydrometer (-10-degree C to 50-degree C) with calibration Certificate by NABL Accredited laboratory.**

Parameter	Specification
Equipment Type	Density Hydrometer
Standard	Conforming to IS/ASTM applicable standards



Parameter	Specification
Measuring Range	Specific Gravity 0.990 to 1.060 g/cm <sup>3</sup> or suitable range for water analysis
Temperature Range	-10°C to +50°C
Graduation	Maximum 0.001 g/cm <sup>3</sup>
Accuracy	±0.001 g/cm <sup>3</sup> or Better
Material	Transparent Laboratory Grade Glass
Filling Medium	Non-toxic Colored Liquid
Scale	Permanently Marked and Easy to Read
Length	Approx. 250–300 mm
Calibration	Individually Calibrated
Calibration Certificate	NABL Accredited Calibration Certificate
Calibration Laboratory	ISO/IEC 17025:2017 Accredited Laboratory
Traceability	Traceable to National/International Standards
Operating Medium	Water and Aqueous Solutions
Temperature Compensation	Reference Temperature 20°C or 27°C as per applicable standard
Accessories	Protective Storage Case

Parameter	Specification
User Manual	To be Supplied
Warranty	Minimum 1 Year against Manufacturing Defects
Scope of Supply	Hydrometer, Calibration Certificate, Storage Case and User Manual

**1.5 Supply of 3 Nos Fire Extinguisher ABC Type Cap-1 Kg Bottle with Fitting Stand & with Mfg. Conformity Certificate.**

ABC Type Cap. 1 Ltr. Bottle, with fitting stand and with mfg. conformity certificate.

**Specification:** for ABC stored pressure type Fire Extinguishers Cap-1 Kg

Model	SE-ABC-500 IS:13849/1993(With Latest Amendments)	SE-ABC-1
Capacity	Kg	1
Dia	mm	86.5
Thickness	mm	1.6
Hydraulic Test Pressure	bar	30
Jet Range	m	4
Min.period for which jet to be maintained	sec.	6
Max. period to discharge	sec	12
Min. discharge quantity	%	85
Height	mm	305
Empty Weight	Kg	0.95
Filled Weight	Kg	2.3
Temperature Range	°C	0-60

Manufacturing certificate showing the Date of Manufacturing and Date of Expiry on Fire Extinguisher.

**1.6 Digital Temperature Indicator with Probe with calibration Certificate by Accredited laboratory**

Parameter	Specification
Equipment Type	Digital Temperature Indicator with Probe
Temperature Range	0°C to 400°C or Better
Resolution	0.1°C up to 199°C and 1°C from 200°C to 400°C
Accuracy	±1°C or Better
Sensor Type	PT-100 RTD / Thermocouple Probe
Probe Material	Stainless Steel
Probe Diameter	6 mm Approx.
Probe Length	125 mm Approx.
Cable Length	Minimum 2 Meter
Cable Material	Teflon Coated
Display Type	Digital LCD/LED Display
Measurement Unit	°C
Response Time	≤ 5 Seconds

<b>Parameter</b>	<b>Specification</b>
<b>Power Source</b>	Battery Operated
<b>Battery</b>	Supplied with Instrument
<b>Housing Material</b>	Durable ABS Plastic Body
<b>Calibration Requirement</b>	NABL Accredited Calibration Certificate
<b>Calibration Points</b>	Minimum 3 Calibration Points covering operating range
<b>Calibration Laboratory</b>	ISO/IEC 17025:2017 NABL Accredited Laboratory
<b>Traceability</b>	Traceable to National/International Standards
<b>Operating Manual</b>	User Manual to be Supplied
<b>Warranty</b>	Minimum 1 Year
<b>Scope of Supply</b>	Digital Temperature Indicator, SS Probe, Teflon Cable, Batteries, Calibration Certificate and User Manual

### 1.7 Water Still Single Stage

Parameter	Specification
Equipment Type	Single Stage Water Still / Water Distiller
Distillation Method	Traditional Boiling and Condensation Process
Production Capacity	Approximately 0.7 Liter per Hour
Filling Tank Capacity	4 Liter
Boiling Chamber Material	High Quality Stainless Steel
Collection Container	Borosilicate Glass Collection Container/any suitable and durable container
Construction	Corrosion Resistant Laboratory Grade Construction
Design	Compact Tabletop Unit
Dimensions	Approximately 230 mm × 380 mm
Water Quality	Suitable for preparation of distilled water for laboratory applications
Heating System	Electrically Heated Boiling Chamber
Safety Features	Automatic Shut-off on Low Water Level / Dry Run

Parameter	Specification
	Protection
Power Supply	230 V AC, 50 Hz, Single Phase
Operating Mode	Continuous Distillation Cycle
Cleaning	Easy Access for Cleaning and Maintenance
Accessories	Collection Bottle, Power Cord, User Manual
Performance Certificate	Manufacturer's Test Certificate
User Manual	Operation and Maintenance Manual
Warranty	Minimum 1 Year Comprehensive Warranty
Scope of Supply	Water Still, Collection Container, Accessories, Documentation and User Training

**1.8 Refrigerator, 0 to 10-degree C of Cap-500 lit, Branded with Stabilizer with calibration Certificate by Accredited laboratory after installation on site.**

- Cap.500 liter.
- Double walled inner chamber made of SS 304, outer chamber of G.I powder coated with PUF Insulation of 65mm in between the two walls.
- Temperature range 0–10-degree C with accuracy of  $\pm 0.5$ -degree C.
- Temperature controlled with PID controller. Supplied with inner glass door to view inside chamber without disturbing inside temperature and Fan for maintaining uniform temperature.

**REFRIGERATION SYSTEM.**

- Refrigeration system factory balanced using CFC free 134A refrigerant.

- Bottom mounted condensing unit—easy access for maintenance.
- Factory pre-engineered capillary tube system with oversized condenser and evaporator to reduce product cool down time and to consistently maintain 330F to 380F interior cabinet temperature.
- Evaporator – epoxy coated at the time of manufacture to eliminate the potential of corrosion.
- Equipment must be provided with 5.nos of SS shelves and suitable stabilizer mounted on sturdy castor wheels with 9 point, 3 Temp point (4-degree C, 6-degree C, 8-degree C) calibration certificate by NABL Accredited laboratory after installation at site.
- Manufacturer should have CE certification for the product & also should have IEC61010 certificate for electrical safety.

**1.9 Exhaust Fan made of Metal Branded 12" diameter with fitting including core cutting in wall and necessary fixing material including all labor work.**

- Made of Metal branded 12" width with fittings conforming to IS 2312:1967 (with latest amendments)
- Double ball bearings heavy duty motor Protective bird guard is provided.  
Power: 70 watts

**1.10 Portable UPS for Computer with standard ISO marked Company as per specification.**

- With standard ISO: 9001 marked company. UPS/Invertors Rating  $\leq$  kVA, conforming to
- IS16242(PART1):2014(with latest amendments)
- Nominal Input Voltage: 230 V
- Output Power Capacity: 600 Watts/1000 VA
- Nominal Output Voltage: 230 V
- Automatic Voltage Regulation (AVR), Generator Compatibility
- Battery Type: Maintenance-free sealed Lead-Acid battery
- With suspended electrolyte: leak proof

### 1.11 Voltage Stabilizer 3 KVA of standard make.

Servo motor operated automatic line voltage correctors (LVC) copper wound indoor type, Continuous duty, conforming to IS: 9815 (Pt.1)/1994(Reaffirmed 2009) suitable for phase Voltage of 120-280 volts. Voltage Stabilizer- 3KVA (input 170 to 270 AC supply)

#### General Features:

1. A noise less operation and sturdy life.
2. Electrostatically shielded with isolation
3. Very safe against spikes and surges and very fast
4. Alarming system with voice
5. correction Specification:

**Input:** 170-270VAC, **Output:** 200-240VAC

Capacity: Provide online stable 230V AC power supply to run minimum three Pin Plug to run three attachments at a time.

### 1.12 Eyewash pump

Weight	2.5 kg
Type of Product	Eye Wash
Material	Brass
Mounting Type	Wall
Supply	½" BSP, Recommended pressure: 30 PSI/ 2 kg/cm <sup>2</sup>
Drain	1 ¼" BSP
Dimension	32 x 28 x 14 cm

### 1.13 Glass Thermometer-10°C to 300°C liquid filled

Cap-10.0°C to >250°C, Liquid filled with calibration certificate from NABL Accredited Lab

### 1.14 Split AC 1.5 Tone with Installation at site.

<b>Cooling Capacity:-</b>	5.2kW(1.5TR)
<b>Star rating:-</b>	3
<b>Max. Ambient temp:-</b>	45°C
<b>Energy efficient ratio (EER):-</b>	3.2



<b>Electrical input:-</b>	230V/50Hz/Single-phase
<b>Noise level:-</b>	Indoor unit:≤40dB
<b>Compressor type:-</b>	Hermitically sealed rotary type
<b>Airflow rate:-</b>	425CFMormore
<b>Fan speed:-</b>	3Steps
<b>Function modes:-</b>	Auto/Cool/Fan/Dry–shall have power saving mode, temperature setting option should be available
<b>Body surface finish:-</b>	Powder coated/high quality paint finish
<b>Air filtering unit:-</b>	Dust proof and anti-bacteria filter
<b>Length of tubing:-</b>	5 m or as per the installation requirement
<b>Remote-control:-</b>	Wireless with LCD display
<b>Refrigerant type:-</b>	R-22orR-410Aoranyotherrefrigerant As per current industry standard
<b>Warranty:-</b>	1-year warranty for the whole AC unit and three years for compressor unit from The date installation
<b>Acceptance Criteria:-</b>	<ol style="list-style-type: none"> <li>1. Split AC should conform to IS 1391(part 2)-1992, room AC specification.</li> <li>2. Supplier shall arrange for split AC installation on walls in lab and operation at full capacity at RRCAT, Indore</li> <li>3. Operating and maintenance manual for Split AC unit should be provided</li> </ol>

**1.15 Monopan/ Analytical Digital Balance, 0.1mg to 220mg with Auto Calibration with Accredited laboratory calibration Certificate after installation on site.**

<b>Capacity:-</b>	220g
<b>Readability:-</b>	Min.:0.0001g(0.1mg), Max:220gorbetter
<b>Repeatability:-</b>	+/-0.0001g
<b>Linearity:-</b>	+/-0.0002g
<b>Pan size:-</b>	90 mm(Stainless Steel 316 grade)round edge
<b>Calibration:-</b>	Fully automatic, External adjustment with CAL DONE indication

<b>Display:-</b>	High Contrast Enlarged Advanced Eye Protected Backlit LCD Display
<b>Key Feature:-</b>	Auto Self checking function, anti- vibration feature and Auto filtration format ching environment conditions
<b>Technology:-</b>	Based on Electromagnetic Force Compensation-Brilliant MONOLOG Single Block System and advanced Microcontroller
<b>Overload Protection:-</b>	Yes,150% of full scale (up to 350g)
<b>Interface:-</b>	RS232,USB,1500V,
<b>Extra Protection:-</b>	Protection of Main Balance Configuration, Airtight Rust &Dust proof weighing chamber (IP54)
<b>Tare range:-</b>	100%Full
<b>Response time:-</b>	3sec.
<b>Draft shield:-</b>	Yes, with 3opening door–left, right and top smooth glass slider
<b>Operating temp:-</b>	+5°Cto+ 40°C
<b>Weighing Units:-</b>	gm, mg, ct, kg, tola, lb, gn, oz, ozt, dwt, etc (20standard global weighing unit)
<b>Power Requirement:-</b>	Input-AC110~230V,50/60Hz, +/-15% Output–DC7~8V
<b>Sensitivity drift:-</b>	+/-1ppm/°C
<b>Housing:-</b>	Inside high grade chemical resistant metal and outside high gradient-static abs
<b>Approved:-</b>	ISO, CE, NABL, Legal Metrology (Govt. of India)
<b>Standard Accessories</b>	AC-DC Adapter, SS Calibration weight, SS pan, SS dust covering, Operating Manual, below weighinghook, Draft shield

**1.16 Bacteriological Incubator**

<ul style="list-style-type: none"> <li>Chamber</li> </ul>	<ul style="list-style-type: none"> <li>Triple walled construction allowing heated air to circulate within open plenum between inner chamber and the exterior wall by means of fan in the outer body.</li> <li>Significant feature of the incubator is that there is no blower or fan in the working area of the incubator.</li> <li>The side chamber and exterior chamber should be made of stainless steel SS 304.</li> <li>The outer wall is made up of stainless steel sheets while the inner wall is made up of aluminum.</li> <li>The space between the two walls is filled with glass wool to provide insulation to the incubator</li> <li>The door also should have insulation of its own., provided with a glass that enables the visualization of the interior of the incubator during incubation without disturbing the interior environment</li> </ul>
<ul style="list-style-type: none"> <li>Temperature Range</li> </ul>	<ul style="list-style-type: none"> <li>10 degree centigrade above ambient to 70 degree centigrade</li> </ul>
<ul style="list-style-type: none"> <li>Temperature Controller</li> </ul>	<ul style="list-style-type: none"> <li>Temperature controlled by microprocessor based PID controller with auto tuning action and PT 100 sensor with print out facility, Over temperature safety thermostat should be provided to cut off the supply in case of overshoot of temperature</li> </ul>
<ul style="list-style-type: none"> <li>Temp. Accuracy</li> </ul>	<ul style="list-style-type: none"> <li>+/- 0.5 degree centigrade</li> </ul>
<ul style="list-style-type: none"> <li>Volume</li> </ul>	<ul style="list-style-type: none"> <li>55 to 60 liters</li> </ul>
<ul style="list-style-type: none"> <li>Other</li> </ul>	<ul style="list-style-type: none"> <li>Observation Glass door, stainless steel perforated adjustable removable shelves (min. 2 nos of shelves), port hole, door with locking arrangements, etc.</li> </ul>
Power:-	200 to 240V AC Single Phase 50/60 Hz
Manufacturer:-	Provided CE certification for the product & also should have IEC61010 certificate for electrical safety.
Guarantee	01 year

**1.17 Vertical Autoclave with Radial Locking System**

It's simple and quick operation and pressure leak proofness establish it as an improvement over the conventional type of autoclaves in which pressure often

leaks out, as the lid cannot be tightened evenly and firmly through the fly-nuts system. Double walled, inside and outside made of thick gauge stainless-steel, attractively finished. The lid is of heavy stainless steel tightened by M.S. chrome plated radial arms through a steering wheel, maximum pressure 20 PSI and working pressure 15 PSI, Pressure is controlled by PID Digital Temp. controller within built timer and Low water cut off device. Provided complete with pressure gauge, pressure release valve, Pedal fitting device, safety valve, water outlet, water level indicator and S.S. Basket.

**Working size: 250 mm dia X 450 mm depth (10" X 18") -  
Chamber Volume 23 Ltrs approx.**

### **Salient Features**

- Versatile usage
- Stainless steel construction
- Ergonomic Design
- Energy Efficient
- Double Safety Radial Locking Arrangement
- Double Safety Valve Protection
- Hydraulic Testing Up to 2.5 times the working pressure
- Pressure Gauge and Temp. Calibration certificate provided at no extra cost. IQ/OQ/PQ documentation at extra cost.

### **Construction:**

Our vertical Sterilizer is double walled units. Outer body of our Sterilizer is constructed out of thick gauge stainless steel sheet of SS-304 grade. The inner chamber is also made of 18 SWG stainless steel sheet of SS-304 grade. Space between boiler and outer shell works as air insulation. The strong lid constructed out of thick stainless steel plate has a double safety radial locking arrangement, which ensures an easy and smooth opening and closing operation Equipped with a double safety steam release valve.

Supplied complete with pressure gauge, pressure release valve and stainless steel basket as a standard feature.

### **Heating:**

The heating process in is done through specially designed water heaters of suitable wattage to ensure optimum sterilization time in every sterilization cycle.

### **Working Temperature:**

As per the international standards and guidelines our vertical Sterilizer have a working temperature of 121 deg c., however for specific requirements our Sterilizers can be upgraded to be used for up to 134 deg c.

**Working Pressure:**

Working pressure for our standard vertical Sterilizer is 15 psi, however this can be upgraded to be used for higher pressures of up to 30 psi.

**Pressure Range:**

The normal pressure range of our Sterilizer is 5 psi to 20 psi

**Pressure Control:**

The pressure inside our vertical Sterilizer is controlled through a PID Digital Temp. indicator cum controller and built in timer, which controls the temp. and pressure inside the chamber and cuts of the current from the heater whenever the temp./pressure exceeds the set temp./pressure value of the Sterilizer, thus making it very safe and energy efficient.

**1.18 Laminar Air Flow Horizontal Mild Steel**

- Laminar Air Flow (HORIZONTAL) made of mild steel powder coated. Workbench covered with 304 grade S.S. Sheet.
- Microprocessor control Digital Display for Blower, U.V. Light and LED Light. Digital Manometer with filter failure alarm. On site
- Validation and IQ OQ PQ documentation services available at extra cost. The LAF Cabinet also available in complete S.S. construction.

**Switches:** Microprocessor based Touch Panel for Blower, LED light & UV light.

(UV light with Timer).

**Size:** 2ft X 2ft

**PRE Filter:** 90.00% down to 5 microns.

**HEPA Filter:** ISO 14644 Class 5 (Class 100) 99.97%-99.99% down to 0.3 micron. Mesh guard for protection of HEPA Filter.

**Airflow:** Frontward Horizontally/Vertically

**Noise Level:** 60 decibels  $\pm$  5%.

**Velocity:** 0.35-0.50m/sec.

**Work Table:** Made up of stainless steel 304 (Perforated) Cock for gas on work

table.

**Side Panels:** 6mm±.5mm thick Acrylic sheet.

**Front door:** Made of Acrylic. (Foldable)

**UV Lamp:** 15/30W, make Philips Holland

**Illumination:** LED White Light.

**Pressure:** Digital Manometer 0-50mm range with filter failure alarm.

**Power Supply:** 230V± 10V/50 Hz single phase A.C.

**Cabinet:** Cabinet made of Mild Steel duly powder coated.

**Electricals:** 15/5 AMP. socket with switch.

**Heavy Duty Blower:** Dynamically balanced with 0.25 HP Electric Motor Mounted on anti-vibration pad 1440 rpm motor.

### **Schedule-B 2: Procurement and supplying of the glasswares for 15 New Water Testing Laboratory Laboratories with necessary certificates**

1. Glassware should be properly annealed and Glassware Company should have in-house annealing Facility.
2. Bidder should submit the certificate of Quality Borosilicate glass composition from Competent Govt. Body like CGCRI. Composition of Borosilicate Glass should be Approx. SiO<sub>2</sub> – 81%, B<sub>2</sub>O<sub>3</sub>- 13 %, Na<sub>2</sub>O/ K<sub>2</sub>O – 4 %, Al<sub>2</sub>O<sub>3</sub> - 2 %
3. All glassware should have permanent amber brown color printing embedded in Glass with hologram of company.
4. The glassware should have been tested for thermal shock test at 120°C and the Certificate should be provided along with supplier.
5. A-Class glassware should be individually certified by Automatic calibration machines and certificate should be traceable.
6. Volumetric Glassware should be NABL certified and should pass measurement uncertainty test.

<b>Sr. No</b>	<b>Name of Goods</b>	<b>CAPACITY</b>	<b>SPECIFICATIONS</b>	<b>SCOPE OF WORK</b>	<b>Description of Glass Quality</b>
2.1	B.O.D Bottle (125ml)	125 ml	With interchangeable stopper with cup top – with engraved marked number APPROX Outer Diameter x Height 55 X 120 MM	Used For Collection of Water Sample For Bacteriological Examination	They are made mechanically stronger with heavier wall thickness and these can withstand wet or dry sterilization. Due to excellent chemical durability of the glass, most reagents can be stored in these bottles without much effect for long durations.
2.2	Beaker (with spout) (cap-50 ml)	50 ml	Flat Bottom low form with SPOUT & GRADUATED Outer Diameter X Height 42x55 mm Approx.	Estimation Of Nitrate	Beakers are widely used in practically all lab applications. They are ideal for heating, because of the optimum

Sr. No	Name of Goods	CAPACITY	SPECIFICATIONS	SCOPE OF WORK	Description of Glass Quality
					balance between thermal resistance and mechanical strength due to controlled wall thickness at sides, radius and bottom. The spouts wherever incorporated are designed to have excellent pouring characteristics.
2.3	Beaker (with spout) (cap-250 ml)	250 ml	Flat Bottom low form with SPOUT & GRADUATED Standard size	Preparations Of Standards & General Use in LABORATORY	Beakers are widely used in practically all lab applications. They are ideal for heating, because of the optimum balance between thermal resistance and mechanical strength due to controlled wall thickness at sides, radius and bottom. The spouts wherever incorporated are designed to have excellent pouring characteristics.
2.4	Beaker (with spout) (cap-1000ml)	1000 ml	Flat Bottom low form with SPOUT & GRADUATED Outer Diameter X Height 139x190 mm Approx.	Preparations of Standards & General Use in LABORATORY	Standard make
2.5	Bottle-Reagent (125ml)	125ml	Plain Narrow Mouth with interchangeable Flat Head stopper 19/26 Outer Diameter x Height 55 X 120 MM	To Store CHEMICAL REAGENTS	Standard make



Sr. No	Name of Goods	CAPACITY	SPECIFICATIONS	SCOPE OF WORK	Description of Glass Quality
2.6	Bottle-Reagent (250ml)	250ml	Plain Narrow Mouth with interchangeable Flat Head stopper 19/26 Outer Diameter x Height 64 X 147 MM	To Store CHEMICAL REAGENTS	Standard make
2.7	Bottle-Reagent (1000ml)	1000ml	Plain Narrow Mouth with interchangeable Flat Head stopper 29/32 Outer Diameter x Height 104 X 200 MM	To Store CHEMICAL REAGENTS	Standard make
2.8	Cylinder Color Comparison (Nessler Flat Bottom)	50 ml	They are typically made of borosilicate glass for durability and chemical resistance and feature a flat bottom for stability and ease of use.	color comparison,	Nessler cylinders with a flat bottom are specialized laboratory glassware used for color comparison, particularly for assessing the color and turbidity of liquid samples.
2.9	Cylinder Graduated (Cap-25 ml)	25ml	Graduated, Single Metric Pour out with Hexagonal Base Graduation interval – 0.5 ml, tolerance limit $\pm 0.25$ ml approx., total height 170 MM	For Low Volume Buffer Solution & Reagents	Measuring cylinders serve simultaneously to receive and measure different amounts of liquids. Made from specially drawn tubing with durable, easy to read graduations for assured accuracy having built strength features into every cylinder. Heavy uniform wall tubing and strong stable hexagonal bases also prevent them from rolling off a laboratory bench.
2.10	Cylinder Graduated (Cap-100 ml)	100 ml	Graduated, Single Metric Pour out with Hexagonal Base Graduation interval – minimum 1.0ml, tolerance limit $\pm 0.5$ ml approx.,	For Measuring the Quantity of Water Samples & Dilution	
2.11	Cylinder Graduated (Cap-500 ml)	500 ml	Graduated, Single Metric Pour out with Hexagonal Base Graduation interval –5.0 ml, tolerance limit $\pm 2.5$ ml approx.,	For Measuring the Quantity of Water Samples & Dilution	

Sr. No	Name of Goods	CAPACITY	SPECIFICATIONS	SCOPE OF WORK	Description of Glass Quality
			total height 390 MM		They are available in capacities from 5ml to 2000ml with Class A certification.
2.12	Desiccators with cover & sleeve, 250mm	250mm	Desiccators made of special glass, air tight cover and round bottom sheet	estimation	Desiccator's bodies and covers are designed for strength and utility. The body has a streamlined contour for easy cleaning of used desiccant. Any desiccant such as sulphuric acid, phosphoric pentoxide, calcium chloride or silica gel can be used. Vacuum types desiccators, when ground surface is cleaned and greased, will hold a vacuum of 500mm of Mercury over a 24 hour period.
2.13	Flask conical (cap-250 ml)	250 ml	Narrow Mouth Graduated Approx. Outer diameter x Height – 85x140 mm Neck Outer Diameter 34mm Approx.	For Volumetric Analysis	Standard make
2.14	Flask Volumetric with I/C stopper (cap-250ml)	250ml	Flat Bottom with interchangeable stopper having 14/15 mm size Tolerance limit – $\pm 0.15$ ml	Preparation of Standards Normal solutions and for precise dilution	They conform to tolerances tight capacity and assure accurate reproducible results. The flasks have built-in strength too. The flask body is

Sr. No	Name of Goods	CAPACITY	SPECIFICATIONS	SCOPE OF WORK	Description of Glass Quality
					<p> specially blown and accurate bore tubing is used for the neck. And above all, having interchangeable solid glass stoppers for durability and convenience. In capacities from 1 ml to 5000 ml having a Class A accuracy, certified by the company. </p>
2.15	Funnel 75 mm dia	75 mm Diameter	Plain 60° angle Long Stem 75mm diameter & Stem approx. 75mm	For Filtration Work	Standard make
2.16	Glass Rods	In Number	Made from Fine Glass approx. 23 cm Height & 0.5 mm dia with round shape on Top	To dissolve Chemicals	Standard make
2.17	Pipette Measuring Graduated Type (cap 1ml)	1.0 ml	Graduated for Delivery from 0.0 mark to the last Graduation mark Graduation Interval – 0.01 ml Tolerance limit $\pm 0.007$ ml	For Analytical Accuracy	Pipettes are manufactured from specially selected machine-drawn borosilicate accurate bore glass tubing. They have precision formed jets, bevel ground ends to resist chipping. The graduation marks are in durable amber embed I stain, resistant to normal laboratory reagents and repeated washing. All the pipettes are individually
2.18	Pipette Measuring Graduated Type (cap 2ml)	2.0 ml	Graduated for Delivery from 0.0 mark to the last Graduation mark Graduation Interval – 0.02 ml Tolerance limit $\pm 0.01$ ml	For Analytical Accuracy	
2.19	Pipette Measuring Graduated Type (cap 5ml)	5.0ml	Graduated for Delivery from 0.0 mark to the last Graduation mark Graduation Interval	For Analytical Accuracy	

Sr. No	Name of Goods	CAPACITY	SPECIFICATIONS	SCOPE OF WORK	Description of Glass Quality
			– 0.05 ml Tolerance limit $\pm 0.03$ ml		measured and then marked. Due to uniformity of bore, accuracy is ensured between any two readings. The pipettes can be autoclaved and, if necessary, can be flamed for sterilization. I.S.O. Standards to facilitate easy identification. The Graduation marks are screen printed. The OD of pipettes size 5 ml and above are tooled with uniform OD and ID for easy sucking and cotton plugging. This tooling also gives added strength.
2.20	Pipette Measuring Graduated Type (cap 10ml)	10.0 ml	Graduated for Delivery from 0.0 mark to the last Graduation mark Graduation Interval – 0.1 ml Tolerance limit $\pm 0.05$ ml	For Analytical Accuracy	
2.21	Pipette Transfer Volumetric (cap 1ml)	1.0 ml	Tolerance limit – $\pm 0.007$ ml	For Analytical Accuracy	
2.22	Pipette Transfer Volumetric (cap 2ml)	2.0 ml	Tolerance limit – $\pm 0.010$ ml	For Analytical Accuracy	
2.23	Pipette Transfer Volumetric (cap 5ml)	5.0 ml	Tolerance limit – $\pm 0.015$ ml	For Analytical Accuracy	
2.24	Pipette Transfer Volumetric (cap 10ml)	10.0 ml	Tolerance limit – $\pm 0.020$ ml	For Analytical Accuracy	
2.25	Pipette Transfer Volumetric (cap 25 ml)	25.0 ml	Tolerance limit – $\pm 0.030$ ml	For Analytical Accuracy	
2.26	Test Tube (15x 125mm)	15 x 125 mm	With RIM (strong) Approx. Outer diameter x Height – 15 x 125 mm	For BACTERIOLOGICAL Examination	SHOULD SUSTAIN 15 POUND PRESSURE
2.27	Test Tube (30x 300mm)	30x 300mm	With RIM (strong) Approx. Outer diameter x Height – 30x 300mm	For BACTERIOLOGICAL Examination	

All the Glassware must comply with highest quality standards and Volumetric apparatus shall be of Class-A type shall be confirming to its all the technical specifications and NABL requirements. The ordered materials under the tender must be of highest quality, made of high quality grade materials. It shall be calibrated and certified by the manufacturer. Glass ware shall confirm to relevant IS and bare ISI mark.

- (ii) In case of any of the Glassware must compatible in the technical specifications require and must be complied with the its existing standard as practiced and used in the nationally/internationally renowned manufacturer for Lab use.

Note:

All the Glassware must comply with highest quality standards and Volumetric apparatus shall be of Class-A type shall be confirming to its all the technical specifications. The ordered materials under the tender must be of highest quality made of high quality grade materials. It shall be calibrated and certified by the manufacturer. The BSI marked glassware must be compatible to its respective technical specifications as recommended in BIS.

**Schedule-B 3: Procurement and supplying of the CRM (Certified Reference Material) as per ISO 17034:2016 for 15 New Water Testing Laboratories with necessary certificates**

Material supplied shall be Certified Reference Material for the water quality testing laboratory for obtaining accurate analytical results, and to calibrate all of the instruments used for analysis before commencing as per the NABL guidelines.

Sr No.	Item Description (s)	Pack Size	Specifications
3.1	Platinum Cobalt Color Reference Solution	100 ml	(I) Traceable to SI Units
3.2	Potassium chloride Solution (nominal 0.147 mS/cm)	500 ml	
3.3	Potassium chloride Solution (nominal 1.41 mS/cm)	500 ml	
3.4	Potassium chloride Solution (nominal 12.8 mS/cm)	500 ml	
3.5	Sulfate standard solution Na <sub>2</sub> SO <sub>4</sub> in H <sub>2</sub> O 1000 mg/l SO <sub>4</sub> <sup>2-</sup>	500 ml	
3.6	Nitrate standard solution KNO <sub>3</sub> in H <sub>2</sub> O 1000 mg/l NO <sub>3</sub> <sup>-</sup>	500 ml	
3.7	Fluoride standard solution NaF in H <sub>2</sub> O 1000 mg/l F	500 ml	
3.8	Sodium Carbonate volumetric standard	45 gm	
3.9	Calcium Carbonate volumetric standard	20 gm	
3.1	Buffer solution pH 4.01	500 ml	
3.11	Buffer solution pH 7.00	500 ml	
3.12	Buffer solution pH 10.00	500 ml	
3.13	Turbidity 4000 NTU Formazin Calibration Standard	500 ml	
3.14	Potassium dichromate volumetric standard	80 gm	
3.15	Sodium Chloride	80 gm	

**TEST CERTIFICATE:** Agency has to provide test certificates issued from authorized manufacturer for the CRM.

Certified Reference Material Should Be Traceable to SI Unit, Reference Materials (CRM) producer accredited as per ISO 17034:2016

**Note:** Packing size shall be as above or minimum than above mentioned packing size

**Schedule-B 4: Procurement and supplying of the miscellaneous items for 15 New Water Testing Laboratories**

Sr. No.	Item Description (s)	Specification (s)
4.1	Brown Paper (roll) Standard Metallic	Standard items to be used in Water Quality Testing Laboratories
4.2	Plastic Carboy 2.0 lit Durable Plastic	
4.3	Plastic Carboy 5 lit	
4.4	Plastic Carboy 20 lit	
4.5	Plastic Carboy 1lit	
4.6	Dropping Bottle (Plastic 60ml)	
4.7	Hand Gloves	
4.8	Tissue Paper Roll	
4.9	Spatula	
4.10	Crucible Tong	
4.11	Enamel Tray	
4.12	Test Tube Brush, Pipette Brush & Flask Brush	
4.13	Wash Bottle (500ml)	

4.14	Pipette Stand	
4.15	Beaker, PP Standard plastic 50ml	
4.16	Beaker, PP Standard plastic 100ml	
4.17	Bucket Cap 16 Liter (Plastic)	
4.18	Vertical Bunsen Burner With Stopcock, For Lab Experiment	
4.19	Tripod Stand	
4.20	Porcelain Mortar & Pestle	
4.21	Rubber Ball for Pipette 10ml	
4.22	Rubber Ball for Pipette 5ml	
4.23	First Aid Kit	
4.24	Dust Bin	
4.25	Marker Pen	



## **Schedule-B 5: Providing, Supplying and Installation of Computers and Printers with 03 (Three) years of the comprehensive warranty**

### **General specifications**

- Form factor: All-in-One (AIO) Desktop PC.
- Model Name/Number: 27-cr1027in
- Product Color: Shell white.
- Dimensions (W x D x H): 61.25 x 18.63 x 51.68 cm, approximately.
- Weight: 6.72 kg, approximately.
- Operating System: Windows 11 Home Single Language.
- Included Software: Microsoft Office Home & Student 2021.

### **System components**

- **Processor:**
  - o Family: Intel Core Ultra 5 processor.
  - o Model: Intel Core Ultra 5-125U.
  - o **Speed:** 4.3 GHz with Intel Turbo Boost Technology
  - o Cache: 12 MB L3 cache.
  - o Cores/Threads: 12 cores, 14 threads.
- **Memory (RAM):**
  - o Capacity: 16 GB.
  - o Type: DDR5-5600 MHz RAM
  - o Configuration: 1x16 GB
  - o Slots: 2 SODIMM slots.
- **Storage:**
  - o Capacity: 1 TB.
  - o Type: PCIe NVMe M.2 Solid State Drive (SSD).
- **Graphics:**
  - o Type: Integrated Intel UHD Graphics.

### **Display and multimedia**

- Display: A 68.6 cm (27 inch) diagonal FHD (1920 x 1080) IPS anti-glare display.
- Webcam: An HP True Vision 1080p FHD IR tilt privacy camera.
- Audio: Integrated dual 2W speakers.

### **Connectivity and ports**

- Wireless: Realtek RTL8852BE Wi-Fi 6 (2x2) and Bluetooth 5.3.
- Network Interface: Integrated 10/100/1000 GbE LAN (RJ-45).
- Rear Ports: Includes USB Type-C, USB Type-A, USB 2.0 Type-A, HDMI-out 1.4, headphone/microphone combo, and RJ-45.

### **Accessories and power**

- Input devices: HP 710 White Wireless Keyboard and Mouse Combo.
- Power Supply: 90 W Smart AC power adapter.
- Energy Efficiency: EPEAT registered and ENERGY STAR certified.

### **Warranty**

- Warranty: 3 year onsite warranty from the OEM  
As per site conditions & instructions given by engineer in-charge

### **Printer**

Computer Printer with Minimum 3 Year on Site Warranty, including Cartridge and Power Cord/Adaptor brand i.e. HP/Brother/Canon

**Print Technology:** Laser

**Type of Printing:** Monochrome (Black)

**Paper Size:** A4 and Legal

**Minimum Print Speed per Minute as per ISO/IEC 24734 in A4 Size-Monochrome (Black) (in PPM):** 16 to 20

**Connectivity:** USB Port

**RAM Size (in MB):** 64

**Cartridge Technology:** Composite Cartridge

**Accessories Provided:** USB Cable

**Power Supply:** Single Phase AC 220 - 240 V, 50 - 60 Hz