

LIST OF ITEMS, TECHNICAL SPECIFICATIONS AND QUANTITY FOR ONE LABORATORY FOR CULTURE & SENSITIVITY FOR RNTCP

Sl. No.	Item	Technical Specifications	Quantity per Consignee	Remarks
Schedule I				
1	Biological Safety Cabinets	<p>Type: BIOSAFETY CABINET, CLASS II BI (As per NSF guidelines)</p> <p>The basic equipment shall consist of exhaust HEPA filter, 'Supply HEPA filter, HEPA filter for supply air, negative pressure exhaust plenum, front opening sash with either counter weight of motorized movement, suitable blower assembly, necessary lighting, indicators and controls for the cabinet. The equipment should be mounted on a stand with leveling feet. The exhaust plenum should be under negative pressure, hard ducted to the outside.</p> <p><u>Use of the Equipment:</u> - Transfer of microorganisms to media containers.</p> <p><u>HEPA FILTER:</u> Face dimensions: 4ft. (L) X 2ft. (W) X 6ft . The HEPA filter should have rated efficiency of 99.97% (or better) at 0.3 microns to provide product protection of Class 100 or exceeding Class 100 requirements of Federal Standards 209E or equivalent ISO within the work area.</p> <p><u>Face Velocity:</u> At least 100 fpm</p> <p><u>Light Intensity at work surface:</u> 800 lux or more over the entire work surface.</p> <p><u>Noise level :</u> <70 dBA.</p> <p><u>UV germicidal lamp intensity:</u> >40 microwatt/sq.cm over the entire work surface.</p> <p><u>Construction :</u> Main body, side and rear panel: Electro-galvanized Steel or Mild Steel, oven baked epoxy powder coated finish. Workable (surface): SS304 or SS 316.</p> <p><u>Switches and indicators:</u> Individual switches and indicator lamps for blower motor, florescent lamp and UV lamp.</p> <p><u>Differential pressure gauge :</u> Scale display in cms of water</p> <p><u>Electrical protection :</u> The LAF should be fitted with earth</p>	2	Equipment quoted should comply with Indian Standards Institutions Guidelines or any other National or International Guidelines.

		<p>leakage circuit breaker (ELCB) <u>Other fittings required for Attaching auxiliary services :</u> Electrical outlet socket (5 ampere rating) qty: 2 nos. <u>Prefilter</u> :- one</p> <p>The Biosafety Cabinet should be tested and comply with the following requirements (at site):-</p> <ol style="list-style-type: none"> 1. Down flow velocity and Volume Test. 2. Inflow Velocity Test. 3. Airflow Smoke Pattern Test. 4. HEPA Filter Leakage Test. 5. Cabinet Leakage Test. 6. Electrical Leakage : Ground Circuit Resistance and . Polarity Test 7. Lighting Intensity Test. 8. Vibration Test. 9. Noise Level Test. 10. UV Lamp Intensity Test. 11. Alarms and indicators test (if provided). 12. The differential pressure gauge should be calibrated. <p><u>Spare accessories</u> : HEPA Filter (one)-dimensions same as above, Prefilters (two).</p>		<p><u>Note</u>:- All the tests will have to be conducted by an Accredited Agency which shall then issue Test Certificate and send it to the respective consignees. Subsequently, the tests shall be conducted (after installation at the respective consignee's Laboratory site) by the supplier and 'Certificate of Satisfactory Installation' shall be obtained from the respective consignees.</p>
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Schedule II				
1	Universal Containers (McCartney Bottles)	<p>28ml, wide neck, with aluminium screw cap and liners pack of 20 bottles. Weight of each bottle in gms (without screw cap and Neoprene washer)= 50 ± 1,</p> <p>Length of bottle in mm = 82</p> <p>Maximum external circumference of bottle in mm = 92</p> <p>Type of bottle (thickness and surface: bottom and side of each bottle) = Even thickness without air bubbles in the glass, clear glass</p> <p>Diameter of the bottom of bottle in mm to fit within centrifuge bucket of inner diameter of 30 mm = 28.2</p> <p>Capacity of each bottle in ml (volume) = 28</p> <p>Bottle should be autoclavable, should not become opaque on autoclaving.</p> <p>Screw cap for the bottle: Weight in Gms without washer = 1.6 ± 0.1 gms</p> <p>screw cap: made of aluminum to fit tightly all bottles (leak proof)</p> <p>screw cap: Inner diameter of screw cap without Neoprene washer in mm = 2.7</p> <p>Neoprene (soft) washers thickness in mm = 2.5</p> <p>Neoprene washer diameter in mm = 2.7</p> <p>Neoprene washers should withstand repeated autoclave.</p>	10,000	“Fisher” make or equivalent. The Bidder must specify the make of the Containers it intends to supply.
2	Spare Caps for Universal Containers	Spare caps with liners for Universal Containers 28ML, wide neck, pack of 100 Nos.	10 packs (100 each)	

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Schedule III				
1	Autoclave (Vertical)	<p>With water level indicator, pressure gauge, steam release cock, spring loaded safety valve, Triple walled construction, all the three walls are made of thick high grade stainless steel sheet of SS-304 grade. The lid made of stainless steel sheet, Unit fitted with Double safety radial locking system with paddle lifting device, made of MS chrome plated, with built-in safety valve, pressure gauge, pressure release valve and water level indicator. Pressure adjustable from 5 psi to 20 psi with an accuracy of +/- 1 psi, with automatic pressure control switch. Supply complete with stainless steel basket, chord and plug.</p> <p>Working Chamber: Height x Internal Diameter:500mm x 300mm Electrically heated by immersion type heaters bearing ISI mark, to work on 220 volts single phase 50 cycles. The pressure inside the chamber is variable from 5 psi. to 20 psi..</p> <p>Working Temperature : 121° C, Hydrostatic Pressure : 2.5 kg/cm sq. (35 psi), stainless steel steam release valve, spring loaded safety valve of stainless steel (grade SS-304), water inlet and water valves, water level indicating gauge glass with stainless steel guard, pressure gauge, electrical control box, fitted with toggle switch, indicating Neon lamps and steam release valve, foot paddle lifting device.</p> <p>Automatic Pressure Control Switch - To cut-off the current from the heating elements, when the desired/ set pressure value level is attained inside the chamber and restarts the mechanism once the pressure inside the chamber falls from the desired level.</p> <p>Automatic Water Cut-off Device – To protect the heaters from running dry and to ensure that the machine is automatically switched off in case the</p>	1	<p><u>Applications:-</u></p> <ol style="list-style-type: none"> 1) For effective sterilization for smaller work load. 2) For decontamination of infected material prior to its disposal. 3) For faster work in the laboratory. <p>The apparatus should confirm to national or international standards with latest amendments covering Markings, Safety requirements with recommendations of safe operations from any reputed firm with ISO 9001:2000 & CE Certification. Voltage regulator of appropriate rating to be included to cope with 160-260 V.</p>

		<p>desired water level falls below the prescribed level.</p> <p>Temperature Indicator to indicate the temperature inside the chamber.</p> <p>Timer with Alarm System - To regulate the sterilization time of the media to be sterilized with a buzzer</p>		
2	Fluorescent Microscope	<p>Achromatic Objectives : 4x/0.1, 10x/0.25 & 100x/1.25 Oil (Spring), Fluorescence objectives : FL 10x and 40x both/0.65 (Spring), 'Wide Field Eyepieces : 10x Paired, Nosepiece : Quadruple, Reflected Fluorescence Unit Power unit 110 V/ 220 V, Mercury lamp house 100 W/DC, Reflected fluorescence illuminator (trinocular, B.G. excitation system) including installation.</p>	1	<p>The apparatus should confirm to IS:4381-1967 (reaffirmed 2007) with latest amendments or equivalent national or international standards for general requirements for optical components and optical instruments, marking and packing. Voltage regulator of appropriate rating to be included to cope with 160-260 V.</p>

3	Electronic Balance	<p>General purpose table top laboratory balance, Stainless Steel, 220-230 V, stainless steel platform, keypad auto calibration function, auto off, battery life of at least three months after installation, overload and under load, low battery LCD/LED indicator.</p> <p><u>Range:</u> Wide range: 0.001 – 120 gms, (three digit decimal), Resolution: 0.001 gms, Accuracy 0.001 gm, Repeatability (SD): 0.01 gm., pan diameter 80 mm., weighing pan enclosed in glass shield ,with full range tare, AC adapter.</p>	1	<p>Equipment quoted should comply with Indian Standards Institutions Guidelines or any other National or International Guidelines. Voltage regulator of appropriate rating to be included to cope with 160 – 260 V</p>
4	Shaker	<p>For culture processing, Maximum load: 15kg; stainless steel and anodized aluminium parts; baked polyester finish; digital speed control; 20-240 rpm, adjustable strokes, for use at 240volts AC, 50HZ Dimensions: 120cms (L)x 60cms (W)x 20cms (H), accommodates containers of any size.</p>	1	<p>Equipment quoted should comply with Indian Standards Institutions Guidelines or any other National or International Guidelines. Voltage regulator of appropriate rating to be included to cope with 160-260 V.</p>
5	Centrifuge	<p>Table Top, AC, 50HZ, with swing out rotor, adapters 4 Nos , to hold universal containers; and hermetically sealed caps 4 Nos, with windshield, and ‘o’ ring for full aerosol containment, safety interlocked lid, bio-safety features incorporated.</p> <p><u>Max. Speed:</u> 6,000rpm <u>Max. RCF:</u> 6,240 x g <u>Max. Capacity:</u> 4 x 400 ml <u>Run Time:</u> 1– 99 mins, Continuous operation <u>Voltage:</u> 230 V, 50 Hz, <u>Programme Memory:</u> Values last entered remain in memory. Data saved if power is interrupted, 1.0 non-refrigerated, maximum capacity 4 x 400 ml to hold McCartney bottles (universal containers).</p> <p>Other Technical details SWING-OUT ROTOR: 1 No. Max. Speed: 4,000rpm</p>	1	<p>Equipment quoted should comply with Indian Standards Institutions Guidelines or any other National or International Guidelines. Voltage regulator of appropriate rating to be included to cope with 160-260 V.</p> <p><u>Note:-</u> Centrifuge should be hermetically sealed, so as to prevent release of aerosols into the air thus preventing health hazards.</p> <p><u>Clarification:-</u></p>

		<p>Max. RCF: 3,345 x g Max. Capacity: 4 x 400 ml Round Bucket 400ml for adapter inclusive of Polypropylene bottle 4 Nos. Sealing cap for round bucket: 4 Nos Each 400ml adapter should hold at least 4 McCartney bottles (universal containers) of size length 82 mm, diameter of the bottom 28.2 mm, volume 28 ml. Adaptor: 4 x50 ml: 4 Nos</p>		<p>The first Max speed and Max RCF are for the main Centrifuge and the second Max speed and Max RCF are for SWING-OUT ROTOR.</p>
6	Inspissator	<p>A shallow polish stainless tray rested inside a tank containing water. The whole undersurface of the tray is in contact with water at a constant temperature which ensures that the temperature of the McCartney bottles with media is also constant. The surface of the tray is a series of sloping steps (at 9 degree angle above the horizontal) and will hold 162 universal containers. A blanket is placed over the containers to exclude draughts and a quilted cover provides thermal insulation: both blanket and quilt are made from insect-resistant materials. The temperature of the water under the tray is controlled by a digital immersion thermostat. Accuracy and reproducibility of set temperature are ensured with the digital display of actual and, at the touch of a button, set temperature. The control unit is mounted on a bridge plate over one end of the bath, from which heater, stirrer and temperature sensors project down into the bath. All moving parts are incorporated in the control unit which removable for servicing. The tray and tank are made of polished stainless steel and are fitted in an outer case of laminated wood. A constant level device is fitted to maintain the water level despite evaporation losses. Specifications: Std temperature: 85c; Operating temp. range: ambient +5 to 90C.; temperature display: LED; Display resolution: 0.1c;</p>	2	<p>Voltage regulators of appropriate rating to be included for each item to cope with 160-260 V.</p>

		Uniformity: tray surface + or - 0.7c; Heater power: (approx.)1.4Kw, 230V; Tank capacity: (approx.)45 lit; Heat up rate 20 to 85 c; 3.5 hours; working area: leng/width: (approx.) 820/594mm; overall dimensions (approx.): 1/w/h: 1040/600/380mm; Over temperature protection: Fixed cut-out; Electrical power: 220-240V 50/60 Hz, 1.5kW(approx.) , Approx.weight: 25-35 kgs.		
7	Bottle Washing Machine	Electrically operated, with a quick release chuck taking a wide variety of interchangeable nylon brushes for cleaning syringes, test tube, McCartney bottles, and round bottles up to 250ml. Mounted on a cast aluminium base with a perspex anti-splash shield, a white enamelled tray and incorporating a 1/16hp motor for 250V/50Hz single phase supplies. Dimensions: (approx.) 62.5x27cmsx25cms.; Approx.wt.:50-60 kgs., Accessories: Brushes, nylon, for round bottles capacity 30,120,250ml; brushes, nylon, for McCartney bottles- diameter 25mm.	1	Equipment quoted should comply with Indian Standards Institutions Guidelines or any other National or International Guidelines.Voltage regulator of appropriate rating to be included to cope with 160-260 V.
8	Autoclave (Horizontal)	Stainless Steel of SS-304 grade, Triple walled with a steel jacket, separate boiler, inner and outer chamber, jacket and boiler made of stainless steel, The pressure is adjustable from 5 psi to 20 psi with automatic pressure control switch, which controls the pressure with an accuracy of +/- 1 psi., LW cut off, auto safety door lock, mounted on rigid tabular stand. Spring loaded safety valve of stainless steel. Inner dimensions of chamber: (approx.) cylindrical 600mm diameter x 1100mm deep, 9KW (approx.) electrically heated, Working pressure : 1.2 -1.5kg/sq. cm. There should be provision for vaccum for drying of racks and porous loads. Automatic Pressure Control Switch- To cut-off the current from the heating elements, when the desired/ set pressure value level is attained inside the chamber and restarts the mechanism once the pressure inside the chamber falls from the desired level.	1	<u>Applications:-</u> 1) For sterilizing non infective material and aqueous media in loosely stoppered flask. 2) For drying of racks and porous loads by vaccum and intake of filtered air. 3) For larger workloads in the laboratory. Equipment quoted should comply with Indian Standards Institutions Guidelines or any other National or International Guidelines.Voltage regulator

		<p>Automatic Water Cut-off Device – To protect the heaters from running dry and to ensure that the machine is automatically switched off in case the desired water level falls below the prescribed level.</p> <p>Temperature Indicator to indicate the temperature inside the chamber.</p> <p>Timer with Alarm System - To regulate the sterilization time of the media to be sterilized and when the desired time is passed, with a buzzer, to that the completion of sterilization cycle.</p>	<p>of appropriate rating to be included to cope with 160-260 V.</p>
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9	Hot Air Oven	Thermostatically controlled, temperature range ambient to 250 ⁰ c with fine and coarse adjustment, Memmert type, with fan, digital display, approx. overall size 81 cm (H) x 58 cm (L) x 71 cm (W), internal size 46 cm (H) x 40 cm (W) x 35 cm (D) stainless steel (SS) interiors with supports on three sides for adjustable shelves of size 38 cm x 34 cm, number of shelves: 3, Fan convection to ensure uniform temperature, fitted with load indicator and safety thermostat take over indicator lamp. Temperature variation $\pm 1^{\circ}\text{C}$, LCD/LED indicator.	1	The apparatus should conform to IS6365-1971(Reaffirmed 2006)with latest amendments in Indian Standard Specification for Laboratory Electric Ovens or equivalent National or International Standards covering Markings, tests and Safety requirements Voltage Regulator of appropriate rating to be included to cope with 160-260 V.
10	Distilled Water Plant	Complete unit made in stainless steel., Constant level arrangement for inlet water, Wall hanging model, provided with MS Bracket for wall mounting, Boiling Chamber, Lid, Cooling Condenser and any other part coming into contact with water / steam should be made of 304 quality stainless steel. 'Heating is achieved with kettle type immersion heaters (two)'. , should work on 220/440 volts, AC Mains, capacity of the plant should be 5 litres (approx) per hour, should be provided with necessary safety features such as automatic disconnection of heater connections should the still run dry.	1	Equipment quoted should comply with Indian Standards Institutions Guidelines or any other National or International Guidelines. Voltage regulator of appropriate rating to be included to cope with 160-260 V.
11	Analytical Balance	Weighing Capacity range: 1gm.- 1 kg, Readability 0.1gm, Pan size 6" (approx.) dual pans of Stainless Steel, mechanical, table top. Standard weights should be supplied along with the Analytical balance	1	Equipment quoted should comply with Indian Standards Institutions Guidelines or any other National or International Guidelines.
12	Water Bath	Stainless Steel, insulated double walled, inner wall of stainless steel, thermostatic temp. control from ambient to 85 - 90 ⁰ C ($\Delta 0.5^{\circ}$) complete with immersion heater, Aluminium/SS cover, brass drain cock, 220-240 volts AC, 50Hz., Dimensions outside:- (approx.)36x41x25 cms; inside:-	1	Equipment quoted should comply with Indian Standards Institutions Guidelines or any other National or International Guidelines. Voltage regulator of appropriate rating to be

		(approx.)27x30x15 cms; Capacity not given because the dimensions specified are required for the proper functioning of the water bath in the Laboratory for optimum utilization of the space. Power : (approx.)480W; Digital microprocessor display to set temp. point preventing thermal runaway., seamless reservoir with no welds to leak or rust, see-through cover is hinged and removable , and steeply gabled to accept taller samples. IEC-1010 approved.		included to cope with 160-260 V
13	Deep Freezer	<p><u>Upright Model:</u> CFC free high efficiency double refrigeration system for cooling and freezing filled in the bottom.</p> <p><u>Temperature:</u> 0°C-86°C \pm - 0.5°C</p> <p><u>Temperature Control:</u></p> <p>(i) Digital temperature controller</p> <p>(ii) Microprocessor Control/Microcontroller-for temperature setting</p> <p>(iii) Alarms for-Voltage, Over heat, Over cool</p> <p><u>Size:</u> 300 litres with minimum 3 Stainless Steel, rust free shelves. Fixed in casters for easy maneuverability.</p> <p><u>Electricity:</u> 230 volts AC, 50Hz single phase.</p> <p><u>Refrigeration system:</u></p> <p>Heavy-duty maintenance free refrigeration system with hermetically sealed refrigeration compressors and reliable cascaded refrigeration to minimize noise and vibration. Air-cooled with security lock to prevent unintentional switch off. Short cooling time of 4 to 5 hours at 40°C ambient temperature. The equipment should be of continuous duty and frost-free. Access port for CO₂ back up.</p> <p>Audiovisual Electronic Alarm System independent of power supply</p> <p>Electrically heated doors for quick opening of frozen doors</p>	1	The apparatus should conform to Indian Standard Institution Guidelines with latest amendments in Indian Standard Specification for Laboratory Deep Freezers or equivalent National or International Standards covering Markings, tests and Safety requirements. Voltage regulator of appropriate rating to be included to cope with 160-260 V.

14	Pipetting Device	pipette pump; automatic; to be used with glass or plastic pipettes ranging in size from 1-100ml ; rechargeable battery powered pipette pump incorporating a dual hydrophilic hydrophobic 0.8um filter to prevent cross contamination; runs for 2 hrs; 240 volts AC, 50HZ.	2	Equipment quoted should comply with Indian Standards Institutions Guidelines or any other National or International Guidelines.
15	Filter Holders— 1. Swinney Filter Holder 2. Syringe Filter Holder	A membrane filter holder. Two capacity holder (1) Swinney Filter holder Inlet/Outlet Housing and Support Screen: Celcon (acetal copolymer) Seal Washer: PTFE; Effective Filtration Area 0.8 sq.cm, Dimensions Overall Length: 3.5 cm (1.4 in.) Diameter: 1.6 cm (0.6 in.) Filter Size: Accepts 13 mm filter; Inlet/Outlet Connections: Female threaded luer inlet, male slip luer outlet; Maximum Operating Pressure: 2.8 bar (280 kPa, 40 psi); autoclavable at 121 - 123 °C (250 - 253 °F) at 1.0 bar (100 kPa, 15 psi) for 15 min ; (2) higher capacity Syringe filter: 25mm Overall Length: 2.7 cm (1.1 in.) Diameter: 3.5 cm (1.4 in.) Accepts 25 mm filter and 20 mm prefilter; Body: Delrin (acetal resin) O-ring: Effective Filtration Area 3.7 cm ² ; autoclavable at 121 - 123 °C (250 - 253 °F) at 1.0 bar (100 kPa, 15 psi) for 15 - 20 min. Essential Accessories : 0.22um PVDF low protein binding membranes 13mm filter (pack of 100) & 25mm filter discs (pack of 100).	2	Equipment quoted should comply with Indian Standards Institutions Guidelines or any other National or International Guidelines.
16	Vortex Mixer	Adjustable speed: 100 to 3,000 rpm, continuous and intermittent “touch-control” modes, 220-230 Volts, AC, 50HZ; Cup heads size: 25 mm dia. x 22 mm deep for mixing contents in McCartney bottles., Heavy cast-metal base and suction cup to assure stability, prevent “walking”.	1	Equipment quoted should comply with Indian Standards Institutions Guidelines or any other National or International Guidelines. Voltage regulator of appropriate rating to be included to cope with 160-260 V
17	pH meter (digital)	pH range 0-14 with digital display and stand by and calibration mode; hand held , pocket-size with shielded electrode bulb and waterproof housing. 4x	1	Voltage regulator of appropriate rating to be included for each incubator to

		1.4V button cells give 350hrs continuous operation; size 148x28x15mm, 85g (approx.). Resolution: 0.01 MV range: ± 1999 Accuracy: ± 0.01 No. of Digits: Three		cope with 160 – 260 V.
18	Incubators	<p>Laboratory incubators: (One each)</p> <p>(1) <u>Temp.: 25 degree C (BOD Incubator)</u> <u>Specifications-</u> Stainless steel make of SS-304 grade, full length inner plexi-glass door. Castor wheel mounted tie easy movability CFC free High efficiency refrigeration system mounted at bottom, proper air circulation for uniformity. Temperature Range: $+5^{\circ}\text{C}$ to 50°C, $\pm 0.5^{\circ}\text{C}$ resolution Temperature Control: Digital Control, Microprocessor based controller for mains, heating, and cooling with separate indicator lights. Accuracy of Temperature: $+0.5^{\circ}\text{C}$ Power: 230 volts, 50Hz AC, Mains single phase. Size: (of inner chamber):- 700(W)x900(H)x650(D) mm approx., Capacity:- 15 cu. ft. with 3 shelves, made of stainless steel and inner illumination with sleek fluorescent tubes. Suitable Voltage stabilizer:</p> <p>(2) <u>Temp: 37 degree C (Temp. variation $\pm 0.5^{\circ}\text{C}$) (Mammert type),</u> (3) <u>Temp: 42 degree C (Temp. variation $\pm 0.5^{\circ}\text{C}$) (Mammert type)</u> <u>Specifications (for 2 & 3):</u> (i) Stainless steel make, inner full length plexi-glass door. (ii) Triple wall with special grade glass wool insulation (iii) Long lasting stainless steel tabular heaters with fins (iv) Temperature range, ambient $+5^{\circ}\text{C}$ to 80°C X $\pm 0.1^{\circ}\text{C}$ resolution Controller/Digital indicator for</p>	3	The apparatus should confirm to Indian Standard Institution Guidelines with latest amendments in Indian Standard Specification for Incubators or equivalent National or International Standards covering Markings, tests and Safety requirements Voltage regulators of appropriate rating to be included for each item to cope with 160-260 V.

		Temperature Size in mm approximately (of inner chamber):- 700(W)x900(H)x650(D), , Capacity:- 15 cu. ft. and door swing 65 cms.		
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Sl. No.	Item	Technical Specifications	Quantity per Consignee	Remarks
Schedule IV				
1	Ice Box	Double insulated wall with polyurethane foam, non-rust, non-leak and crack-proof, easy to clean, made of durable polystyrene, with at least two ice packs, for storage of sputum specimens for at least six hours, Size (internal) =10" x 10" x 10".	3	Equipment quoted should comply with Indian Standards Institutions Guidelines or any other National or International Guidelines.
2	Refrigerator	Vertical, capacity 165lts or more, frost free, CFC free, single door, 220V AC, 50 HZ.	1	House hold refrigerator required. Equipment quoted should comply with Indian Standards Institutions Guidelines or any other National or International Guidelines. Voltage regulator of appropriate rating to be included to cope with 160-260 V.
3	Bunsen burner for LPG gas	Fast flame Bunsen burner Stainless Steel, for use with natural and cylinder gases, 15cms height, head diameter 13 mm, Nickel plated with stopcock.	5	
4	Loop holders	Stainless steel rod with heat resistant handle holder; 6" in length; with screw arrangement to hold firmly 24 SWG Nichrome wire inoculation loop.	12	
5	Loop Wire	Nichrome wire, 24 Standard Wire Gauge (SWG) or 0.022 inches or 0.559 mm thickness SWG.	10 metres	
6	Diamond marker Pencil	6" holder with artificial diamond (hard stone) embedded at one end with screw cap to mark on microscope glass slides.	6	
7	Grease marking	Marking pencil MPS, Blue or red coloured, 8" length,	8	

	pencil	to write on glass ware/metal surfaces.		
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8	Hot plate	Hot plate, heating range 40-110 degree C, 220volt with temperature controller, 1ft x 1ft square flat plate, chemical and scratch resistance ceramic plate, temperature uniform across the plate, spill trough to deflect spills away from electronic and control knobs with a LCD/LED indicator, hot indicator light whenever hot plate is above 50 degrees.	1	Equipment quoted should comply with Indian Standards Institutions Guidelines or any other National or International Guidelines. Voltage regulator of appropriate rating to be included to cope with 160-260 V.
9	Discard bins	Stainless Steel, 5Lts. Capacity, Ht. 12" x Diameter 6", with lid.	6	
10	Forceps	Stainless Steel, 6" in length, serrated blunt tips. straight.	6	
11	Cotton	Absorbent, each roll of 0.5 kg.	10 rolls	
12	Stop Watch	Mechanical stop watch, for a maximum of 60 minutes duration with timer and alarm, dial diameter :10 cms, thickness: 5 cm. Accuracy: 1/5 sec	3	Equipment quoted should comply with Indian Standards Institutions Guidelines or any other National or International Guidelines.
13	Stainless steel tray	Stainless Steel, Size: 15" length, 10" Width, 3" Depth.	2	
14	Wire rack	Stainless Steel wire carrying rack, sturdy welded steel wire (of approximately 0.25" diameter) construction, used to hold 20 McCartney bottles(10 bottles x2 rows) of approximately 28.5 cms external diameter and 82 cms height, 50 gm. Weight each bottle; rack should be autoclavable, resist rust, corrosion, solvents, and acids. Entire rack size approximately 13" L x 2.5" B x 2.5" height. Racks should have a base made of steel wire mesh of 0.5" L x 0.5" B, The dimensions of top wire mesh 1.25" L x 1.25" B.	10	

15	Filter paper	Filter paper No. 1, diameter:- 12.5 cms for filtering carbol fuchsin using a small funnel of 10cm maximum diameter, Smooth on one side and rough on the other side, water permeable	120 packs (of 100 each)	
16	Stainless Steel Bucket with lid	Stainless Steel, 60 Litres capacity, 18 gauge	2	
17	Perforated Baskets	To hold approximately 200 universal containers (McCartney bottles) for autoclaving, Aluminium welded mesh. Size: 480mm x 280mm Compatible with the autoclave inner chamber of diameter of Height 500 mm x Diameter 300 mm, with two hinged handles at the top	3	
18	Test Tube Rack	Aluminium, S-shaped, 9" x 3" with holes size of 20mm, storage capacity:30 tubes.	6	
19	Stainless Steel Scissors	Stainless Steel, 6" length, surgical, open shanks, straight with fine sharp point.	3	
20	Spatula	Nickel with spoon end size:180mm; 9"length	6	
21	Clips (50mm)	Clip Mohr, Nickel plated Iron, thick quality, round edges, length 50mm.	2	
22	Clips (70mm)	Clip Mohr, Nickel plated Iron, thick quality, round edges, length 70mm	2	
23	Knives	Stainless Steel, with handle for cutting glass tubing ; pocket size knife: 10cms.	6	
24	Cork Borers	Stainless Steel, insets with rod separate handle fitted to each set of 1-12, 5-19mm	2	
25	Boxes (96mm)	Stainless Steel for holding ten 4"(96mm.) glass petri dishes for sterilization.	2	
26	Boxes (46cms x 4cm)	Cylindrical, Stainless Steel for sterilizing pipettes; full length of 46cms length x 4 cms diameter with a tight closing lid. Sterilisation canister for glass pipettes.	3	
27	Stainless Steel Trays	Stainless Steel, with pouring spout, Size: 20" x 12" x 2.5"	4	
28	Stainless Steel Bowl	Stainless Steel, capacity 2 ½ Litres	4	

29	Stainless Steel Funnel	Stainless Steel, 12 cm diameter, stack of 8 cm length, 1 cm. bore size.	2	
30	Drying Rack	Stainless Steel, to drain microscope slides after staining, each rack to accommodate at least 16 slides, approximate dimensions 350 x 180 x 5 mm.	6	
31	Bucket with lid.	Stainless Steel, capacity 4 Gallons	6	
32	Mug	Stainless Steel, 1 pint size	4	
33	Brown Paper for packing	115 cm.x 75 cm. size sheets	75 sheets	
34	Rubber Bands	All assorted sizes	1/2kg	
35	Dissecting Forceps	Stainless Steel, serrated tips 14cms length, blunt edges, straight.	5	
36	Air Conditioners	1.5 ton capacity, Window A-C, number required is three: one each for primary culture & DST room, media room and culture reading room	3	Equipment quoted should comply with Indian Standards Institutions Guidelines or any other National or International Guidelines. Voltage regulators of appropriate rating to be included for each item to cope with 160-260V.
37	Non- absorbent Cotton	Non-absorbent cotton rolls of 1/2 kg each, surgical grade	4 Kg (roll of 1/2 kg each)	
38	Wire Racks to hold 150 Universal Containers (McCartney bottles)	Stainless Steel wire carrying rack, sturdy welded steel wire (of approximately 0.25" diameter) construction, used to hold 150 McCartney bottles (of approximately 28.5 cms external diameter and 82 cms height, 50 gm. Weight each), autoclavable, should resist rust, corrosion, solvents, acids. Entire rack size approximately 22.5" L x 15" B x 2.5" height. Racks should have a base made of steel wire mesh of 0.5" L x 0.5" B, The dimensions of top wire mesh 1.25" L x 1.25" B.	50	
39	Wire gauge with non-asbestos pad at	Iron mesh of 1mm thick wire for Tripod stand, 15cms x 15 cms, with 10cms diameter asbestos in the centre, Size: 6" x 6".	2	

	the centre.			
40	Tripod stands	Iron Tripod stand made of 7mm diameter rod, Minimum distance between any two legs 15cms, height 23cms, stand of equilateral triangle of 10cms on each side.	2	
41	Stainless Steel Rods for staining (set of two rods).	Two 5mm diameter stainless steel rods of length 2ft each welded at both ends with small stainless steel rods of 5 cms length and 5 mm diameter, to obtain a rectangular rack for placing on wash basin during staining of microscope slides.	6 sets	
42	Industrial Gloves	Acid & alkali proof, Rubber, Anti-static, to cover at least $\frac{3}{4}$ th of forearm.	1 pair	
43	Lens Paper	Soft microscope lens cleaning tissue, 4" x 6" booklet, each booklet containing 100 sheets.	50 booklets (each containing 100 sheets)	

Sl. No	Item	Technical Specifications	Quantity per Consignee	Remarks
Schedule V (Glassware and related items)				
1.	Slides	Glass microscope slides; 76mm x 26mm x 1.3mm, plain, one pack of 50 slides.	144 packs (50 slides each)	
2.	Glass ware for stain preparation - Round (flat bottom) flask	1 Lt. Capacity.	10	
3.	Glass ware for stain preparation - Measuring cylinder	Graduated 100ml cylinder	4	
4.	Glass ware for stain preparation - Measuring cylinder	Graduated 500ml cylinder	4	
5.	Containers for stains	Glass stoppered bottles, 250ml capacity.	8	
6.	Dropper Bottles	250ml capacity built-in stem all polypropylene; leak proof screw cap made of polypropylene.	8	
7.	Glassware for media preparation i) 3 lts. Flasks	Autoclavable and dry heat resistant, flat bottom, round flask. Extended neck (not Conical flask)	3	
8.	ii) 1 Lts. Flasks	Autoclavable and dry heat resistant, flat bottom, conical flask	12	
9.	iii) 1 ml Pipettes	Autoclavable and dry heat resistant, graduated 1/10 (0.1ml graduation)	15	
10.	iv) 2ml Pipettes	Autoclavable and dry heat resistant, graduated 1/20 (0.1ml graduation)	15	
11.	v) 5ml Pipettes	Autoclavable and dry heat resistant, graduated 1/20 (0.1ml graduation)	15	
12.	vi) 10ml Pipettes	Autoclavable and dry heat resistant, graduated 1/20 (0.1ml graduation)	15	

13.	vii) 500ml Beakers	Autoclavable and dry heat resistant, graduated 1/20 (0.1ml graduation)	12	
14.	viii) 250ml Beakers	Autoclavable and dry heat resistant, graduated 1/20 (0.1ml graduation)	12	
15.	Bijou bottles	Borosilicate or corning glass of 5 ml capacity with screw caps of Aluminium with rubber liners suitable for Bijou bottles, leak proof.	250	
16.	Glass beads	Acid washed, 3mm size; for dispersing the clumps of micro-organisms by vortexing or blending.	500gms	
17.	1 ml Pipette, sterile disposable	1ML, 1 in 10 graduation, Low-density polyethylene, sterile, graduated, each packed separately to maintain sterility, 100 pipettes per box .	50 (boxes)	
18.	5 ml Pipette, sterile disposable	5ML, 1 in 10 graduation, Low-density polyethylene, sterile, graduated, each packed separately to maintain sterility, 10 pipettes per box.	50 (boxes)	
19.	10 ml Pipette, sterile disposable	10ML Low-density polyethylene, sterile, graduated, each packed separately to maintain sterility, 10 pipettes per box.	50 (boxes)	
20.	Rubber teats	Latex rubber teats for Pasteur pipettes. Capacity 2.5ml ; neck bore 6.5mm.	6	
21.	Rubber bulbs	Pear shaped moulded rubber for use with pipettes. Neck bore approx 4mm; 15ml capacity.	6	
22.	Retort stand base	12" x 6" stand with 30" rod.	2	
23.	Retort ring plain rod	Ring 3.25" diameter; arm length 13 cms	1	
24.	Retort ring plain rod	Ring of 4" diameter; arm length 13 cms	1	
25.	Retort ring plain rod	Ring of 6" diameter; arm length 13 cms	1	
26.	Clamps	Brass or cadmium plated for retort stand.	2	
27.	Boss heads	Brass or cadmium plated for holding retort ring.	2	
28.	Test tube brushes	White bristles on tinned iron white-fan shaped ends for test tube size 3/8 " x 1/2 "	2 dozens	
29.	Cylinder brushes	Nylon bristles with twisted steel handle. Arm length 40 cms.	1 dozen	

30.	Nylon brush, large for test tube	Nylon bristles with twisted steel handle; Sizes 0.75" to 1".	1 dozen	
31.	Brush for flask	Nylon bristles with twisted steel handle for washing 250ml -3 lit flask; Two arm length (15, 40 cms).	1 dozen of each arm length.	
32.	Mortar pestles	Heavy glass, external diam. 4", capacity 8 oz.	1	
33.	Beakers	Glass ,autoclavable & heat resistant ; with spout, capacity 250ml.	2	
34.	Beakers	Glass ,autoclavable & heat resistant , capacity 100ml.	2	
35.	Beakers	Glass ,autoclavable & heat resistant , capacity 500ml.	2	
36.	Beakers	Glass ,autoclavable & heat resistant , capacity 1000ml.	1	
37.	Test tubes	Glass, autoclavable & heat resistant, standard rimless, 150 x 16 mm with screw caps.	100	
38.	Funnels clear glass	Plain diameter: 5 cm	1	
39.	Funnels clear glass	Plain diameter: 10 cm	2	
40.	Funnels clear glass	Plain diameter: 18 cm	2	
41.	Volumetric Flask	Whiteline graduation with glass stopper, 50ml capacity	1	
42.	Volumetric Flask	Whiteline graduation with glass stopper, 100ml capacity	1	
43.	Volumetric Flask	Whiteline graduation with glass stopper, 1000ml capacity	1	
44.	Boxes for storing slides	For storing 100 Slides, Plastic storage boxes, approximate dimensions: 8.75" (22.2 cm) x 6.75"(17.15 cm) x 1.3"(3.3 cm).	15	
45	Spare Caps for Bijou bottles	Screw caps of Aluminium with rubber liners suitable for Bijou bottles.	500	

Schedule VI (Chemicals, Reagents etc)

S.no	Item	Technical specifications	Total Quantity per consignee	Remarks
1	Potassium Di chromate	Chemicals Formula:K ₂ Cr ₂ O ₇ , Formula Wt: 294.2, Minimum assay:99.5%	1 Kg	
2	Phenolic compounds containing disinfectants	Household disinfectant, containing phenolic compounds such as monochlorophenol, coal tar acid, oils & Emulsifiers etc. The approx content of phenolic compounds should be at least 40%.	50 Ltrs	
3	Basic Fuchsin	Chemical name :Pararosaniline hydrochloride, chemical structure: C ₂₀ H ₂₀ ClN ₃ mol wt:337.86'Dye content: Approx.85%-88%(dye content must be mentioned), Colour: Metallic green.	500 gms	
4	Sulphuric Acid	Chemicals name :Sulphuric Acid, Formula Wt: 98.08, Specific Gravity 1.84 Minimum Assay:98%	10 Ltrs	
5	Malachite Green	Chemicals name:Malachite green Hydro Chloride, Chemical structure:C ₂₃ H ₂₅ ClN ₂ , Molecular Wt.=364.9, Colour: Green, Dye content: 80%+9% Solubility: both in water & alcohol, Stability : More than one year.	150 gms	
6	Methylene Blue	Chemicals name:Methyl thionine chloride, Chemical structure:C ₁₆ H ₁₈ ClN ₃ S, Molecular Wt:319.9, Dye content:Approx 82%(dye content must be mentioned)	100 gms	
7	Auramine	C ₁₇ H ₂₂ ClN ₃ , mol wt: 303.84	250 gms	
8	Phenol	Chemical name: Phenol, Chemical structure: C ₆ H ₅ OH, Molecular Wt: 94.11, Melting point: 40°C ₊₂ , purity: 99.5%	5 Kgs	
9	Hydrochloric Acid	Concentrated Hydro Chloric Acid, Molecular Wt: 36.46 Specific Gravity 1.18	15 Ltrs	

10	Potassium Permanganate	KMnO ₄ , Formula Wt:158	500 gms	
11	Liquid Paraffin (Heavy Grade)	Refractive index of 1.48. It should be colourless, odourless, transparent, free from fluorescence in day light with relative density of 0.827 to 0.890, viscosity of 110 to 230 m Pa s., specific gravity of 0.76-0.78 at 15.5°C	3.5 Ltrs	
12	N-acetyl L-Cysteine	Chemical structure:C ₅ H ₉ NO ₃ S, mol wt: 163.2	25 gms	
13	Sodium Citrate	<u>Chemical name</u> : Trisodium citrate dihydrate, AR grade <u>Chemical structure</u> :Na ₃ C ₆ H ₅ O ₇ .2H ₂ O, <u>Molecular Wt (FW)</u> :294.10, <u>Purity</u> : 99%	500 gms	
14	Potassium phosphate	Potassium Di Hydrogen ortho Phosphate KH ₂ PO ₄ , Molecular Wt:=136.1 Minimum assay=99%	1 Kg.	
15	Magnesium Sulphate	MgSO ₄ .7H ₂ O; mol wt 246.48; purity:99.5%	1Kg	
16	Magnesium Citrate	TriBasic ; C ₁₂ H ₁₀ Mg ₃ O ₁₄ .9H ₂ O mol wt: 613.28	500 gms	
17	L- asparagine monohydrate	L-Asparagine monohydrate ; C ₄ H ₈ N ₂ .H ₂ O mol wt: 150.14	1 Kg	
18	Glycerol	Formula: CH ₂ OHCHOHCH ₂ OH mol wt: 92.1; purity 99.5%	3 Ltrs	
19	Sodium hydroxide pellets	Formula:NaOH Formula Wt:40 Minimum Assay :98%	1 Kg	
20	Cetyl Pyridinium chloride	Chemical name: Cetyl Pyridinium Chloride; Chemical structure: C ₂₁ H ₃₈ ClN.H ₂ O / 358	500 gms	
21	Sodium Chloride	Chemical name: sodium chloride chemical structure :NaCl Molecular Weight:58.44 Minimum assay:99.9%	1 Kg	
22	Dihydrostreptomycin sesquisulphate	sigma D-7253	5 gms	
23	Isonicotinic acid hydrazide	Sigma I -3377	5 gms	
24	Rifampicin	Sigma R-3501	5 gms	
25	Ethambutol dihydrochloride	Sigma E-4630	25 gms pack	

26	PNB	Chemical Name Para Nitro benzoic acid Formula Wt: 167.12, Min assay =99% C ₆ H ₄ COOHNO ₂	100 gms pack	
27	Cyanogen bromide	CNBr- Cisco Research Lab:mol wt:105.9	100 gms pack	
28	O-Tolidine A.R	Dimethyl benzidine ; C ₁₄ H ₁₆ N ₂ form wt: 212.3	50 gms powder pack	
29	Hydrogen peroxide	AR or GR grade, assay : 29-32% solution, FW- 34.01	1.5 Ltr	
30	Tween-80	Chemical name: Polyoxyethylenesorbitanmonooleate. AR or GR Grade, Density=1.06-1.09g/ml	500 ml	
31	Oxalic acid(pure)	COOHCOOH.2H ₂ ; mol wt:126.07 ; purity 99.8%	500 gms	
32	Absolute alcohol	Ethanol	1 Ltrs	
33	Liquor ammonia	LR/GR Grade	1 Ltr	
34	Sodium carbonate	Formula Na ₂ CO ₃ Formula Wt: 106 Minimum asay :99%	500 gms	
35	N-N-dimethyl formamide	HCON(CH ₃) ₂ mol wt: 73.09	500 ml	
36	Formaldehyde	HCHO; mol wt: 30.03; wt per ml at 20°C=1.075- 1.095 g; methanol content=10-15%, Assay (acidimetric) as HCHO 37-41%	2.5 Ltrs	

General requirements:-

1. All equipment quoted should comply with Indian Standards Institutions Guidelines or any other National or International Guidelines.
2. All equipment which does not have built in voltage stabilizer should be supplied with appropriate voltage stabilizers.
3. All the chemicals should have the Hazard Communication Standard from Chemical manufacturers and Material Safety Data Sheets (MSDS) for each chemical item should be provided to the purchaser of the product at the time of the order and thereafter, anytime the MSDS is significantly revised. Also, all the chemicals should have their detailed specifications, potency, date of manufacture, date of expiry, batch no. and precautions for use mentioned on the containers.