



**GNAMAMI
GANGE**

**Jharkhand State Pollution Control Board
TA Division Building, HEC Complex, Dhurwa,
Ranchi – 834004, Jharkhand**

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Advt. No- 02/2019

DATE-28.02.2019

**INVITATION FOR
SUPPLY OF LABORATORY INSTRUMENTS FOR ANALYTICAL WORKS TO
DIFFERENT LABORATORIES OF JSPCB**

Sealed bids tenders item wise under Two Bid System (as specified in the tender document available in the website www.jspcb.org) are invited from manufacturers dealers/distributors for supply as per specified quality of Equipment's/instruments for the use in the various laboratories of the Board for analytical purpose.

- Detailed information regarding the item, bidding document, specification, terms and conditions and other information are given in the tender form available in the website www.jspcb.org.
- **It is mandatory for the bidders to submit separate rate quotation for each item required for different laboratories with the bid price.**
- **Quoted price shall be firm and inclusive of all costs including delivery charges at defined destination.**
- The supplier shall/must complete the entire work of supply, installation, commissioning and handing-over within the period of 90 days from award of the work order.
- Last date for the receipt of complete tender documents: 14/03/19 up to 6.00 F.M. The Technical Bid shall be opened on 15/03/19 At 11.00 AM and date for opening of Financial Bid shall be declared after Technical evaluation of tenders. Tenders will be opened in the **JSPCB HQ, Ranchi**
- The undersigned reserves the right to accept or reject or all the bids without assigning any reason at any stage.
- A complete set of bidding documents may be purchased by interested eligible bidders from www.jspcb.org dated 02/03/19 to 14/03/19 up to 2.00 PM on submission of a written application with a non-refundable Bank-draft of Rs. 1,000/- (One thousand rupees only) towards cost of Tender Documenting favour of "Jharkhand State Pollution Control Board" payable at Ranchi.

Raj
Member Secretary
JSPCB

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES

Equipment name		Analytical Balance (weighing up to 0.01 mg)
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
1. MAKER MODEL AND CONDITION		
Manufacture	-	
Model	-	
Electricity	-	
Other necessary utility	-	
Dimension / Weight	-	
2. COMPOSITION		
Main unit	1 set	
3. SPECIFICATIONS		
Type	Top and side loading type	
Weighting range	0 to 200 g.	
Readability	0.01 mg from 0-60 g and 0.1 mg upto 200 g.	
Taring facility	Entire range	
Repeatability	0.01 mg	
Sensitivity drift	Maximum $\pm 0.00015\%$	
Display	LCD	
Calibratin weights	Built in and 2 X 100 g	
Dust cover	1 set	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES		
Equipment name	Analytical Balance (weighing up to 0.01 mg)	
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
Operation and maintenance manual	1 set each	
4. ACCESSORIES		
Manufacturer's standard accessories	1 set	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES

Equipment name		Autoclave
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
1. MAKER MODEL AND CONDITION		
Manufacture	-	
Model	-	
Electricity	-	
Other necessary utility	-	
Dimension / Weight	-	
2. COMPOSITION		
Main unit	1 set	
3. SPECIFICATIONS		
Tem control range	Should cover 100 to 129 degree C	
Temp control accuracy	Less than +/- 1 degree C	
Pressure range	Should cover 0 to 164 kPa	
Temp control	Microprocessor control	
Temp setting/reading	Digital	
Timer	Should cover 1 to 60 min.	
Safety function	Safety valve, overcurrent breaker, prevention of empty boiling, door close indication/alarm	
Self diagnosis	Sensor abnormal, door open during operation, temp. abnormal rise, tem. Rising time abnormal, empty boiling.	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES		
Equipment name	Autoclave	
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
Drum container	SS 304	
Drum container capacity	More than 80 L	
Pressure gauge	Mechanical gauge Should cover 0 to 300 kPa	
Exhaust tank	SS304 More than 7.5 L	
4. ACCESSORIES		
Manufacturer's standard accessories	1 set	
Vessel	1 set	
5. SPARE PARTS & CONSUMABLE		
Door packing	1 pc	
Gascates	2 sets	
Heating element	4 sets	
6. ADDITIONAL DOCUMENT		
Officially approved test certificate	1 set	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES

Equipment name	Automatic Burette (50 mL)	
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
1. MAKER MODEL AND CONDITION		
Manufacture	-	
Model	-	
Electricity	-	
Other necessary utility	-	
Dimension / Weight	-	
2. COMPOSITION		
Main unit	1 set	
3. SPECIFICATIONS		
Type	Borosilicate Glass 3.3	
Volume	50 mL.	
Readability	0.05 mL.	
Repeatability	0.05 mL.	
Accuracy	0.05 mL.	
Stop Cock	Glass Key	
Graduation	Blue	
Rubber blower	1 set	
4. ACCESSORIES		
Tubing an blower	1 set	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES		
Equipment name	Binocular Microscope	
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
1. MAKER MODEL AND CONDITION		
Manufacture	-	
Model	-	
Electricity	-	
Other necessary utility	-	
Dimension / Weight	-	
2. COMPOSITION		
Main unit	1 set	
Camera	1 set	
3. SPECIFICATIONS		
Main unit		
Type	Inverted	
Magnification	Should cover 40x to 1500 x	
Eyepiece	Approx. 10,15 x	
Objective	Approx. 4,10,40,100 x	
Binocular head	45 degree	
Illumination (50 W)	Built-in illumination system tungsten and halogen	
Camera adapter	Adjustable	
Camera		
Type	CCD Digital type	
Configuration	Single lens reflex. Auto-exposure	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES

Equipment name	Binocular Microscope	
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
Recording	On 3.5" floppy disc; 10 snaps per disc minimum.	
Shutter speed	Should cover 1/1000 to 2 sec. and hold	
Measurement system	TTL direct measurement	
4. ACCESSORIES		
Manufacturer's standard accessories	1 set	
Blue filter	1 pc	
Immersion oil	500 ml.	
Vinyl dust cover	1 pc	
Spare bulb	1 pc	
Spare fuse	1 pc	
Wooden cabinet	1 set	
Photo eyepiece	1 pc	
Photo eyepiece adapter	1 pc	
Camera mount adapter	1 pc	
5. SPARE PARTS & CONSUMABLE		
Halogen bulb	5 pcs.	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES

Equipment name		Bottom Sampler
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
1. MAKER MODEL AND CONDITION		
Manufacture	-	
Model	-	
Other necessary utility	-	
Dimension / Weight	-	
2. COMPOSITION		
Water Sampler (Hyroth Type)	1 set	
3. SPECIFICATINS		
Capacity	1000 ml (Approx.)	
Material	Stainless Steel	
Dimension	Approx. 120(OD) X 300 (H) , mm	
4. ACCESSORIES		
Manufacturer's standar accessories	1 set	
Case	1 pc.	
Hanging Chain	Approx. 2 m.	
5. SPARE PARTS AND CONSUMABLE		
Glass Bottle	4pc.	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES OF JSPCB		
Equipment name	BOD Incubator	
BOARD'S SPECIFICATION		BIDDER'S REACTION
1. MAKER MODEL AND CONDITION		
Manufacture	-	
Model	-	
Electricity	-	
Other necessary utility	-	
Dimension / Weight	-	
2. COMPOSITION		
Main unit	1 unit	
3. SPECIFICATIONS		
Construction	Double wall, stainless steel inside, mild steel, outside epoxy powder coating with acrylic transparent door inside	
Chamber Capacity	Approx. 450 liter	
Thermometer	Electronic type with digital display	
Temperature range	Should cover 15 to 40 degree C	
Temperature accuracy	Less than +/- 0.5 degree C	
Temperature control	Electronic control	
Temperature display	Digital for both set and read	
Air circulation	Forced	
No. of shelves	Four or more, adjustable height, stainless steel ,perforated	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES OF JSPCB		
Equipment name	BOD Incubator	
BOARD'S SPECIFICATION		BIDDER'S REACTION
Illumination	Good	
Mounting	Heavy duty castor wheel	
4. ACCESSORIES		
Manufacturer's standard accessories	1 set	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES OF JSPCB		
Equipment name	<input type="checkbox"/>	COD Digester with aluminum heating block
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
1. MAKER MODEL AND CONDITION		
Manufacture	-	
Model	-	
Electricity	-	
Other necessary utility	-	
Dimension / Weight	-	
The COD digestion system will be used for potassium dichromate – sulphuric acid digestion of water/waste water samples. Should consist of an electrically heated (230□10 V, 50Hz, AC) metal (Aluminum) block thermostat having at least 25 holes to take the reaction vessels, a cooling tray and an air cooler stand for 25 air coolers.		
2. COMPOSITION		
Photometer	1 unit (One for each labs.)	
Thermoreactor for COD digestion	2 units	
Cell (25 ml max. working volume)	200 pcs	
Reagent solution for COD	1 set (The number of analysis is 1000)	
3. SPECIFICATIONS		
Measuring method	Photometry	
Measuring range of COD	Should cover 10 – 150 ppm	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES OF JSPCB

Equipment name	<input type="checkbox"/>	COD Digester with aluminum heating block
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
		lower, & 100 to 1500 ppm Higher
Accuracy		Less than +/-0.5% of measured value
Thermoreactor		
Reaction temperature		37 and 40 to 160 degree C, with 1 degree increment.
Capacity		More than 25 samples
Heating up time		Within 20 min. to 148 degree C
Parameter set		Digital display / Dial Gauge
Parameter Read		Digital display / Thermometer
Timer		0 to 120 minutes with audible alarm and auto-shut-off mode.
Power Requirement		220W, 10 V; 50 Hz
Heating Block		(Preferably) Anodised aluminium
Photometer		
Wavelength range		Should cover 340 – 820 nm
Wavelength accuracy		Less than +/-2 nm
Set and Read		Digital Display
Cell Compartment		<ul style="list-style-type: none"> • Mount for tubes • Mount for 10 mm X 10 mm rectangular cuvettes
4. ACCESSORIES		
Manufacturer's standard accessories		1 set
Automatic dispensers		2 each of 1-10, 2-20, 5-50 ml capacity for reagent addition.

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES		
Equipment name	Colony Counter	
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
1. MAKER MODEL AND CONDITION		
Manufacture		
Model		
Electricity		
Other necessary utility		
Dimension / Weight		
2. COMPOSITION		
Main unit	1 set	
3. SPECIFICATIONS		
Display	LED should cover 000 to 999	
Lamp	Fluorescent	
Counting System	Manual push button pen. Probe. The counting plate should have Standard Wolfhugel ruling	
Petri Dish	Dia 100mm or more	
4. ACCESSORIES		
Manufacturer's standard accessories	1 set	
5. SPARE PARTS & CONSUMABLE		
Pen and probe	1 set	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES OF JSPCB

Equipment name	Conductivity Meter	
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
1. MAKER MODEL AND CONDITION		
Manufacture	-	
Model	-	
Electricity	-	
Other necessary utility	-	
Dimension / Weight	-	
2. COMPOSITION		
Main unit	1 unit	
Measuring electrode	1 set	
Calibration kit	1 set	
3. SPECIFICATIONS		
Control	Auto or Manual	
Modes	Conductivity, Temperature	
Display	Digital	
Measuring range	0.00 mic-S/cm to 500 mS/cm	
Accuracy	Less than or equal to 0.5% measured value \pm 1 digit.	
Cell constant	0.1 to 10, adjustable	
Temperature measurement range	Ambient to 50 ⁰ C	
4. ACCESSORIES	Manufacturers standard accessories – 1 set	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES OF JSPCB			
Equipment name		Current Meter	
BOARD'S SPECIFICATION			BIDDER'S RESPONSE
1.0	Velocity Meter (Water)	Portable cup type water velocity meter / flow meter with cable and sinking weight confirming to IS 3910 specifications for measurement of velocity / flow of water & waste water in rivers, canals, drains, waste channels etc.	
2.0	Measurement	Water current flow speed.	
3.0	Display	Digital Meter / Indicator	
4.0	Flow Velocity	0.2 meter/second to 3.5 meter/second or better	
5.0	Operation Manual	Two sets in printed form and in CD	
6.0	Instrument case & Accessories	Rugged wooden carrying case, instrument oil, cleaning cloth, screw drivers etc complete.	
7.0	Installation & Training	Onsite by trained personnel	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES OF JSPCB			
Equipment name		Depth Sampler	
BOARD'S SPECIFICATION			BIDDER'S RESPONSE
1.	Description	Portable Echo Sounder with all required cables, battery charger, accessories Echo Sounder for depth measurement at Deep water lakes, tributaries, coastal area	
2.	Display	TFT or LCD, Depth measure with backlighting	
3.	Type	Single beam, user selectable single and dual frequencies changeable through keyboard	
4.	Depth Range	Up to 300 meters	
5.	Data Recording	Chart recording & Computer compatible	
6.	Accuracy	± 0.1 %	
7.	Resolution	± 0.01	
8.	Data Output	Follow standard NMEA to interface with other devices.	
9.	Connection	Easily connected with PC or Laptop	
10.	Input Power	11 – 30 Volts DC 1.5 AMP	
11.	Depth Alarm	Shallow & Deep Water	
12.	Sound Velocity	User selected through Keypad/Keyboard	
13.	Accessories	Technical Manual and Instruction Manual	
		Parts Lists, Maintenance kit, Faulty finding guidance.	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES		
Equipment name	Digester with Condensor	
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
1. MAKER MODEL AND CONDITION		
Manufacture	-	
Model	-	
Electricity	-	
Other necessary utility	-	
Dimension / Weight	-	
2. METHOD		
	Thermal digestion and condensation	
3. COMPOSITION		
Digestron unit	1 set	
Temp controller	1 set	
Condensor unit	1 set	
4. SPECIFICATIONS		
Sample volume	Should cover 10 to 300 ml	
Digestion unit		
Digestion capacity	Approx. 300 ml x 10 pcs	
Temperature setting range	Should cover 0 to 250 degree C	
Acid mist scrubber		
Gas washing	NaOH and Water	
Condensor	Air Condensor	
5. ACCESSORIES		

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES		
Equipment name	Digester with Condensor	
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
Manufacturer's standard accessories	1 set	
Uninterrupted power supply system	Single Phase, On-line with maintenance free battery; 15 min back up; Capacity suitable for the entire system.	
Digestion tube approx 300ml	100 pcs	
6. SPARE PARTS & CONSUMABLE		
Standard accessories	1 set	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES OF JSPCB		
Equipment name	Digestion Chamber (Fume Hood)	
BOARD'S SPECIFICATION		BIDDER'S REACTION
1. MAKER MODEL AND CONDITION		
Manufacture	-	
Model	-	
Electricity	-	
Other necessary utility	-	
Dimension / Weight	-	
2. COMPOSITION		
Fume Chamber	1 unit	
Fume Chamber Base	1 unit	
Centrifugal Fan	1 unit	
Standard Ducting System	1 unit	
3. SPECIFICATIONS		
Construction	Non corrosive, made up of minimum 18 gauge steel sheet, powder coated	
Work surface	Acid/Alkali resistant and heat resistant	
Chamber provisions (Knobs and switches as mentioned are to be placed on the front panel of the chamber at an approximate height of 750 mm from floor)	<ol style="list-style-type: none"> 1. Water jet with control knob (outside) and corrosion proof sink in same mould of the platform 2. Laboratory Gas inlet nozzle with control knob (outside). 3. Chamber lighting with switch 	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES OF JSPCB

Equipment name	Digestion Chamber (Fume Hood)	
BOARD'S SPECIFICATION		BIDDER'S REACTION
	(outside) 4. 2 nos of 6Amp. & 1 no of 16 Amp. Electrical socket inside with their switches outside.	
Size of Fume Chamber	Approx. 1500mm (L) x 950mm (D) x 1200 (H)	
Size of Fume Chamber base	Approx. 1500mm (L) x 800mm(D) x 900 (H)	
Fan capacity	More than 28 m ³ / min	
Motor capacity	1 HP or more / Three phase, sound proof	
Length of duct	Approx. 5-10 m. To be finalized after approval of drawing.	
Diameter of duct	Approx. 200mm	
Flow regulation	Baffles	
Sink	Stainless steel with corrosion proof material	
Scrubber provision	For scrubbing acidic fumes	
Scrubber type	Dry type	
Chimney height	3 m from roof top.	
Installation	Complete creation, installation and commissioning of fume chamber including ducting system	
4. ACCESSORIES		
Manufacturer's standard accessories	1 set	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES OF JSPCB

Equipment name	Flame Photometer	
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
1. MAKER MODEL AND CONDITION		
Manufacture	-	
Model	-	
Electricity	-	
Other necessary utility	-	
Dimension / Weight	-	
2. COMPOSITION OF EACH SYSTEM		
Objective	Measurement of Na, K and Ca.	
Range	0 - 199.9 mmol/l Na & K (linearised)	
Limits of detection	Na/K <=0.2ppm	
Reproducibility	<=1% Coefficient of Variation for 20 consecutive samples using 10ppm Na set to read 50 ppm	
Specificity	Interference from Na/K equal in concentration to test element will be <0.5%	
Recorder Output	Nominal 1.00V for a reading of 100.0	
Services:	Electrical: 90-125V or 190-250V @ 50/60Hz Fuel: propane, butane, natural gas or L.P.G.	
Accessories	Manufacturers standard	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES		
Equipment name	Filtration Assembly with Vacuum Pump	
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
1. MAKER MODEL AND CONDITION		
Manufacture		
Model		
Electricity		
Other necessary utility		
Dimension / Weight		
2. COMPOSITION		
Glass Filter holder (dia 47mm) with flask	2 pcs	
Glass Filter holder (dia 25mm) with flask	2 pcs	
3. SPECIFICATIONS		
Filter holder with flask		
Fitting filter paper size	Dia 47mm and 25 mm	
Glass Funnel with autoclavable rubber stopper connector	Approx. 500 mL for 47 mm dia and 50 mL for 25 mm dia.	
Collection Flask	Approx. 1 L for 47 mm dia and approx. 500 ml for 25 mm dia.	
Clamp	SS304 or Aluminum alloy	
Vacuum pressure pump	Oil free Diaphragm type, single phase motor with IP 44 type protection, with carrying handle and sturdy rubber feet	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES		
Equipment name	Filtration Assembly with Vacuum Pump	
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
Material	Teflon-coated internal pump surfaces	
4. ACCESSORIES		
Manufacturer's standard accessories	1 set	
Vacuum hose	1 pc	
Support screen	3 pcs	
Filter forceps	2 sets	
Traps (Double assembly of moisture and solvent traps)	1 set	
5. SPARE PARTS & CONSUMABLE		
Hydrophilic durapore membrane filter, 47mm	5000 pcs with 0.45µm pore size, sterilized.	
Hydrophilic durapore membrane filter, 25 mm	5000 pcs with 0.45µm pore size, sterilized.	
Hydrophilic durapore membrane filter, 47mm	5000 pcs with 0.22µm pore size, sterilized.	
Hydrophilic durapore membrane filter, 25 mm	5000 pcs with 0.22µm pore size, sterilized.	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES OF JSPCB		
Equipment name	Heating Mantle	
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
1. MAKER MODEL AND CONDITION		
Manufacture	-	
Model	-	
2. COMPOSITION		
Main unit	1 set, with cord and plug	
3. SPECIFICATIONS		
Capacity	1 L round bottom flask	
Power	800 Watt (Approx)	
Temperature Control	Analog (Dial, knob operated)	
Operating Volts	230 ±15 Volts A/C.	
4. ACCESSORIES		
Manufacturers' Standard	1 set	
5. SPARE PARTS & CONSUMABLE		
Replaceable Mantle	5 sets	
Fuse	5 sets	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES OF JSPCB

Equipment name	Hot Air Oven	
BOARD'S SPECIFICATION		BIDDER'S REACTION
1. MAKER MODEL AND CONDITION		
Manufacture	-	
Model	-	
Electricity	-	
Other necessary utility	-	
Dimension / Weight	-	
2. COMPOSITION		
Main unit	1 unit	
3. SPECIFICATIONS		
Construction	Double wall, stainless steel inside and mild steel outside with powder coated paint. Space between the walls should be at least 75 mm with pure white glass wool packing.	
Temperature range	Should cover 5 degree C above ambient to 300 degree C	
Thermometer type	Electronic, with digital display	
Temperature accuracy	Less than +/- 1 degree C	
Temperature control	Electronic / Digital	
Temperature display	Digital	
Air circulation	Forced	
Inside chamber size	Approx. 600mmx600mmx600mm	
Heating	From bottom and three sides	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES OF JSPCB		
Equipment name	Hot Air Oven	
BOARD'S SPECIFICATION		BIDDER'S REACTION
No. of shelves	More than two, adjustable.	
Power	2000 Watts (approx.)	
4. ACCESSORIES		
Manufacturer's standard accessories	1 set	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES OF JSPCB

Equipment name	Hot Plates (Different Sizes)	
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
1. MAKER MODEL AND CONDITION		
Manufacture	-	
Model	-	
2. COMPOSITION		
Main unit	1 set, with cord and plug	
3. SPECIFICATIONS		
Plate Size	3 Ft. X 8 inch. (Approx) 2 Ft. X 6 inch. (Approx) 1 Ft. X 6 inch. (Approx)	
Power	2000 Watt (Approx)	
Temperature Control	Analog (Dial, knob operated)	
Operating Volts	230 ±15 Volts A/C.	
4. ACCESSORIES		
Manufacturers' Standard	1 set	
5. SPARE PARTS & CONSUMABLE		
Replaceable Heating Element	5 sets (for each)	
Fuse	5 sets (for each)	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES OF JSPCB

Equipment name	Incubator for Bacteriological Tests	
BOARD'S SPECIFICATION		BIDDER'S REACTION
1. MAKER MODEL AND CONDITION		
Manufacture	-	
Model	-	
Electricity	-	
Other necessary utility	-	
Dimension / Weight	-	
2. COMPOSITION		
Main unit	1 unit	
3. SPECIFICATIONS		
Construction	Double walled, inside stainless steel with glass window provided on door with outside wall made of mild steel and durable white enamel painted. The space between the walls should be at least 75 mm and packed with pure white glass wool.	
Inside chamber size	Aprox. 600x600x900mm (W X D X H)	
Capacity	Approx. 320 liter	
Temperature range	Ambient to 60 degree C	
Temperature accuracy	±0.5 degree C or less for the range of 30 to 40 Deg C	
Temperature control	Electronic	
Temperature display	Digital for both set and read	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES OF JSPCB		
Equipment name	Incubator for Bacteriological Tests	
BOARD'S SPECIFICATION		BIDDER'S REACTION
Air circulation	Forced	
Material of shelves	Stainless Steel	
No. of shelves	Approximately Four. Adjustable height.	
4. ACCESSORIES		
Manufacturer's standard accessories	1 set	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES

Equipment name		Laminar Flow (Large)	
BOARD'S SPECIFICATION		BIDDER'S RESPONSE	
1. MAKER MODEL AND CONDITION			
Manufacture	-		
Model	-		
Electricity	-		
Other necessary utility	-		
Dimension / Weight	-		
2. COMPOSITION			
Main unit	1 set		
3. SPECIFICATIONS			
Air flow direction	Vertical air current		
Cleanliness of working chamber	Class 10		
Air velocity	Approx. 0.4 m/sec		
Filter	Prefilter	Nylon filter (non woven type)	
	Main filter	HEPA filter	
Collection efficiency	More than 99.99% at 3 micro meter		
Fluorscent lamp	Approx. 40W x 2		
Sterilizing lamp	Approx. 15W x 2		
Front shutter	Transparent colorless glass or equivalent		

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES		
Equipment name	Laminar Flow (Large)	
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
Side plate	Transparent glass or equivalent	
Back plate	SS304	
Working table with height adjuster	SS304	
Main unit case structure	Steel baked melamine paint finish or equivalent	
Gas burner	Lighted by foot switch	
Total dimension (WxDxH)	Approx. 1600x900x1800	
4. ACCESSORIES		
Manufacturer's standard accessories	1 set	
5. SPARE PARTS & CONSUMABLE		
Pre-filter	2 sets	
Main filter	2 sets	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES		
Equipment name	Laminar Flow (Small)	
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
1. MAKER MODEL AND CONDITION		
Manufacture	-	
Model	-	
Electricity	-	
Other necessary utility	-	
Dimension / Weight	-	
2. COMPOSITION		
Main unit	1 set	
3. SPECIFICATIONS		
Type	Desk top type	
Cleanliness of working chamber	Class 100	
Air flow direction	Vertical	
Air velocity	Approx. 0.45 m/sec	
Air blower	Approx. 60Wx2	
Filter Prefilter	Nylon filter(non woven type)	
Main filter	HEPA filter	
Collection efficiency	More than 99.99% at 3 micro meter	
Fluorscent lamp	Approx. 20W x 2	
Sterilizing lamp	Approx. 15W x 1	
Side window	Transparent acrylic plate or	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES		
Equipment name	Laminar Flow (Small)	
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
	equivalent	
Unit material	Steel plate	
Back plate	SS304	
Main unit case structure	Steel, baked melamine paint finish or equivalent	
Front shutter	Transparent colorless glass	
Gas burner	Lighted by foot switch	
Total dimension (WxDxH)	Approx. 750x500x1100	
4. ACCESSORIES		
Manufacturer's standard accessories	1 set	
5. SPARE PARTS & CONSUMABLE		
Prefilter	1 set	
Main filter	1 set	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES		
Equipment name	Micro Dispensers	
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
1. MAKER MODEL AND CONDITION		
Manufacture	-	
Model	-	
Electricity	-	
Other necessary utility	-	
Dimension / Weight	-	
2. COMPOSITION		
Micro Pipetter	1 pc for each	
Pipette stand	1 pc for each	
3. SPECIFICATIONS	The pipetors shall be autoclavable for the portion in contact with fluid.	
Micro pipette	Digital adjustable type	
0.5 - 10 μ L	Less than 0.1 μ L	
Accuracy	Less than 1.5%	
Reproducibility	Less than 1.0%	
2-20 Or 5-50 μ L	Less than 0.5 μ L	
Accuracy	Less than 1.2%	
Reproducibility	Less than 0.4%	
20-200 or 50-200 μ L	Less than 1.0 μ L	
Accuracy	Less than 0.7%	
Reproducibility	Less than 0.2%	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES

Equipment name		Micro Dispensers
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
100-1000 or 200-1000 μL	Less than 5.0 μL	
Accuracy	Less than 0.8%	
Reproducibility	Less than 0.2%	
1.0 – 5.0 ml	Less than 0.05mL	
Accuracy	Less than 0.8%	
Reproducibility	Less than 0.2%	
4. ACCESSORIES		
Manufacturer's standard accessories	1 set	
Calibration kit for pipetors of all ranges with manual.	1 set	
5. SPARE PARTS & CONSUMABLE		
Tip for micro pipette		
5 μL tip	2,000 pcs	
10 μL tip	10,000 pcs	
300 μL tip	40,000 pcs	
1000 μL tip	20,000 pcs	
Filter set		
10 μL	25 pcs	
50 μL	25 pcs	
200 μL	25 pcs	
1000 μL	25 pcs	
5000 μL	25 pcs	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES

Equipment name	Micro Dispensers	
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
Piston cylinder set		
5μL	1 pc	
10μL	1 pc	
15μL	1 pc	
50μL	1 pc	
200μL	1 pc	
1000μL	1 pc	
10μL	1 pc	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES

Equipment name	Dispensers	
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
1. MAKER MODEL AND CONDITION		
Manufacture	-	
Model	-	
Electricity	-	
Other necessary utility	-	
Dimension / Weight	-	
2. COMPOSITION		
Dispensers of 4 types	1 pc for each type	
3. SPECIFICATIONS		
Adjustment	Digital adjustable type	
Type – 1 (Pistol type, for use with 0.1 to 100 ml glass or plastic pipettes)	Rechargeable battery operated with 2 or 3 bouuons fo slow/fast suction & delivery. Battery charger to be provided.	
Type - 2 Approx. 0.2 – 2.0 mL (for use on bottles)	Less than division 0.01 mL. Accuracy 0.6% Reprod. 0.1%	
Type - 3 Approx. 0.5 – 5.0 mL (for use on bottles)	Less than division 0.01 mL. Accuracy 0.6% Reprod. 0.1%	
Type - 4 Approx. 1.0 – 10.0 mL	Less than division 0.01 mL. Accuracy 0.6%	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES		
Equipment name	Dispensers	
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
(for use on bottles)	Reprod. 0.1%	
4. ACCESSORIES		
Manufacturer's standard accessories	1 set	
Bottle adapter	1 set for each type	
5. SPARE PARTS & CONSUMABLE		
0.22 micrometer filter for Type - 1	100 pcs.	
Aspiration tubes, length 240 mm	1 pc for each type	
Discharge tube, tapered mouth	1 pc for each type	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES OF JSPCB		
Equipment name	Magnetic Stirrer with Hot Plate	
BOARD'S SPECIFICATION		BIDDER'S REACTION
1. MAKER MODEL AND CONDITION		
Manufacture	-	
Model	-	
Electricity	-	
Other necessary utility	-	
Dimension / Weight	-	
2. COMPOSITION		
Main unit	1 unit	
3. SPECIFICATIONS		
Type	Magnetic stirrer	
Stirring capacity	2 L or more	
Maximum speed	1200 rpm or more	
Speed regulation	Continuously adjustable	
Stirring paddle	Teflon coated, rod shaped, 10mm, 15mm, 25mm, 35mm and 50 mm length – 2 pcs each	
Stirring platform	Stainless Steel hot plate (thermostatically controlled)	
4. ACCESSORIES		
Stirring Flee	5 sets of 6 different sizes for liquid volume from 25 mL. to 2000 mL.	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES

Equipment name	Muffle Furnace	
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
1. MAKER MODEL AND CONDITION		
Manufacture	-	
Model	-	
Electricity	-	
Other necessary utility	-	
Dimension / Weight	-	
2. COMPOSITION		
Main unit	1 unit	
3. SPECIFICATIONS		
Construction	Inside of refractory, outer body made up of thick mild steel, stove enamel painted.	
Size of chamber	Approx. 200mm X 200mm X 300mm	
Heating element	Completely muffled with no exposure to furnace chamber	
Heating element wattage	300 W approx.	
Temperature range	More than 1150 degree C	
Temperature accuracy	+/- 1 degree C	
Temperature display	Digital	
Temperature control	Solid state blind temperature	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES		
Equipment name	Muffle Furnace	
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
	controller	
Electrical	Indicative ON / OFF	
Door opening	Horizontal (preferable) or Sliding	
4. ACCESSORIES		
Manufacturer's standard accessories	1 set	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES

Equipment name	pH Meter with combined glass electrode	
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
1. MAKER MODEL AND CONDITION		
Manufacture		
Model		
Electricity		
Other necessary utility		
Dimension / Weight		
2. COMPOSITION		
pH meter main unit	1 unit	
Three-in-one type combination pH sensor	1 pc	
pH buffer solution pH 4 (500ml bottle)	1 bottle	
pH buffer solution pH 6 (500ml bottle)	1 bottle	
pH buffer solution pH 7 (500ml bottle)	1 bottle	
pH buffer solution pH 9 (500ml bottle)	1 bottle	
pH buffer solution pH 10 (500ml bottle)	1 bottle	
3.3mol/L KCl solution (50ml bottle)	1 bottle	
Power cord	1 pc	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES		
Equipment name	pH Meter with combined glass electrode	
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
AC adapter	1 pc	
Earth lead	1 pc	
Free arm	1 set	
Polyethylene beaker 150ml	3 pcs	
Shield case	1 pc	
Magnetic Stirrer	1 pc, with stirring bars (6 pcs)	
4. SPECIFICATIONS		
Measuring method	Glass electrode method	
Display	pH/mV.Temp. Clock	
Temperature compensation range	0 to 100 degreeC (Automatic or manual)	
Measuring range		
pH	pH 0 to 14	
MV	0 to ± 1999.9 mV	
Temperature	0 to 100 degreeC	
Resolution		
ph	0.001pH	
mV	0.1mV	
Temperature	0.1 degree C	
Repeatability		
pH	±0.001pH ±1 digit	
mV	±0.1mV ± 1 digit	
Temperature	±0.1 degreeC ± 1 digit	
Analog output		
ph	±700mV (pH 0 to 14)	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES		
Equipment name	pH Meter with combined glass electrode	
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
mV	±IV (0 to ± 1999.9mV)	
Temperature	±IV (0 to 100 degreeC)	
Digital output	RS-232C built-in	
Ambient temperature	0 to 40 degreeC	
Temperature conversion function	Provided	
Output range set function	Provided	
Upper/lower limits	Provided	
mV shift function	Provided	
Voice message recognition	Provided	
Clock function	Provided	
Data memory storage (100 data storage)	Provided	
Hold function	Provided	
pH calibration	1 to 5 point calibration by pH buffer solution 1,4,7,9,12 & other 2 kinds of pH buffer solution can be used by table memory function.	
Other standard solution table memory	Up to 2 kinds of other pH buffer solution's table are stored in memory	
Interval function	Provided	
Average value calculation function	Provided	
4. SPARE PARTS & CONSUMABLE		

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES		
Equipment name	pH Meter with combined glass electrode	
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
Three-in-one type pH sensor	2 nos.	
Adapter	1 no.	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORY UPGRADING AND SET UP OF MONITORING SYSTEM OF THE PROJECT BY JHARKHAND STATE POLLUTION CONTROL BOARD, INDIA		
Equipment name		Precision Balance weighing up to 1 mg
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
1. MAKER MODEL AND CONDITION		
Manufacture	-	
Model	-	
Electricity	-	
Other necessary utility	-	
Dimension / Weight	-	
2. COMPOSITION		
Main unit	1 set	
3. SPECIFICATINS		
Type	Top and side Loading Type	
Weighting range	Upto 400 g	
Taring facility	Entire range	
Readability	0.001 g	
Repeatability	0.001 g	
Linearity	±0.002 g	
Stabilization time	Less than 2 sec	
Pan diameter	Approx. 120 mmØ	
4. ACCESSORIES		
Manufacturer's standard accessories	1 set	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORY UPGRADATION UNDER GANGA REJUVENATION PROJECT						
Code Number						
Equipment name	Spectrophotometer (Visible)					
Quantity		1		2		3
BOARD'S SPECIFICATION			BIDDER'S RESPONSE			
1. MAKER MODEL AND CONDITION						
Manufacture	-					
Model	-					
Electricity	-					
Other necessary utility	-					
Dimension / Weight	-					
2. COMPOSITION						
VIS Spectrophotometer (single beam)	1 set					
Cell Holder (2 Cells or more)	1 set					
3. SPECIFICATINS						
VIS Spectrophotometer						
Photometric system	Single beam scanning type					
Light source	Tungsten-Halogen. D2 lamp					
Measuring range	0 to 100%T. 0.0 to 2.50 Abs					
Wavelength range	Should cover 200 to 900 nm					
Stray light	Less than 0.02% T					
Wavelength accuracy	Less than 0.2 nm					
Bandpass	Less than 2 nm					
Photometric accuracy	Less than 0.005 A at 1A					

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORY UPGRADATION UNDER GANGA REJUVENATION PROJECT						
Code Number						
Equipment name	Spectrophotometer (Visible)					
Quantity		1		2		3
BOARD'S SPECIFICATION			BIDDER'S RESPONSE			
Noise level	Less than 0.0015A RMS at 500nm					
Outputs	RS232 interface					
Cell positions	One for blank/reference and rest for samples					
4. ACCESSORIES						
Manufacturer's standard accessories	1 set					
Uninterrupted power supply	Single Phase, on-line with maintenance free battery, 15 min back up, Capacity suitable for the entire system.					
10 mm rectangular cell, glass, 3.0 ml approx.	<ul style="list-style-type: none"> Matched pair – 4 pairs 					
5. SPARE PARTS & CONSUMABLE						
Halogen lamp	1 pc					

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORY UPGRADING AND SET UP OF MONITORING SYSTEM OF THE PROJECT BY JHARKHAND STATE POLLUTION CONTROL BOARD, INDIA		
Equipment name	Stereo Microscope	
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
1. MAKER MODEL AND CONDITION		
Manufacture	-	
Model	-	
Electricity	-	
Other necessary utility	-	
Dimension / Weight	-	
2. COMPOSITION		
Main unit	1 set	
Eyepiece set	1 set	
Camera	CCD Type, 1 set with USB slot for transfer of data	
3. SPECIFICATIONS		
Main unit		
Type	Direct vision	
Magnification	Should cover 40x to 1500 x	
Eyepiece	Approx. 10,15 x	
Objective	Approx. 4,10,40,100 x	
Binocular head	45 degree	
Illumination	High power LED on a fluorescent screen capable of fluorophore analysis	
Measurement system	TTL direct measurement and	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORY UPGRADING AND SET UP OF MONITORING SYSTEM OF THE PROJECT BY JHARKHAND STATE POLLUTION CONTROL BOARD, INDIA

Equipment name	Stereo Microscope	
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
	measurement crosswire with micrometer scale	
4. ACCESSORIES		
Manufacturer's standard accessories	1 set	
Blue filter	1 pc	
Immersion oil	500 ml.	
Vinyl dust cover	1 pc	
Spare bulb	1 pc	
Spare fuse	1 pc	
Wooden cabinet	1 set	
Photo eyepiece	1 pc	
Photo eyepiece adapter	1 pc	
Camera mount adapter	1 pc	
5. SPARE PARTS & CONSUMABLE		
LED bulb	5 pcs.	
USB drive	4 pcs.	
Software	Microsoft capable and for interpreting the photographs	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORY UPGRADING AND SET UP OF MONITORING SYSTEM OF THE PROJECT BY JHARKHAND STATE POLLUTION CONTROL BOARD, INDIA		
Equipment name	Standard Weights (Class – E2)	
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
1. MAKER MODEL AND CONDITION		
Manufacture	-	
Model	-	
Electricity	-	
Other necessary utility	-	
Dimension / Weight	-	
2. COMPOSITION		
Main unit	1 set	
Calibration Certificate	1 set	
3. SPECIFICATIONS		
Main unit		
Type	Calibrated weights	
Range	1 mg to 200 mg, 500 mg to 200 g.	
Material	Stainless steel, Austenite alloy or Brass material	
Certificate	NIST traceable certificate not more than 1 month old from the date of delivery	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORY UPGRADING AND SET UP OF MONITORING SYSTEM OF THE PROJECT BY JHARKHAND STATE POLLUTION CONTROL BOARD, INDIA		
Equipment name		Turbidity Meter
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
1. MAKER MODEL AND CONDITION		
Manufacture		
Model		
Electricity		
Other necessary utility		
Dimension / Weight		
2. COMPOSITION		
Main unit	1 set	
3. SPECIFICATIONS		
Measuring range	Should cover 0 to 999 NTU	
Resolution	Better than 0.01 on lowest range	
Repeatability	Better than +/-1%	
Sensitivity	Better than 001 NTU +/-1 digit	
Light source	Tungsten Lamp	
Readout	LED	
Recorder output	0 – IV.0 – 5mA. Adjustable for 10 k ohm or higher impedance	
Operating temperature	Should cover 0 to 45 degreeC	
4. ACCESSORIES		
Manufacturer's standard	1 set	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORY UPGRADING AND SET UP OF MONITORING SYSTEM OF THE PROJECT BY JHARKHAND STATE POLLUTION CONTROL BOARD, INDIA

Equipment name	Turbidity Meter	
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
accessories		
Sample cell	30 pcs	
Permanent SEPA-approved primary	5 sets	
400 NTU and permanent /ero standard		
Permanent Forma/in standard 200NTU	5 sets	
Carrying case	1 set	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES OF JSPCB

Equipment name	Vacuum Pump (Oil free, heavy duty)	
BOARD'S SPECIFICATION		BIDDER'S REACTION
1. MAKER MODEL AND CONDITION		
Manufacture	-	
Model	-	
Electricity	-	
2. COMPOSITION		
Main unit	1 unit	
3. SPECIFICATIONS		
Type	PTFE Coated Diaphragm Pump	
Capacity	More than 40 liter/min.	
Ultimate vacuum	Approx. 650 mmHg	
Motor	More than 0.5 HP	
Suction tube	Two. Approx. 1m each	
Other provision	<ul style="list-style-type: none"> ◆ Suitable pressure guage ◆ Built-in anti suck back device 	
4. ACCESSORIES		
Manufacturer's standard accessories	1 set	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES OF JSPCB

Equipment name	Water Bath (Thermostatic Control, General)	
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
1. MAKER MODEL AND CONDITION		
Manufacture	-	
Model	-	
Electricity	-	
Other necessary utility	-	
Dimension / Weight	-	
2. COMPOSITION		
Main Unit	1 set	
3. SPECIFICATIONS		
Type	Internal and external circulation type	
Bath dimension (Inside)	24" (L) X 18" (B) X 10" (H); approximate	
Bath cover	Flat metal cover with insulated handle. The cover should have at least four circular openings each with annular rings with changing dimension as covers to accommodate heating glass vials of different dimensions.	
Control and display	Push button with digital set and read display of temperature and rate of heating.	
Temperature set and external flow rate control	Micro-processor and through RS-232 connector.	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES OF JSPCB		
Equipment name	Water Bath (Thermostatic Control, General)	
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
Temperature control range	15 °C below ambient to 100 °C	
Temperature accuracy	±0.2 °C for lowest to 7-0 degrees and ±0.1 °C above that	
Temperature sensing	Platinum Resistance Thermometer or equivalent	
Temperature setting	Digital, 0.1 °C increments	
Rate of heating	0.1 to 2 °C per minute, user selectable	
Internal circulation pump	Approx. 10 ltr/min	
External circulation pump	Approx. 8 ltr/min	
Safety features	<ul style="list-style-type: none"> • Temp. sensor failure • High/Low water level • Overheating • Power failure • Temperature slope error • External circulation block/break 	
4. ACCESSORIES		
Manufacturer's standard accessories	1 set	
Tubing for external connection	4 X 2 mtr.	
Tubing connectors & clamps	8 nos.	
5. SPARES & CONSUMABLE		
Fuses	2 sets	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES OF JSPCB

Equipment name	<input type="checkbox"/>	Water Bath (Thermostatic Control, 44 °C)
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
1. MAKER MODEL AND CONDITION		
Manufacture	-	
Model	-	
Electricity	-	
Other necessary utility	-	
Dimension / Weight	-	
2. COMPOSITION		
Main Unit	1 set	
3. SPECIFICATIONS		
Type	Internal circulation type for temperature equilibrium	
Bath dimensions (Inside)	24"(L) X 18" (B) X 18" (H) (Approx)	
Bath Cover	Metall with insulated handle. The cover shall be raised with approximately 30/40 degree inclination from all sides.	
Control and display	Push button with digital set and read display of temperature and rate of heating.	
Temperature control range	Ambient + 5 °C to 60 °C; The temperature has to be kept at 44 ±0.5 °C constantly.	
Temperature accuracy	0.1 °C	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES OF JSPCB		
Equipment name	<input type="checkbox"/>	Water Bath (Thermostatic Control, 44 °C)
BOARD'S SPECIFICATION		BIDDER'S RESPONSE
Temperature sensing	Platinum Resistance Thermometer or equivalent	
Temperature setting	Digital, 0.1 °C increments	
Rate of heating	0.1 to 2 °C per minute, user selectable	
Internal circulation pump	Approx. 10 ltr/min	
External circulation pump	Approx. 8 ltr/min	
Safety features	<ul style="list-style-type: none"> • Temp. sensor failure • High/Low water level • Overheating • Power failure • Temperature slope error • External circulation block/break 	
4. ACCESSORIES		
Manufacturer's standard accessories	1 set	
Tubing for external connection	4 X 2 mtr.	
Tubing connectors & clamps	8 nos.	
5. SPARE PARTS & CONSUMABLE		
Fuses	2 sets	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES OF JSPCB		
Equipment name	Cold Room for Sample Storage	
BOARD'S SPECIFICATION		BIDDER'S REACTION
1. MAKER MODEL AND CONDITION		
Manufacture	-	
Model	-	
Electricity	-	
Other necessary utility	-	
Dimension / Weight	-	
2. COMPOSITION		
Main unit	1 unit (Only 4-8 °C chamber)	
3. SPECIFICATIONS		
Doors	Single	
Material inside	Stainless steel with adjustable shelves	
Material outside	MS sheet, powder coated	
Defrosting	Automatic Defrosting (If applicable)	
Capacity	30 cubic meter (approx.)	
Voltage stabilizer	Built in	
Insulation type	PUF or better	
Temperature	4-8 degree C, overtemp signal at 10 °C when set at 4°C.	
Temperature fluctuation	±1 degree C, overtemp signal at 8°C when set at 4°C.	
Safety device	Audio alarm for power failure / over temperature, Electrical earthing for metal parts oc the	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES OF JSPCB		
Equipment name	Cold Room for Sample Storage	
BOARD'S SPECIFICATION		BIDDER'S REACTION
	body.	
Temperature set and read	Digital, push button; Temperature control electronic	
Safety device	Audio alarm for power failure / over temperature	
3. ACCESSORIES		
Manufacturer's standard accessories	1 set	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES OF JSPCB		
Equipment name	Refrigerator with voltage stabilizer (frost free, CFC free)	
BOARD'S SPECIFICATION		BIDDER'S REACTION
1. MAKER MODEL AND CONDITION		
Manufacture	-	
Model	-	
Electricity	-	
Other necessary utility	-	
Dimension / Weight	-	
2. COMPOSITION		
Main unit	1 unit (Only 4 ⁰ C chamber, freezer compartment not required)	
3. SPECIFICATIONS		
Doors	Single	
Material inside	Stainless steel / Aluminum with adjustable shelves	
Material outside	MS sheet with powder coated	
Defrosting	No Defrosting – Frost Free	
Capacity	300 liter (approx.)	
Voltage stabilizer	Built in	
Insulation type	PUF or better	
Temperature of refrigerator compartment	4 degree C, overtemp signal at 8 ⁰ C when set at 4 ⁰ C.	
Temperature fluctuation	±1 degree C, overtemp signal at 8 ⁰ C when set at 4 ⁰ C.	
Safety device	Audio alarm for power failure / over temperature, Electrical earthing for metal parts oc the	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORIES OF JSPCB		
Equipment name	Refrigerator with voltage stabilizer (frost free, CFC free)	
BOARD'S SPECIFICATION		BIDDER'S REACTION
	body.	
Temperature set and read	Digital, push button; Temperature control electronic	
Safety device	Audio alarm for power failure / over temperature	
3. ACCESSORIES		
Manufacturer's standard accessories	1 set	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORY UPGRADING AND SET UP OF MONITORING SYSTEM OF THE PROJECT BY JHARKHAND STATE POLLUTION CONTROL BOARD, INDIA			
Equipment name		Uninterrupted Power Supply (UPS) system, 7.5 KVA	
BOARD'S SPECIFICATION		NTPC COMMENT	
APPLICATION	Monitoring of dust in flue gas	Please delete	
COMPOSITION			
Main unit	1 set		
SPECIFICATION			
Type	Single Phase, True on-line sine wave		
Capacity	7.5 KVA, 60 min back-up		
Inversion	High frequency 20 KHz sine wave pulse width modulation		
Input voltage range	220 V \pm 15 % for single phase		
Input frequency	45-60 Hz		
DC voltage	190 V DC or more		
Output voltage	220 V \pm 1% max.		
Output frequency	50 Hz \pm 0.1% or less during free running 50 Hz \pm 0.5% or less at synchronization		
Power factor	Unity to 0.1% lagging		
Harmonic distortion	Less than 3% at full load		
Wave form (output)	Pure sine wave		
Transient response and voltage	\pm 4% with sudden change in load		
Recovery time for step load	0-100 %		
Overload capacity	110% for continuous 120-150 % for 30 seconds		

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORY UPGRADING AND SET UP OF MONITORING SYSTEM OF THE PROJECT BY JHARKHAND STATE POLLUTION CONTROL BOARD, INDIA

Equipment name	Uninterrupted Power Supply (UPS) system, 7.5 KVA		
BOARD'S SPECIFICATION		NTPC COMMENT	
	170 % for 25 cycles 200% instantaneous		
Efficiency	Overall more than 80% at full load		
Operating temperature	0-50 °C		
Crest factor	5:1 max		
Operating relative humidity (max)	95% non condensing		
Noise level	Less than 50 DB(A) at 1 meter		
Charge	10 hours to 90% after dully discharged		
Interface	RS232		
Protection	Isolation. Current limiting (fuseless), Electronic overload, Static trip (fuse less), soft start on inverter and charger, Phase locking mechanism, Over and under voltage, Short circuit, Earth leakage.		
Static by-pass switch	To be provided		
Manual by-pass switch	To be provided		
Indicator	Load on inverter, Battery low, Charge on, Load by-pass, Fault		
Alarm	Low battery, Mains fail, Overload		
Battery type	Maintenance free lead acid battery	Sealed maintaince free battery of Hitachi , Panasonic or equivalent	

TECHNICAL SPECIFICATION OF EQUIPMENT FOR LABORATORY UPGRADING AND SET UP OF MONITORING SYSTEM OF THE PROJECT BY JHARKHAND STATE POLLUTION CONTROL BOARD, INDIA			
Equipment name	Uninterrupted Power Supply (UPS) system, 7.5 KVA		
BOARD'S SPECIFICATION		NTPC COMMENT	
		reputed make.	
ACCESSORIES	Manufacturer's standard accessories – 1 set		
Manufacturer's standard accessories	1 set		
SPARE PARTS AND CONSUMABLES	Necessary spare parts and consumables for one year operation		

Mercury Analyser

Mercury Analyser will be used for analysis of Mercury in aqueous environmental samples by Cold Vapour Atomic Absorption technique. The equipment shall be supplied complete with all the Accessories including magnetic stirrer, glass wares, pump etc. required for complete analysis of Mercury.

Sl. No.	Technical Specification		Bidder's Specification
1.	Radiation source	: Mercury Lamp	
2.	Range of measurement	: Tenderer has to specify	
3.	Detector	: Silicon Photo Detector	
4.	Sensitivity	: 5 ng absolute for 1% transmittance or better.	
5.	Detection limit	: 0.1 µg/ litre or better	
6.	Stability	: 1% of F.S.D	
7.	Read out	: Digital display of Absorbance and % transmittance	
8.	Power requirement	: 230V, 50Hz	
9.	Installation and Demonstration	: At Env. Engg. Lab. MECON, Ranchi	
10.	i) Instruction manual ii) Electrical/ Electronic circuit diagrams iii) Operation & maintenance manual iv) Any other	: Tenderer to specify	
11.	List of spares for at least 5 years of operation	: Tenderer to specify	
12.	Required spares to be made available at least for 10 years	: Tenderer to confirm	
13.	Warantee	: Tenderer to confirm	
14.	Any additional information in support of superiority of their equipment	:	

WATER DOUBLE DISTILLATION UNIT

Sl. No.	Item Description	Technical Specification	Bidder's Specification
1.	Make & Model	Bidder to specify	
2.	Type	All Quartz	
3.	Material of the distillation unit	Unit shall be made of high purity electronic grade transparent quartz only.	
4.	Heaters	Demountable boiler panel with compact design of boilers and condensers easily demountable for cleaning and maintenance with spiral heaters.	
5.	Distillate quality	Conductivity:<1x10 ⁶ S/cm	
6.	Capacity	Out put capacity shall be 1.5 litre per hour	
7.	Accessories	Unit shall be equipped with electrical auto cut-off system, water flow switches, optical beam sensors for controlling water level & pressure, solenoid valve to stop water flow in case of no power and MCB to prevent short circuit.	
8.	Spares	Bidder to furnish the list of essential spares which will be supplied with the instrument.	
9.	Warranty	24 months	
10.	Delivery period	45 days from placement of order	

AIR CONDITIONERS –SPLIT TYPE

Sl. No.	Item Description	Technical Specification	Bidder's Specification
1.	Make & Model	Bidder to specify	
2.	Rating	Atleast 4 Star for Maximum Power Saving	
3.	Capacity	1.5 Ton	
4.	Power Supply with automatic voltage controller	230 Volt \pm 10%, 50 Hz, Single Phase AC	
5.	Input Power (Maximum)	2000 Watts or Less	
6.	Normal Cooling Capacity	K. Cal/Hr.--5500 or BTU/Hr.--18000 or Equivalent	
7.	Discharge/ Air Flow Volume indoor (M3 /Hr.)	Minimum 800 or Equivalent	
8.	Noise Level Indoor	< 50 dB (A) or As per Prescribed Limit	
9.	Compressor	Rotary type	
10.	Accessories	All necessary copper wire/ cable, Copper Conduit pipe for extending the connection for load based should be made available by the supplier at the time of Installation including casing & capping of cable/tube. All Acceptance / Routine test should be performed at the time of installation.	
11.	Warranty	Comprehensive Guarantee / Warranty should be valid for three years excluding company guarantee/ warrantee on compressor & other	
12.	Delivery period	45 days from placement of order	