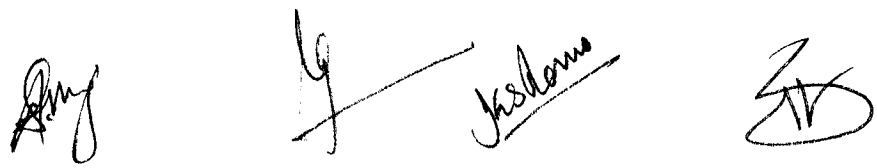


H.P. STATE ELECTRONICS DEVELOPMENT CORPORATION LTD.**I.T. Bhawan, First Floor, Beolia Road Mehli Shimla.-171013****Ph. 0177-2623513, 2628473, 2623043, 2623513, Fax : 0177-2626320****RATE CONTRACT for 04 Nos. POLLUTION CONTROL EQUIPMENTS for the year 2018-19****No. HPSEDC/PCB/Equip./2017-18/****Date of Issue: 20/09/2018****Valid up to : 19/09/2020**

S. No.	Equipment Make/ Model and Brief Specifications		Rate Contract Prices in Rs.
1	MICRO DIGITAL WEIGHING BALANCE (6 digit) with Electronic Discharger (With one year warranty)		2107784/- (Incl. GST)
	Description	Micro digital weighing balance for PM2.5 samples and Laboratory Chemicals.	CMC Charges after warranty period 2 nd = 46913 3 rd = 49258 4 th = 51721 5 th = 54307 (Excluding GST and HPSEDC Margin)
	Display	Back lit display with touch screen operation	
	Weighing units	Various units of weight	
	Maximum weighing capacity	20 to 30 gm.	
	Minimum weighing capacity	0.001 mg (1µg)	
	Tarring range	0 to 20-30 gm	
	Repeatability	1µg	
	Linearity	1µg	
	Setting time	5 seconds or better	
	Calibration with internal weight	Push button calibration	
	Sensitivity	1µg	
	Size of weighing pan	25mm or larger	
	Free height above weighing pan	100mm or more	
	Instrument safety	Weighing cell with overload protection	
	Protective cover	Protective in-use cover	
	Power	220 V AC, 50 HZ automatic shut off.	
	External weights	One set of two certified calibrated weights with in the tarring range (preferably low tarring range).	
	Complete with electric cord, forceps, brush, cover, operational manual etc.		
2	AMBIENT CARBON MONOXIDE ANALYSER (With one year warranty)		674451/- (Incl. GST)
	Principle of Measurement Carbon Monoxide in ambient air	Non Dispersive Infra-Red (NDIR) with Gas Filter Correlation. Analyzer should be conforming to USEPA automated Federal Reference Method (FRM) designation.	CMC Charges after warranty period 2 nd = 21740 3 rd = 21740 4 th = 26087 5 th = 30434 (Excluding GST and HPSEDC Margin)
	Display	Digital	
	Range	At least four ranges; Auto ranging 0 - 100 PPM.	

	Noise	Zero Noise 0.05 PPM with time constant; □□30 seconds	
	Minimum Detectable Limit	0.1 PPM	
	Digital Output	Multiple drop RS 232	
	Zero Drift	< 0.2 PPM/7 days	
	Span Drift	< 1% full scale in 24 hrs.	
	Flow Rate	1 lpm (approx.)	
	Linearity	Continuous + 1%	
	Output Signals or Analog Output	3 Analog output 0 – 1 V, 0 – 10 V, 0 – 20 mA or 4 – 20 mA	
	Power	230 ± 10 Volts AC 50 Hz	
	Mounting Rack mount	19 inch	
	Calibration gas (CO) portable cylinder with known concentration has to be provided along-with the instrument for calibration purpose. It should also have pressure gas valve for Zero and Span gas.		
	Consumables and spares Recommended requirements of 3 years operation.		
3	AMBIENT AMMONIA ANALYSER (With one year warranty)		773779/- (Incl. GST)
	Principle	NH3 conversion to NO by oxidation. NO2 in the air stream is also converted to NO. The difference obtained by measuring NO in the output of the two sample streams is equal to the NH3 concentration	CMC Charges after warranty period 2nd = 21740 3rd = 21740 4th = 26087 5th = 30434 (Excluding GST and HPSEDC Margin)
	Ranges	Auto ranging 0 – 2 ppm	
	resolution	0.001 ppm or 0.1% reading	
	Noise	(at zero) Less than 0.2% of reading	
	Lower Detectable Limit	Less than 0.1% of reading	
	Converter Efficiency	Better than 98% NH3 to NO conversion	
	Zero Drift	Less than 0.2 ppb / 0C; less than 0.0005 ppm 24-hours	
	Span Drift	Less than 0.2% / 0C; less than 1% of reading / 24-hours	
	. Precision	Better than 1 ppb or 1% of reading	
	Sample Flow Rate	350 ml / min (nominal)	
	Temperature Range	5 to 40 0C	
	Analog Outputs	Selectable 100 mv, 1V, 5V or 10 VDC with serial port RS-232 and DB50 ports. Independent outputs for NH3 and NH3 + NO+ NO2 channels.	
	Power	230 ± 10 Volts AC 50 Hz	
	Mounting Rack mount	19 inch	
4	ATOMIC ABSORPTION SPECTROPHOTOMETER (AAS) – GTA / VGA (With one year warranty)		4057050/- (Incl. GST)
	INSTRUMENT COMPOSITION	<ul style="list-style-type: none"> Atomic Absorption Spectrophotometer Fully Integrate with software controlled change over from Frame to Graphite & vice-versa (GTA/FLAME/VGA) Unit for Flame (Air-acetylene and nitrous oxide-acetylene) 	CMC Charges after warranty period 2nd = 160000 3rd = 170000 4th = 175000 5th = 180000 (Excluding GST and HPSEDC Margin)



		<ul style="list-style-type: none"> • Graphite tube atomizer (GTA) • Chiller/Water circulating unit • Auto samplers for GTA and flame (Separately) 	
	TECHNICAL SPECIFICATIONS	Atomic Absorption Spectrophotometer Computer controlled with built-in flame emission mode Wave length range 190-800 nm wavelength.	
	Sensitivity	Sensitivity atleast 0.5 abs for 5 µg/ml aqueous copper standard solution with air-acetylene flame.	
	Optics	Double beam dual blazed/holographic Monochromator.	
	Focal Length	Atleast 250 mm focal length	
	Resolution	1800 lines/mm	
	Width	Automatic bandwidth of 0.2 to 2.0 nm	
	Flame Atomizer	All titanium or equivalent burner with impact bead / Flow spoiler, Premix Design	
	Movement	Automatic movement into the sample compartment	
	Affect from Acids/ Organic solvent	Unaffected from attacks by acid solutions or organic solvents (e.g. Methyl isobutyl Ketone i.e. MIBK	
	Flame Alignment in liquid beam	Fully automatic, optimized with motorized burner mount for vertical and horizontal burner adjustment	
	Nebulizer	High precision able to provide manually adjustable uptake rates material of the nebulizer and related Venturi should be inert to acid solutions and organic solvents, such as MIBK.	
	Flame Control	Computer controlled ignition	
	Gas Control	Computer controlled with oxidant and fuel gases monitoring to monitor constant fuel/oxidant ratio ignition.	
	Safety Function	Interlocking system to prevent ignition	
	Essential Interlock Monitors	Burner type as well as its presence in position, air selector, flame sensor, liquid trap level, gas supply pressures and air supply any where in the network of gas tubings in the system.	
	Automatic Lamp Selection Function	Computer controlled Hollow cathode lamp selection and alignment.	
	Lamp Holder	Atleast 8 lamp holder with built-in power supplies for hollow cathode lamps and electrode-less discharge lamps or equivalent.	
	Operating Parameter setting	Automatic setting	
	Read Out / Display	Display facility for absorbance as well as concentration, Display of errors or error codes, absorbance range atleast upto 2.0	

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	Scale expansion	Scale expansion atleast upto 100x,	
	Integration time	Integration time should cover atleast 0.2 to 50 seconds range	
	Measurement	Measurements of mean, RSD and CV, Background only mode, integration of peak height and peak areas	
Accessories/Spares with the Flame AA System			
	Vapour generation assembly	Should be continuous flow based hydride/mercury vapour generator with option of using with or without a programmable auto sampler	
	Precision	Precision of better than or atleast 1% at ppb levels of mercury, arsenic etc.	
	Absorption Cell	The absorption cell material should have no effect of the high heat of the flame, and the cell for the analysis of mercury should be of a closed cell design	
	Flame Arrestor	Flame arrestor should be provided in the tube which connects the assembly to the absorption cell	
	Cell design holder	The design of the cell holder should give a firm and easily adjustable (for alignment) mounting on the burner head.	
	System accessories	Complete with necessary reagent bottles, connectors etc	
	Hollow Cathode Lamps	One lamp for each of the elements - Aluminium, Arsenic, boron, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, tin, and zinc.	
	Air Compressor with Air Filter or equivalent Air Service Unit	Complete with pressure regulator quite in operation, necessary tubing and connectors and should meet the air supply requirements of AAS operation	
	Oil free pump	Oil-free pump and moisture trap	
	Corrosion resistant	Resistant to acidic vapour and the drain valve (if any) should be made of stainless steel or equivalent corrosion resistant material.	
Gas Regulators			
	Nitrous-oxide gas regulator	Nitrous-oxide gas regulator (two stage) with heater, with necessary tubings and connectors. Necessary transformer should be provided to transform this supply to the requirements of the heater The heater should work on 230 □□10 volts 50 Hz AC power supply.	
	Acetylene gas regulator	Acetylene gas regulator (two stage) with necessary tubing and connectors	
	Nitrogen gas regulator	Nitrogen regulator (two stage) with necessary tubings and connectors	
Gas Cylinders			
	Nitrous Oxide Gas Cylinder	One High pressure seamless steel cylinder	

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		fitted with high purity Nitrous oxide gas. Should be ISI marked conforming to IS 7285 specifications. Flat bottom with valve as per complete neck ring and cap painted as specified under Gas cylinder Rules alongwith Hydraulic test certificate and explosive certificate from Chief Controller of Explosives, Nagpur.	
	Acetylene Gas Cylinder	Two High pressure seamless steel cylinder fitted with high purity Acetylene gas having gas capacity 7 m3 water capacity 47 liters. Cylinder should be ISI marked conforming to IS 7285 specifications. Flat bottom fitted with valve as per IS: 3224. Complete with neck ring and cap painted as specified under Gas cylinder Rules, 1981 alongwith Hydraulic test certificate, ISI inspection / Test Certificate. Explosive Certificate from Chief Controller of Explosives, Nagpur as per BIS standards.	
	Nitrogen Gas Cylinder	One High pressure seamless steel cylinder fitted with high purity Nitrogen gas having gas capacity 7 m3 water capacity 47 liters. Cylinder should be ISI marked conforming to IS 7285 specifications. Flat bottom fitted with valve as per IS: 3224. Complete with neck ring and cap painted as specified under Gas cylinder Rules, 1981 alongwith Hydraulic test certificate, ISI inspection / Test Certificate. Explosive Certificate from Chief Controller of Explosives, Nagpur as per BIS standards.	
Graphite Furnace System			
	Graphite Tube Atomizer	Should be computer controlled fully enclosed graphite tube system consisting of stabilized temperature/total pyrolytic graphite platform	
	Gas supplies	Provision of two gas supplies (programme selectable) with independent control over the gas supply through the furnace	
	Heating Rate	Heating rate of atleast 2000 0C per second	
	Cooling time	Cooling time 20 seconds	
	Temperature range	Temperature range ambient to 2600 0C or more in 1 0C increments	
	Feed back system	Feed back system for furnace temperature control, interlocks for water, gas, temperature, furnace door, graphite tube damage and mains power	
	Temp. Programming	Atleast eight steps temperature programming facility with flexibility of programme selection, ramp time, gases, gas flow, and read trigger for each temperature step	


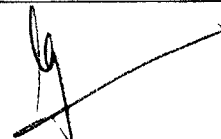


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Control	Computer controlled with appropriate provision for print out of the furnace and sample parameters	
Display	Calibration data/graphs, temperature profiles, signal graphics and the instrument status	
Memory	Memory should be able to store atleast ten non-volatile programmes	
Chiller/Cooling Water circulation Unit	Refrigerating water circulation unit of appropriate capacity. No discharge of water from this water circulation unit.	
DATA WORK STATION		
Application Software	<ul style="list-style-type: none"> • Programme facility with multitasking software. • Should provide complete control of instrument with instrument status display and its various accessories. • Provide accurate and reproducible time averaged, integration, non-averaged integration, multi level calibration. • Software should handle instrument linear absorbance reading, concentration, or emission intensity, integration time, built in statistics, calibration equation control, slope of analytical curve using operator selective calibration standard. <p>Built in interface for computer connection and use of optional accessories.</p>	
COMPUTER SYSTEM		
Make	Reputed brand such as HP/Compaq/Dell.	
Processor	Intel Core i7 (3rd Generation) processor.	
RAM	4 GB DDR RAM (upgradeable to 8 GB DDR RAM)	
HDD	500 GB SATA	
Monitor	21" TFT-LCD Flat Colour (Digital)	
DVD Writer	DVD- Multi-drive	
Ports	2 Serial, 1 parallel and 2 USB front 3 Rear USB2 Port, 1VGA 4 bays (2 external & internal) with LAN IPS, 2 mouse port	
Key board	Latest multimedia (HP / Microsoft)	
Mouse	Optical mouse with pad	
Ethernet	32 bit auto selectable 10/100 MBPS	
Graphics	Internet ready with integrated Graphics	
Sound	Integrated sound card and inbuilt stereo speakers	
Printer	HP LaserJet Printer 1200 x 1200 dpi 12 PPM black	
Operation Software		

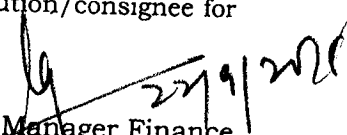
		<ul style="list-style-type: none"> • Pre-loaded Windows 7.0 Professional or latest operating system with Licensed CD. • MS Office 2007 Professional with media, manual and Licensed CD. • Preloaded Antivirus with latest virus definition code along with Licensed CD. 	
ADDITIONAL ITEMS			
	Operation kit	Manufacturers Standard Operation Kit including all required items, tubings, fittings for start up /regular operation of instrument.	
	Operation / maintenance manual	Operation and Maintenance manual for each unit	
	Analytical manual	Analytical Manual including applications for Flame, VGA and graphite system.	
	Service manual	Service Manual with one set of required tools for each system / unit	
	Trouble shooting charts	Trouble shooting charts	
	Spare parts catalogue	Spare parts catalogue	
	Application notes	Application notes for trace metal analysis in environmental, biological, geological, metallurgical and industrial samples	
	Dust Cover	One for each unit.	
	Consumables	For three years operation for each of the following units: Flame AAS (basic unit, burner system) Vapour generation assembly Graphite Furnace Atomizer Auto sampler	
	Stainless Steel Exhaust Hood	Stainless Steel Exhaust Hood along with fan and fitting hardware required for quoted A. A. S. Unit.	
	Online UPS System	Online UPS for running the complete system i.e. Flame, Graphite Furnace, Chiller, PC & Printer with 30 minutes back up.	
	Standards	Standards for each element separately 500 ml (1000 ppm), each	
OPERATION AND MAINTENANCE TRAINING			
		<p>Two weeks training to be provided to two scientists on software training, operation, maintenance and trouble shooting aspects of instrument at its application laboratory in India.</p> <ul style="list-style-type: none"> • The instrument and all its sub units should operate on 230 □□10 volts 50 Hz power supply. 	

	<ul style="list-style-type: none"> • All the operation and maintenance manuals, circuit diagrams, application notes and application softwares to be supplied should be in English language. • The supplier / manufacturer should have Indian agent to provide after sales service. • The main unit and all the sub units of the instrument should be serviced by the Indian representative of supplier. 	
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Terms and Conditions:-

- Prices:** Prices are FOR destination anywhere in Himachal Pradesh and are inclusive of GST (as applicable), all Govt. duties, transportation, insurance and installation etc.
- Billing:** Billing will be done by the HPSEDC Ltd. Shimla.
- Supply Order:** Confirmed supply order in favour of the "Managing Director, H.P. state Electronics Development Corporation Ltd., First Floor , Beolia Road Mehli Shimla-13 along with 100 % payment in advance.
- Payment:** **The payment can be sent though Cheque/DD or through "RTGS" in our bank account having following details :-**

Account Name : HPSEDC Ltd. Shimla.
Bank Name : State Bank of India, Khalini Shimla -2.
Account No. : 550693-83586
IFS Code : SBIN0051132
- Delivery Period:** 6 weeks for indigenous equipments and 12 weeks for imported equipments.
- Installation:** Installation site should be ready before the delivery of the equipment otherwise warranty period will start from one month after the date of receipt of equipments by consignee.
- Warranty:** One year comprehensive on-site Warranty from the date of installation except consumable.
- Documentation:** The verified with proper receipt & stamped copy of the satisfactory installation report duly signed and stamped by the consignee should be sent to this Corporation for the release of the payment to the Supplier.
- Training/Demo:** Free Training/ Demo of one/two persons of institution/consignee for the supplied equipment.


 Dy. Manager Finance
 H.P.S.E.D.C. Ltd. Shimla
 Dy. Manager (F&A)
 H.P. State Electronics Dev. Corpn. Ltd.
 Mehli, Shimla - 171013