LIST OF INDUCTIVELY COUPLED PLASMA OPTICAL EMISSION SPECTROMETER (ICP-OES) & ACCESSORIES

Sr No.	Description of Equipment	Qty
01	**ICP Optical Emission Spectrometer (ICP-OES)** Bench top simultaneous ICP-OES controlled by an external computer operating windows based software, with accessories. **Spectrometer Specifications** **Polychromator** Echelle-based polychromator with resolution of <7 pm at 200 nm or better. **Wavelength Range** 160-850 nm. **Detector** High performance CID detector with access to full ICP-OES spectrum (160-850 nm) **Full Frame Imaging** Full frame imaging for true unknown analysis **ICP System Specifications** **RF Generator** 27.12 or 40.48 MHz free running solid state radio frequency generator with adjustable RF power between 750 to 1600 W **Water Re-Circulating Cooling System** Water re-circulating cooling system for ICP spectrometer **Sample Introduction System** **Torch/Torch Mount** Demountable or semi-demountable torch **Spray Chamber** Single-pass cyclonic spray chamber **Glass Concentric Nebulizer** **Peristaltic Pump** 4-channel computer controlled peristaltic pump (Speed 0-150 rpm) **Mass Flow Controllers** Computer controlled mass flow controllers on all gas lines (Nebulizer, Auxiliary & coolant) **Ar/N_2 Purge Supply System** Ar/N_2 purge supply system for analysis in UV region. **Plasma TV** For monitoring the plasma during sample analysis **Software** Inter Element Correction (IEC) software. Windows based operating software capable of controlling all the instrumental parameters. **Data System** Branded core i7 or latest 16 GB RAM 1 TB Hard Disk DVD-RW Drive 22" TFT color monitor Wired mouse and keyboard	01

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	HP Color LaserJet Pro M452dw or latest Microsoft Windows 10 Professional **Electrical Requirements** Suitable for 220/240 V Ac, 50/60 Hz **Exhaust Blower** Compatible with ICP-OES specifications **Consumable Spare Parts Kit** Consumable spares for five years trouble free operation. **Documents & Service** • Operation, service manuals and circuit diagrams in English. • Free installation and commissioning by supplier. Free training of two persons for operation and maintenance.	
	Accessories	
01	**Sample Introduction Spares Kit** Kit with two years usage of user replaceable parts for standard installation.	02
02	**HF Kit** HF kit to handle samples containing hydrofluoric acid.	01
03	**Hydride Generation System** A hydride generation system for hydride forming elements with full gas/liquid separator and connecting sample and drain tubing for full integration with ICP spectrometer.	01
04	**Argon Humidifier** Argon humidifier to prevent blocking of nebulizer and center tube when analyzing samples containing high level of dissolved solids.	01
05	**Control PCB**	01
06	**RF Generator PCB**	01
07	**RF Power Supply**	01
08	**RF Generator Interface PCB**	01
09	**Main Filter**	01
10	**Transformer**	01
11	**Circuit Breaker**	01
12	**RF Generator Coil**	03
13	**Radial Torch**	05
14	**Center Tube Ceramic**	10
15	**Center Tube Quartz**	05
16	**Center Tube Holder**	03
17	**Spray Chamber, Aqueous**	02

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18	**Spray Chamber, HF Radial**	02
19	**Nebulizer, Glass Concentric**	05
20	**Nebulizer OpalMist** (for HF samples)	05
21	**Water and Gas Tubing Kit**	01
22	**Tubing Spares Kit**	01
23	**Sampling O-ring Set**	03
24	**Pump Tubing Aqueous Sampling**	05
25	**Pump Tubing Aqueous Drain**	05
26	**Installation and Maintenance Kit**	02
27	**Accessory Interface Kit**	01
28	**Molecular Sieve drying trap**	01
29	**POP Window assembly**	01
30	**Gas Filters**	02 Set
31	**Water Filter**	01
32	**Water Flow Sensor**	01
33	**4-Channel Peristaltic Pump**	01
34	**Mass Flow Control Gas Box**	01
35	**Water Chiller**	01
36	**Exhaust Blower**	01
37	**Dual Gas Manifold System** **Specifications:** • Compressed Argon gas • Inlet pressure: 230 bar maxi. • Outlet pressure: 0-20 bar • No. of inline cylinders 02 • With inlet and out pressure gauge • End connections as per British standards BS341 No.03 • 24" flexible high pressure stainless steel braided pigtails with check valve **Make** Thermo Fisher Scientific, Agilent Technologies, PerkinElmer, GBC Scientific Equipment, Shimadzu.	04