



Government of Pakistan  
Ministry of Interior  
**National Forensic Science Agency Project**



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**TENDER DOCUMENT**

**FOR PURCHASE OF EQUIPMENT FOR  
All SECTION OF NFSA, ISLAMABAD**

**(FOR THE FINANCIAL YEAR 2021-22)**

Date of Tender Notice	14/01/ 2022
Last date of Bid Submission	31/01/ 2022 at 11:30 A.M
Opening of Bids (Technical)	31/01/ 2022 at 12:00 P.M

**NATIONAL FORENSIC SCIENCE AGENCY**

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## NATIONAL FORENSIC SCIENCE AGENCY

### Instructions to the Bidders

1. National Forensic Science Agency (NFSA) intends to invite bids from well-known / established firms for purchase of Equipment at NFSA, Plot No. 1,2,27 & 28 opposite Police Line H-11/4, Islamabad.
2. NTN & GST registered firms / contractors having sufficient experience of dealing with scientific/ forensic equipment.
3. All the procurement shall be carried out as per PPRA Rules 2004.
4. Authorized firms / contractors with good reputation and experience of Government Departments/Organizations/Autonomous Bodies will be preferred.
5. Sealed bids must reach to NFSA on or before **31-01-2022 11:30 A.M.** Late received bids shall be rejected straightway.
6. Single Stage two (02) envelopes bidding procedure shall be followed as per PPRA Rules 2004, 36(b). Technical & Financial Bids must be easy readable and in shape of **Font Size=12, Font Style Name = Arial.**
7. Financial Bids of only technically recommended firms will be opened and will be informed accordingly as and when bids are evaluated.
8. **The firms are expected to note that specifications given in bids may be verbatim as mentioned in brochure. NFSA Evaluation Committee will intensively read complete brochure as per criteria given in tender document.**
9. Bids sent through fax or email shall not be considered, if the bidder fails to submit his/her bid stated above, same would be considered as non-responsive bid. During the technical evaluation process, no amendment in the technical as well as financial bids shall be permitted.
10. Following documents should be enclosed with the Tender Document:-

#### Description

- a. Attested copies of NTN and GST Registration Certificates of the firms.
  - b. Affidavit that the firm is not blacklisted from any organization and also not involved in any court cases, etc, as per the Specimen attached at **Annex-B.**
11. Payment of the firms / contractors shall be made through cheque duly issued by the AGPR. Any additional information / documents /certificates which are compatible to forensic equipment may be attached with tender document.
  12. Any coercive, collusive and fraudulent practices to influence procurement process or an attempt for wrongful action, or establish process at artificial, non competitive level or recklessly mislead either party to obtain a financial or other benefit shall be dealt as per Public Procurement Rules 2004, (amended 2021).

**NATIONAL FORENSIC SCIENCE AGENCY**

**Detail information of Firm / Contractor**

1. Name of the Firm : \_\_\_\_\_

2. Date of Establishment : \_\_\_\_\_

3. Name of the Owner(s) : \_\_\_\_\_

4. Father's Name : \_\_\_\_\_

5. Address of the firm : \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Address of the Owner

\_\_\_\_\_

\_\_\_\_\_

6. Telephone No : PTCL \_\_\_\_\_ Cell \_\_\_\_\_

7. CNIC No. : \_\_\_\_\_

8. GST Registration No : \_\_\_\_\_

9. NTN/Income Tax No : \_\_\_\_\_

10. AGPR Vendor No. (if any) : \_\_\_\_\_

Vendor Name: \_\_\_\_\_

Dated: \_\_\_\_\_

(Signature of Company's Owner with Seal / Stamp)

**CERTIFICATE OF DECLARATION**

**(ON AFFIDAVIT)**

The undersigned Mr..... S/o Mr..... owner / authorized representative of M/s..... do hereby solemnly affirm, as under:-

1. That we are not involved in any court case with National Forensic Science Agency and/or other government Departments/Organizations /Autonomous Bodies.
2. That our Company has not been blacklisted with any government department including National Forensic Science Agency.
3. That we are not defaulters of any bank, financial institution, any Government Department of Pakistan.
4. That our firm will provide best choice available in the market and tendering process will be completed with total dignity, integrity and as per terms and conditions.
5. That our firm will be responsible if certain defective supply is provided to the Department.
6. That the above statements are correct to the best of my knowledge and belief while no information has been kept hidden intentionally.

Stamp & Signature \_\_\_\_\_  
**(By Authorized Representative of the Company Owner / Manager)**

Date \_\_\_\_\_

Name \_\_\_\_\_

CNIC No. \_\_\_\_\_

NATIONAL FORENSIC SCIENCE AGENCY

ELIGIBILITY CRITERIA

<b>Sr.#</b>	<b>Description</b>	<b>Detail</b>	<b>Compliance (Yes/ No) For firm</b>
1.	Active tax Payer list	<b>NTN shall be provided</b>	
2.	STRN	<b>Sales Tax Registration Number</b>	
3.	Must not be blacklisted	<b>On Affidavit</b>	
4.	Bid validity	<b>120 Days</b>	
5.	Bid Security	<b>2% Bid Security</b>	
6.	Unconditional Bid	<b>No Condition shall be applied</b>	
7.	OEM Mandatory in case of major equipment lot.	<b>OEM is mandatory in case of major equipment</b>	

Note:- Meeting of eligibility criteria from Sr. No.1-7 is mandatory. Non-compliance shall lead to non-eligibility in further procurement processes. Moreover, the bid may be signed and submitted by the top tier management or owner of the firm. Please provide the attested copies of above mentioned documents.

NATIONAL FORENSIC SCIENCE AGENCY

**EVALUATION CRITERIA**  
**FOR PURCHASE OF EQUIPMENT**

For successful awarding of the tender, firm's bid will be evaluated on the following evaluation criteria.

Total marks: **100**

**Financial Consideration = 30 Marks**

Price Consideration (Least Price) = 30 Marks

**Technical Evaluation Score = 70 Marks**

1. Specification = 30 Marks
2. Financial Soundness (Balance Sheet, Income Tax Return, Net worth) = 5 Marks
3. Consumables (in Major Equipment) = 5 Marks
4. Maintenance Services (in Major Equipment) = 5 Marks
5. Standard and Quality = 10 Marks
6. Experience of supplying service orders = 5 Marks
7. Training (in Major Equipment) = 5 Marks
8. Warranty = 5 Marks

**PATTERN TO BE FOLLOWED BY THE FIRM (ON LETTER HEAD).**

<b>Sr.#</b>	<b>Name of Equipment</b>	<b>Specification (To be produced by the firm)</b>	<b>Qty</b>	<b>Rate (Per Unit with GST)</b>	<b>Total Amount (With GST)</b>
<b>1.</b>					
<b>2.</b>					
<b>etc.</b>					
<b>Grand Total Amount (With GST)</b>					
<b>2% Bid Security Amount</b>					

The firm is suggested to write exact serial number as per annex-G and specifying the equipment interested in. If the firm wants to apply more than one equipment, the firm may continue in the same sequence on the letter head.

## NATIONAL FORENSIC SCIENCE AGENCY

**TECHNICAL CRITERIA  
FOR PURCHASE OF EQUIPMENT**

<b>Sr.#</b>	<b>Category</b>	<b>Score</b>	<b>Description</b>
1.	Specifications	30	Technical Committee will score the bid by comparing the specifications given in the bid document with the specifications provided by the bidders in the bids. Attach Brochures where necessary.
2.	Financial Soundness (Balance Sheet, Income Tax Return, Net worth)	5	i. 25-99 Million = 1 Mark ii. 100-499 Million = 2 Marks iii. Above 500 Million = 5 Marks
3.	Consumables (in Major Equipment)	5	2 Years consumables free of cost for major equipment
4.	Maintenance Service	5	Free of cost maintenance service in major equipment lot for 5 years
5.	Standard and Quality	10	Standard Quality (ISO certified), Higher specifications, OEM are given, the commensurate score will be given accordingly
6.	Experience of supplying service orders	5	Experience of supplying similar equipment to LEAs, Forensic Lab or Government, Semi Government, autonomous bodies:- i. 5 service orders or less = 3 ii. More than 5 service orders = 5
7.	Training	5	Free of cost training by the OEM and from certified trainer in major equipment (where necessary).
8.	Warranty	5	One year warranty is mandatory for the equipment i. 2 years warranty = 2 Marks ii. 3 years warranty and above = 5 Marks

**NB**

1. The company or firm or contractor securing less than 45 marks in Technical Evaluation shall be declared technically not-recommended for further procurement process.
2. In case, any equipment not falling in any category like training, consumables or maintenance etc. as above mentioned in technical criteria, the score by that category shall be added in the score of specifications.
3. Major equipment lot means GCMS, LCMS, LCGCMS and FTIR Spectrophotometer.



NATIONAL FORENSIC SCIENCE AGENCY

**BLACK LISTING OF BIDDERS AS PER RULE-19**

The procuring Agency has devised a mechanism for blacklisting and debarment of bidders and in accordance with the regulation made by the authority.

1. If the bidders are involved in corrupt and fraudulent practices after establishing the facts, the period of debarment shall not be more than 10 years.
2. If the bidders fails to perform his contractual obligation during the execution the contract or breach the contract, will be black listed not more than 3 years after establishing the facts.
3. if the bidders fails to abide with a bid securing declaration without being indulge in any corrupt or fraudulent practices shall be blacklisted not more six months.
4. PPRA Rules 2004 will be followed in true letter and spirits for blacklisting and debarment.

## NATIONAL FORENSIC SCIENCE AGENCY

DETAILS OF EQUIPMENTDNA/ SEROLOGY SECTION

Sr. #	Equipment Description and Specification	Qty	Applying For Yes/ No.
1.	<p><b>UV Cross Linker</b></p> <ul style="list-style-type: none"> <li>• The unit comes equipped with 5 254 nm Shortwave Bulbs</li> <li>• No more manual calibration required when switching between wavelengths.</li> <li>• The UV Crosslinker AH comes calibrated for 254 nm Shortwave Bulbs as well as 306 nm and 368 nm bulbs.</li> <li>• Change your bulbs and select your bulb choice on the display – that's it!</li> <li>• Large UV protective window allows for easier process inspection</li> <li>• Two modes of operation – Energy or Time</li> <li>• Open Door Safety mechanism</li> <li>• Energy Efficient electronic ballasts</li> <li>• Small footprint</li> <li>• UL/CSA/CE Approved</li> <li>• Ambient Temperature Operating Range: 16°C to 28°C</li> <li>• Maximum Time Set point: 999m 59s in 1 second increments</li> <li>• Maximum Energy Set point 9,999,900µJ in 100µJ increments</li> <li>• Supply Ratings 230VAC±10%, 50/60 Hz</li> </ul> <p><b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement.</p>	01	
2.	<p><b>pH meter</b></p> <p>Output :USB communication interface  Weight:1.5 kg  memory: Stores up to 500 data sets  Display :LCD  Connector: NC  pH accuracy:± 0.002 pH  ORP accuracy:±0.2 mV  Calibration due:0 to 31 days  Compensation mode: Manual or automatic  Dimension (L*W*H):210×188×60 mm  Calibration points:1-5 points  Stability conditions: Low or high  pH measurement range:-2.000 to 20.000 pH  Calibration solutions: USA, NIST, DIN or user defined  ORP calibration range:±200 mV  ORP measurement range:-1999.9 to 1999.9 mV  ORP calibration points:1 point  Temperature compensation:0 to 100°C, 32 to 212°F  ORP calibration solutions: mV &amp; relative mV</p> <p><b>Note:</b> The above mentioned specification may be higher or equivalent as per</p>	01	

	requirement.		
3.	<p><b>Heat Incubator</b>  Voltage: AC 220 V / 110 V (Optional)  Net weight:5 kg  Time range:1 min - 99 hr. 59 min  Gross Weight:5.5 kg  Heating time:~ 15 min (25 °C ~ 160 °C)  Block quantity:1 or 2  Display accuracy:± 0.1 °C  Temperature range:RT. 5°C ~ 160°C  Temperature accuracy:± 0.5 °C at 40 °C ; ± 1 °C at 120°C  <b>Note: The above mentioned specification may be higher or equivalent as per requirement.</b></p>	01	
4.	<p><b>Vortex</b>  Weight:3 kg  Voltage:AC110/220V±10%, 50/60Hz  Speed Range:0~2500rpm  Output Power:60 W  Operation mode: Continuous/touch operation  Protective Class:IP21  Circling Diameter:4 mm  Packing Dimension:250×230×200 mm  External Dimension:127×160×130 mm  Ambient Temperature:5-40 ?  Permissible moisture:0.8  <b>Note: The above mentioned specification may be higher or equivalent as per requirement.</b></p>	02	
5.	<p><b>Laminar Flow Cabinet</b>  2:UV lamp × 2  3:Base stand  Noise:&lt; 65 dB  Display: LED  UV Lamp:18 W × 1 Emission of 253.7 nanometer  HEPA Filter:99.999% efficiency at 0.3 µm  Max opening:310 mm  Pre- filter: Polyester fiber, washable  Front window: Manual, 5 mm toughened glass, anti UV  Gross weight:131 kg  Power supply :AC 220V ±10%, 50/60 Hz, 110V±10%, 60Hz  Airflow velocity: Average Of 0.3 to 0.5 m/s, air speed adjusted  Illuminating lamp: LED lamp 12 W × 1  Packing dimension:1200 × 850 × 1360 mm  Power consumption:350 W  External dimension:1040 × 615 × 1770 mm  Internal dimension:940 × 540 × 545 mm  Material main body: Cold rolled steel with anti- bacteria power coating  Material work table:304 stainless steel  Work surface height:750 mm  <b>Note: The above mentioned specification may be higher or equivalent as per</b></p>	01	

	requirement.																																						
6.	<p><b>Portable De-humidifiers and air cleaners with built in HEPA filters (Combo)</b></p> <ul style="list-style-type: none"> <li>• 1.6 gallon (6 liter) water tank capacity and removal up to 6 gallons (50 pints measurements) of moisture from the air per day, large dehumidifier, Filter ultra-fine particles as small as 0.02 microns.</li> <li>• Removal up to 99% of airborne Aspergillus niger mold spores, bacteria and H1N1 virus.</li> <li>• Clean air delivery rate: up to 270 m3/h Adjustable settings control the mode, fan speed, timer and</li> <li>• Automatic alerts to indicate when it's time to empty the tank or change the filter.</li> <li>• Wheels for easy movement.</li> </ul> <p><b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement.</p>	04																																					
7.	<p><b>96 well plate spin</b>Capacity for two standard plates</p> <ul style="list-style-type: none"> <li>• Top loading design</li> <li>• Starts and stops</li> <li>• Use before and after thermal cycling to improve PCR yield</li> <li>• Quickly spin down droplets and condensation</li> <li>• Maximum Capacity: 2 standard PCR or microtiter microplates</li> <li>• Ambient Operating Range 4° to 35°C</li> </ul> <p><b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement.</p>	01																																					
8.	HVAC fully supported by uninterrupted power supply (Independent Generator) alongwith Misc. Civil Work one room. Detailed specifications, design, space, humidity level, air freshening may be collected from Admin Section.	01																																					
8 (i).	<p>Walk in Refrigerator</p> <table border="1"> <thead> <tr> <th>Sr#</th> <th>Description</th> <th>General Specifications</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>PUF Panel Thickness</td> <td>60/80mm</td> </tr> <tr> <td>2</td> <td>PUF Panel Cover</td> <td>SS</td> </tr> <tr> <td>3.</td> <td>Sheet Metal Thickness</td> <td>0.4/0.5mm</td> </tr> <tr> <td>4.</td> <td>Temperature Range</td> <td>-2 to 4°C</td> </tr> <tr> <td>5.</td> <td>PUF Blowing Agent</td> <td>Cyclopentane (C5) – (CFC &amp; HCFC free)</td> </tr> <tr> <td>6.</td> <td>PUF Density</td> <td>40 kg/M<sup>3</sup></td> </tr> <tr> <td>7.</td> <td>Panel Length</td> <td>Upto 8 foot</td> </tr> <tr> <td>8.</td> <td>Panel Joint</td> <td>Tongue &amp; Groove Joint</td> </tr> <tr> <td>9.</td> <td>Panel Width</td> <td>36/48 inches</td> </tr> <tr> <td>10.</td> <td>Panel to Panel filament</td> <td>The gap between two fitted panel , 3 mm</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Sr#	Description	General Specifications	1	PUF Panel Thickness	60/80mm	2	PUF Panel Cover	SS	3.	Sheet Metal Thickness	0.4/0.5mm	4.	Temperature Range	-2 to 4°C	5.	PUF Blowing Agent	Cyclopentane (C5) – (CFC & HCFC free)	6.	PUF Density	40 kg/M <sup>3</sup>	7.	Panel Length	Upto 8 foot	8.	Panel Joint	Tongue & Groove Joint	9.	Panel Width	36/48 inches	10.	Panel to Panel filament	The gap between two fitted panel , 3 mm				01	
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**Evaporating Unit:**

- Stainless steel body and excellent corrosion
- Inner grooved copper tubes for heat transfer
- In-built defrost heater for low temperature unit
- External rotor driven fans with low noise level
- Removable side panel

**Condensing units**

- Energy efficient scroll and reciprocating compressor
- UV and corrosion resistance system
- Filter drier for moisture and drit protection

**Installation**

- Uniform cooling and air distribution
- Level flooring to avoid misalignment of walls
- After Sale Support
- 3 years warranty
- Repair and maintenance

**FIRE ARMS & TOOL MARKS SECTION**

Sr. #	Equipment Description and Specification	Qty	Applying For Yes/ No.
1	<p><b>Comparison Microscope</b></p> <ul style="list-style-type: none"> <li>▪ Provides unequalled visual accuracy, with razor-sharp images at 1.3x to 243x magnification. Apochromatically corrected with adjustable apertures. Each objective provides three fixed and precisely matched magnification levels</li> <li>▪ Real-time, fully automatic, intuitive controls provide motorized stage movements in three planes (X/Y/Z), allowing for synchronized or separate movements. Motorized magnification changes and objective turret rotation are completely synchronized and precisely matched, providing effortless viewing with a variety of different image views</li> <li>▪ 360 degrees of rotation and the tilting of evidence</li> <li>▪ Revolutionary static comparison bridge, with advanced optical module for clear, simultaneous viewing through the binoculars or on-screen with the live camera</li> <li>▪ and user-friendly synchronized stage movement</li> <li>▪ Licensed software with compatible computer system.</li> <li>▪ The Microscope should have option to integrate with Integrated Ballistic Identification System (IBIS).</li> <li>▪ Minimum two (02) years warranty and after sale services.</li> <li>▪ Training by certified trainers of OEM.</li> </ul> <p>Viewing options for Full Left, Full Right, Transparent Overlay and Adjustable Split with smooth scrolling dividing line for sliding across parallel regions of interest</p> <p><b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement.</p>	01	
2	<p><b>Bullet Recovery Tank</b></p> <p>Wide variety of test weapons, from pistols up to full length rifles. Size: 144"x36"x60" (LxWxH) Material: Stainless Steel 304, 6mm Thick Tank is made of 6mm Thick Stainless Steel Sheet Tank Top Cover (Lid) is made of 4mm Thick Stainless Steel Sheet Industrial Water Pump and Filtration System for filling and emptying the Tank. Water pump for filling and emptying tank Lid opening through pneumatic system &amp; closing Control panel to operate, pump, compressor and lights. Platform on long front and the along the widthside, a safety grill is placed along the approx. and step to reach at palteform for recovering bullet. Single phase (220) volts A/c electric supply with (16Amp) circuit Break. On head side safety window and shield for firing bullets from different arms and bullet case catching. Recovery sticks Safety light under the lid to illuminate the tank internally. The complete system is made from stainless steel 304 Grade. Purpose:- Required for the retrieval of bullet in intact form for analysis</p> <p><b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement.</p>	01	
3.	<p><b>Safe firing device</b></p> <p>The Portable Remote Firing card is principally designed to put distance</p>	01	

	<p>between the examiner and a suspect faulty firearm from any firearm testing location. Indoor /outdoor firing range indoor/outdoor firing range metal trap bullet recovery tank The device is a means of protecting the examiner from the punishing effects of recoil inflicted by the newer generation of high-power weapons. The remote platform is mounted on a custom designed cart that rolls out of the way Adjusts within seconds to any size firearm, from 50 BMG to pocket Derringer. Accepts semi-auto weapons with full magazine in place. Simple lever switch actuates a pneumatic cylinder and soft rubber gripper to hold buttstock or handgun grips w/300 lbs force Includes an adjustable pneumatic recoil dampening system designed to absorb recoil from rifles and shotguns. Fixture comes equipped with a pneumatic trigger pull. Firearm can be discharged from local position for recoil isolation, or remotely from any distance if suspect faulty weapon. Arming Safety Feature</p> <p><b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement.</p>		
4.	<p><b>Fume hood</b></p> <p>Fume hood with minimum work space height 900mm max opening 750mm. 1.0mm cold-rolled steel with bacteria power coating. High grade melamine board with good acid and alkali resistance function. Chemical resistant phenolic resin work table. 5mm toughened glass window. Outlet exhausts system, Polypropylene cup sink. Reagent storage cabinet, lamp, blower, ON/OFF switch.</p> <p><b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement.</p>	01	
5.	<p><b>Photography DSLR camera</b></p> <p>Digital SLR camera with 18-55mm VR lens, minimum 24 MP, DX-format CMOS sensor, 4fps continuous shooting, full time autofocus, Vari-Angle LCD monitor, HDR settings, Stereo Microphone, Exclusive 3D-tracking and 16GB external memory.</p> <p><b>Purpose:-</b> Required for the forensic photography of GSR and comparison related evidence</p> <p><b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement.</p>	02	
6.	<p><b>Analytical balance</b></p> <p>Analytical Balance with built in large glass case, External Calibration, Capacity: 0-200g, Readability 1mg, Precision: 1mg =3digit, Operated on 220V AC50Hz</p> <p><b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement.</p>	01	
7.	<b>UPS</b>	02	
8.	<b>Biometric</b>	05	

**EXPLOSIVE SECTION**

Sr. #	Equipment Description and Specification	Qty	Applying For Yes/ No.
1.	<p><b>PLM</b></p> <ul style="list-style-type: none"> <li>• Five magnification settings, PLPOLi 5x, 10x, 20x, S40x &amp; Plan strain-free PLPOLRi 100/0.80 IOS objective reflected and transmitted polarization, no cover glass correction working distance 2mm</li> <li>• 360° Rotating III 160 mm graduated stage with two object clamps Built-In</li> <li>• EWF 10x/22mm eyepieces</li> <li>• Coaxial coarse and fine adjustments, 200 graduations, 1 µm per graduation, 200 µm per rotation, total travel approximately 24 mm and is supplied with an adjustable rack stop to prevent damage to sample and objectives. Large mechanical stage with stain resistant finish</li> <li>• The coarse adjustment is equipped with friction control</li> <li>• 160mm round stage. Rotatable 60° polarizer and slider with analyzer. Bertrand lens 3 W NeoLED bright Kohler illumination and reflected attachment with 50 W halogen epi-illumination</li> <li>• 30x40mm x-y mechanical stage for polarization</li> <li>• Compatible UPS and Printer. Atleast one hour backup</li> </ul> <p><b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement.</p>	01	
2.	<p><b>Fully automated Gas Chromatography Mass Spectroscopy (GCMS) Gas Chromatography</b></p> <p>Powerful, dedicated, bench top quadrupole mass spectrometer with advanced ion source and ion optics design. Developed to become the detector of choice for high resolution gas chromatography. Modular chassis and control electronics based on FPGA technology of the latest generation.</p> <p>Includes Web server, LAN TCP_IP communication, graphic user interface based on Touch Screen TFT of 262144 colours/pixel with interactive programming based on menu driven windows</p> <p>Fully configurable system that can hold up to three detectors, three injection systems and up to seven valves (gas or liquid sampling valves or switching valves) depending on the configuration.</p> <p>GCMS System optimized for capillary and semi-capillary columns, compatible with packed columns of different lengths and diameters with programmable heating from ambient Temperature to 400°C.</p> <p>Temperature control of 12 independent heated blocks, including the oven Adjustable PID's resolution 0.1°C and 0.01min</p> <p><b>All sample introduction options:</b> Fast and easy interchangeable ionisation volumes for EI/CI/+/-, and DIP/DEP/EI/CI/+/- or equivalent</p> <p><b>Utmost sensitivity, robustness and reliability.</b></p> <p><b>Unit resolution over the wide mass range of 1200.</b></p> <p><b>High scanning speed of up to 20.000 amu/sec across every GC peak and over the complete mass range, this allow achieving</b></p>	01	



**Lowest detection limits** (less than 10 fg of OFN provides optimal sensitivity both in Full Scan and SIM modes.

**Absolute sensitivity in any mode can be further enhanced in many unique** ( the patented HPLC+GC enrichment interface , on-line derivatization, Negative Chemical Ionization of derivative) while simplifying sample preparation.

**Dual filament ion source and automatic switching**, guarantees continuous duty and reliable performance.

**High performance quadrupole with Pre-filters**

**Automatic Leak check feature included in the instrument self-test** which checks electronics, voltages, and temperatures, on all MS parts.

#### **Column OVEN**

- High performance and low thermal inertia oven design with expanded temperature range from -90°C to 490°C in 0.1°C steps Thermal inertia is dramatically minimized with perforated oven walls.
- Fastest heating and cooling oven: from 450°C to 50°C in less than 300s. 25 positive and/or negative ramps (up to 99 upon request) from 0.1 °C/min to 130°C/min in 0.1°C/min increments with the corresponding isothermal steps. Maximum run time of 999.99 minutes.
- PID Temperature control.
  - Temperature Control of 12 independent heated blocks, including the oven. Adjustable PID's.
- Temperature resolution: 0.01°C, 16bit ADC. 0.1°C accuracy displayed.
- Two oven flaps, for maximum temperature stability even close to ambient temperature.
  - Resolution 0.1 °C and 0.01min Possibility to override the "Ready" signal independently for each heated block.
    - Temperature gradients inside the oven have been reduced by forced air circulation.
    - Oven is also pre-drilled to allow the installation of valves (sampling and switching), external interfaces (MS) and other peripherals.
    - Up to 25 positive and negative temperature ramps from 0.1°C/min to 130°C/min in 0.1°C/min steps. Up to 26 isothermal periods.
    - FAST GC option up to 500°C/min using standard columns.
    - Dual overheating protection, by hardware and software.

#### **Detectors**

- Modular and interchangeable detectors
- With digital electrometers and amplifiers
- Any type of column
- Automatic Auto zero
- Independent Temperature Programming
- Control RAC® (Ready Active Control)
- Highest detectability

#### **EPC**

- Includes up to 16 EPC channels for injection and detection systems or auxiliary gases.
- Gas selection (helium, hydrogen, nitrogen, argon-methane) for carrier and detectors make-up gases.
- Each device can independently work on flow or pressure modes. Up to 5 pressure and/or flow ramps. Pressure can be adjusted up to 150

psi in 0.01psi steps.

- Designed for ultra-fast chromatography. Atmospheric pressure variation compensation.
  - Optimized gas saver mode.
  - Capillary Injector with EPC, Capillary septum purge-less injector with Electronic Pneumatic Control. Split/Splitless time controlled by the GC microprocessor and/or software for split/splitless operation.
  - Allows digital programming and control of column head pressure from 0.01psi up to 150psi with pressure resolution of 0.003psi
  - Programming of split ratio from 1 to 9999 with 0-200ml/min total flow for N<sub>2</sub> and up to 1250 ml/min for H<sub>2</sub>/He.
  - GC Capillary Installation Kit,
  - multidimensional chromatography HPLC-GC-MS, multidimensional GC-GC (heart-cutting), on-line purge and trap, monovial head space, coupling to MS and automatic sample preparation
- 15 x PWM at 24 for EPC valve control
  - 16 x 16 bit ADC for Pressure/Flow sensor
  - Electronic Pneumatic control (EPC) with free choice of carrier gas.
  - Up to 150 psi, designed for FAST GC
  - Flow/pressure programming up to 5 ramps (0.01psi/min to 150 psi/min or 0.01ml/min to 1000ml/min) with 6 isobaric steps
  - Pressure precision: 0.0015 psi (100 psi) and 0.003 psi (150 psi)
  - Flow precision: 0.01ml/min
  - High split ratios up to 9999:1 (depending on carrier gas)
  - EPC for detector gases

#### **Autosampler**

##### **Multimode Autosampler**

Universal Multimode Injector (cold septum purge less)

Cool sample injection. Sample vaporization by means of temperature programming

- Injector cooling: Air, CO<sub>2</sub>, or LN<sub>2</sub>
- Large volume injection upto 20mL or similar
- Max: split ration of 9999:1 or better
- Temp ranges -100 to 450 °C
- EPC optimized interface that allow changing from pressure control in middle of RUN
- Gas saver option

Three axis robot: X-Y-Z displacements. Symmetrical horizontal arm. The microcontroller can be located at right or left side. Vertical arm holds the needles and syringes. Three interchangeable vial trays: 32 vials for 6, 10 or 20 ml, 105 vials of 2 ml and 171 vials of 1 ml. Optional Tray Temperature Control (TTC): all vials on the sample tray can be heated or cooled through a Peltier cell from 5°C to 70°C depending on room temperature. Easy menu-driven interactive programming through microprocessor keyboard (20 characters and 4 lines display) or through Plus software. Method linking/application development mode: up to 10 different methods can be stored in the microprocessor and unlimited number using the software. Built-in Auto diagnostics. Built-in RS-232 and RS-485 communication ports,

Different volume programming. Syringe volumes: 0.5, 1, 2, 5, 10, 25, 100 and 500µl.

Injection volume: programmable from 0.1µl to 500µl depending on syringe type.

Plunger speed: programmable from 1µl/sec to 5000µl/sec depending on syringe type. Programmable up and down movement speed on sample, solvents and injector.

Injection position: left or right. Mobile X and Y axis fits any GC. Double and dual injection into a double injector GC with double column almost simultaneously. Derivatization under controlled conditions. Software controlled and/or independent keypad programming. 32, 105 and 171 vial trays. General Installation Kit, GC Installation Kit and Tray Kit

### **Mass Spectrometer MS Range 1200**

- Based on a quadrupole mass filter, MS Should be extremely, compact and the system maintain optimal analytical performances in all configurations for Forensic research work.

- MS for GC only Mass Range 1200, 1-TMP,

- Mass Resolution: >1.5M, Mass Range from 1 to 1200 amu.

- Dual choice of Ion Sources and DIP probe: EI +/-, CI+/- and DIP.

Electron Energy: Adjustable from 0 to 130 eV

Emission current: 500 uA max

Max Scan Rate: 20000 amu./s

Mass Stability: ±0.1 amu /48 h

Ion Source Temperature: up to 350 °C

GC Transfer Line Temperature: up to 400 °C

Scan mode: Full scanning, SIM (Single Ion Monitoring), MIR (Multiple Ion Recording), Segmented or Combined

Vacuum Pumping: 240 l/sec (66 or 300 l/sec as optional)

Sensitivity (ED): Signal-to-Noise ratio 1500:1 in full scan with injection of 1uL of 1pg/uL OFN (scan 50 to 300 amu)

Detection Limit (IDL): < 10fg ( Ten sequential split less injections, 100fg OFN, m/z 272 in SIM mode)

Power supply: 220V±10%, 50/60Hz

Power consumption: 900 W max

Weight: Less than 50 Kg.

- Ionization source (IS) by Electron Impact (EI).

- Independent heating system, programmable between 150 and 350°C Quadrupolar pprox. with pre-filters Complete automatic and manual tune modes. Full Scan and Single Ion Monitoring (SIM) modes of mass analysis, Positive ion detection in EI mode. Electron Multiplier (0-3kV) detection system for positive ions. Vacuum system composed by one hybrid air-cooled 240 l/s turbomolecular pump roughed by a 3 m<sup>3</sup>/h rotary vane pump.

- GC EI KIT Spares and consumables, Source Cleaning Kit for MS.

### **Software:**

Complete Multitasking Chromatography Data System for data acquisition, data processing and instrument control. 32 / 64 bit Multi-Instrument and Multi-Detector software. Up to 4 simultaneous chromatography systems, each of them with up to 32 detectors (signals) are supported from a single software, depending on the ordered options.

	<p>Includes: software on USB memory stick GC, interface and Autosampler control modules, cables, Plus MS Control Module, Full control of Mass Spectrometer parameters in all modes: <b>GC/MS, NIST 17, NIST-Explosives Library, TWGFEX Library complete with AMDIS Software.</b></p> <p><b>Official methods:</b> Manufacturer official methods for all explosives tests</p> <p><b>Column:</b> All columns designed for all explosive analysis with manufacturer official methods 2 columns for each test must be provided. All columns must provide all tests required n Forensic Explosives</p> <p><b>Hardware:</b> Intel core i7 Laptop with Licensed Window 10 OS + 24" 4K LED + Color Laser Printer, Mouse/keyboard with external data storage 4 TB. <b>UPS 20 KVA:</b> Online double conversion topology, Transformer free design, High efficiency up to 98%, Three year warranty, Scalable up to 8 units in parallel, Temperature compensated battery charging, Front access for ease of installation and service, Small footprint, High level diagnostics via LCD screen, Dual DSP controller, Enhanced generator compatibility.</p> <p><b>Nitrogen Generator</b> <b>All gases supply/ Generators other parts required for instrument run must be provided by supplier/manufacturer</b> <b>Each accessory should be given by supplier/manufacturer in extra (including filers, ferrules, fitting, columns etc)</b> <b>Note: The above mentioned specification may be higher or equivalent as per requirement with training at manufacturer site, minimum two years warranty after installation and Calibration Certificate.</b></p>		
3.	<p><b>LCMS</b> <b>Liquid Chromatography Mass Spectrometry (LC- MS)</b> High Performance LC analytical pump based on a dual piston connected in series 10ml/min pump head. Pulse free operation. Quite new concept of electronic controlling pump drive, pistons suspensions, shape of cams, pressure transducer and check valves to expand its functions and improve its features. A Solvent Manager with a four-way gradient valve allowing the pump to be used for creating gradients by low-pressure mixing of up to four eluents. It is also possible to predefine the mobile phase composition when using the pump in isocratic mode. The gradient formation can be programmed either through the keypad or using the Plus software. The pump Should be equipped with electronic fuses which stop the flow when preset either maximum or minimum operating pressure limits are exceeded. When is necessary it is possible to use back rinse of pistons (e.g. after using buffered mobile phases). Ceramic valves in PTFE housing facilitate cleaning.</p> <p><b>Pump:</b> SS Analytical, 10ml/min pump head Flow Rate: 0.01 – 10.00ml/min in 0.01ml/min steps Flow Rate Precision (1ml/min, 12Mpa, H2O): ± 2% RSD Flow Rate Repeatability (1ml/min, 12Mpa, H2O): ± 0.5% RSD Accuracy of pressure measurement: ± 2% RSD</p>	01	

Maximum working pressure: 40Mpa  
Upper Pressure Limit: 1.0 – 40.0Mpa  
Lower Pressure Limit: 0.0 – 39.0Mpa  
Pumping system: 2 plungers (1/8”) connected in series  
Built-in prime and purge valve  
Wetted material: Stainless Steel  
Control: By keypad or through optional software  
RS232 interface

**Autosampler:**

**Multimode Autosampler** A generic Multidimensional autosampler for LC-MS using state-of-the-art injection technology with fast injection and wash cycles. Efficient, multi-solvent needle wash virtually eliminates carry-over. Autosampler handles well plates and sample vials, either open or sealed, and provides true 4°C sample cooling. Its compact, stackable design and unrivalled performance make the Autosampler the best fit for your system

Injection modes: Full-loop, Partial loop-fill, µL-pick-up, Pressure Assisted Sample Aspiration using ~10 PSI sample headspace pressure to avoid air bubbles in sample lines.

Injection volume Programmable from 0µl – 9999µL, 1µL increments. Max injection volume depends on installed sample loop and injection mode.

Injection precision: Full-loop injection < 0.3% RSD, Partial loop-fill < 0.5% RSD, µL-pick-up< 1.0% RSD, For injection volumes > 5µL Sample viscosity 0.1 – 5 CP, Injections per vial/well Max 9 Syringe volume 500µL standard 250, 1000 and 2500µL, Needle wash Inside and outside needle wash with drying.

Wash can be programmed between injections and between vials/wells. 1 solvent 5 additional wash solvents Programmable volume from a 250µL wash reservoir, SSV option required Injection cycle time < 60 seconds < 20 seconds, with typical 10ul injection (loop fill with rinse buffer) Valve switching time 60 msec Wetted parts SS316, PTFE, TEFZEL, VESPEL, glass, For Bio-kit option: PEEK and Coated-steel (needle) instead of SS316 Carry-over < 0.05% with standard wash. Typically < 0.01% with extra wash. “zero carry-over” can be accomplished with 580 Auto wash capabilities Sample capacity : Microliter plates: 2 Vials: 2x 48 (1.5 mL) or 2x 12 (10 mL) optional Microliter plates according to SBS standards. 96-well high and low and 384-well. Maximum vial/MTP height 47 mm including cap Optional Sample cooling: Factory installed option (Peltier technology) Minimum: 4°C ± 2°C ,Maximum: ambient temp -3°C Measured as air temperature in sample compartment for maximum ambient temperature 25°C and maximum humidity 80% Power requirements 95 – 240 Volt AC ± 10%; 50-60 Hz; 200 VA Sound pressure level LeAq < 70 dB

Working temperature 10 – 40 °C Indoor use only

Storage temperature -25 -60°C

Humidity 20 – 80%

**Detector**

Photo Diode Array Detector suitable and efficient economical solution for simultaneous absorbance measurement at 256 wavelengths. It should allow accurate quantification in flash, preparative and analytical applications. Should include latest improved noise specifications, and is a

robust realistic solution for the laboratory demands.  
 Deuterium and Halogen lamps with Optimum adjustment accuracy and absorbance measuring of simultaneously wavelengths, so it should be a full-spectrum absorbance measurement detector.  
 Wavelength range: 200 – 800 nm  
 Typical spectral half-width: 10 nm  
 Accuracy of adjustment:  $\pm 1$  nm  
 Reproducibility:  $\pm 0.5$  nm  
 Light source: Deuterium discharge lamp and Halogen lamp  
 Noise level at test cell (254 nm, TC 0.75 s):  $\pm 5 \times 10^{-5}$  AU  
 Drift at test cell (254 nm after 1 hr):  $1 \times 10^{-3}$  AU/hr  
 Materials in contact with mobile phase PTFE; fused silica, stainless steel  
 Time constant: 0.5 s; 0.75 s; 1 s or 2 s  
 Output for integrator: 1 V/AU (in digital form only)  
 Interface: RS 232  
 Power supply: 90-264 V  
 Power input: 90 VA  
 Dimensions (W x H x D): 280 x 135 x 498 mm  
 Weight: 9 kg

### **Mass Spectrometer for LC MS Range 1200**

The LCMS instrument based on a quadrupole mass filter provides the best sensitivity in all LC/MS ionization modes ESI and APCI, positive and negative ions. ESI and APCI are switchable in an easy and fast operation. The LCMS should covers a large LC/MS application fields, Preparative, Flash chromatography, HPLC, U-HPLC, working from 10ul/min up to 1ml/min. Compact. In all configurations and can be used in routine as well as for research work.  
 Includes: Dual Electrospray/Atmospheric Pressure Chemical Ionization (ESI/APCI) sources for positive and negative ions.  
 Atmospheric Pressure Ionization interface: patent pending design reduces contamination, allows for small vacuum pumps and reduces size and cost.  
 Quadrupolar approx. with pre-filters Complete automatic and manual tune modes Full Scan and Single Ion Monitoring (SIM) modes of mass analysis.  
 Electron multiplier ion conversion detection system for positive and negative ions. Acquisition rate: 5,000 m/z units/sec (compatible with UPLC)  
 Resolution: 0.5-0.7amu units (FWHM) at 1000amu units/sec over entire acquisition range.  
 Mass Range from 10 to 1200amu ideal to small molecules, natural products and small peptides  
 Accuracy: 0.1amu over the entire acquisition range  
 Mass stability: +/- 0.1amu over 12 hours  
 Flow range: 10 $\mu$ l to 500ul/min. 2:1 split if running at 1ml/min LC flow rate.  
 Sensitivity: 10pg of Reserpine, (5ul injection at a flow 100 $\mu$ l/min) produce a signal-to-noise ratio (calculated peak to peak) of 100:1 RMS with SIM of m/z 609.28.  
 100pg of Reserpine, (5ul injection at a flow 100 $\mu$ l/min) produce a signal-to-noise ratio (calculated peak to peak) of 100:1 RMS for the protonated

	<p>molecular ion at m/ z 609 when the mass spectrometer is operated at unit mass resolution in full scan mode, scanning from m/z 100 to m/z 1200. Gas supply: Nitrogen 99% pure. 4 Bar (60 psi for APCI or 40 psi for ESI). ¼”tube.  Gas consumption: up to 10 L/min  Rotary Pump 30kg; 10x9x18”  Line Voltage 100-240 VAC  Line Frequency: 47-63Hz  Power Consumption: 300VA max MSD, 550VA Rotary Pump  LC Interface with replacement heat capillary and kit.</p> <p><b>Software Data System:</b>  Complete Multitasking Chromatography Data System for data acquisition, data processing and instrument control. Includes: software on CD, and internal PCI A/D Converter (an external converter with USB port is optionally available), Full support for GLP/21 CFR Part 11: password protection, password expiration, electronic signature, audit trails, user account with access rights, IQ (included for testing the software Proper installation and results monitoring) and OQ (optional validation kit includes a chromatogram generator and software utility) qualifications tools. <b>NIST 17, NIST-Explosives Library, TWGFEX Library complete with AMDIS Software. Manufacturer validated methods of explosive analysis</b></p> <p><b>Hardware:</b>  Intel core i7 Laptop with Licensed Window 10 OS + 24” 4K LED + Color Laser Printer, Mouse/keyboard with external data storage 4 TB.  <b>UPS 20 KVA:</b> Online double conversion topology, Transformer free design, High efficiency up to 98%, Three year warranty, Scalable up to 8 units in parallel, Temperature compensated battery charging, Front access for ease of installation and service, Small footprint, High level diagnostics via LCD screen, Dual DSP controller, Enhanced generator compatibility</p> <p><b>All gases supply/ Generators other parts required for instrument run must be provided by supplier/manufacturer</b>  <b>Each accessory should be given by supplier/manufacturer in extra (including filers, ferrules, fitting, columns etc.)</b>  <b>Note: The above mentioned specification may be higher or equivalent as per requirement with Training at manufacturer site, minimum two years warranty after installation and calibration certificate.</b></p>		
4.	<p><b>Stereo Microscope</b>  <b>Trinocular</b>  NexiusZoom, 0.67x to 4.5x zoom objective,  Magnification from 6.7 xs to 45x with pillar.</p> <p>Incident and transmitted 3 W LED illuminations  299 (h) x 256 (w) x 311 mm (d)   5.2 kg</p> <p><b>Eye Piece</b>  The standard NexiusZoom is supplied with a pair of HWF 10x/22 mm eyepieces. The NexiusZoom EVO is supplied with a pair of HWF 10x/23 mm eyepieces  <b>With DC.5000F @ 187</b></p>	01	

CMEX-5f, 5.0 MP digital USB-2 color camera with ½.8 inch CMOS sensor

**Sensor CMOS** ½.8 inch

**Pixels** 2560 x 1920 pixels, 5.0 Mpix

**Scan mode** Progressive, rolling shutter

**Pixel size** 2.0 µm x 2.0 µm

**Max fps** Up to 30 frames per second (2560 x 1920 pixels) Up to 50 frames per second (1600 x 1200 pixels)

**Filter** RGB

**Mount** C-mount

**Grayscale conversion** 8 bits

**Color depth** 24 bits

**Exposure** Automatic or manual, from 1 ms to 2s

**White balance** Automatic/manual

**Dynamic range** 72 db

**Sensitivity V/lux-sec** (at 550 nm) 2.0

**Data interface** USB 2.0 at 480 Mb/s

**Operation humidity** 10-85 % humidity

**Operating temperature** 0 to 60°C

**Supplied with** 0.45x objective with C-mount, USB 2.0 cable, 30 and 30.5 mm adapters for stereo microscopes, 76 x 24 mm calibration slide, CD ROM with ImageFocus Plus software, carton box

**Software** Windows 7 and higher (32 and 64 bit configurations).

**Note:** The above mentioned specification may be higher or equivalent as per requirement

5.

**pH meter with pH strips**

02

<b>pH:</b>	<i>Range: -2.000 to 20.000 pH, -2.00 to 20.00 pH, -2.0 to 20.0 pH Accuracy (±1 digit): ±0.002 pH, ±0.01 pH Calibration: 22 pre-programmed pH buffer sets Automatic buffer recognition and display</i>
<b>mv:</b>	<i>Range: -2200.0 to 2200.0 mV Accuracy (±1 digit): ±0.1 mV, ±1 mV</i>
<b>Temperature:</b>	<i>Range: -31.0 to 302 °F (-35.0 to 150.0 °C) Accuracy (±1 digit): ±0.2 °F (±0.1 °C) Selectable °F/°C units: Yes</i>
<b>Mechanical and electrical:</b>	<i>Display: QVGA color graphic display, 4.7x3.5 inch (120x90 mm), backlit Contrast Adjustment: No Glass Vision Panel: Yes Channels: 2 (galvanically separated) Data Storage: &gt;10000 data sets with intervals from 1 second to 60 minutes Calibration History: Last 10 calibrations USB (slave) and RS232 interface: Yes</i>



		USB (host): Yes																				
6.	<b>Fume HOOD</b> <b>For Chemical/reagent preparation and work with hazardous materials</b> LED Lamp:12 W × 1 Net Weight:275 kg Pipe Strap:2 pcs Air velocity:0.3 m/s to 0.8 m/s Exhaust Duct: PVC 4 meters, ? 300 mm Gross Weight:300 kg Exhaust volume:710 m <sup>3</sup> / hr Maximum Opening:750 mm Power Consumption:400 W Work Surface Height:900 mm Package Size (W × D × H):1340 × 940 × 1850 mm <b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement		01																			
7.	<b>Hot Plate</b> <table border="1"> <tr> <td>Number of heating positions</td> <td>1</td> </tr> <tr> <td>Top size</td> <td>184x184mm</td> </tr> <tr> <td>Top material</td> <td>Pyroceram glass-ceramic</td> </tr> <tr> <td>Temperature range</td> <td>RT~ 550°C</td> </tr> <tr> <td>Weight</td> <td>2 kg</td> </tr> <tr> <td>Power</td> <td>120V 60Hz</td> </tr> <tr> <td>Amperage</td> <td>8.7</td> </tr> <tr> <td>Watts</td> <td>1000</td> </tr> <tr> <td>Dimensions (L x W x H)</td> <td>215 x 360x 112MM</td> </tr> </table> <b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement.		Number of heating positions	1	Top size	184x184mm	Top material	Pyroceram glass-ceramic	Temperature range	RT~ 550°C	Weight	2 kg	Power	120V 60Hz	Amperage	8.7	Watts	1000	Dimensions (L x W x H)	215 x 360x 112MM	01	
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8.	<b>Sonicator</b> <ul style="list-style-type: none"> <li>• 0~1200W</li> <li>• Touch screen control</li> <li>• 10 programmable memories</li> <li>• Programmable from 1 second to 99 hours</li> <li>• Overload protection</li> <li>• Temperature monitoring</li> <li>• Amplitude control from 1 to 100%</li> <li>• Processing volume 10mL to 1000MLL</li> </ul> Hertz            50/60 Hz Dimensions (L x W x H)        570 x 350 x 470mm  Frequency        19.5~20.5KHz <b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement.		01																			
9.	<b>De Humidifier and Temperature Display</b>  <table border="1"> <tr> <td colspan="2" style="text-align: center;"><b>Performance</b></td> </tr> <tr> <td>Dehumidification (pts/day)</td> <td>45</td> </tr> </table>		<b>Performance</b>		Dehumidification (pts/day)	45	03															
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Dehumidification (pts/day)	45																					

Control Type	Electrial, Low Temp
Energy Factor	1.50
Compressor Type	Rotary
dBA Level (High/Low) @ Front	51/49
3dBA Level (High/Low) @ Back 52/50	52/50

Features	
LED Display, Automatic Humidistat Control ,Touch Pad Button, Energy Timer, Automatic Shut-Off System, automatic Defrost Control and Auto Restart (Set Humidity)	•••••
Fan Speed Selection Switch Touch Pad Button Fan Speed 2 Air Flow CFM (High/Low)	131/120
Air Flow CMM (High/Low)	3.7/3.4
Fan Type	Turbo
Bucket Pints	21
Low Temperature Operation	42° F
External Drain Connector	•••••
Air Filter	Washable
Refrigerant Type	R410

Dimension (WxHxD): 15 5/32” x 21 ¼” x 13 3/8”

Power Rating: 115V / 60Hz

**Note:** The above mentioned specification may be higher or equivalent as per requirement.

10.	<p><b>Explosive Detection Kit</b>  Test kit for the detection and identification of Group A (Nitroaromatics) This group includes TNT, Tetryl, TNB, DNT, picric acid and its salts. , Group B (Nitrate esters and nitramines) This group includes Dynamite, Nitroglycerine, RDX, C4, PETN, Semtex H, Nitrocellulose, and smokeless powder. Note; most plastic types of explosives belong to this group At least 100 test per kit  <b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement.</p>	02	
11.	<p><b>Micro TLC</b></p> <ul style="list-style-type: none"> <li>Fully contained; 11.8” x 9.8” x 7.7”; 8 lb. (3.6 kg).</li> <li>Rechargeable battery operates 12 hours.</li> <li>Data acquisition and storage capabilities.</li> <li>Fast – test is complete within 3 minutes.</li> <li>Easy step by step on-screen instructions.</li> <li>Separates components of a mixture while determining analyte(s) of interest.</li> <li>Pre-spotted TLC plates have a 1-year shelf life.</li> <li>Nano gram (ng) detection limits; pprox. (pg) possible</li> </ul> <p><b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement.</p>	01	

**CRIME SCENE INVESTIGATION SECTION**

<b>Sr. #</b>	<b>Equipment Description and Specification</b>	<b>Qty</b>	<b>Applying For Yes/ No.</b>
1.	Face Mask for crime scene (packet of 50 masks)	100 Packet	
2.	Anti-petrifaction mask	03 Nos.	
3.	Fingerprint Lifting Tape (Transparent 1.5" * 360")	30 pieces	
4.	Fingerprint Lifting Tape (Transparent 2" * 360")	30 pieces	
5.	Magnetic Wands (Heavy Duty)	05 pieces	
6.	Fiber Glass Filament Brush (white)	50 pieces	
7.	Evidence Sealing Tape	10 Rolls	
8.	Regular Silver & Black Latent, Print Powder, 4 Oz	20 Each	
9.	Knife Evidence Box & Pistol Evidence Box	25 pieces Each	
10.	Paper Envelope (Printed), Small , Medium & Large	200 pieces of Each Size	
11.	Cleaning Towelletes	05 Packet	
12.	GSR collection stubs	50 Pairs	
13.	L-Shape scale small size (6" x 6")	25 piece	
14.	Scale Adhesive 25mm x 57.5mm Blue UOM per roll 1000	10	
15.	Bullet Hole Testing Kit Refill (Copper & Lead Test)	25 Tests each	
16.	Anti-Static Plastic Bags	50 Nos.	
17.	Ink Roller with High Quality Ink for Fingerprints	2 Sets	

**TOXICOLOGY SECTION**

Sr. #	Equipment Description and Specification	Qty	Applying For Yes/ No.
1	<p><b>Fully automated Gas Chromatography Mass Spectroscopy (GCMS)</b>  <b>Gas Chromatography</b>            Powerful, dedicated, bench top quadrupole mass spectrometer with advanced ion source and ion optics design. Developed to become <b>the detector of choice for high resolution gas chromatography.</b>  <b>Modular chassis and control electronics based on FPGA technology of the latest generation.</b>  <b>Includes Web server, LAN TCP_IP communication, graphic user interface based on Touch Screen TFT of 262144 colours/pixel with interactive programming based on menu driven windows</b>  <b>Fully configurable system that can hold up to three detectors, three injection systems and up to seven valves (gas or liquid sampling valves or switching valves) depending on the configuration.</b></p> <p><b>GCMS System optimized for capillary and semi-capillary columns, compatible with packed columns of different lengths and diameters with programmable heating from ambient Temperature to 400°C.</b></p> <p><b>Temperature control of 12 independent heated blocks, including the oven</b>  <b>Adjustable PID's resolution 0.1°C and 0.01min</b>            Suitable for <b>research as well as routine</b>, for both <b>qualitative and quantitative analysis.</b>  <b>All sample introduction options:</b> Fast and easy interchangeable ionisation volumes for EI/CI+/-, and DIP/DEP/EI/CI+/- or equivalent  <b>Utmost sensitivity, robustness and reliability.</b>  <b>Unit resolution over the wide mass range of 1200.</b>  <b>High scanning speed of up to 20.000 amu/sec across every GC peak and over the complete mass range, this allow achieving</b>  <b>Lowest detection limits</b> (less than 10 fg of OFN provides optimal sensitivity both in Full Scan and SIM modes.  <b>Absolute sensitivity in any mode can be further enhanced in many unique</b> ( the patented HPLC+GC enrichment interface , on-line derivatization, Negative Chemical Ionization of derivative) while simplifying sample preparation.  <b>Dual filament ion source and automatic switching,</b> guarantees continuous duty and reliable performance.  <b>High performance quadrupole with Pre-filters</b>  <b>Automatic Leak check feature included in the instrument self-test</b> which checks electronics, voltages, and temperatures, on all MS parts.  <b>Column OVEN</b>            • High performance and low thermal inertia oven design with</p>	02	

<p>expanded temperature range from -90°C to 490°C in 0.1°C steps Thermal inertia is dramatically minimized with perforated oven walls.</p> <ul style="list-style-type: none"> <li>• Fastest heating and cooling oven: from 450°C to 50°C in less than 300s.</li> </ul> <p>25 positive and/or negative ramps (up to 99 upon request) from 0.1 °C/min to 130°C/min in 0.1°C/min increments with the corresponding isothermal steps. Maximum run time of 999.99 minutes.</p> <ul style="list-style-type: none"> <li>• PID Temperature control. <ul style="list-style-type: none"> <li>• Temperature Control of 12 independent heated blocks, including the oven. Adjustable PID's.</li> <li>• Temperature resolution: 0.01°C, 16bit ADC. 0.1°C accuracy displayed.</li> <li>• Two oven flaps, for maximum temperature stability even close to ambient temperature.</li> <li>• Resolution 0.1 °C and 0.01min Possibility to override the "Ready" signal independently for each heated block. <ul style="list-style-type: none"> <li>• Temperature gradients inside the oven have been reduced by forced air circulation.</li> <li>• Oven is also pre-drilled to allow the installation of valves (sampling and switching), external interfaces (MS) and other peripherals.</li> <li>• Up to 25 positive and negative temperature ramps from 0.1°C/min to 130°C/min in 0.1°C/min steps. Up to 26 isothermal periods.</li> <li>• FAST GC option up to 500°C/min using standard columns.</li> <li>• Dual overheating protection, by hardware and software.</li> </ul> </li> </ul> </li> </ul> <p><b>Detectors</b></p> <ul style="list-style-type: none"> <li>• Modular and interchangeable detectors</li> <li>• With digital electrometers and amplifiers</li> <li>• Any type of column</li> <li>• Automatic Auto zero</li> <li>• Independent Temperature Programming</li> <li>• Control RAC® (Ready Active Control)</li> <li>• Highest detectability</li> </ul> <p><b>EPC</b></p> <ul style="list-style-type: none"> <li>• Includes up to 16 EPC channels for injection and detection systems or auxiliary gases.</li> <li>• Gas selection (helium, hydrogen, nitrogen, argon-methane) for carrier and detectors make-up gases.</li> <li>• Each device can independently work on flow or pressure modes. Up to 5 pressure and/or flow ramps. Pressure can be adjusted up to 150 psi in 0.01psi steps.</li> <li>• Designed for ultra-fast chromatography. Atmospheric pressure variation compensation.</li> <li>• Optimized gas saver mode.</li> <li>• Capillary Injector with EPC, Capillary septum purge-less injector with Electronic Pneumatic Control. Split/Splitless time controlled by the GC microprocessor and/or software for split/splitless operation.</li> <li>• Allows digital programming and control of column head pressure</li> </ul>	
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from 0.01psi up to 150psi with pressure resolution of 0.003psi

- Programming of split ratio from 1 to 9999 with 0-200ml/min total flow for N2 and up to 1250 ml/min for H2/He.
- GC Capillary Installation Kit,
- multidimensional chromatography HPLC-GC-MS, multidimensional GC-GC (heart-cutting), on-line purge and trap, monovial head space, coupling to MS and automatic sample preparation

- 15 x PWM at 24 for EPC valve control
- 16 x 16 bit ADC for Pressure/Flow sensor
- Electronic Pneumatic control (EPC) with free choice of carrier gas.
- Up to 150 psi, designed for FAST GC
- Flow/pressure programming up to 5 ramps (0.01psi/min to 150 psi/min or 0.01ml/min to 1000ml/min) with 6 isobaric steps
- Pressure precision: 0.0015 psi (100 psi) and 0.003 psi (150 psi)
- Flow precision: 0.01ml/min
- High split ratios up to 9999:1 (depending on carrier gas)
- EPC for detector gases

#### **Autosampler**

Universal Multimode Injector (cold septum purge less)

Cool sample injection. Sample vaporization by means of temperature programming

- Injector cooling: Air, CO2, or LN2
- Large volume injection upto 20mL or similar
- Max: split ration of 9999:1 or better
- Temp ranges -100 to 450 °C
- EPC optimized interface that allow changing from pressure control in middle of RUN
- Gas saver option

Three axis robot: X-Y-Z displacements. Symmetrical horizontal arm. The microcontroller can be located at right or left side. Vertical arm holds the needles and syringes. Three interchangeable vial trays: 32 vials for 6, 10 or 20 ml, 105 vials of 2 ml and 171 vials of 1 ml. Optional Tray Temperature Control (TTC): all vials on the sample tray can be heated or cooled through a Peltier cell from 5°C to 70°C depending on room temperature. Easy menu-driven interactive programming through microprocessor keyboard (20 characters and 4 lines display) or through Plus software. Method linking/application development mode: up to 10 different methods can be stored in the microprocessor and unlimited number using the software. Built-in Auto diagnostics. Built-in RS-232 and RS-485 communication ports,

Different volume programming. Syringe volumes: 0.5, 1, 2, 5, 10, 25, 100 and 500µl.

Injection volume: programmable from 0.1µl to 500µl depending on syringe type.

Plunger speed: programmable from 1µl/sec to 5000µl/sec depending on syringe type. Programmable up and down movement speed on sample, solvents and injector.

Injection position: left or right. Mobile X and Y axis fits any GC.

Double and dual injection into a double injector GC with double column almost simultaneously. Derivatization under controlled conditions. Software controlled and/or independent keypad programming. 32, 105 and 171 vial trays. General Installation Kit, GC Installation Kit and Tray Kit

### **Mass Spectrometry**

- Based on a quadrupole mass filter, MS Should be extremely, compact and the system maintain optimal analytical performances in all configurations for Forensic research work.
- MS for GC only Mass Range 1200, 1-TMP,
- Mass Resolution: >1.5M, Mass Range from 1 to 1200 amu.
- Dual choice of Ion Sources and DIP probe: EI +/-, CI +/- and DIP.

Electron Energy: Adjustable from 0 to 130 eV

Emission current: 500 uA max

Max Scan Rate: 20000 amu./s

Mass Stability:  $\pm 0.1$  amu /48 h

Ion Source Temperature: up to 350 °C

GC Transfer Line Temperature: up to 400 °C

Scan mode: Full scanning, SIM (Single Ion Monitoring),

MIR (Multiple Ion Recording), Segmented or Combined

Vacuum Pumping: 240 l/sec (66 or 300 l/sec as optional)

Sensitivity (EI): Signal-to-Noise ratio 1500:1 in full scan

with injection of 1uL of 1pg/uL OFN (scan 50 to 300 amu)

Detection Limit (IDL): < 10fg ( Ten sequential split less injections, 100fg OFN, m/z 272 in SIM mode)

Power supply: 220V $\pm$ 10%, 50/60Hz

Power consumption: 900 W max

Weight: Less than 50 Kg.

- Ionization source (IS) by Electron Impact (EI).
- Independent heating system, programmable between 150 and 350°C Quadrupolar pprox. with pre-filters Complete automatic and manual tune modes. Full Scan and Single Ion Monitoring (SIM) modes of mass analysis, Positive ion detection in EI mode. Electron Multiplier (0-3kV) detection system for positive ions. Vacuum system composed by one hybrid air-cooled 240 l/s turbomolecular pump roughed by a 3 m<sup>3</sup>/h rotary vane pump.
- GC EI KIT Spares and consumables, Source Cleaning Kit for MS.
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### **Software:**

Complete Multitasking Chromatography Data System for data acquisition, data processing and instrument control. 32 / 64 bit Multi-Instrument and Multi-Detector software. Up to 4 simultaneous chromatography systems, each of them with up to 32 detectors (signals) are supported from a single software, depending on the ordered options.

Includes: software on USB memory stick GC, interface and Autosampler control modules, cables, Plus MS Control Module, Full control of Mass Spectrometer parameters in all modes: **GC/MS, SWGTOX, AAFS and NIST17 complete with AMDIS Software (licensed).**

	<p><b>Official methods:</b> Manufacturer official methods for all toxicology tests</p> <p><b>Column:</b> All columns designed for all toxicology analysis including (Poisons, drugs of abuse and doping test) with manufacturer official methods 2 columns for each test must be provided. All columns must provide all tests required n Forensic Toxicology</p> <p><b>Hardware:</b> Intel core i7 Laptop with Licensed Window 10 OS + 24" 4K LED + Color Laser Printer, Mouse/keyboard with external data storage 4 TB.</p> <p><b>UPS 20 KVA:</b> Online double conversion topology, Transformer free design, High efficiency up to 98%, Three year warranty, Scalable up to 8 units in parallel, Temperature compensated battery charging, Front access for ease of installation and service, Small footprint, High level diagnostics via LCD screen, Dual DSP controller, Enhanced generator compatibility.</p> <p><b>Nitrogen Generator</b> <b>All gases supply/ Generators other parts required for instrument run must be provided by supplier/manufacturer</b> <b>Each accessory should be given by supplier/manufacturer in extra (including filers, ferrules, fitting, columns etc)</b> <b>Note: The above mentioned specification may be higher or equivalent as per requirement with training at manufacturer site, minimum two years warranty after installation and Calibration Certificate.</b></p>		
2	<p><b>Fully automated Liquid Chromatography Gas Mass Spectrometry (LC- GC-MS) Multidimensional Triple Analyzer</b> <b>Versatile and inert EI and CI ion source or compatible for toxicology analysis, Hyphenated system technology</b></p> <p>High Performance LC analytical pump based on a dual piston connected in series 10ml/min pump head. Pulse free operation. Quite new concept of electronic controlling pump drive, pistons suspensions, shape of cams, pressure transducer and check valves to expand its functions and improve its features. Four-way gradient valve and Degasser with 5 independent degasser channels built in box with solvent tray for up to six 1000ml Solvent bottles. Max. flow rate per channel is 10 ml/min COLUMN OVEN with Heating and Cooling capability based on Peltier technology and an operative temperature Range of 0 to 80°C. Can accommodate up to 3 columns of up to 25 cm length. Set of 4 bottles for HPLC 1000ml A Solvent Manager with a four-way gradient valve allowing the pump to be used for creating gradients by low-pressure mixing of up to four eluents. It is also possible to predefine the mobile phase composition when using the pump in isocratic mode. The gradient formation can be programmed either through the keypad or using the Plus software. The pump Should be equipped with electronic fuses which stop the flow when preset either maximum or minimum operating pressure limits are exceeded. When is necessary it is possible to use back rinse</p>	01	



of pistons (e.g. after using buffered mobile phases). Ceramic valves in a PTFE housing facilitate cleaning.

**Pump:**

SS Analytical, 10ml/min pump head

Flow Rate: 0.01 – 10.00ml/min in 0.01ml/min steps

Flow Rate Precision (1ml/min, 12Mpa, H<sub>2</sub>O): ± 2% RSD

Flow Rate Repeatability (1ml/min, 12Mpa, H<sub>2</sub>O): ± 0.5% RSD

Accuracy of pressure measurement: ± 2% RSD

Maximum working pressure: 40Mpa

Upper Pressure Limit: 1.0 – 40.0Mpa

Lower Pressure Limit: 0.0 – 39.0Mpa

Pumping system: 2 plungers (1/8") connected in series

Built-in prime and purge valve

Wetted material: Stainless Steel

Control: By keypad or through optional software

RS232 interface

**HPLC+GC INTERFACE. Includes:**

INTERFACE. Allows direct and automatic analysis from the HPLC stream by a Gas Chromatograph using a Programmed Temperature Vaporizer Injector (PTV) filled with an absorbent trap, saving sample preparation time and sample clean up.

PTV INJECTOR W/EPC Programmed Temperature Vaporizer (PTV) septum purge-less injector with Electronic Pneumatic Control (EPC).

Split/Splitless time controlled by the GC microprocessor and/or software for split/splitless operation.

Allows digital programming and control of column head pressure from 0.01psi up to 150psi with pressure resolution of 0.003psi,

programming of split ratio from 1 to 9999 with 0-200ml/min total flow for N<sub>2</sub> and up to

1250 ml/min for H<sub>2</sub>/He.

Different operation modes: split, splitless, split/splitless, pulsed split/splitless, large volume injections (LVI), packed column simulation.

Also compatible with Head Space and On-line Purge & Trap.

Can work at constant flow or constant pressure and allows programming

up to 5 ramps of flow and/or pressure, independently of the column size

and carrier gas.

Compatible with 1/8" packed columns, 0.53 mm I.D. semicapillary and

capillary columns until 0.1mm I.D.

Temperature programming from room temperature to 400 °C with 5 temperature ramps with increase of temperature from 0.1 °C/s to 10 °C/s.

Up to 5 ml volume injection. Wide variety of vaporization liners available.

Cryogenic option.

Optimized gas saver function. Possibility to pass from stand-by (without

heating and with minimum flow) to ready status coordinated with the autostart.

Prepared for fast chromatography.  
Automatic switching and on-off valves and tubing.  
**BASIC UNIT**  
New basic unit with modular chassis and control electronics based on FPGA technology of the latest generation.

Includes Web server, LAN TCP\_IP communication, graphic user interface  
based on Touch Screen TFT of 262144 colours/pixel with interactive programming based on menu driven windows  
Fully configurable system that can hold up to three detectors, three injection systems and up to seven valves (gas or liquid sampling valves or switching valves) depending on the configuration. System optimized for capillary and semi-capillary columns, compatible with packed columns of different length and diameter.  
Temperature Control of 12 independent heated blocks, including the oven.  
Adjustable PID's. Resolution 0.1 °C and 0.01min  
Possibility to override the "Ready" signal independently for each heated block.

**Oven specifications:**  
Operating Temperature: from 4°C above room temperature up to 490°C in 0.1°C steps. Optional sub-ambient Temperature (-90 °C).  
25 positive and/or negative ramps (up to 99 upon request) from 0.1 °C/min to 130°C/min in 0.1°C/min increments with the corresponding isothermal steps. Maximum run time of 999.99 minutes.  
Oven temperature resolution: 0.01 °C PID controlled. Displayed accuracy:  
0.1 °C.  
Optimized control of two oven flaps for better temperature control and minimum cooling time. Cooling from 450°C to 50 °C in less than 300sec.  
Double overheating column protection with automatic system shut off.  
Electronic pneumatic control (EPC): includes up to 16 EPC channels for injection and detection systems or auxiliary gases.  
Gas selection (helium, hydrogen, nitrogen, argon-methane) for carrier and detectors make-up gases.  
Each device can independently work on flow or pressure modes. Up to 5 pressure and/or flow ramps.  
Pressure can be adjusted up to 150 psi in 0.01psi steps. Designed for ultra-fast chromatography.  
Atmospheric pressure variation compensation.  
Optimized gas saver mode.  
Electronic control of all detector electrometer parameters (FID, TCD, ECD, NPD, etc). Direct connection to Software. Optional analogic output: 0-10 V.

Simultaneous visualization of multiple parameters according to functional groups. Real time graphic display of temperature program and output chromatogram.

Flexible programming and possibility of user's change of system parameters during a run.

Possibility of programming, displaying and controlling all chromatograph parameters via Software.

Control of up to 10 internal and/or external devices (4 relays, 4 triacs and 2TTL) with independent programming with up to 99 changes per device.

Up to 10 analytical methods stored in permanent memory protected by E2PROM. Unlimited number of methods stored in PC HD memory.

Three personalized password levels for access to the system.

Auto-diagnostics and self-testing.

Real time clock that allows auto switch on and off programming.

Septum and column change warning.

Ready for multidimensional chromatography HPLC-GC-MS, multidimensional GC-GC (heart-cutting), on-line purge and trap, mono vial head space, coupling to MS and automatic sample preparation.

All the system is fully software controlled through chromatography data system

Includes HPLC+HRGC INSTALLATION kit

Includes CAPILLARY INJECTOR W/EPC

Capillary septum purge-less injector with Electronic Pneumatic Control.

Split/Splitless time controlled by the GC microprocessor and/or software for split/splitless operation. Allows digital programming and control of column head pressure from 0.01psi up to 150psi with pressure resolution of 0.003psi, programming of split ratio from 1 to 9999 with 0-200ml/min total flow for N2 and up to 1250 ml/min for H2/He.

Different operation modes: split, splitless, split/splitless, pulsed split/splitless, packed column simulation. Also compatible with Head Space and On-line Purge & Trap.

Can work at constant flow or constant pressure and allows programming up to 5 ramps of flow and/or pressure, independently of the column size and carrier gas.

Compatible with 1/8" packed columns, 0.53 mm I.D. semicapillary and capillary columns until 0.1mm I.D.

Optimized gas saver function. Possibility to pass from stand-by (without heating and with minimum flow) to ready status coordinated with the autostart.

Prepared for fast chromatography.  
Different operation modes: split, splitless, split/splitless, pulsed split/splitless, packed column simulation. Also compatible with Head Space and On-line Purge & Trap.  
Can work at constant flow or constant pressure and allows programming up to 5 ramps of flow and/or pressure, independently of the column size and carrier gas.  
Compatible with 1/8" packed columns, 0.53 mm I.D. semicapillary and capillary columns until 0.1mm I.D.

Optimized gas saver function. Possibility to pass from stand-by (without heating and with minimum flow) to ready status coordinated with the autostart.

Prepared for fast chromatography.  
Includes FLAME IONIZATION DETECTOR (FID) 1/8" WITH EPC Flame Ionization Detector system with quartz jet and Electronic Pneumatics Control (EPC) for all gases. Compatible with packed and capillary columns. High sensitivity, high linearity and wide dynamic linear range.

High stability and excellent linear range digital electrometer amplifier. Allows digital programming and control for make up gas (until 100mL/min) and flame gases (air until 800mL/min and H2 until 200mL/min) through the microprocessor and/or software. Automatic flame off detection and flame switch on. Automatic system shut off if flow stops.

Maximum temperature 450°C. Linear range greater than 10(7).

Detection

limit 1 pg C/seg (methyl stearate).

Possibility to pass from stand-by (without heating and flow) to ready status coordinated with the autostart.

Includes SET OF 5 T-PIECES FOR A 2<sup>ND</sup> INJ OR DET

## GC

FPGA technology of the latest generation.

Includes Web server, LAN TCP\_IP communication, graphic user interface based on Touch Screen TFT of 262144 colours/pixel with interactive programming based on menu driven windows

Fully configurable system that can hold up to three detectors, three injection systems and up to seven valves (gas or liquid sampling valves or switching valves) depending on the configuration.

GCMS System optimized for capillary and semi-capillary columns, compatible with packed columns of

different lengths and diameters with programmable heating from ambient Temperature to 400°C.

Temperature control of 12 independent heated blocks, including the oven

Adjustable PID's resolution 0.1°C and 0.01min

Suitable for **research as well as routine**, for both **qualitative and quantitative analysis**.

**All sample introduction options:** Fast and easy interchangeable ionisation volumes for EI/CI+/-, and DIP/DEP/EI/CI+/- or equivalent

**Utmost sensitivity, robustness and reliability.**

**Unit resolution over the wide mass range of 1200.**

**High scanning speed of up to 20.000 amu/sec across every GC peak and over the complete mass range, this allow achieving**

**Lowest detection limits** (less than 10 fg of OFN provides optimal sensitivity both in Full Scan and SIM modes.

**Absolute sensitivity in any mode can be further enhanced in many unique** ( the patented HPLC+GC enrichment interface , on-line derivatization, Negative Chemical Ionization of derivative) while simplifying sample preparation.

**Dual filament ion source and automatic switching,** guarantees continuous duty and reliable performance.

**High performance quadrupole with Pre-filters**

**Automatic Leak check feature included in the instrument self-test** which checks electronics, voltages, and temperatures, on all MS parts.

#### **Autosampler:**

Universal Multimode Injector (cold septum purge less)

Cool sample injection. Sample vaporization by means of temperature programming

- Injector cooling: Air, CO<sub>2</sub>, or LN<sub>2</sub>
- Large volume injection upto 20mL or similar
- Max: split ration of 9999:1 or better
- Temp ranges -100 to 450 °C
- EPC optimized interface that allow changing from pressure control in middle of RUN
- Gas saver option

Three axis robot: X-Y-Z displacements. Symmetrical horizontal arm. The microcontroller can be located at right or left side. Vertical arm holds the needles and syringes. Three interchangeable vial trays: 32 vials for 6, 10 or 20 ml, 105 vials of 2 ml and 171 vials of 1 ml. Optional Tray Temperature Control (TTC): all vials on the sample tray can be heated or cooled through a Peltier cell from 5°C to 70°C depending on room temperature. Easy menu-driven interactive programming through microprocessor keyboard (20 characters and 4 lines display) or through Plus software. Method linking/application development mode: up to 10 different methods can be stored in the microprocessor and unlimited number using the software. Built-in Auto diagnostics. Built-in RS-232 and RS-485 communication ports,

Different volume programming. Syringe volumes: 0.5, 1, 2, 5, 10, 25, 100 and 500µl.

Injection volume: programmable from 0.1µl to 500µl depending on syringe type.

Plunger speed: programmable from 1µl/sec to 5000µl/sec depending

on syringe type. Programmable up and down movement speed on sample, solvents and injector.

Injection position: left or right. Mobile X and Y axis fits any GC. Double and dual injection into a double injector GC with double column almost simultaneously. Derivatization under controlled conditions. Software controlled and/or independent keypad programming. 32, 105 and 171 vial trays. General Installation Kit, GC Installation Kit and Tray Kit

#### **Detector**

Photo Diode Array Detector suitable and efficient economical solution for simultaneous absorbance measurement at 256 wavelengths. It should allow accurate quantification in flash, preparative and analytical applications. Should include latest improved noise specifications, and is a robust realistic solution for the laboratory demands.

Deuterium and Halogen lamps with Optimum adjustment accuracy and absorbance measuring of simultaneously wavelengths, so it should be a full-spectrum absorbance measurement detector.

Wavelength range: 200 – 800 nm

Typical spectral half-width: 10 nm

Accuracy of adjustment:  $\pm 1$  nm

Reproducibility:  $\pm 0.5$  nm

Light source: Deuterium discharge lamp and Halogen lamp

Noise level at test cell (254 nm, TC 0.75 s):  $\pm 5 \times 10^{-5}$  AU

Drift at test cell (254 nm after 1 hr):  $1 \times 10^{-3}$  AU/hr

Materials in contact with mobile phase PTFE; fused silica, stainless steel

Time constant: 0.5 s; 0.75 s; 1 s or 2 s

Output for integrator: 1 V/AU (in digital form only)

Interface: RS 232

Power supply: 90-264 V

Power input: 90 VA

Dimensions (W x H x D): 280 x 135 x 498 mm

Weight: 9 kg

#### **Mass Spectrometer**

The LCMS instrument based on a quadrupole mass filter, provides the best sensitivity in all LC/MS ionization modes ESI and APCI, positive and negative ions. ESI and APCI are switchable in an easy and fast operation. The LCMS should cover a large LC/MS application fields, Preparative, Flash chromatography, HPLC, U-HPLC, working from 10  $\mu$ l/min up to 1 ml/min. Compact. In all configurations and can be used in routine as well as for research work.

Includes: Dual Electrospray/Atmospheric Pressure Chemical Ionization (ESI/APCI) sources for positive and negative ions.

Atmospheric Pressure Ionization interface: patent pending design reduces contamination, allows for small vacuum pumps and reduces size and cost.

Quadrupolar analyzer with pre-filters Complete automatic and manual tune modes Full Scan and Single Ion Monitoring (SIM) modes of mass analysis.

Electron multiplier ion conversion detection system for positive and

negative ions. Acquisition rate: 5,000 m/z units/sec (compatible with UPLC)  
Resolution: 0.5-0.7amu units (FWHM) at 1000amu units/sec over entire acquisition range.  
Mass Range from 10 to 1200amu ideal to small molecules, natural products and small peptides  
Accuracy: 0.1amu over the entire acquisition range  
Mass stability: +/- 0.1amu over 12 hours  
Flow range: 10µl to 500ul/min. 2:1 split if running at 1ml/min LC flow rate.  
Sensitivity: 10pg of Reserpine, (5ul injection at a flow 100µl/min) produce a signal-to-noise ratio (calculated peak to peak) of 100:1 RMS with SIM of m/z 609.28.  
100pg of Reserpine, (5ul injection at a flow 100µl/min) produce a signal-to-noise ratio (calculated peak to peak) of 100:1 RMS for the protonated molecular ion at m/ z 609 when the mass spectrometer is operated at unit mass resolution in full scan mode, scanning from m/z 100 to m/z 1200.  
Gas supply: Nitrogen 99% pure. 4 Bar (60 psi for APCI or 40 psi for ESI). ¼"tube.  
Gas consumption: up to 10 L/min  
Rotary Pump 30kg; 10x9x18"  
Line Voltage 100-240 VAC  
Line Frequency: 47-63Hz  
Power Consumption: 300VA max MSD, 550VA Rotary Pump  
LC Interface with replacement heat capillary and kit.  
HPLC-HRGC interface and Autosampler  
**Software Data System:**  
Complete Multitasking Chromatography Data System for data acquisition, data processing and instrument control. Includes: software on CD, and internal PCI A/D Converter (an external converter with USB port is optionally available), Full support for GLP/21 CFR Part 11: password protection, password expiration, electronic signature, audit trails, user account with access rights, IQ (included for testing the software Proper installation and results monitoring) and OQ (optional validation kit includes a chromatogram generator and software utility) qualifications tools.  
**Including:** LC, DAD, MS Control Module Separately. Should Include AAFS, SWGTOX and NIST17 Complete Package with Library and Software (Licensed)  
(UPDATED) Electron ionization (EI) mass spectral library – 220,460 spectra of 192,108 unique compounds, with identifications and usually chemical structures.  
- (UPDATED) MS/MS library – 14,802 spectra of 5,308 precursor ions (3,898 cations and 1,410 anions).  
- (UPDATED) Gas Chromatography (GC) data library – 224,038 Kovats retention index values for 21,847 compounds in the EI library, now on both polar and non-polar columns. Includes retention indices with GC column conditions and literature citations.

	<p>- (UPDATED) NIST MS Search software – software for searching (identifying) compounds from their mass spectra and for browsing mass spectral libraries. Also includes MS interpretation programs for analyzing mass spectra on the basis of chemical structure, molecular formula, isotopic patterns, and more.</p> <p>- (UPDATED) AMDIS software – software for deconvoluting gas/liquid chromatograms.</p> <p>- (UPDATED) Documentation – Approximately 50 page printed and electronic manual on setup and basic usage. Additional information is in the help files</p> <p>Libraries are formatted the binary format suitable for use alone or by the NIST MS Search software (and AMDIS). Includes TURN KEY SOLUTION</p> <p><b>Hardware:</b> Intel core i7 Laptop with Licensed Window 10 OS + 24” 4K LED + Color Laser Printer, Mouse/keyboard with external data storage 4 TB.</p> <p><b>UPS 20 KVA:</b> Online double conversion topology, Transformer free design, High efficiency up to 98%, Three year warranty, Scalable up to 8 units in parallel, Temperature compensated battery charging, Front access for ease of installation and service, Small footprint, High level diagnostics via LCD screen, Dual DSP controller, Enhanced generator compatibility</p> <p><b>All gases supply/ Generators other parts required for instrument run must be provided by supplier/manufacturer</b></p> <p><b>Each accessory should be given by supplier/manufacturer in extra (including filers, ferrules, fitting, columns etc</b></p> <p><b>Note: The above mentioned specification may be higher or equivalent as per requirement with training at manufacturer site, minimum two years warranty after installation and Calibration Certificate.</b></p>		
3	<p><b>Centrifuge Heavy Rotator</b></p> <ul style="list-style-type: none"> <li>• Maximum speed: 15,000 rpm, RCF: 24,400 x g, capacity: 4 x 600ml, Swing bucket rotor, Timer 1-60 min, program can be stored upto 90, Buckets for 5 ml tubes 26 tubes capacity, Buckets for 10-15 ml tubes 18 tubes capacity, buckets for 50 ml tubes 5 tubes capacity The noise level should be less than 54 Db(A) with fixed angle rotor.</li> <li>• The maximum access height should be 30 cm or better.</li> </ul> <p><b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement with minimum two years warranty after installation.</p>	01	



4	<p><b>Top Load Balance</b></p> <p>Tweezers: Stainless Steel, Calibration weights: Iron, Manual Measure, Auto calibration, Readability 0.01g, linearity±0.01g, stabilization time 3sec/less, operating temp range 10-40 °C, pan diameter 15cm, Max: capacity 220g</p> <p>Balance should be manufactured to ISO 9001:2000 standards and warranty for 2 years from time of installation.</p> <p><b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement with minimum two years warranty after installation.</p>	02	
5	<p><b>Air Purifier</b></p> <p>Cleaning capacity: max. 450 m<sup>3</sup> /h, Particle removal : &gt; 0.003 µm , Cleaning efficiency : 99.5 % , Gas removal : Included (800 g active carbon), 60 mm , Installation :- Mobile , Cleaning : Automatic , Fan speed : 3 speeds , Size (w x d x h mm) : 570 x 440 x 1517 , Weight : 65 kg , Construction : Painted steel , Sound level : 32–42 LpA (dBa) , Operating voltage : 200–240 V, 50/60 Hz , Power consumption : 80–185 W , Usage temperature : +5...+60 °C</p> <p><b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement with minimum two years warranty after installation.</p>	03	
6	<p><b>Large Hot Plate</b></p> <p>High resistance to chemical &amp; mechanical corrosion PCM type high powered magnetic driven by a brushless motor for continuous operation, room temperature to 370°C, electronic speed control: 50-1200 rpm with continuous regulation, diameter of heating plate: 10.25” x 10.25” inches or equivalent, Chemical resistant, stirring capacity (H<sub>2</sub>O): up to 15 liters or equivalent</p> <p><b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement with minimum two years warranty after installation.</p>	02	
7	<p><b>Refrigerator (VERTICAL)</b></p> <p><b>Features:</b></p> <ul style="list-style-type: none"> <li>▪ Efficient refrigeration system for faster cooling</li> <li>▪ Advanced fan Control for rapid temperature recovery</li> <li>▪ Ergonomic design</li> <li>▪ Versatile storage for a variety of materials</li> <li>▪ Optimized usability</li> </ul> <p><b>Specification:</b></p> <ul style="list-style-type: none"> <li>▪ DOORS: 1, Self-closing</li> <li>▪ INSULATION: High density polyurethane</li> <li>▪ SHELVES AND SHELF DIMENSIONS: 4 Shelves, 25.5in W x 19.3 in D</li> <li>▪ LIGHTING: Interior LED lighting</li> <li>▪ CASTERS: Casters come pre-installed</li> <li>▪ COOLING METHOD: Forced air fin and tube</li> <li>▪ REFRIGERANT: R-134a</li> <li>▪ DEFROSTING METHOD: Automatic defrost</li> <li>▪ TEMPERATURE CONTROL RANGE: 2C to 8C</li> </ul>	03	

	<ul style="list-style-type: none"> <li>▪ TEMPERATURE DISPLAY: No display, but internal thermometer</li> <li>▪ NET WEIGHT: 225 lbs.</li> <li>▪ ELECTRICAL REQUIREMENTS: 115 V / 60 Hz / 1, NEMA-5-15P Plug</li> <li>▪ ACCESSORIES: 5in diameter swivel casters; 6in standard legs; additional PE coated wire shelves</li> </ul> <p>External Thermometer Display  <b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement with minimum two years warranty after installation.</p>		
8	<b>Exhaust for sampling room</b>	01	
9	<b>Minor Equipment/ Spare parts</b>		
9(i)	<p><b>Digital Thermo Hygrometer</b>  Dual display Temperature &amp; Humidity , Accurate NTC sensor , Measures temperature in °C/°F , Dew point and Wet bulb Function , MAX MIN / MAX-MIN / AVG / &amp; HOLD Function , Portability and simplicity one-hand operation, Quick response R.H. sensor , Display Back-light , Auto Power Off , External probe.  Zero : Automatic. , Measurement rate : 2.5 times/second. , Operating environment : 0oC to 50oC, &lt;70% R.H. , Storage environment : - 20oC to 60oC, 0 to 80% R.H. with battery removed from meter. , Accuracy : Stated accuracy at 23oC ± 5oC, &lt;75% R.H. , Dimensions : 178mm(H) x 65.5mm(W) x 35mm(D) , Weight : Approx. 320g. (including probe and battery).  <b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement with minimum two years warranty after installation.</p>	06	
9(ii)	<p><b>TDS meter Benchtop</b>  Weight:100 g  Display:LCD screen  Connector:6 pin  Power off:Manual or automatic (8 minutes after last key is pressed)  TDS range:5 – 1000 ppm  TDS factor:0.4 to 1.0 (default 0.5)  Battery life:Approximately 150 hours  TDS accuracy:± 1 % F.S. TDS type range:Mid-range TDS  Type of sensor:Platinum sensor  Calibration points:1 point  Data hold function:Manual  Calibration solutions:744.7 ppm  Dimension (L × dia.):185 × 40 mm  Operating temperature:0 °C – 60 °C, 32 °F – 140 °F  Temperature coefficient:2 % per °C  Temperature compensation:0 °C – 50 °C, Automatic  Normalizaton temperature:25 °C  <b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement with minimum two years warranty after</p>	01	

	installation.								
9(iii)	<p><b>Head Space Sampler for Gas Chromatograph</b>  <b>Capacity of 171 units EPC</b>  Interchangeable tray vials: 32 vials 6,10 6 20 ml with magnetic sealing plugs  Temperature control: In five different parts: tray (up to 70°C), pre-desorption of sorbian, transfer lines and valves.  Injection volume: Variable, programmable injection time.  Injector HS: Module containing 6-way valve with heating to the left 0 to the right of the basic unit. Transfer line heated.  Syringe: Special double needle.  EPC: electronic pneumatic control of carrier gas and gas pressurization of the vial.  Must Have Capacity of 117 Vials  Syringes temperature 35 ... 150°C, in increments of 1°C  Inlet Module Pressure Sensor: Accuracy: &lt;+ 2% or better  Repeatability :&lt; + 0.05 psi or better  Temp Coefficient: &lt; ± 0.01 psi/°C or better  Repeatability: &lt; ± 0.4% of set point or better  Temperature Coefficient &lt; ± 0.20 mL/min or better  Repeatability: &lt; ± 0.35% of set point or better  <b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement with minimum two years warranty after installation.</p>	02							
9(iv)	<p><b>Autosampler for Gas Chromatograph</b>  Universal Multimode Injector (cold septum purge less)  Cool sample injection. Sample vaporization by means of temperature programming  - Injector cooling: Air, CO2, or LN2  - Large volume injection upto 20mL or similar  - Max: split ration of 9999:1 or better  - Temp ranges -100 to 450 °C  - EPC optimized interface that allow changing from pressure control in middle of RUN  - Gas saver option  <b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement with minimum two years warranty after installation.</p>	03							
9(v)	<p>i) <b>Biohazard waste bin</b> pedal operated (Large for floor)  ii) <b>Chemical Hazard waste bin</b> pedal operated (Large for floor)  iii) <b>Waste bin</b> pedal operated (Large for floor)  iv) <b>Waste bin</b> small for table</p>	03							
10.	HVAC fully supported by uninterrupted power supply (Independent Generator) alongwith Misc. Civil Work. Detailed specifications, design, space, humidity level, air freshening may be collected from Admin Section.	01							
10 (i)	Walk in Freezer	01							
	<table border="1"> <thead> <tr> <th>Sr#</th> <th>Description</th> <th>General Specifications</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Sr#	Description	General Specifications					
Sr#	Description	General Specifications							

1	PUF Panel Thickness	60/80mm		
2	PUF Panel Cover	SS		
3.	Sheet Metal Thickness	0.4/0.5mm		
4.	Temperature Range	-10 to -02°C		
5.	PUF Blowing Agent	Cyclopentane (C5) – (CFC & HCFC free)		
6.	PUF Density	40 kg/M <sup>3</sup>		
7.	Panel Length	Upto 8 foot		
8.	Panel Joint	Tongue & Groove Joint		
9.	Panel Width	36/48 inches		
10.	Panel to Panel filament	The gap between two fitted panel , 3 mm		
<p><b>Evaporating Unit:</b>  Stainless steel body and excellent corrosion  Inner grooved copper tubes for heat transfer  In-built deforest heater for low temperature unit  External rotor driven fans with low noise level  Removable side panel</p> <p><b>Condensing units</b>  Energy efficient scroll and reciprocating compressor  UV and corrosion resistance system  Filter drier for moisture and drit protection</p> <p><b>Installation</b>  Uniform cooling and air distribution  Level flooring to avoid misalignment of walls  After Sale Support  3 years warranty  Repair and maintenance</p>				

**NARCOTICS SECTION**

Sr. #	Equipment Description and Specification	Qty	Applying For Yes/ No.
1	<p><b>Fully automated Gas Chromatography Mass Spectroscopy (GCMS) Gas Chromatography</b></p> <p>Powerful, dedicated, bench top quadrupole mass spectrometer with advanced ion source and ion optics design. Developed to become the detector of choice for high resolution gas chromatography. Modular chassis and control electronics based on FPGA technology of the latest generation. Includes Web server, LAN TCP_IP communication, graphic user interface based on Touch Screen TFT of 262144 colours/pixel with interactive programming based on menu driven windows Fully configurable system that can hold up to three detectors, three injection systems and up to seven valves (gas or liquid sampling valves or switching valves) depending on the configuration.</p> <p>GCMS System optimized for capillary and semi-capillary columns, compatible with packed columns of different lengths and diameters with programmable heating from ambient Temperature to 400°C.</p> <p>Temperature control of 12 independent heated blocks, including the oven Adjustable PID's resolution 0.1°C and 0.01min</p> <p>Suitable for <b>research as well as routine</b>, for both <b>qualitative and quantitative analysis</b>.</p> <p><b>All sample introduction options:</b> Fast and easy interchangeable ionisation volumes for EI/CI/+/-, and DIP/DEP/EI/CI/+/- or equivalent <b>Utmost sensitivity, robustness and reliability.</b></p> <p><b>Unit resolution over the wide mass range of 1200.</b></p> <p><b>High scanning speed of up to 20.000 amu/sec across every GC peak and over the complete mass range, this allow achieving</b></p> <p><b>Lowest detection limits</b> (less than 10 fg of OFN provides optimal sensitivity both in Full Scan and SIM modes.</p> <p><b>Absolute sensitivity in any mode can be further enhanced in many unique</b> ( the patented HPLC+GC enrichment interface , on-line derivatization, Negative Chemical Ionization of derivative) while simplifying sample preparation.</p> <p><b>Dual filament ion source and automatic switching</b>, guarantees continuous duty and reliable performance.</p> <p><b>High performance quadrupole with Pre-filters</b></p> <p><b>Automatic Leak check feature included in the instrument self-test</b> which checks electronics, voltages, and temperatures, on all MS parts.</p> <p><b>Column OVEN</b></p> <ul style="list-style-type: none"> <li>• High performance and low thermal inertia oven design with expanded temperature range from -90°C to 490°C in 0.1°C steps Thermal inertia is dramatically minimized</li> </ul>	01	

with perforated oven walls.

- Fastest heating and cooling oven: from 450°C to 50°C in less than 300s.  
25 positive and/or negative ramps (up to 99 upon request) from 0.1 °C/min to 130°C/min in 0.1°C/min increments with the corresponding isothermal steps. Maximum run time of 999.99 minutes.
- PID Temperature control.
  - Temperature Control of 12 independent heated blocks, including the oven. Adjustable PID's.
- Temperature resolution: 0.01°C, 16bit ADC. 0.1°C accuracy displayed.
- Two oven flaps, for maximum temperature stability even close to ambient temperature.
  - Resolution 0.1 °C and 0.01min Possibility to override the "Ready" signal independently for each heated block.
    - Temperature gradients inside the oven have been reduced by forced air circulation.
    - Oven is also pre-drilled to allow the installation of valves (sampling and switching), external interfaces (MS) and other peripherals.
    - Up to 25 positive and negative temperature ramps from 0.1°C/min to 130°C/min in 0.1°C/min steps. Up to 26 isothermal periods.
    - FAST GC option up to 500°C/min using standard columns.
    - Dual overheating protection, by hardware and software.

#### **Detectors**

- Modular and interchangeable detectors
- With digital electrometers and amplifiers
- Any type of column
- Automatic Auto zero
- Independent Temperature Programming
- Control RAC® (Ready Active Control)
- Highest detectability

#### **EPC**

- Includes up to 16 EPC channels for injection and detection systems or auxiliary gases.
- Gas selection (helium, hydrogen, nitrogen, argon-methane) for carrier and detectors make-up gases.
- Each device can independently work on flow or pressure modes. Up to 5 pressure and/or flow ramps. Pressure can be adjusted up to 150 psi in 0.01psi steps.
- Designed for ultra-fast chromatography. Atmospheric pressure variation compensation.
- Optimized gas saver mode.
- Capillary Injector with EPC, Capillary septum purge-less injector with Electronic Pneumatic Control. Split/Splitless time controlled by the GC microprocessor and/or software for split/splitless operation.
- Allows digital programming and control of column head pressure from 0.01psi up to 150psi with pressure resolution of 0.003psi
- Programming of split ratio from 1 to 9999 with 0-200ml/min total flow for N2 and up to 1250 ml/min for H2/He.
- GC Capillary Installation Kit,
- multidimensional chromatography HPLC-GC-MS, multidimensional GC-GC (heart-cutting), on-line purge and trap, monovial head space, coupling to MS and automatic sample preparation

- 15 x PWM at 24 for EPC valve control
- 16 x 16 bit ADC for Pressure/Flow sensor
- Electronic Pneumatic control (EPC) with free choice of carrier gas.
- Up to 150 psi, designed for FAST GC
- Flow/pressure programming up to 5 ramps (0.01psi/min to 150 psi/min or 0.01ml/min to 1000ml/min) with 6 isobaric steps
- Pressure precision: 0.0015 psi (100 psi) and 0.003 psi (150 psi)
- Flow precision: 0.01ml/min
- High split ratios up to 9999:1 (depending on carrier gas)
- EPC for detector gases

## **Autosampler**

### **Multimode Autosampler**

Universal Multimode Injector (cold septum purge less)

Cool sample injection. Sample vaporization by means of temperature programming

- Injector cooling: Air, CO<sub>2</sub>, or LN<sub>2</sub>
- Large volume injection upto 20mL or similar
- Max: split ration of 9999:1 or better
- Temp ranges -100 to 450 °C
- EPC optimized interface that allow changing from pressure control in middle of RUN
- Gas saver option

Three axis robot: X-Y-Z displacements. Symmetrical horizontal arm. The microcontroller can be located at right or left side. Vertical arm holds the needles and syringes. Three interchangeable vial trays: 32 vials for 6, 10 or 20 ml, 105 vials of 2 ml and 171 vials of 1 ml. Optional Tray Temperature Control (TTC): all vials on the sample tray can be heated or cooled through a Peltier cell from 5°C to 70°C depending on room temperature. Easy menu-driven interactive programming through microprocessor keyboard (20 characters and 4 lines display) or through Plus software. Method linking/application development mode: up to 10 different methods can be stored in the microprocessor and unlimited number using the software. Built-in Auto diagnostics. Built-in RS-232 and RS-485 communication ports,

Different volume programming. Syringe volumes: 0.5, 1, 2, 5, 10, 25, 100 and 500µl.

Injection volume: programmable from 0.1µl to 500µl depending on syringe type.

Plunger speed: programmable from 1µl/sec to 5000µl/sec depending on syringe type. Programmable up and down movement speed on sample, solvents and injector.

Injection position: left or right. Mobile X and Y axis fits any GC. Double and dual injection into a double injector GC with double column almost simultaneously. Derivatization under controlled conditions. Software controlled and/or independent keypad programming. 32, 105 and 171 vial

trays. General Installation Kit, GC Installation Kit and Tray Kit

### **Mass Spectrometry**

- Based on a quadrupole mass filter, MS Should be extremely, compact and the system maintain optimal analytical performances in all configurations for Forensic research work.

- MS for GC only Mass Range 1200, 1-TMP,

- Mass Resolution: >1.5M, Mass Range from 1 to 1200 amu.

- Dual choice of Ion Sources and DIP probe: EI +/-, CI+/- and DIP.

Electron Energy: Adjustable from 0 to 130 eV

Emission current: 500 uA max

Max Scan Rate: 20000 amu./s

Mass Stability:  $\pm 0.1$  amu /48 h

Ion Source Temperature: up to 350 °C

GC Transfer Line Temperature: up to 400 °C

Scan mode: Full scanning, SIM (Single Ion Monitoring), MIR (Multiple Ion Recording), Segmented or Combined

Vacuum Pumping: 240 l/sec (66 or 300 l/sec as optional)

Sensitivity (EI): Signal-to-Noise ratio 1500:1 in full scan with injection of 1uL of 1pg/uL OFN (scan 50 to 300 amu)

Detection Limit (IDL): < 10fg ( Ten sequential split less injections, 100fg OFN, m/z 272 in SIM mode)

Power supply: 220V $\pm$ 10%, 50/60Hz

Power consumption: 900 W max

Weight: Less than 50 Kg.

- Ionization source (IS) by Electron Impact (EI).

- Independent heating system, programmable between 150 and 350°C

Quadrupolar pprox. with pre-filters Complete automatic and manual tune modes. Full Scan and Single Ion Monitoring (SIM) modes of mass analysis, Positive ion detection in EI mode. Electron Multiplier (0-3kV) detection system for positive ions. Vacuum system composed by one hybrid air-cooled 240 l/s turbomolecular pump roughed by a 3 m<sup>3</sup>/h rotary vane pump.

- GC EI KIT Spares and consumables, Source Cleaning Kit for MS.

### **Software:**

Complete Multitasking Chromatography Data System for data acquisition, data processing and instrument control. 32 / 64 bit Multi-Instrument and Multi-Detector software. Up to 4 simultaneous chromatography systems, each of them with up to 32 detectors (signals) are supported from a single software, depending on the ordered options.

Includes: software on USB memory stick GC, interface and Autosampler control modules, cables, Plus MS Control Module, Full control of Mass Spectrometer parameters in all modes: **GC/MS, AAFS and NIST17 complete with AMDIS Software.**

**Official methods:** Manufacturer official methods for all tests

### **Column:**

All columns designed for all analysis including (Poisons, drugs of abuse and doping test) with manufacturer official methods  
2 columns for each test must be provided.

All columns must provide all tests required n Forensic

### **Hardware:**

Intel core i7 Laptop with Licensed Window 10 OS + 24" 4K LED + Color Laser Printer, Mouse/keyboard with external data storage 4 TB.



	<p><b>UPS 20 KVA:</b> Online double conversion topology, Transformer free design, High efficiency up to 98%, Three year warranty, Scalable up to 8 units in parallel, Temperature compensated battery charging, Front access for ease of installation and service, Small footprint, High level diagnostics via LCD screen, Dual DSP controller, Enhanced generator compatibility..</p> <p><b>Nitrogen Generator</b> All gases supply/ Generators other parts required for instrument run must be provided by supplier/manufacturer Each accessory should be given by supplier/manufacturer in extra (including filters, ferrules, fitting, columns etc)</p> <p><b>Note: The above mentioned specification may be higher or equivalent as per requirement with training at manufacturer site, minimum Two years warranty after installation and calibration certificate.</b></p>		
2	<p><b>Fully automated Liquid Chromatography Gas Mass Spectrometry (LC- GC-MS) Multidimensional Triple Analyzer</b> <b>Versatile and inert EI and CI ion source or compatible for analysis, Hyphenated system technology</b></p> <p>High Performance LC analytical pump based on a dual piston connected in series 10ml/min pump head. Pulse free operation. Quite new concept of electronic controlling pump drive, pistons suspensions, shape of cams, pressure transducer and check valves to expand its functions and improve its features.</p> <p>Four-way gradient valve and Degasser with 5 independent degasser channels built in box with solvent tray for up to six 1000ml Solvent bottles.</p> <p>Max. flow rate per channel is 10 ml/min</p> <p>COLUMN OVEN with Heating and Cooling capability based on Peltier technology and an operative temperature Range of 0 to 80°C.</p> <p>Can accommodate up to 3 columns of up to 25 cm length.</p> <p>Set of 4 bottles for HPLC 1000ml</p> <p>A Solvent Manager with a four-way gradient valve allowing the pump to be used for creating gradients by low-pressure mixing of up to four eluents. It is also possible to predefine the mobile phase composition when using the pump in isocratic mode. The gradient formation can be programmed either through the keypad or using the Plus software.</p> <p>The pump Should be equipped with electronic fuses which stop the flow when preset either maximum or minimum operating pressure limits are exceeded. When is necessary it is possible to use back rinse of pistons (e.g. after using buffered mobile phases). Ceramic valves in a PTFE housing facilitate cleaning.</p> <p><b>Pump:</b> SS Analytical, 10ml/min pump head Flow Rate: 0.01 – 10.00ml/min in 0.01ml/min steps Flow Rate Precision (1ml/min, 12Mpa, H2O): ± 2% RSD Flow Rate Repeatability (1ml/min, 12Mpa, H2O): ± 0.5% RSD Accuracy of pressure measurement: ± 2% RSD Maximum working pressure: 40Mpa Upper Pressure Limit: 1.0 – 40.0Mpa Lower Pressure Limit: 0.0 – 39.0Mpa Pumping system: 2 plungers (1/8”) connected in series</p>	01	

Built-in prime and purge valve  
Wetted material: Stainless Steel  
Control: By keypad or through optional software  
RS232 interface

**HPLC+GC INTERFACE. Includes:**

INTERFACE. Allows direct and automatic analysis from the HPLC stream by a Gas Chromatograph using a Programmed Temperature Vaporizer Injector (PTV) filled with an absorbent trap, saving sample preparation time and sample clean up.

PTV INJECTOR W/EPC Programmed Temperature Vaporizer (PTV) septum purge-less injector with Electronic Pneumatic Control (EPC). Split/Splitless time controlled by the GC microprocessor and/or software for split/splitless operation.

Allows digital programming and control of column head pressure from 0.01psi up to 150psi with pressure resolution of 0.003psi, programming of split ratio from 1 to 9999 with 0-200ml/min total flow for N2 and up to 1250 ml/min for H2/He.

Different operation modes: split, splitless, split/splitless, pulsed split/splitless, large volume injections (LVI), packed column simulation. Also compatible with Head Space and On-line Purge & Trap.

Can work at constant flow or constant pressure and allows programming up to 5 ramps of flow and/or pressure, independently of the column size and carrier gas.

Compatible with 1/8" packed columns, 0.53 mm I.D. semicapillary and capillary columns until 0.1mm I.D.

Temperature programming from room temperature to 400 °C with 5 temperature ramps with increase of temperature from 0.1 °C/s to 10 °C/s.

Up to 5 ml volume injection. Wide variety of vaporization liners available. Cryogenic option.

Optimized gas saver function. Possibility to pass from stand-by (without heating and with minimum flow) to ready status coordinated with the autostart.

Prepared for fast chromatography.

Automatic switching and on-off valves and tubing.

**BASIC UNIT**

New basic unit with modular chassis and control electronics based on FPGA technology of the latest generation.

Includes Web server, LAN TCP\_IP communication, graphic user interface based on Touch Screen TFT of 262144 colours/pixel with interactive programming based on menu driven windows

Fully configurable system that can hold up to three detectors, three injection systems and up to seven valves (gas or liquid sampling valves or switching valves) depending on the configuration. System optimized for capillary and semi-capillary columns, compatible with packed columns of different length and diameter.

Temperature Control of 12 independent heated blocks, including the oven.

Adjustable PID's. Resolution 0.1 °C and 0.01min

Possibility to override the "Ready" signal independently for each heated block.

**Oven specifications:**

Operating Temperature: from 4°C above room temperature up to 490°C in 0.1°C steps. Optional sub-ambient Temperature (-90 °C).  
25 positive and/or negative ramps (up to 99 upon request) from 0.1 °C/min to 130°C/min in 0.1°C/min increments with the corresponding isothermal steps. Maximum run time of 999.99 minutes.  
Oven temperature resolution: 0.01 °C PID controlled. Displayed accuracy: 0.1 °C.  
Optimized control of two oven flaps for better temperature control and minimum cooling time. Cooling from 450°C to 50 °C in less than 300sec.  
Double overheating column protection with automatic system shut off.  
Electronic pneumatic control (EPC): includes up to 16 EPC channels for injection and detection systems or auxiliary gases.  
Gas selection (helium, hydrogen, nitrogen, argon-methane) for carrier and detectors make-up gases.  
Each device can independently work on flow or pressure modes. Up to 5 pressure and/or flow ramps.  
Pressure can be adjusted up to 150 psi in 0.01psi steps. Designed for ultra-fast chromatography.  
Atmospheric pressure variation compensation.  
Optimized gas saver mode.  
Electronic control of all detector electrometer parameters (FID, TCD, ECD, NPD, etc). Direct connection to Software. Optional analogic output: 0-10 V.  
Simultaneous visualization of multiple parameters according to functional groups. Real time graphic display of temperature program and output chromatogram.  
Flexible programming and possibility of user's change of system parameters during a run.  
Possibility of programming, displaying and controlling all chromatograph parameters via Software.  
Control of up to 10 internal and/or external devices (4 relays, 4 triacs and 2TTL) with independent programming with up to 99 changes per device.  
Up to 10 analytical methods stored in permanent memory protected by E2PROM. Unlimited number of methods stored in PC HD memory.  
Three personalized password levels for access to the system.  
Auto-diagnostics and self-testing.  
Real time clock that allows auto switch on and off programming.  
Septum and column change warning.  
Ready for multidimensional chromatography HPLC-GC-MS, multidimensional GC-GC (heart-cutting), on-line purge and trap, monovial head space, coupling to MS and automatic sample preparation.  
All the system is fully software controlled through chromatography data system

Includes HPLC+HRGC INSTALLATION kit

Includes CAPILLARY INJECTOR W/EPC

Capillary septum purge-less injector with Electronic Pneumatic Control. Split/Splitless time controlled by the GC microprocessor and/or software for split/splitless operation. Allows digital programming and control of column head pressure from 0.01psi up to 150psi with pressure resolution

of 0.003psi, programming of split ratio from 1 to 9999 with 0-200ml/min total flow for N2 and up to 1250 ml/min for H2/He.

Different operation modes: split, splitless, split/splitless, pulsed split/splitless, packed column simulation. Also compatible with Head Space and On-line Purge & Trap.

Can work at constant flow or constant pressure and allows programming up to 5 ramps of flow and/or pressure, independently of the column size and carrier gas.

Compatible with 1/8" packed columns, 0.53 mm I.D. semicapillary and capillary columns until 0.1mm I.D.

Optimized gas saver function. Possibility to pass from stand-by (without heating and with minimum flow) to ready status coordinated with the autostart.

Prepared for fast chromatography.

Different operation modes: split, splitless, split/splitless, pulsed split/splitless, packed column simulation. Also compatible with Head Space and On-line Purge & Trap.

Can work at constant flow or constant pressure and allows programming up to 5 ramps of flow and/or pressure, independently of the column size and carrier gas.

Compatible with 1/8" packed columns, 0.53 mm I.D. semicapillary and capillary columns until 0.1mm I.D.

Optimized gas saver function. Possibility to pass from stand-by (without heating and with minimum flow) to ready status coordinated with the autostart.

Prepared for fast chromatography.

Includes FLAME IONIZATION DETECTOR (FID) 1/8" WITH EPC Flame Ionization Detector system with quartz jet and Electronic Pneumatics Control (EPC) for all gases. Compatible with packed and capillary columns. High sensitivity, high linearity and wide dynamic linear range.

High stability and excellent linear range digital electrometer amplifier.

Allows digital programming and control for make up gas (until 100mL/min) and flame gases (air until 800mL/min and H2 until 200mL/min) through the microprocessor and/or software. Automatic flame off detection and flame switch on. Automatic system shut off if flow stops.

Maximum temperature 450°C. Linear range greater than 10(7). Detection limit 1 pg C/seg (methyl stearate).

Possibility to pass from stand-by (without heating and flow) to ready status coordinated with the autostart.

Includes SET OF 5 T-PIECES FOR A 2<sup>ND</sup> INJ OR DET

## GC

FPGA technology of the latest generation.

Includes Web server, LAN TCP\_IP communication, graphic user interface based on Touch Screen TFT of 262144 colours/pixel with interactive programming based on menu driven windows

Fully configurable system that can hold up to three detectors, three injection

systems and up to seven valves (gas or liquid sampling valves or switching valves) depending on the configuration.

GCMS System optimized for capillary and semi-capillary columns, compatible with packed columns of different lengths and diameters with programmable heating from ambient Temperature to 400°C.

Temperature control of 12 independent heated blocks, including the oven

Adjustable PID's resolution 0.1°C and 0.01min

Suitable for **research as well as routine**, for both **qualitative and quantitative analysis**.

**All sample introduction options:** Fast and easy interchangeable ionisation volumes for EI/CI+/-, and DIP/DEP/EI/CI+/- or equivalent

**Utmost sensitivity, robustness and reliability.**

**Unit resolution over the wide mass range of 1200.**

**High scanning speed of up to 20.000 amu/sec across every GC peak and over the complete mass range, this allow achieving**

**Lowest detection limits** (less than 10 fg of OFN provides optimal sensitivity both in Full Scan and SIM modes.

**Absolute sensitivity in any mode can be further enhanced in many unique** ( the patented HPLC+GC enrichment interface , on-line derivatization, Negative Chemical Ionization of derivative) while simplifying sample preparation.

**Dual filament ion source and automatic switching**, guarantees continuous duty and reliable performance.

**High performance quadrupole with Pre-filters**

**Automatic Leak check feature included in the instrument self-test** which checks electronics, voltages, and temperatures, on all MS parts.

#### **Autosampler:**

Universal Multimode Injector (cold septum purge less)

Cool sample injection. Sample vaporization by means of temperature programming

- Injector cooling: Air, CO<sub>2</sub>, or LN<sub>2</sub>
- Large volume injection upto 20mL or similar
- Max: split ration of 9999:1 or better
- Temp ranges -100 to 450 °C
- EPC optimized interface that allow changing from pressure control in middle of RUN
- Gas saver option

Three axis robot: X-Y-Z displacements. Symmetrical horizontal arm. The microcontroller can be located at right or left side. Vertical arm holds the needles and syringes. Three interchangeable vial trays: 32 vials for 6, 10 or 20 ml, 105 vials of 2 ml and 171 vials of 1 ml. Optional Tray Temperature Control (TTC): all vials on the sample tray can be heated or cooled through a Peltier cell from 5°C to 70°C depending on room temperature. Easy menu-driven interactive programming through microprocessor keyboard (20 characters and 4 lines display) or through Plus software. Method linking/application development mode: up to 10 different methods can be stored in the microprocessor and unlimited number using the software.

Built-in Auto diagnostics. Built-in RS-232 and RS-485 communication ports,

Different volume programming. Syringe volumes: 0.5, 1, 2, 5, 10, 25, 100 and 500 $\mu$ l.

Injection volume: programmable from 0.1 $\mu$ l to 500 $\mu$ l depending on syringe type.

Plunger speed: programmable from 1 $\mu$ l/sec to 5000 $\mu$ l/sec depending on syringe type. Programmable up and down movement speed on sample, solvents and injector.

Injection position: left or right. Mobile X and Y axis fits any GC. Double and dual injection into a double injector GC with double column almost simultaneously. Derivatization under controlled conditions. Software controlled and/or independent keypad programming. 32, 105 and 171 vial trays. General Installation Kit, GC Installation Kit and Tray Kit

### **Detector**

Photo Diode Array Detector suitable and efficient economical solution for simultaneous absorbance measurement at 256 wavelengths. It should allow accurate quantification in flash, preparative and analytical applications. Should include latest improved noise specifications, and is a robust realistic solution for the laboratory demands.

Deuterium and Halogen lamps with Optimum adjustment accuracy and absorbance measuring of simultaneously wavelengths, so it should be a full-spectrum absorbance measurement detector.

Wavelength range: 200 – 800 nm

Typical spectral half-width: 10 nm

Accuracy of adjustment:  $\pm$  1 nm

Reproducibility:  $\pm$  0.5 nm

Light source: Deuterium discharge lamp and Halogen lamp

Noise level at test cell (254 nm, TC 0.75 s):  $\pm$  5 x 10<sup>-5</sup> AU

Drift at test cell (254 nm after 1 hr): 1 x 10<sup>-3</sup> AU/hr

Materials in contact with mobile phase PTFE; fused silica, stainless steel

Time constant: 0.5 s; 0.75 s; 1 s or 2 s

Output for integrator: 1 V/AU (in digital form only)

Interface: RS 232

Power supply: 90-264 V

Power input: 90 VA

Dimensions (W x H x D): 280 x 135 x 498 mm

Weight: 9 kg

### **Mass Spectrometer**

The LCMS instrument based on a quadrupole mass filter, provides the best sensitivity in all LC/MS ionization modes ESI and APCI, positive and negative ions. ESI and APCI are switchable in an easy and fast operation. The LCMS should cover a large LC/MS application fields, Preparative, Flash chromatography, HPLC, U-HPLC, working from 10 $\mu$ l/min up to 1ml/min. Compact. In all configurations and can be used in routine as well as for research work.

Includes: Dual Electrospray/Atmospheric Pressure Chemical Ionization (ESI/APCI) sources for positive and negative ions.

Atmospheric Pressure Ionization interface: patent pending design reduces contamination, allows for small vacuum pumps and reduces size and cost. Quadrupolar analyzer with pre-filters Complete automatic and manual tune modes Full Scan and Single Ion Monitoring (SIM) modes of mass analysis. Electron multiplier ion conversion detection system for positive and negative ions. Acquisition rate: 5,000 m/z units/sec (compatible with UPLC)

Resolution: 0.5-0.7amu units (FWHM) at 1000amu units/sec over entire acquisition range.

Mass Range from 10 to 1200amu ideal to small molecules, natural products and small peptides

Accuracy: 0.1amu over the entire acquisition range

Mass stability: +/- 0.1amu over 12 hours

Flow range: 10µl to 500µl/min. 2:1 split if running at 1ml/min LC flow rate.

Sensitivity: 10pg of Reserpine, (5ul injection at a flow 100µl/min) produce a signal-to-noise ratio (calculated peak to peak) of 100:1 RMS with SIM of m/z 609.28.

100pg of Reserpine, (5ul injection at a flow 100µl/min) produce a signal-to-noise ratio (calculated peak to peak) of 100:1 RMS for the protonated molecular ion at m/ z 609 when the mass spectrometer is operated at unit mass resolution in full scan mode, scanning from m/z 100 to m/z 1200.

Gas supply: Nitrogen 99% pure. 4 Bar (60 psi for APCI or 40 psi for ESI). ¼"tube.

Gas consumption: up to 10 L/min

Rotary Pump 30kg; 10x9x18"

Line Voltage 100-240 VAC

Line Frequency: 47-63Hz

Power Consumption: 300VA max MSD, 550VA Rotary Pump

LC Interface with replacement heat capillary and kit.

HPLC-HRGC interface and Multidimensional Auto sampler

#### **Software Data System:**

Complete Multitasking Chromatography Data System for data acquisition, data processing and instrument control. Includes: software on CD, and internal PCI A/D Converter (an external converter with USB port is optionally available), Full support for GLP/21 CFR Part 11: password protection, password expiration, electronic signature, audit trails, user account with access rights, IQ (included for testing the software Proper installation and results monitoring) and OQ (optional validation kit includes a chromatogram generator and software utility) qualifications tools.

**Including:** LC, DAD, MS Control Module Separately. Should Include AAFS (Licensed) and NIST17 Complete Package with Library and Software

(UPDATED) Electron ionization (EI) mass spectral library – 220,460 spectra of 192,108 unique compounds, with identifications and usually chemical structures.

- (UPDATED) MS/MS library – 14,802 spectra of 5,308 precursor ions (3,898 cations and 1,410 anions).

- (UPDATED) Gas Chromatography (GC) data library – 224,038 Kovats retention index values for 21,847 compounds in the EI library, now on both polar and non-polar columns. Includes retention indices with GC

column conditions and literature citations.

- (UPDATED) NIST MS Search software – software for searching (identifying) compounds from their mass spectra and for browsing mass spectral libraries. Also includes MS interpretation programs for analyzing mass spectra on the basis of chemical structure, molecular formula, isotopic patterns, and more.

- (UPDATED) AMDIS software – software for deconvoluting gas/liquid chromatograms.

- (UPDATED) Documentation – Approximately 50 page printed and electronic manual on setup and basic usage. Additional information is in the help files

Libraries are formatted the binary format suitable for use alone or by the NIST MS Search software (and AMDIS).

Includes TURN KEY SOLUTION

**Hardware:**

Intel core i7 PC/Laptop with Licensed Window 10 OS + 24” 4K LED + Color Laser Printer, Mouse/keyboard with external data storage 4 TB.

**UPS 20 KVA:** Online double conversion topology, Transformer free design, High efficiency up to 98%, Three year warranty, Scalable up to 8 units in parallel, Temperature compensated battery charging, Front access for ease of installation and service, Small footprint, High level diagnostics via LCD screen, Dual DSP controller, Enhanced generator compatibility  
All gases supply/ Generators other parts required for instrument run must be provided by supplier/manufacturer

**Each accessory should be given by supplier/manufacturer in extra (including filters, ferrules, fitting, columns etc**

**Note: The above mentioned specification may be higher or equivalent as per requirement with training at manufacturer site, minimum Two years warranty after installation and calibration certificate.**

3. **FTIR Spectrophotometer**

Spectral Range : 7800 cm<sup>-1</sup> to 350 cm<sup>-1</sup>

Resolution: 0.85 cm<sup>-1</sup>

Wave number precision: ± 0.01 cm<sup>-1</sup>

Scanning speed: Microprocessor control, different scanning speed selectable

Signal to Noise ratio: 20,000:1( RMS value 2100-1 to 2000-1)

Beam Splitter: Ge coated KBr

Infrared Source: High intensity, long lasting, air- cooled IR source

Detector: DLATGS

Data System: Compatible computer

Interferometer: Cube-corner Michelson interferometer

Wave number Accuracy: ± 0.01 cm<sup>-1</sup>

Communication: Ethernet interface

Status Diagnose: Power on self-check

Power Supply: AC 220 V ± 22 V, 50 Hz ± 1 Hz

Dimension: 520 × 435 × 255 mm

Weight: 24 kg

Detector: DLATGS

Dimension: 520 × 435 × 255 mm

Resolution: 0.85 cm<sup>-1</sup>

Data System: Compatible computer

01



	<p>Power Supply: AC 220 V <math>\pm</math> 22 V, 50 Hz <math>\pm</math> 1 Hz  Beam Splitter: Ge coated KBr  Certification: FDA CFR 21 Compliance  Communication: Ethernet interface  Interferometer: Cube-corner Michelson interferometer  Scanning speed: Microprocessor control, different scanning speed selectable  Spectral Range: 7800 <math>\text{cm}^{-1}</math> to 350 <math>\text{cm}^{-1}</math>  Status Diagnose: Power on self-check  Infrared Source: High intensity, long lasting, air-cooled IR source  Wave number Accuracy: <math>\pm</math> 0.01 <math>\text{cm}^{-1}</math>  Signal to Noise ratio: 20,000:1 (RMS value 2100 <math>\text{cm}^{-1}</math> to 2000 <math>\text{cm}^{-1}</math>)  Wave number precision: <math>\pm</math> 0.01 <math>\text{cm}^{-1}</math>  Accessories: ATR module, Core i-7 Laptop, Polystyrene Sheet, LED 34", Printer.  <b>Note: The above mentioned specification may be higher or equivalent as per requirement with training and minimum Two years warranty after installation.</b></p>		
4.	<p><b>Precision Hydrogen Generator</b></p> <ul style="list-style-type: none"> <li>• Continuous and consistent source of laboratory-grade gas for GC &amp; GC-MS.</li> <li>• Safer and more convenient than pressurized cylinders, dewars or bulk storage.</li> <li>• Compact, modular, stackable system allowing maximum use of valuable laboratory floor or bench space.</li> <li>• High purity hydrogen, nitrogen and zero air gas at flow rates to suit any GC configuration.</li> <li>• Complete gas solution for carrier, detector, reference, flame support and sample preparation.</li> <li>• Proven and robust safety systems including internal leak detection on hydrogen models.</li> <li>• 12-month warranty across the range, 3-year PEM cell warranty.</li> </ul> <p>Specification:  Gas type: Hydrogen  Flow rate: 300cc/min  Purity: 99.9995%  Maximum Pressure: 100psi  Accessories: 4L Water bottle for use with Precision Hydrogen Generator  <b>Note: The above mentioned specification may be higher or equivalent as per requirement.</b></p>	01	
5.	<p><b>Refrigerator</b></p> <ul style="list-style-type: none"> <li>• Capacity: 14CFT or higher</li> <li>• Temperature range: 8 to 0°C</li> </ul>	02	

	Compressor type: Oil cooled																										
6.	<p><b>Ultra-sonication bath</b>  Capacity:3.2 L  Control mode: Digital  Heater power:100 W  Digital timer:1 ~ 99 mins  Temperature set:0 °C ~ 80 °C  Ultrasonic power:120 W  Construction material: Stainless Steel  Tank size ( L x W x H ):240 mm x 140 mm x 100 mm  Machine size ( L x W x H ):270 mm x 170 mm x 240 mm  <b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement.</p>	01																									
7.	<p><b>Turbovap Solvent Dryer</b>  Concentration evaporator workstation offers many interchangeable tube racks giving you the flexibility for automated low volume sample preparation.  <b>Specifications</b></p> <table border="0"> <tr> <td>Technology</td> <td>Gas vortex technology</td> </tr> <tr> <td>Number of samples</td> <td>50</td> </tr> <tr> <td>Gas control</td> <td>Gas can be turned on to each of five independent manifolds when working with fewer than fifty samples. Gas regulator and gas gauge range from 0 to 20 psi/0 to 2 bar</td> </tr> <tr> <td>Timer range</td> <td>1 to 99 minutes, 0.1 to 9.9 hours, or infinite</td> </tr> <tr> <td>Max. sample volume</td> <td>30 mL.</td> </tr> <tr> <td>Water bath temperature</td> <td>Ambient to 90 °C. Temperatures below ambient can be regulated using the cooling effect of the evaporation process.</td> </tr> <tr> <td>Gas supply requirements</td> <td>Minimum inlet pressure 60 psi/4.1 bar Maximum inlet pressure 100 psi/6.9 bar.</td> </tr> <tr> <td>Gas consumption</td> <td>At 10psi: 0.06 cfm/nozzle or 0.6 L/min/nozzle. At 15psi: 0.1 cfm/nozzle or 1 cfm/row of 10 nozzles or 2.83 L/min/nozzle</td> </tr> <tr> <td>Exhaust</td> <td>5.1 cm/2” venting exhaust</td> </tr> <tr> <td>Electrical supply</td> <td>220–240 V~, 50 Hz, 5 A (UK &amp; EU)</td> </tr> <tr> <td>Max. power consumed</td> <td>900 VA</td> </tr> <tr> <td>Dimensions</td> <td>53.8 cm x 30.2 cm x 30.2 cm 21.2” x 11.9” x</td> </tr> </table>	Technology	Gas vortex technology	Number of samples	50	Gas control	Gas can be turned on to each of five independent manifolds when working with fewer than fifty samples. Gas regulator and gas gauge range from 0 to 20 psi/0 to 2 bar	Timer range	1 to 99 minutes, 0.1 to 9.9 hours, or infinite	Max. sample volume	30 mL.	Water bath temperature	Ambient to 90 °C. Temperatures below ambient can be regulated using the cooling effect of the evaporation process.	Gas supply requirements	Minimum inlet pressure 60 psi/4.1 bar Maximum inlet pressure 100 psi/6.9 bar.	Gas consumption	At 10psi: 0.06 cfm/nozzle or 0.6 L/min/nozzle. At 15psi: 0.1 cfm/nozzle or 1 cfm/row of 10 nozzles or 2.83 L/min/nozzle	Exhaust	5.1 cm/2” venting exhaust	Electrical supply	220–240 V~, 50 Hz, 5 A (UK & EU)	Max. power consumed	900 VA	Dimensions	53.8 cm x 30.2 cm x 30.2 cm 21.2” x 11.9” x	01	
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	<p>(WxDxH) 11.9”</p> <p>Weight 18.4 kg/40.5 lbs</p> <p><b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement.</p>		
8.	<p><b>Analytical Balance</b>  Weight:10 kgs  Display: LCD ( White back light with black font )  Capacity:200 g  Pan size:? 80 mm  Resolution:0.0001 g  Stable time:? 3 s  Repeatability:± 0.0002 g  Inner dimension:415 x 285 x 430 mm  Outer dimension:475 x 315 x 485 mm  Minimum weighing:0.0004 g  Draft shield size:240 x 190 x 265 mm  Calibration weight: Internally calibrated  Operational temperature:5 °C ~ 25 °C  <b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement.</p>	02	
9.	<p><b>Top Load Balance</b>  Portable and equipped with a rechargeable battery.  <b>Display</b>  Backlit liquid crystal display (LCD),3 color checkweighing LEDs  <b>Operation</b>  AC power and rechargeable battery  <b>Communication</b>  Easy access communication port including standard RS232 and second RS232, USB and Ethernet  <b>Construction</b>  ABS housing, stainless steel platform, menu lock switch, up-front level indicator, integral weigh-below hook, transportation handle  <b>Design Features</b>  210 hours of battery life, 3 LED checkweighing lights with selectable operation and audible signal settings, selectable environmental and auto-print settings, auto shut-off, auto tare  <b>Maximum Capacity</b> 60 lb (30 kg)  <b>Readability</b> 0.002 lb (1 g)  <b>Readability (Certified)</b> 0.02 lb (10 g)  <b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement.</p>	02	
10.	<p><b>Fume Hood</b>  LED Lamp:12 W × 1  Net Weight:275 kg  Pipe Strap:2 pcs  Air velocity:0.3 m/s to 0.8 m/s  Exhaust Duct: PVC 4 meters, ? 300 mm  Gross Weight:300 kg  Exhaust volume:710 m<sup>3</sup>/ hr</p>	01	

	<p>Maximum Opening:750 mm  Power Consumption:400 W  Work Surface Height:900 mm  Package Size (W × D × H):1340 × 940 × 1850 mm</p> <p><b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement.</p>		
11.	<p><b>Snorkels Exhaust</b></p> <ul style="list-style-type: none"> <li>• Easy to positioning to the pollution source</li> <li>• Positional stability</li> <li>• Supplied assembled for ease of installation</li> <li>• Containing ball bearings and have a large frictional diameter</li> <li>• Support springs balance out the weight of the arm</li> <li>• 360° rotation</li> <li>• Tight-sealing damper as standard</li> <li>• Joints made from PP and tubes from aluminium</li> <li>• Dimension 75 mm</li> </ul> <p><b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement.</p>	03	
12.	<p><b>Hotplate Dry Bath Heat Blocks</b></p> <p>Voltage:AC 220 V / 110 V (Optional)  Net weight:5 kg  Time range:1 min – 99 hr. 59 min  Gross Weight:5.5 kg  Heating time:~ 15 min (25 °C ~ 160 °C)  Block quantity:1 or 2  Display accuracy:± 0.1 °C  Temperature range:RT. 5°C ~ 160°C  Temperature accuracy:± 0.5 °C at 40 °C ; ± 1 °C at 120°C  Dimension (L x W x H):260 x 220 x 100 mm  Temperature uniformity:± 0.5 °C</p> <p><b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement.</p>	01	
13.	<p><b>Vacuum Manifold, 24-Port</b></p> <p>The system should contain a patented valve system that allows for precise flow control through each SPE tube via rotating, independent, screw-type valves situated in each port within the manifold cover.</p> <p><b>Features</b></p> <ul style="list-style-type: none"> <li>• Patented screw-type valves within each SPE port for precise flow control</li> <li>• Glass basin will not dissolve, fog, or discolor when exposed to solvents</li> <li>• Legs on cover allow user to easily rest cover on work surface when removed from the manifold</li> <li>• Screw-type solvent-resistant vacuum bleed gauge and valve offer better sealing and vacuum control. Valve takes ¼" vacuum tubing.</li> <li>• PP collection vessel rack accommodates autosampler vials; small scintillation vials (22.75 mm O.D. recommended); 10 and 16 mm test tubes; and 1, 2, 5, and 10 mL volumetric flasks</li> </ul> <p><b>Note:</b> The above mentioned specification may be higher or equivalent</p>	01	

	<b>as per requirement.</b>		
14.	<p><b>Vortex Mixer</b>  Build sturdy to provide a stable and reliable vortexing action. Features include, touch and continuous operation, variable speed regulation from 0-2500 rpm and digitally controlled. Specially designed vacuum suction feet to ensure stability of the mixer during use.  Dimensions (L x W x H): 21 x 12.3 x 16.5 cm  <b>Note: The above mentioned specification may be higher or equivalent as per requirement.</b></p>	01	
15.	<p><b>Humidifier</b></p> <ul style="list-style-type: none"> <li>• Energy star 2.0 EEV</li> <li>• Portable dehumidifier removes upto 70 pints of moisture from the air per day.</li> <li>• Designated to dehumidifier a room upto 2000 square feet.</li> <li>• Electric control with LED display, 2 fan speeds, and 24 hours on/off time.</li> <li>• Automatic shut-off with bucket full indicator and alarm (14-pint bucket capacity).</li> <li>• Removable, washable, dusts filter for easy maintenance.</li> <li>• Weight: 45.2 pound</li> <li>• 3 Year warranty</li> <li>• Components include: dehumidifier, filter, manual, warranty</li> </ul> <p><b>Note: The above mentioned specification may be higher or equivalent as per requirement.</b></p>	03	
16.	<p><b>Multipurpose Tube Rotator</b>  Platform:1.5 to 15 ml tube, max 22 pcs  Motor type:DC declaration  Mixing time:60 h  Speed range:5 to 50 rpm  Gross weight:6 kg  Moving angle:15° to 90°  Power supply:220 V ± 10 % (50 Hz)  Vortex angle:1 to 5° Operation type:Timing  Number of tubes:22 pcs  Relative humidity:80 % RH  Dimension (W × D × H):385 × 182 × 190 mm  Permissible temperature:5 to 50?  <b>Note: The above mentioned specification may be higher or equivalent as per requirement.</b></p>	01	
17.	<p><b>Drying Oven</b></p> <p>Operating range RT+10 to 300°  Capacity : 30L  Time Precision 0.1°C  Temp. Fluctuation +/-0.5°C  Ambient Temp. 5-40°C  Timing Range: 1-9999min  Shelves No. 2  Display LED  Power Supply: AC220V ±10%, 50/60Hz  <b>Note: The above mentioned specification may be higher or equivalent as per requirement.</b></p>	01	

	<b>Tools/Minor Equipment</b>		
18.	Autosampler for GCMS	02	
19.	ATR Module for FTIR spectrophotometer	01	
20.	GC Oven Heater (Filament)	04	
21.	Helium Gas Cylinder (Gas Purity 99.999%, Capacity ~50KG)	02	

**FINGERPRINTS SECTION**

Sr. #	Equipment Description and Specification	Qty	Applying For Yes/ No.
1.	<p><b>Super glue Fish Tank for small evidence items.</b></p> <ul style="list-style-type: none"> <li>▪ Transparent from all sides, the glass enclosure allows for monitoring of the development process.</li> <li>▪ Thick clear Plexiglas lid, with two built-in evidence support rods and evidence clips,</li> <li>▪ Two covered openings in lid for regulation of humidity</li> <li>▪ Dimensions: 22 “ x 15” x 12 “ +/- 3 inches</li> <li>▪ Chamber volume: 10 gallons pprox..</li> </ul> <p><b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement.</p>	01	
2.	<p><b>Forensic Evidence Drying Cabinet (free Standing)</b></p> <ul style="list-style-type: none"> <li>▪ Dimension= 30 x 25 x 60 inch ±5 inch approximate</li> <li>▪ seamless design and one-piece construction to avoid rust</li> <li>▪ Exhaust air = HEPA-filtered to remove viral and bacterial pathogens plus other particulates to 99% efficiency at 0.3 microns</li> <li>▪ Bonded carbon filtration system</li> <li>▪ automatic controller increases blower speed to optimize airflow when doors are opened</li> <li>▪ Easily cleaned to prevent cross-contamination</li> <li>▪ Shelves and stainless steel drying rod</li> <li>▪ Locking front doors with safety clasps</li> <li>▪ Modular automatic waste pump to remove waste water</li> <li>▪ Gas sensor</li> <li>▪ Adjustable leveling feet or locking casters</li> <li>▪ Free standing model</li> </ul> <p><b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement.</p>	01	
3.	<p><b>Stereo Microscope</b>  <b>Trinocular</b>            NexiusZoom, 0.67x to 4.5x zoom objective,            Magnification from 6.7 xs to 45x with pillar.            Incident and transmitted 3 W LED            illuminations            299 (h) x 256 (w) x 311 mm (d)   5.2 kg</p> <p><b>Eye Piece</b>            The standard NexiusZoom is supplied with a pair of HWF 10x/22 mm eyepieces. The NexiusZoom EVO is supplied with a pair of HWF 10x/23 mm eyepieces</p> <p><b>With DC.5000F</b>            CMEX-5f, 5.0 MP digital USB-2 color camera with ½.8 inch CMOS sensor</p> <p><b>Sensor CMOS</b> ½.8 inch  <b>Pixels</b> 2560 x 1920 pixels, 5.0 Mpix  <b>Scan mode</b> Progressive, rolling shutter</p>	01	

	<p><b>Pixel size</b> 2.0 µm x 2.0 µm</p> <p><b>Max fps</b> Up to 30 frames per second (2560 x 1920 pixels) Up to 50 frames per second (1600 x 1200 pixels)</p> <p><b>Filter</b> RGB</p> <p><b>Mount</b> C-mount</p> <p>Grayscale conversion 8 bits</p> <p><b>Color depth</b> 24 bits</p> <p><b>Exposure</b> Automatic or manual, from 1 ms to 2s</p> <p><b>White balance</b> Automatic/manual</p> <p><b>Dynamic range</b> 72 db</p> <p><b>Sensitivity V/lux-sec</b> (at 550 nm) 2.0</p> <p><b>Data interface</b> USB 2.0 at 480 Mb/s</p> <p><b>Operation humidity</b> 10-85 % humidity</p> <p><b>Operating temperature</b> 0 to 60°C</p> <p><b>Supplied with</b> 0.45x objective with C-mount, USB 2.0 cable, 30 and 30.5 mm adapters for stereo microscopes, 76 x 24 mm calibration slide, CD ROM with Image Focus Plus software, carton box</p> <p><b>Software</b> Windows 7 and higher (32 and 64 bit configurations).</p> <p><b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement.</p>		
4.	<p><b>Fume Hoods with outlet exhaust system</b></p> <p>LED Lamp:8 W × 1</p> <p>Net Weight:250 kg</p> <p>Pipe Strap:2 pcsAir velocity:0.3 m/s to 0.8 m/s</p> <p>Exhaust Duct:PVC 4 meters, ? 300 mm</p> <p>Gross Weight:270 kg</p> <p>Exhaust volume:570 m<sup>3</sup>/ hr</p> <p>Maximum Opening:750 mm</p> <p>Power Consumption:400 W</p> <p>Work Surface Height:900 mm</p> <p>Package Size (W × D × H):1140 × 940 × 1850 mm</p> <p>Exterior Size (W × D × H):1000 × 800 × 2515 mm</p> <p>Interior Size (W × D × H):790 × 635 × 870 mm</p> <p><b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement.</p>	01	
5.	<p><b>DSLR Camera for initial case/evidence photography</b></p> <ul style="list-style-type: none"> <li>▪ Digital SLR Camera, 24 Mp or more with CMOS sensor</li> <li>▪ Compatible optical lens for close up photography, auto/manual focus, VR.</li> <li>▪ ISO:100-25600 or more</li> <li>▪ Shutter speed:1/4000 to 30s or more</li> <li>▪ USB cable and audio/video cable</li> <li>▪ Image Enhancement Software preferably with Camera control software</li> <li>▪ Also included: ring adapter with Glass color filters (yellow, orange, red, blue, green)</li> <li>▪ Rechargeable battery and charger</li> <li>▪ Strap</li> </ul> <p><b>Note:</b> The above mentioned specification may be higher or equivalent</p>	01	



	as per requirement.		
6.	<p><b>Cylindrical Surface Unwrapper ( Compatible with (Digital capturing system) DCS-5</b></p> <ul style="list-style-type: none"> <li>▪ Dimension= 85 mm X 330 mm X 110 mm(W XL XH) pprox.</li> <li>▪ Internal and External clamping jaws</li> <li>▪ Max length of object as standard: 200mm pprox.</li> <li>▪ Reversible alignment guide</li> <li>▪ 12 V power input</li> <li>▪ USB interface</li> <li>▪ Compatible with Digital capturing system (DCS-5) and operative via DCS-5 software.</li> </ul> <p><b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement</p>	01	
7.	<p><b>Shift/Tilt Imaging Lens( Compatible with (Digital capturing system) DCS-5</b></p> <ul style="list-style-type: none"> <li>▪ 85mm Shift/Tilt Lens Kit</li> <li>▪ Manual focus lens with shift and tilt control</li> <li>▪ Circular polarizing filter</li> <li>▪ Visible pass filter</li> <li>▪ Filter step-ring</li> <li>▪ related macro extension tubes</li> <li>▪ compatible with D810 Nikon camera of DCS-5 system</li> </ul> <p><b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement</p>	01	
8.	<b>Biometric access system for lab</b>	04	

**COMPUTER/ DIGITAL FORENSIC SECTION**

Sr. #	Equipment Description and Specification	Qty	Applying For Yes/ No.
1	<p><b>Fred Forensic Workstation with 2 RAIDs and registered windwos10 with 3 years warranty, Latest version available at the time of procurement.</b></p> <p>Motherboard Chipset: Intel® X299 Chipset Motherboard  OS: Windows 10 Pro 64-bit [T1060]  CPU: i9-10980XE18 Core 3.0 GHz (4.6 Turbo), 24.75MB Cache [T1063]  RAM: 256 GB PC4-21300 DDR4 2666 MHz [T2015] – requires minimum 6 core CPU  Video Card: [T0028] Nvidia GTX 1050Ti 10 GB, 320 bit GDDR6. 8704 CUDA Cores  OS Drive: [T3098] – 2 TB M.2 NVMe PCIe Solid State Drive – EVO Plus Series  Drive 2 – Internal PCIe M.2 SSD: [T3069] – 1 TB M.2 NVMe PCIe Solid State Drive – PRO Series  Drive 3 – SATA Interface: 4 TB SATA Solid State Drive – Pro Series [T3080]  Drive 4 – SATA Interface: 4 TB SATA Solid State Drive – Pro Series [T3080]  Drive 5 – SATA Interface: 4TB SATA Solid State Drive – Pro Series [T3080]  Drive 6 – SATA Interface: 4 TB SATA Solid State Drive – Pro Series [T3080]  Drive 7 – USB 3.1 Interface: 4 TB 7200 rpm SATA Hard Drive [T3096]  RAID Drive Set 1: 5 x 4 TB 7200 rpm SATA Hard Drive – Capacity: ~16 TB configured as RAID5 [T3127]  RAID Drive Set 2: 5 x 2 TB 7200 rpm SATA Hard Drive – Capacity: ~16 TB configured as RAID5 [T3127]  NIC (Network Interface Card) Options are in addition to the on-board 1 Gigabit network ports :  Dimensions: 23 7/8” High, 9 3/4” Wide, 25 1/4” Deep (With Feet)  23 1/4” High, 8 1/2” Wide, 25 1/4” Deep (Without Feet)</p> <ul style="list-style-type: none"> <li>• Symantec Ghost software</li> <li>• Tableau Imager (TIM)</li> <li>• 103 key keyboard and mouse combo – wireless</li> <li>• Forensic toolbox containing drive adapters and power / signal cables (SAS, SATA, IDE, microSATA, SATA LIF, MacBook Air, Blade SSD)</li> <li>• PCIe drive adapters (PCIe SSD m.2 NVMe, 2013 or newer MacBook Pro SSD, and server class PCIe SSD)</li> <li>• Security screwdriver set with assorted bits for opening enclosures</li> </ul>	06	
2	<p><b>Read Only UltraBlock eSATA IDE-SATA</b>  Host: USB 3.0; Forensic SATA/IDE Bridge  TK35u USB 3.0 Forensic SATA/IDE Bridge Kit  Host Connection: USB 3.0</p>	3	

	<p>Write blocked: IDE &amp; SATA  Kit Content: · Tableau Forensic SATA/IDE Bridge [T35u]  Tableau Power Supply [TP2]  Tableau Molex to 3M Drive Power Cable – 8” [TC2-8-R2]  Tableau SATA Signal Cable – 8” [TC3-8]  Tableau SATA to 3M Drive Power Cable – 8” [TC5-8-R2]  Tableau IDE Cable – 8” [TC6-8]  Tableau USB 3.0 A to B Cable – 6’ [TC-USB3]  Zippered Soft-sided Black Nylon Bag [TB1]  T35u Quick Reference Guide  <b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement.</p>		
3	<p><b>Ultra-Kit (with Blockers, Disk Duplication , Forensic Imager etc.)</b>  Ultra-kit is complete arsenal of FireWire (A/B)/USB (1.x/2.0) Interface Parallel IDE, Serial ATA and SCSI Hardware Write blocker, Ultra kit contains write blockers, cables, adapters complete with power supply.  <b>Tableau Duplicator</b>  - View drive details  - Wipe  - Format  - Blank Check  - View &amp; disable HPA/DCO  - Whole disk encryption  - View S.M.A.R.T.  - Eject media  <b>Tableau Forensic Imager</b>  - Tableau Forensic Imager SATA/SAS Drive Bay [TX1-S1]  - Tableau Power Supply [TP6]  - Tableau Unified SATA/SAS Signal and Power Cable (3M-style) – 8” [TC4-8-R3]  - Tableau PCIe Adapter Cable – 8” [TC-PCIE-8]  - Five pack of Velcro Cable Ties [TPKG-VCT-5]  - Microfiber Screen Wipe [TPKG-CLOTH]  - TX1 Quick Reference Guide  <b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement.</p>	2	
4	<p><b>Note Book</b>  11<sup>th</sup> Generation Intel® Core™ i7-1165G7 Processor (12MB Cache, up to 4.7 GHz)  16GB 4267MHz LPDDR4x Memory Onboard  512GB M.2 PCIe NVMe Solid State Drive or  SATA Hard drive 2 TB,  Windows10 licensed (64 Bit), Memory 16 GB, Graphic Card 2GB, LED screen minimum 15”  With licensed AV and MS Office Key  <b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement.</p>	2	
5	<p><b>Apple Mac Book Pro 13”</b>  8-core CPU with 4 performance cores and 4 efficiency cores  Memory  8 GB RAM  Storage</p>	2	

	<p>2 TB Hard Disk Drive  OS  MAC OS Latest at the time of procurement  Wi-Fi  802.11ax Wi-Fi 6 wireless networking  IEEE 802.11a/b/g/n/ac compatible  Bluetooth  Bluetooth 5.0 wireless technology  Two Thunderbolt / USB 4 ports with support for:  Charging  DisplayPort  Thunderbolt 3 (up to 40Gb/s)  USB 4 (up to 40Gb/s)  USB 3.1 Gen 2 (up to 10Gb/s)  <b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement.</p>		
6	<p><b>Cellebrite UFED Touch 2 Ultimate (Latest version available at time of procurement) 5 years licensing with SW and SMS Support</b>  Physical, logical, file system and password extraction of all data (even if deleted)  Including legacy and feature phones, smartphones, portable GPS devices, tablets and phones manufactured with Chinese chipsets  <b>I Included</b></p> <ul style="list-style-type: none"> <li>• UFED Touch Device</li> <li>• UFED Physical Analyzer SW</li> <li>• Protective Cover</li> <li>• Ruggedized Case</li> <li>• Cable Kit</li> <li>• Power Supply</li> <li>• Cable Organizer</li> <li>• Dongle</li> <li>• User Manual</li> <li>• Cleaning Brush</li> <li>• USB hard Drive</li> <li>• Car Power adaptor</li> <li>• SIM ID</li> <li>• Cloning Cards x10</li> <li>• Flash Memory Card Reader</li> <li>• Phone Charger Set</li> <li>• Faraday bag</li> <li>• Micro SIM Adapter</li> </ul>	1	
7	<p><b>Forensic Tool Kit (FTK-Latest version available at time of procurement) with 5-year licensing including PRTK and Registry Viewer with all Adds on with SW and SMS Support</b>  FTK is made up of four separate components/applications, each of which are installed separately and perform different functions. These components are the PostgreSQL Database, the FTK Client User Interface (UI), the Client-side Processing Engine and the Distributed Processing Engine. Parse even more registry and Windows events,</p>	3	

	Similar face and object detection, URL detection and parsing capabilities, support updated versions of LX01 and E01 images.		
8	<p><b>Faraday Box</b>  Built-in high-res OSD color video camera with audio  Built-in 500GB law enforcement professional DVR  Provides maximum isolation from all UMTS mobile device bands  Provides maximum isolation from WiFi signal sources including 802.11a/b/g/n/ac  Features the latest GEN-2 custom RF gasket system  Features the latest GEN-2 custom RF absorbent and reflective foam liner  Large RF shielded viewing window for visual real-time confirmation of device displays and functions  Dual RF shielded silver mesh tactile gloves for hands-on access to devices  Built-in internal LED illumination  Built-in RF filtered AC power strip  High speed USB2.0 data interface  Forensics tamper-proof hardware and a dual pad lockable latches prohibits unauthorized access and maintains the chain of custody  Universal removable I/O panel customizable for your specific applications</p>	1	
9	<p><b>Faraday Bags</b>  External Dimensions: 8.25" wide x 8" tall; Usage Dimensions: 4.25" x 7.5" Fits iPhone 6+.  Radio frequency shielding spec: 69+ dB attenuation  Lightweight and durable for use in the field and the lab  Shields a wide range of wireless signals (GSM, CDMA, 3G) used in cell phones, PDA's, two-way radios, and blue tooth devices, laptops, tablets, and other electronics  External dimensions: 8" tall x 8.5" wide  Shielding Specifications: 900MHz: 69 dB 1.8 Ghz: 72 dB 2.1 GHz: 71 dB 2.4 GHz: 70 dB  Compatible with EDEC Evidence Portal App for Android  Protective outer shell is water and wear resistant</p>	50	
10	<p><b>Electro Static Dissipation (ESD) Bags and Foam Wrap</b>  Electrostatic Dissipation Bags, 4" x 6", 6" x 8", 8" x 10", 18" x 24";  Electrostatic Dissipation Foam Wrap, 24" wide x 25' ; Faraday Reusable Evidence Storage Bags, 10" x 7"</p>	100	
11	<p><b>XRY by MSAB(Latest version available at time of procurement) with 3 year licensing Including SW and SMS Support</b>  Mobile Device Physical examinations  Bypass or recovery of passcodes  Reconstructed and deleted data  Device dump and binary importing  Smart phone App support  Windows based software solution  Multiple hash Algorithm options  Mobile Device Physical Examinations  Bypass or Recovery of Passcodes  Reconstructed and Deleted Data  Device Dump and Binary Importing</p>	01	

	Smartphone App Support		
12	<p><b>MOBILedit (Latest version available at time of procurement) with 3-year licensing including Camera Ballistics with SW and SMS Support</b></p> <p>Phone unlocking, physical data acquisition, advance application analysis, live updates, retrieve deleted data, password and pin breakers, concurrent extraction, camera ballistics, iCloud analyzer, Easy to UI, Photo Recognition, Malware Detection, IOS Screenshot Support, Face Matcher</p>	01	
13	<p><b>EnCase® Forensic Complete Suite by Opentext (Latest version available at time of procurement) with perpetual license and SMS Support</b></p> <p>Acquire data from the widest variety of devices, including over 25 types of mobile devices such as smart phones, tablets, and GPS Complete a comprehensive, forensically sound investigation Produce extensive reports on findings while maintaining the evidence integrity</p>	01	
14	<p><b>Magnet Internet Evidence Finder (IEF)- (Latest version available at time of procurement) with 3 years licensing and SMS Support</b></p> <p>Native support for the AD1 logical image format created by AccessData's FTK Volume shadow copies can now be analyzed as a standalone source of evidence with more granularity and native parsing (no image mounting required) Native support for analysis of zip archives (no longer necessary to extract the data from a zip archive prior to analysis). This is particularly useful for analyzing Cellebrite logical file dumps saved as zip archives Support for the exFAT file system. Recover artifacts from devices that use the exFAT file system, including Windows Phone and Xbox 360 devices Artifact selection profiles allow for the creation of search profiles that predefine the artifacts to be searched for by an IEF search Known pornographic websites identified and categorized in refined results Known malware/phishing websites identified and categorized in refined results</p>	02	
15	<p><b>Elcomsoft Premium bundle for IOS, Android, Data Decryption, Data Recovery, and mobile phone pass ware along with 5 years license</b></p> <p>Deleted keys, even on reformatted drives decrypted with sector-level disk scanning ▪ EFS-protected disk inserted into a different PC ▪ Deleted users or user profiles ▪ User transferred into a different domain without EFS consideration ▪ Account password reset performed by system administrator without EFS consideration ▪ Damaged disk, corrupted file system, unbootable operating system ▪ Reinstalled Windows or computer upgrades ▪ Formatted system partitions with encrypted files left on another disk. Decrypts information stored in three most popular crypto containers ▪ Mounts encrypted BitLocker, FileVault 2, PGP and TrueCrypt volumes ▪ Supports removable media encrypted with BitLocker To Go ▪ Supports both encrypted containers and full disk encryption ▪ Acquires protection keys from RAM dumps, hibernation files ▪ Extracts all the keys from a memory dump at once if there is more than one crypto container in the system ▪ Captures a memory dump with built-in RAM imaging tool ▪ Fast acquisition (limited only by disk read speeds) ▪ Zero-footprint operation</p>	01	

	leaves no traces and requires no modifications to encrypted volume contents ▪ Recovers and stores original encryption keys ▪ Supports all 32-bit and 64-bit versions of Windows.		
16	<b>PC3000 UDMA complete Suite (Latest Available at the time of procurement) with hands on training with all Adds on and SMS Support</b> Physically damage hard drive recovery tool from zero sector. Hardware-software solution intended for diagnosing and repairing HDDs based on SATA (Serial ATA) and ATA (IDE) interfaces for numerous vendors (Seagate, Western Digital, Fujitsu, Samsung, Maxtor, Quantum, IBM (HGST), HITACHI, TOSHIBA), for various capacities (from 500MB to 6 TB) and various form factors: 3.5” – desktop drives, 2.5” and 1.8” – laptop drives.	01	
17	<b>06 KVA UPS with installation</b> Dual main input, LCD display, manageable external batteries, removable input/output writing tray, single or three-phase input wire able	06	
18	<b>Air Conditioners (1.5 Ton DC Invertor)</b>	08	
19	<b>Intel core i9 PC 11<sup>th</sup> generation with Licensed windows 10 Latest version available at the time of procurement.</b> <ul style="list-style-type: none"> <li>• Storage 2 TB</li> <li>• RAM:16GB, DDR4</li> <li>• Graphic Card with dual monitor display with wireless card</li> <li>• 10 Professional OS</li> <li>• Including</li> <li>• 24" LED</li> <li>• Color Laser Printer,</li> <li>• HP Scanner,</li> <li>• Mouse/keyboard.</li> <li>• MS Office key</li> <li>• Antivirus key</li> <li>• 1 TB External SATA HDD</li> <li>• 1 Backup UPS</li> </ul>	2	
20	<b>Sony 4K HDR Camcorder / HDR Video Camcorder (Latest Version at the time of procurement)</b> 4K Ultra HD (3840 x 2160) recording SENSOR TYPE 1/2.3 type(7.76mm) back-illuminated Exmor R CMOS Sensor EFFECTIVE PIXELS (VIDEO) approx. 8.29 Megapixels (16:9)7 LENS TYPE ZEISS Vario-Sonnar T* OPTICAL ZOOM 10x CLEAR IMAGE ZOOM 4K: 15x HD: 20x8 SCREEN TYPE 7.5cm (3.0 type) Extra Fine LCD display (921 600dots) Wide (16:9) TOUCH PANEL Yes BRIGHTNESS CONTROL	02	

	Yes (Menu) WI-FI® Yes (Wi-Fi Compatible, IEEE 802.11b/g/n (2.4GHz band))		
21	<p><b>DSLR Camera for initial case/evidence photography (Latest at the time of procurement)</b></p> <ul style="list-style-type: none"> <li>▪ Digital SLR Camera, for Fluorescence and Absorption Digital photography (General field crime scene and Lab work),</li> <li>▪ 52mm diameter Filters. Includes:</li> <li>▪ Digital camera with 16Gb SF Memory Module and international power supply,</li> <li>▪ USB card reader to transfer high resolution photos to the PC</li> <li>▪ Forensic Image Enhancement Software</li> <li>▪ Camera control software</li> <li>▪ PrintScope Hood: Hood for 52mm Filter Slides, with Focus Ring with preset heights, and Camera Adapter.</li> <li>▪ Also included: 49-52mm ring adapter, Tripod and reversible head, One Set of Protective Goggles (1UV, 1 yellow, 1 orange, 1 red goggles). Carrying Bag for Camera, Carrying Bag for Tripod and for Hood</li> </ul> <p><b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement.</p>	02	
22	<p><b>Pass ware Kit Forensic (first year free SMS subscription)</b></p> <p>With password solution for MS office, RAR, PDF, MAC OS, Itunes, OPENVault</p> <p>A complete encrypted evidence discovery solution that identifies and attempts to decrypt encrypted files.</p> <p>A complete suit password recovery tools which allows to unprotect disks and system and decrypt files and documents protected with popular applications; Runs from a USB thumb drive and recovers passwords without installation on a target PC</p>	01	
23	<p><b>X-Ways Forensics: Integrated Computer Forensics (Latest Available at the time of procurement) Software along with 2 year license</b></p> <p>Disk Cloning and Imaging</p> <p>Ability to read partitioning and file system structures inside raw (.dd) image files, ISO, VHD and VMDK images</p> <p>Complete access to disks, RAIDs, and images more than 2 TB in size (more than 2<sup>32</sup> sectors) with sector sizes up to 8 KB</p> <p>Built-in interpretation of JBOD, RAID 0, RAID 5, RAID 5EE, and RAID 6 systems, Linux software RAIDs, Windows dynamic disks, and LVM2</p> <p>Automatic identification of lost/deleted partitions</p> <p>Native support for FAT12, FAT16, FAT32, exFAT, TFAT, NTFS, Ext2, Ext3, Ext4, Next3®, CDFS/ISO9660/Joliet, UDF</p>	01	
24	<p><b>Registry Recon Complete Suite along with 1 year license</b></p> <p>Parse Registry data so that Registries which have existed on a Windows® system over time can be rebuilt.</p> <p>Providing unique insight into how Registry data has changed over time.</p> <p>To access to an enormous volume of Registry data which has been effectively deleted4</p>	01	
25	<p><b>Oxygen Forensic Detective Complete Suite (Latest at the time of procurement) 3-year license subscription with SMS Support</b></p>	01	



	<p>Analyze contacts from multiple sources such as the Phonebook, Messages, Event Log, Skype, chat, and messaging applications in Aggregated Contacts.</p> <p>Section automatically reveals same people in different sources and groups them together in one meta-contact.</p> <p>Rooting a device based on Android OS reveals the complete set of user data to the investigator.</p> <p>Get logins and passwords to the app and find geo-location of the last run.</p> <p>Inspect all used or created app files and access to system and user apps.</p> <p>Filter apps by a certain terms and export and print selected items.</p> <p>Messages. Added <a href="#">Chats view</a> to easily follow conversations between two or more remote parties. The feature is available for iOS devices.</p> <p>Oxygen Forensic® Extractor for Clouds. The <a href="#">new utility</a> allows importing and analyzing data from Google account, Apple iCloud, Microsoft Live and other cloud services. The utility is available in Tool's menu or from the toolbar on Desktop.</p> <p>Oxygen Forensic® Extractor for Clouds. Added support for Google Location History and Twitter data extraction. Google Location</p>		
26	<p><b>Black Bag Technology(Black light, Mobilyze, Macquisition,Softblock with hands on training)</b></p> <p>Acquire the data from Apple MAC and all Ipads ,Iphone.</p> <p>BlackLight quickly analyzes computer volumes and mobile devices. It sheds light on user actions and now even includes analysis of memory images. BlackLight allows for easy searching, filtering and otherwise sifting through large data sets.</p> <p>With over 4 billion smart devices on the planet, mobile digital data is now part of every investigation.</p> <p>MacQuisition is a powerful, 3-in-1 solution for live data acquisition, targeted data collection, and forensic imaging. Tested and used by experienced examiners for over a decade, MacQuisition runs on the Mac OS X operating system and safely boots and acquires data from over 185 different Macintosh computer models in their native environment - even Fusion Drives.</p> <p>SoftBlock™ is a software-based forensic write-blocking tool. SoftBlock quickly identifies newly attached hardware devices, and mounts the device with read-only or read-write permissions according to user preference. This forensic software is built to handle the needs of both large-scale digital forensic labs and individual forensic practitioners. SoftBlock allows forensic examiners to quickly and safely preview data contained on evidentiary devices before data is imported.</p>	01	
27	<p><b>Dr. Fone Full toolkit, Complete Bundle with 1 year license</b></p> <p>Mobile phone data recovery tool kit with all types of extraction and backups.</p> <p>Recover SIM data</p> <p>WhatsApp Transfer</p> <p>Android toolKit,</p> <p>IOS toolKit</p>	01	
28	<p><b>ADF Mobile Forensics Digital Forensics Trantula (Cell Xtract-TNT) with 1 year license, Hands on Training</b></p> <p>Must Support:</p>	01	

	<p>MediaTek Spreadtrum Infineon</p> <p>Chinese cell phone analysis system includes:</p> <ul style="list-style-type: none"> <li>– Hardware Unit</li> <li>– Data Cable Tip Kit with case</li> <li>– Software w/1-year License</li> <li>– Universal Power Adapter</li> <li>– Standard Window Faraday Bag</li> <li>– Carrying Case – Accessories</li> </ul>		
29	<p><b>Cable adapters kit for forensic lab</b></p> <p>Includes all accessories of mobile phones ,camera,Memory cards and laptop cables ,universal adapters ,universal chargers and connectors</p>	2	
30	<p><b>Secure Evidence Storage Locker</b></p> <p>Standardize secure storage lockers for evidence storage contained 06 big chambers</p>	03	
31	<p><b>Drive Wiper</b></p> <p>Used to Wipe Hard Disk.So that no one can recover data.Make Hard Disk zero(TX1)</p>	02	
32	<p><b>Data Archive Storage (Latest with highest Specs Available at the time of procurement)</b></p> <p>500 TB Raw Hybrid Storage with Fiber Channel / iSCSI / Ethernet Support Based On Tier 3 Infrastructure 30% SSD + 30% SAS + 40% SATA</p>	01	
33	<p><b>Sony Digital Voice Recorder</b></p> <p>4GB internal memory, expandable to 32GB with micro SD S-microphone system records distant or quiet sounds clearly Focus and Wide-Stereo recording captures the voices you want to hear Auto voice recording reduces background noise Built-in USB connector makes transferring files easy</p>	01	
34	<p><b>Magnet AXIOM with Cloud )- (Latest version available at time of procurement) with 3 years licensing and SMS Support</b></p> <p>Acquire images from locked and unlocked iOS devices using GrayKey and easily ingest them with AXIOM — giving you the most advanced solution for iOS devices.</p> <ul style="list-style-type: none"> <li>• Bypass passwords on thousands of Android models with exploits and advanced extraction capabilities.</li> <li>• Recover evidence from Windows-based computers and Macs.</li> <li>• Retrieve data from 50+ of the most popular cloud services including iCloud, Google, Facebook, WhatsApp, Twitter, Instagram and more--including additional support for cloud services like publicly available Twitter information, warrant returns from six different providers including Apple and Facebook, and user-request data from Facebook, Google, and Skype.</li> </ul>	01	
35	<p><b>DVR Examiner Discover And Recover Detect</b></p> <p>DVR Examiner identifies the unique filesystem of the DVR, regardless of the make or model.</p>	01	

	<p><b>Scan</b> DVR Examiner scans the DVR hard drive and recovers the proprietary metadata, presenting you with a complete list of available video clips.</p> <p><b>Export</b> Sort, filter and export open or proprietary video clips in minutes with the easy to use interface. Easy to read report included!</p>		
36	<p><b>Mail Examiner-Email content Analysis Tool</b> Analysis of Calendar Data Item Decrypt S/MIME &amp; OpenPGP Emails Option to Search Subsets Facility to Sort &amp; Filter Data Support Multiple Email File Formats Facilitates Skin Tone Image Analysis</p>	01	
37	<p><b>Anti-Static ESD workbenches for Forensic Workstation</b> ESD Workbenches have: Leg adjustability 30"-36" ESD Wrist Straps Drawer options Risers with integrated outlet in panels Overhead lighting Upper Shelves</p>	08	
38	<b>LAB Monitoring Camera With DVR</b>	04	
39	<b>Bio Metric/ IRIS Recognition System for Lab Entry</b>	02	
40	<b>License Software's Annual Renewal Cost</b>	--	

**QUESTIONED DOCUMENTS SECTION**

Sr. #	Equipment Description and Specification	Qty	Applying For Yes/ No.
1.	<p><b>Photography camera</b></p> <p>Digital Camera, for Fluorescence and Absorption Digital photography (Lab work), 52mm diameter Filters.</p> <p>Includes: Digital camera with 16GB SF Memory Module and international power supply, USB card reader to transfer high resolution photos to the PC, Forensic Image Enhancement Software, Camera control software, PrintScope Hood: Hood for 52mm Filter Slides, with Focus Ring with preset heights, and Camera Adapter. Also included: 49-52mm ring adapter, Tripod and reversible head, One Set of Protective Goggles (1UV,1 yellow, 1 orange, 1 red goggles). Carrying Bag for Camera, Carrying Bag for Tripod and for Hood</p> <p><b>Purpose:-</b></p> <p>To document the condition of evidence brought to the laboratory.</p>	01	
2.	<p><b>Transmitted Light Source</b></p> <p>The light is intended for express authenticity verification and advanced examination of passports, ID cards and other travel documents, visa stamps and seals, including but not limited to entry permits, driving licenses, banknotes, vehicle registration certificates and other vehicle related documents, revenue and special stamps, securities and other documents with security features in transmitted white and infrared light.</p> <p>Light sources: Transmitted white transmitted infrared <math>870 \pm 20</math> nm, Light transmitting screen size, mm 126x96 Functionality: Examination of document basis paper opacity, watermarks, security fibers, planchetes, security threads, all types of windows, shadow images, etc. printing methods see-through register and other security features and techniques document alterations such as erasure, traces of signature forgery, blurred, crossed out entries, texts and images.</p> <p><b>Purpose:-</b></p> <ul style="list-style-type: none"> <li>•For analysis of handwriting and signatures</li> <li>•To examine security documents</li> </ul> <p><b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement.</p>	02	
3.	<p><b>Magnifiers</b></p> <p><b>a) Regula1019-15</b></p> <p>Specifications:</p> <p>Magnification — 15 times</p> <p>Document examination under white light</p> <p>Document examination under UV illumination — 254, 313, 365 nm</p>	05	

	<p>Detection of retroreflective protection  Detection of Anti-Stokes luminescence  Micro-USB slot for charging</p> <p><b>b) Regula 1025-15</b>  Specifications:  Magnification — 15 times  Document examination under white incident light  Document examination under white oblique light  Document examination under UV illumination — 254, 313, 365, 400 nm  Detection of retroreflective protection  Detection of Anti-Stokes luminescence  Holographic security elements examination, OVD visualization  Document examination under interchangeable white/UV light  Micro-USB slot for charging</p> <p><b>Purpose:-</b>  •For analysis of handwriting and signatures  •To examine security documents</p> <p><b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement.</p>	05	
4.	<p><b>Computer system with monitor</b></p> <p>Processor: 10th or 11th Gen Intel Core i5 or i7 Processor  Operating system: Microsoft Windows 10 64 bits with license  RAM: 8-16 GB of RAM  Storage: 240 GB solid state drive for OS 1 TB SATA or larger for storage  Video/graphics: Integrated or Discrete graphics processor capable of 1440 X 900 resolution, or above  Monitor: 19" widescreen flat-panel display  Mouse &amp; keyboard  Wi-Fi capability.  MS OFFICE latest with license key.  Antivurs software with license key.  <b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement.</p>	02	
5.	<p><b>A3 Document Scanner</b></p> <p>Width and length: 297 x 420 millimeters  Scanning side: Simplex / Duplex  Scanning modes: Black and White, Error Diffusion, 256-level Grayscale, Advanced Text Enhancement, Advanced Text Enhancement II, 24-bit Color  Resolution: 600 x 600dpi  Speed: high scanning speed in both grayscale and color scanning  Automatic Document Feeder Capacity: A4: 50, A3: 25  <b>Note:</b> The above mentioned specification may be higher or equivalent as per requirement.</p>	01	

**NATIONAL FORENSIC SCIENCE AGENCY**  
**DETAILS OF "EXPERIENCE WITH OTHER**  
**GOVERNMENT DEPARTMENTS/ ORGANIZATIONS/**  
**AUTONOMOUS BODIES, ETC"**

<b>Sr. No</b>	<b>Name of the Govt Deptt/ Organization/Autonomous Body etc.</b>	<b>1. Purchase Order Date</b> <b>2. Nature of Order *1</b>
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

**Note:-** Attach documentary proof (contract agreement/ supply order) from concerned Government Department/Organization/Autonomous Body etc.

**UNDERTAKING**

(On letter head)

Mr. \_\_\_\_\_ S/o \_\_\_\_\_

CNIC No \_\_\_\_\_, Owner/Manager of the firm  
namely \_\_\_\_\_, hereby undertake that I have read  
and understood all the Instructions/Terms & Conditions carefully and I am willfully agreed/accept  
all the Instructions/Terms & Conditions accordingly.

Stamp & Signature \_\_\_\_\_

Date \_\_\_\_\_

Name \_\_\_\_\_

Father's Name \_\_\_\_\_

CNIC No. \_\_\_\_\_

**NATIONAL FORENSIC SCIENCE AGENCY**  
**General Terms & Conditions**

1. All the firms / contractors are expected to provide Equipment as per demand, specification, quantity and terms & conditions to National Forensic Science Agency, (NFSA) Plot No. 1,2,27 & 28 Opposite Police Line H-11/4 Islamabad.
2. The quoted price of each firm / contractor must be in Pakistani Currency including all taxes.
3. The firm should clearly indicate as to whether GST is included or not in the offered rates.
4. 2% of total quoted price shall be submitted as bid security in the shape of bank draft which will be returned back after completion of supply and it must be in favour of Project Director, NFSA. Moreover, the Bank Challan/ draft must be computerized.
5. The firm will submit the technical & financial proposal at the same time and only financial bids of technically recommended firms shall be opened.
6. Bid validity period shall be clearly mentioned in the bid.
7. All the firms are suggested to write the exact serial Nos. of this tender document as and when filling the bids as per Annexure-D.
8. **The bill of the firm shall be received and processed conditioned that complete supply and installation of the equipments are made.**
9. The firm shall be solely responsible if defective or malfunctional equipment are provided to NFSA.
10. The firm or contractor must have complete knowledge and well verse when purchasing/importing from domestic or international market accordingly.
11. The firm shall clearly indicate on letter head to which equipment it (Firm) is applying for. It is upto the desire of firm to apply for one equipment or whole equipment.
12. Major equipment shall be considered as lot and bid shall be given for whole lot. Bids shall be rejected if not given in lot.
13. Bid security will be forfeited if a bidder withdraws his bid during the bid validity period or fails to supply according to the terms and conditions of the bidding document.
14. Installation (where required) will be carried out on the same price as and when the equipment are delivered to the procuring Agency.
15. No bidder is allowed to alter or modify his bid after the bid has been opened.
16. The firm will have to produce performance guarantee / surety bond so that equipment be imported in original condition.
17. The firm will have to deliver the equipment as specified in contract agreement.
18. Where required, the procuring Agency shall sign an integrity pact with the successful bidders.
19. Where required, the firm will have to produce after sale services.
20. Each page / paper of tender document must be stamped and signed by the authorized Signatory/ Officer of the firm.

It is stated that I (Owner of the Firm) is agreed to all terms and conditions and willing to provide awarded equipment with full sincerity and honesty. Any violation or misrepresentation



in this tender document and thereto shall lead to cancellation of bid and supply order.

**Name** \_\_\_\_\_

**Signature** \_\_\_\_\_

**Date** \_\_\_\_\_