

GOVERNMENT OF ARUNACHAL PRADESH
OFFICE OF THE DIRECTOR GENERAL OF POLICE
ITANAGAR



No. PHQ (Prov) - 55 /2017-18 (PT-I)

Dated Itanagar, the 23rd September 2020.

TENDER NOTICE

On behalf of the Governor of Arunachal Pradesh, Director General of Police, Arunachal Pradesh, Itanagar invites Sealed Tenders under two Bid systems (Technical & Financial Bid) from the manufacturers, authorised agents/ dealers/suppliers of reputed firms for entering into contract for supply of various equipments for District Forensic Mobile Unit and for setting up of a Regional Forensic Science Laboratory at Itanagar, Arunachal Pradesh . For details please visit our web site - www.arunpol.nic.in.


Sd/-
Director General of Police
Arunachal Pradesh
Itanagar

(Not to be published)

Memo No. PHQ (Prov) - 55 / 2017-18 (PT-I)
Copy to :-

Dated Itanagar the 23rd September, 2020.

1. The Director of Information and Public Relations, Govt. of Arunachal Pradesh, Naharlagun for information and wide Circulation. He is also requested to pass necessary order for publication of the above Tender Notice in one leading News paper of Arunachal Pradesh published from Itanagar namely "Arunachal Times" or "Arunachal Front" and one news paper of National Daily namely "Times of India".
2. The In-charge Computer Cell, PHQ, Itanagar. The tender notice along with lists of equipments with Specifications may be uploaded in the website of Arunachal Pradesh Police (arunpol.nic.in).
3. Office copy


Asstt. Inspector General of Police (E),
Arunachal Pradesh
Itanagar.

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Arunachal Pradesh
Itanagar

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No. PHQ (Prov) – 55/2017-18 (PT-I)

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TENDER NOTICE – CUM – TERMS AND CONDITIONS

On behalf of the Governor of Arunachal Pradesh, Director General of Police, Arunachal Pradesh invites Sealed Tender under two Bid systems (Technical Bid & Financial Bid) from the manufacturers, authorized agents/dealers/suppliers of reputed firms for entering contract for supply of various equipments for District Forensic Mobile Unit and for setting up of a regional Forensic Science Laboratory at Itanagar, Arunachal Pradesh. For details please visit our web site-www. arunpol.nic.in.

1.

Sl.	Description of items to be procured	Approx. Cost of tender	Earnest money required	Tender Fee (Non refundable)
1	Various equipments for District Forensic Mobile Unit and various equipments/items of different divisions for setting up of a Regional Forensic Science Laboratory at Itanagar, Arunachal Pradesh (Equipment details attached at Annexure -A)	Rs. 4,00,00,000	Rs. 8,00,000/-	Rs. 1,000/-

1. a) If any firm/bidder want to submit quotation (s) for any particular division/component (s), the amount of Earnest Money required is as under :-

Sl.	Division of RFSL/Component	EMD Required (In Rs.)
1	Equipments for Biology/Serology Division (RFSL)	Rs. 2,00,000/-
2	Equipments for Ballistic Division (RFSL)	Rs. 1,93,000/-
3	Equipments for Question Documents Division (RFSL) and evidence/sample collection, Labelling, Packing & Sealing items (envelopes, jars, Bags etc.)	Rs. 2,00,000/-
4	Equipments for Lab. Apparatus and chemicals for Narcotic Division (RFSL)	Rs. 7,000/-
5	Vehicle and equipments for DFMU	Rs. 2,00,000/-

N.B : Earnest money deposit is calculated @ 2% against approx. value of equipments of each division/department with the total approx. value of Rs. 4,00,00,000/- (Four crores) for the entire equipments/items.

1. b) The tender fee will remain same i.e Rs. 1000/-.

2. Critical date sheet :-

Sl.	Particulars	Date	Time
1	Date of publication of Tender	25/09/2020	-
2	Bid submission start date	From the date of publication onward	
3	Bid submission end date	29/10/2020	1100 hrs
4	Physical submission of earnest Money deposit/Bid Money and cost of Tender Documents (Tender fee).	With technical bids. However, the tenderer who want to obtain tender document from PHQ, Itanagar, tender fee (Bank Draft in favour of	

		AIGP/E, PHQ, Itanagar payable at SBI, Itanagar) may be furnished at the time of obtaining the tender documents. The firms registered under MSME are exempted for earnest money. They must submit copy of registration certificate of MSME.	
5	Date of Technical bid opening	29/10/2020	1130 hrs

Financial bids will be opened after detailed scrutiny of technical bids. The technically qualified firms will be informed about date & time of opening of financial bids in due course of time.

3- The Tender documents must be provided in two (02) covers:-

1. **Cover-1:-** It shall contain scanned copies of eligibility information as under.

- a) Technical bid along with its specifications leaflet, brochure, catalogue/literature, if any, of each tendered item.
- b) Tender documents duly completed and signed BUT without indication of the rates "Quoted".
- c) Earnest Money must be attached in form of TDR/FDR/Demand Draft/NSC/KVP etc. of Nationalized Bank/Post offices duly pledged in favour of Asstt. Inspector General of Police (E), PHQ, Itanagar. The firms registered under MSME are exempted for earnest money. They must submit copy of registration certificate of MSME.
- d) Attested copy of PAN.
- e) Attested copy of firm registration.
- f) Attested copy of firm GST Registration.
- g) Valid Trading license issued by competent authority for the tendered items.
- h) Letter of authority in respect of authorized distributors/dealership etc.
- i) Financially soundness certificate/C.A Certificate.
- j) Attested copy of last three years Income tax return of the firms.
- k) Experience certificate of firm.
- l) Any other relevant document which the firm wishes to submit.

2. **Cover-2:-** It shall contain documents on "Financial Bid". Financial bids shall be opened only of those bidders who have been declared technically qualified by the committee. The criteria for eligibility and qualifications is to be met by the bidders such as minimum level of experience, past performance, facilities and financial position etc.

GENERAL INSTRUCTIONS:-

1. The tenders received after scheduled date & time will not be entertained. The tenderers or their representative may remain present at the time of opening of tenders.
2. Rates must be clearly written in figures as well as in words.
3. There should not be any cutting/over writing.
4. The Tenderer/Firms who fail to fulfill the eligibility conditions will be summarily rejected.

5. The firms will have to submit all original documents (as mentioned in cover-1) including EMD, Cost of Tender documents in the office of Assistant Inspector General of Police (E), Police Head Quarter, Itanagar, Arunachal Pradesh on 29/10/2020 at 1130 hrs. The experience certificate must contain name designation, address, Phone No., Mail ID of issuing officer. The certificate should be countersigned by concerned OFFICE HEAD/DEPT. HEAD.
6. In case tender opening day is declared as holiday or bandh call at Itanagar, the tenders shall be received upto next working day till 1100 hrs and opened on the same day at 1130 hrs.
 - a) The bidders should keep checking the website for any addendum/corrigendum to the notice/bidding documents till the date of submission of bids and the bidder should incorporate the same in his bid documents.
 - b) Conditional bids and the bids not meeting the qualifying criteria on the date of receipt of bids shall be summarily rejected.
 - c) Bids will be opened as per time & schedule mentioned.
 - d) Before submission of bids, bidders must ensure that scanned copy of all the necessary documents have been attached with bid.
 - e) The department will not be responsible for delay in submission due to any reason(s).
 - f) All the required information for the bid must be filled and submitted.
 - g) The details of EMD and other documents specified in the tender documents should be same as submitted (scanned copies), otherwise tender will be summarily rejected.
 - h) Technical compliance statement should be enclosed alongwith technical bid clearly specifying deviation, if any for all specifications mentioned in the tender.
7. The tender papers containing full details with specifications and terms and conditions can be obtained from Dy. Superintendent of Police (Provisioning), PHQ Itanagar, on payment of tender fee of Rs. 1000/- (Non-refundable through a bank draft in favour of the Asstt. Inspector General of Police (E), Arunachal Pradesh, Itanagar payable at S.B.I. Itanagar) on any working day from 0930 hrs to 1600 hrs w.e.f. 25/09/2020 to 28/10/2020. The tender documents may also be download from our website. The tenderers downloading the documents from website are also required to submit a Bank Draft of Rs. 1000/- as tender fees. No other mode of payment will be accepted.
8. All firms have to submit earnest money as mentioned above along with their Technical Bid. The firms registered under MSME are exempted for earnest money. They must submit copy of registration certificate of MSME.
9. Successful tenderers will be required to deposit 5% of the total value of the articles to be supplied as performance security money within 10 days from the date of issue of letter of acceptance of tender. The successful tenders will have to enter into a "DEED OF AGREEMENT" stipulating the Terms and Conditions of the contract. Security deposit will be subject to forfeiture in case of non-fulfillment of any or all the Terms and Conditions of contract. Earnest Money of the successful tenderers will be forfeited to the Government in case of failure to furnish security money and execution of "DEED OF AGREEMENT".
10. Rate should be quoted F.O.R Central Store, PHQ, Itanagar. Rates quoted other than F.O.R Central Store, PHQ, Itanagar shall not be accepted. No packing or forwarding charges will be allowed. The rate of GST (as applicable) may be charged/quoted by the tenderers and the amount be clearly mentioned for all items. The rate should be quoted in Indian currency both in figure and words clearly. Tenders must be legible and clear in all respect else the tenders shall be liable to be rejected.



11. Tenders should be addressed to the undersigned by designation and not by name. The separate sealed envelope containing the tender should be subscribed as "Tender for supply of DFMU and various equipments/items for RFSL, Itanagar Arunachal Pradesh" and sent by Registered Post/Speed Post/Courier Service or put in the Tender Box kept in the office of the undersigned (Provisioning Branch) on any working day from 0930 hrs to 1600 hours. *The tenders received after scheduled date & time will not be entertained.*
12. Any breakage or loss of any item will be at the supplier's risk.
13. Delivery of the stores will have to be completed within 60 days from the date of issue of firm order. In case of failure to supply the items in time, violation of any provision of Deed of Agreement, the firm is liable to be blacklisted.
14. If any item is found damaged or otherwise unacceptable at the time of delivery/inspection, the supplier will be required to remove the same from Central Store, PHQ, Itanagar, Arunachal Pradesh at their own cost within 15 days.
15. Payment will be made to the supplier directly on completion of supplies/installation and on receipt of stores. Documents/vouchers/R.R.S bill etc. routed through bank will not be accepted.
16. The Director General of Police, Arunachal Pradesh, Itanagar reserves the right to reject the lowest or all or any of the tenders without assigning any reason thereof.
17. The Director General of Police of Arunachal Pradesh, Itanagar shall have the right to ask the firms to demonstrate their items before the items are accepted.
18. List of equipments/items with description & specification is enclosed at Annexure- A. The quantities mentioned in the enclosure are all approximation and subject to variation as per actual availability of funds.
19. Tenders will remain valid up to 31-12-2021.
20. All items to be supplied shall be on warranty for a period as mentioned against them in the enclosed list. Where the warranty period has not been mentioned, the minimum warranty period shall be taken for one year (except consumable items).
21. The vendor/ firm shall submit undertaking to provide After sales service of items / parts to be supplied for minimum period of 5 (five) years from the date of supply of items.
22. In case of any dispute, legal jurisdiction will be at Itanagar, Arunachal Pradesh.
23. In case of any query, the tenderers may contact at following phone no./mail ID.

Officers	Telephone	E-mail ID
Dy. Superintendent of Police (Prov), PHQ, Itanagar	7399485277 (Mobile)	arpolice@rediffmail.com .
Sub-Inspector (Prov), PHQ, Itanagar	7005100856 (Mobile)	arpolice@rediffmail.com .



Asstt. Inspector General of Police (E)
Police Head Quarter
Itanagar

Asstt. Inspector General of Police (E)
Arunachal Pradesh
Itanagar

LIST OF EQUIPMENTS/ITEMS WITH DESCRIPTION & SPECIFICATIONS PROPOSED TO BE PROCURED

A. SPECIFICATIONS FOR THE DISTRICT FORENSIC MOBILE UNIT (DFMU):-

1. Mobile Forensic Vehicle compatible to accommodate the mobile investigating team and investigating kit boxes for preliminary testing at crime scene and packing of exhibits:-

(a) Vehicle fitted with interior/ fabrication along with the following kits:-

(i)	Complete Fingerprint Taking Kit	-1	No.
(ii)	Latent Fingerprint Developer Kit.	-1	No.
(iii)	Foot & Tyre print Casting Kit	- 1	No.
(iv)	Electrostatic Dust Mark Lifting Kit.	- 1	No.
(v)	Crime Scene Illumination system	-1	No.
(vi)	Blood Detection Kit.	-1	No.
(vii)	Semen Detection Kit.	-1	No.
(viii)	Narcotics Detection Kit.	-1	No.
(ix)	Explosive Detection Kit.	-	1 No
(x)	Gun Shot Residue Kit.	-	1 No.
(xi)	Trace Metal Detection Kit.	-	1 No.
(xii)	Bullet Hole Testing Kit.	-	1 No.
(xiii)	Bullet Trajectory Kit.	-	1 No.
(xiv)	Evidence Collection & Packing Kit.	-	1 No.
(xv)	General Investigation Kit	-	1 No.
(xvi)	SOC Sketch and Measuring Kit.	-	1 No.
(xvii)	Arson Investigation Kit.	-	1 No.
(xviii)	DNA Collection & Sexual Assault Investigation kit	-1	No.
(xix)	Set of Magnifiers	-	1 No.
(xx)	Crime Scene Cordoning Kit.	-	1 No.
(xxi)	Set of Search Lights	-	1 No.
(xxii)	Coat / Dangri – 100 Nos.	-	1 set
(xxiii)	Gas Mask – 100 nos.	-	1 set
(xxiv)	Protective Shoes – 10 Nos	-	1 set
(xxv)	Head Gear with Torch – 05 nos.	-	1 set.
(xxvi)	Jacket for Scientific Staff – 20 nos	-	1 set.
(xxvii)	First – Aid Kit.	-	1 No.
(xxviii)	Forensic Light Source	-	1 No.
(xxix)	Collapsible Ladder	-	1 No.
(xxx)	Digital Camera (min-18 Mega-pixels FX Format CMOS Sensor – 1 No		

Free installation to be provided. Three years warranty to be provided.

2. Raman Spectrometer :-

RAMAN SPECTROMETER (Specification):-

- a. System should be able to record the Raman spectral analysis of liquid, gels, powders and Solid samples like drugs & Narcotics etc. using excitation at 532 and 1064 nm.
- b. System should have Spectral range of 200 cm^{-1} to 3500 cm^{-1} or higher for 532 nm.
- c. System should have Spectral range of 100 cm^{-1} to 2300 cm^{-1} or higher for 1064 nm.
- d. Resolution range : 9 cm^{-1} to 12 cm^{-1} for 532 nm and 12 cm^{-1} to 17 cm^{-1} for 1064 nm.
- e. System should have provision for laser power adjustment from 0 mW to atleast 450 mW or higher.
- f. System should be supplied with Active trigger fibre optic probe for 532 nm for measurements outside the instrument. Measurement of samples should be possible directly through bottles/beaker/vials or containers.
- g. System should be supplied with Active trigger fibre optic probe for 1064 nm for measurements outside the instrument. Measurement of samples should be possible directly through bottles/beaker/vials or containers.
- h. System should have On board touch screen for system control or operate through external PC.
- i. System should be supplied with Liquid Vial holder suitable for fibre optic probe.
- j. System should elaborate spectrograph using volume phase grating.
- k. System should have provision for automatic calibration for Raman shift via software.
- l. System should also be suitable to carry outside the laboratory for field investigation with Lithium Ion Battery provision.
- m. System should have internal storage capacity of atleast 14 GB or more.
- n. System should have provision for data ports with USB and Ethernet.
- o. Satisfactory installation and operational training (at the location of installation) must be provided free of cost.
- p. Three years warranty must be provided. Minimum three preventive maintenance visits (annually) plus breakdown visits (as and when called for) must be provided free of cost during warranty period.
- q. The computer, monitor, UPS, Colour Printer are to be provided by the firm supplying the equipment.

3. LAPTOP:-

(a) Intel Processor i7, (b) 16 GB RAM or more, (c) Graphics compatible for video editing with software (d) colour printer and scanner. Three years warranty to be provided.

4. External Hard Disk: -Storage capacity 2TB compatible with latest configures. Three years warranty to be provided.

5. SLR Digital Camera with accessories:-

- (a) 30 M.P. or more
- (b) Sensor type-COMS
- (c) MMC-1
- (d) Approximate battery life (in shots) – 900
- (e) 18-137 mm lens
- (f) EXPEED 4 image-processing engine and ability to shoot 1080/60, Full HD convenient with the tilting LCD monitor as well as built- in wi-fi.
- (g) 51. AF sensor
- (h) Three years warranty to be provided.

6. Blue Ray Player :- To play the recorded data.

7. Video Camera:-

4K/60P(50P) recording XAVC S consumer-use 4K/HD recording format High-quality 50 Mbps HD recording High-speed reading/writing on XQD media card professional-class audio XLR terminal excellent manual operation and image quality adjustment function. Three years warranty to be provided.

8. Generator:- Capacity 25 KV. Five years warranty to be provided.

9. Consumables items:- Lab apparatus and chemicals.

(a) Laboratory Apparatus /Glassware:- (Total cost of all items under this component i.e laboratory apparatus/glassware should be shown altogether).

1. Chromatography Sprayer with rubber bellow Capacity – 100 ml – 6 nos, 150 ml – 6 nos., 250 ml – 6 nos.
2. Chromatography Sprayer Bottle type with interchangeable joints rubber bellow Capacity – 25 ml – 3 nos, 50 ml. – 3 nos., 100 ml – 3 nos.
3. Test tube stands made of Perspex/plexi glass sheet (a) No of Holes 12 – Dia – 12mm ,– 50 Nos, (b) No. of Holes 24 , Dia – 18mm - 50 Nos.
4. Test tube Holder, chrome plated - 50 nos.
5. Spatula Stainless steel both end flat or end spoon size – 4 inches, 6 inches, 8 inches, & 10 inches, –50 nos
6. Tongs for holding flask 12 " long S. Steel - 10 Nos.
7. Tongs for holding beaker 12 " long S. steel - 10 Nos.
8. Crucible Tongs – length 6", 8", 12", 18"stainless steel - 16 Nos.
9. Strirring Rod - 25 ml. Indian glass - 10 nos.
10. Dropper with capillary jet & rubber teat 5 cm with 5 cm jet., 8 cm with 10 cm jet - 200 Nos.
11. Medicine Dropper with rubber teat 15 cm - 100 Nos.
12. Dropping Bottle, Soda glass, Polythene stopper with dust proof head, glass dropper & rubber teat capacity 60 ml, 12 ml - 80 Nos
13. Automatic pipette – 15 ml capacity - 20 Nos.
14. Specific Gravity bottle conical with cap capacity 25 m l --10 Nos.
15. Membrane Filter Holder Assembly with support for membrane, Funnel, Flask & Clamp, Standard joint fitting, Membrane dia, mm 25, Funnel Capacity. Ml 300 & 50, Flask Capacity. Ml, 1000 and 500 ml.– 1 No. each
16. Laboratory glassware – washer with all necessary accessories.
17. Laboratory Glassware Drier, Electric with 60 Positions for placing different size.
18. Amber colour Solution Bottle tooled Neck. Capacity (250 ml- 20 Nos) (500 ml-20 nos), (1000 ml- 5 Nos) ,(2000 ml - 5 Nos).
19. Amber colour Flask Conical / F. B./ R.B with inter changeable stopper, Capacity – 50 ml, 100 ml, 150 ml – 15 Nos each.
20. Amber colour Reagent Bottle W.M with inter changeable stopper, Capacity – 30 ml, 60 ml, 125 ml, 250 ml, 500 ml – 10 Nos each.
21. Amber colour Petri - Dishes , Culture with serial No. marked O. D. (Height) ml.(50 x 17 - 50 Nos), (70 x 17 - 50 Nos), (100 x 17 - 50 Nos.)



22. Silica Crucibles with lid with stands 800°C. Capacity 15 ml, 25 ml, 50 ml (Total 45 Nos (15 each ml.)
23. Silica crucibles without lid with stand 800°C Capacity – 15 ml, 25 ml, 50 ml – (Total 45 Nos) (15 each ml.)
24. Silica Basins with spout, Round Bottom, translucent with stand 800°C Capacity 35, 70, 100, 150 ml. Diameter – 50 - 55mm, 70 - 75mm, 80 - 85mm, 90 - 95mm – 48 Nos (12 Nos each).
25. Glass Basins with spout, Round Bottom, translucent with stand 800°C Capacity 35, 70, 100, 150 ml. Diameter – 50-55mm, 70-75mm, 80-85mm, 90-95mm – 48 Nos (12 Nos each).
26. Hard glass tubes - 2.5cm diameter, 20 cm long, height size -OD X length- 25X100mm and size-OD X length - 25X200mm-100 nos. each.
27. Beaker of different sizes capacity 250 ml and 500ml-100 nos.
28. Test tube brush-100 nos.
29. Porcelain basin or china clay bowl for heating- m100 nos.
30. Precoated silica Gel G- Thickness 0.2mm on aluminium sheet-1 pack (25 nos.)
31. Measuring cylinder – Capacity-10ml, 50ml and 100 ml -30 Nos
32. Hand gloves(rubber) – 50 nos.
33. Disposable gloves – 150 nos.

(b) Chemicals :- (Total cost of all items under this component i.e chemicals should be shown altogether)

1. Conc Sulphuric Acid - 1000ml
2. Formaldehyde - 1000ml
3. Selenious Acid - 1000ml
4. Molybdic Acid - 1000ml
5. Ammonium Vandate - 1000ml
6. Acetic Acid (Glacial) - 1000ml
7. Copper Sulphate - 500mg
8. Sodium Hydroxide - 500mg
9. Cobalt Thio Cyanate - 500mg
10. Stannous Chloride - 500mg
11. Hydrochloric Acid-1000ml
12. Nitric Acid - 1000ml
13. Sodium Bicarbonate - 500mg
14. Cobalt (II) Acetate - 500mg
15. Methanol - 1000ml
16. Sodium Nitropruside - 500mg
17. Acetaldehyde - 500mg
18. Sodium Carbonate - 500mg
19. Acetone - 1000ml
20. Vannilin - 500mg
21. Chloroform -1000ml
22. P-Dimethyl amino Benzaldehyde -100mg



23. Ethyl Acetate - 500mg
24. Ammonia -1000ml
25. Toluene -1000ml
26. Ethanol - 1000ml
27. Acetone -1000ml
28. Silica Gel-G - 500mg
29. Di-Ethyl Amine - 1000ml
30. Di-ethyl Ether - 1000ml
31. N-Hexane -1000ml
32. Benzene -1000ml
33. Fast Blue B-Salt -500mg
34. Di-Chloromethane-1000ml
35. Petroleum Ether -1000ml
36. Sodium Hydroxide -500mg
37. Ferric Sulphate -500mg
38. P-Amino Phenol -500mg
39. Caustic Potash-500mg
40. Cyclohexene-1000ml
41. Butyl Ether-1000ml
42. Bismuth Subnitrate-100mg
43. Potassium Iodide-100mg
44. Plantinic Chloride-100mg
45. Ammonium molybdate-250gms
46. Glycerin-500ml
47. Sodium Acetate-250mg
48. Sodium Bisulphite-250mg
49. Sodium Chloride-250mg
50. Sodium Bicarbonate-250mg

10. Portable 3D – X Ray Crime Scene Kit (technical specifications)

1. The equipment should be fully digital with latest technology system based on linear photo diode array or amorphous silicon principle producing high-quality images with no loss of resolution, even with long distance 50 mtr wireless transmission or extended cable lengths.
2. The equipment should have both wireless (with latest technologies) and wired system.
3. The complete system with wireless option should fit into a single or two transportable suit cases. Weight of the entire should have maximum 40 kg.
4. The system should provide load-balancing main handle and quiet roll-away wheel design.
5. The system should provide new easy-open latches, longer handle and wider wheel base. JCB foldable workstation.

6. The minimum image resolution should be over 1.8 lp/mm or 127 micron for sharp images.
7. It should capture images of objects at ground level with height adjustment facility.
8. The equipment should have the ability to distinguish 0.07 to 0.08 mm (AWG 40) wire in air and 0.15 to 0.16 mm (AWG 34) or less wire behind 4mm (1/8") or more of steel.
9. The equipment should have total penetration of over 20 or more mm steel.
10. The RTVS should be mountable on the ROV and Mini ROV.
11. Software capabilities-material discrimination, Pseudo coloring facility, brightness and contrast control, split screen capability, sharpening of images, 3D effect on an image with rotation of an images, on screen measurement facility, zooming, scrolling of full image etc.
12. The equipment should operate for minimum 40 standard images or more 4.5 hours on rechargeable battery power. It should have additional facility to operate continuously with 230 volts 50HZ adapters or external 12v DC source.
13. The system should provide variable power -on delay.
14. A battery low-level indicator should support the system.
15. The system should provide e-mail and LAN connections.
16. The system should provide software controlled X-ray safety switch.
17. The system should provide minimum 80 mtr. thin cable on roll-up reel connecting the control unit to the integrated imager for remote and safe viewing.
18. The system should provide RJ-45 ethernet interface cable to connect control unit to roll-up reel.
19. The system should provide two imager batteries with external 230 VAC 50 hz charger.
20. The system should provide external AC converter to power imager from 230 VAC 50Hz.
21. The system should provide 3 mtr. (10') cable connecting X-ray imager and X-ray source.
22. The supplier should provide operators' manual in original (hard & soft copy) from the manufacturer in English. He should also provide Hindi & English manual which can be done later also.
23. The system should provide system restoration and application software CD set.
24. The system should provide incident database management system.
25. Audible and visual warning during the X-ray activation should be available.
26. The system (laptop) should provide laptop control unit.
27. The system (laptop) should provide display minimum 15.4" WSXGA+ widescreen active matrix TFT color LCD/LED HD (wide-viewing angle) displaying 64-bit true-color at 1680 x 1050 XGA resolutions.
28. The system should provide processor: Pentium i5 or better, 2GHz with dual core processor or higher, enhanced speed step technology.
29. The system should be protected by antivirus software to protect its stored data.
30. The system should provide memory: 8 GB RAM.
31. The system should provide Pcrts : Built-in- minimum 3 USB ports.
32. Optical drive: The system should provide internal DV. The system should provide DVD writer-DVD+R/+RW hot-swappable (plug-in module) Hard Drive/capacity: Internal hard disk 500GB or more.
33. The system should provide battery: Lithium-ion or latest with minimum 4.5 hours usage battery life.
34. The vendor should be Original Equipment Manufacturer (OEM) or authorized by the OEM to participate in the tender procedure.

35. The vendor should also specify the life of the system as authorized by the OEM.
36. The manufacturer/supplier must have base in India and should have adequate service centres. The complaint if any should be attended within 48 hours.
37. Warranty of the equipment must be minimum 3 years and warranty of batteries and chargers should be minimum 1 year. The manufacturer / vendor should give undertaking in this regards.
38. All types of accessories, expandable and consumable items, connecting cables essential with one set of spare cables, operators Manual, Service Manual and Recovery software CD+ USB should be provided.

SPECIFICATION OF X-RAY SOURCES

1. The system should provide compact- design pulsed X-ray source or continuous X-ray source with 40 beam angle.
2. The system should provide 120 to 240 kv energy & 1 mA and should have adjustable exposure time.
3. The system should not weigh more than 8 kg with battery.
4. The system should provide two rechargeable battery packs and charger (150 to 230 VAC).
5. The system should provide X-ray source safety key set.

SPECIFICATION OF X-RAY IMAGER

1. The size of imager should be minimum 600 mm x 400 mm imaging area.
2. The system should not weigh more than 8 kg (including battery).
3. The system should provide power to imager by removable and rechargeable battery with fuel gauge (battery level indicator).
4. The system should provide system environmental performance certificate from any NABL laboratory.
5. The system should be operatable at temperature – 0 degree centigrade to 50 degree centigrade and withstand humidity upto 90%. Storage temperature upto 0 to 60 degree Celsius.

SAFETY REGULATIONS :-

1. The whole system should be international CE/FDA/BIS certified.
2. The X-ray source should have the AERB Certification
3. The comprehensive training should be imparted for technical staff and support services should be provided till the staff gets familiarized with the system.

B. EQUIPMENTS/ITEMS FOR REGIONAL FORENSIC SCIENCE LABORATORY (RFSL)

BIOLOGY/SEROLOGY DIVISION

1. Trinocular Microscope with camera attachment :-

- i. Microscope with automated stand for transmitted light LED illumination provides constant color temperature without heating up the specimen with additional advantage of long life (approx.. 50,000 hrs) mains 100 - 250V, 50 - 60 Hz.
- ii. Eyepiece 10x / 22 (pair)
- iii. Automatic light intensity adjustment on magnification (objective lens) change to prevent eyestrain due to sudden surge of light intensity.
- iv. Motorized revolving nosepiece or objective turret with 6 positions
- v. Automated condenser Achr. Apl. A 0.9 with automated head to quickly and automatically adjust its setting or position based on magnification (objective lens).



- vi. Light ring slides for phase contrast for condenser with slot for sliders.
- vii. Light ring slides for dark field for condenser with slot for sliders.
- viii. 3-step focus drive for coarse, medium and fine focusing, focus torque adjustment with height – adjustable focus knobs for fatigue-free grip.
- ix. Ultra-hard ceramic stage surface with travel range 76mm x 25 mm, suitable for both right-handed operation as well as left-handed operation with X/Y stage control
- x. Slide holder for standard slide for easy one hand slide exchange and object clamp for oil immersion application.
- xi. Achromatic objective lens with good field flatness up to 22 mm or more 5x /0.12 w.d. 14.0 mm & 10x/0.25 PH w.d. 17.6mm; 20x/0.40 PH w.d.0.39mm & 40x/0.65 w.d 0.36 mm and 100x/1.25 OIL PH w.d.0.12mm.
- xii. Immersion liquid, ISO 8036, 20 ml auto-fluorescence
- xiii. Focusing telescope for phase contrast
- xiv. Scientific Grade Digital Cooled CCD Camera with resolution 1.3 MP or more. Minimum pixel size of 3.75µm x 3.75µm pixel size (or more), acquisition speed up to 31 fps in full resolution, increased up to 72 fps with binning. Image analysis software for display of live image acquisition and storage. Digitalization up to 16 bit.
- xv. Suitable C-Mount adapter with 0.7x
- xvi. Dust cover
- xvii. A compatible PC for display, capture of images and basic measurement
- xviii) Warranty – Three years

2. Compound Microscope :-

- i. Transmitted LED illumination – 6000 K temp, 25000 hrs life at full intensity; continuous intensity adjustment. Auto off with activating switch to automatically turn off the power after 2 hours of no use.
- ii. Microscope designed to inhibit the growth of bacteria to prevent the spread of disease via the microscope surfaces and leads to a healthier laboratory environment
- iii. Main optical components with ISO 9022-11 certification for test against mould growth
- iv. Microscope with 45 degree inclined observation tube & Interpupillary range 52mm – 75 mm
- v. Eyepiece wide field 10 X/20mm FOV (pair)
- vi. 5-position nosepiece turret
- vii. Plan objective lenses : 4x, 10x, 20x, 40x, and 100 x oil
- viii. Immersion oil
- ix. Wear resistant XY travel stage with Verners for X/Y coordinates; coaxial XY knob adaptable for both left and right hand operation. With slide holder for one hand ergonomic operation.
- x. Weighted Coaxial focus knobs to offer inertia and extremely accurate focus capability. Precise fine focus with 300 microns increments
- xi. Centerable and focusable condenser mount
- xii. Abbe condenser 0.9 Dry /1.25 oil with magnification levelling and slots for phase and Darkiefield sliders to be inserted for further upgradability
- xiii. Microscope should have a built in cord wrap and carrying handle for smooth and trouble free handling
- xiv. Dust cover
- xv. Warranty – Three years.



3. Microtome: - Fully Automated Rotary Microtome with accessories. Technical Specifications:-

1. A state of the art fully motorized heavy duty automated microtome: Single stroke, continuous stroke, rocking stroke and programmed mode for the sectioning of soft, hard, paraffin and resin embedded blocks.
2. Section thickness range should be between 0.25 to 100µm with increments in the range of 0.5µm, 1µm, 5µm with LED display.
3. Trim thickness range should be 1-600µm with 1µm, 2µm, 5µm and 10µm increments, respectively with LED display.
4. Vertical stroke 70-80mm. Specimen advance 30-35mm.
5. Section counter, knife angle position locator and specimen orientation light facility should be there.
6. Emergency stopping facility and lockable hand wheel should be present.
7. It should have option of foot pedal operation and emergency stop button in automated mode.
8. Automatic object return to starting point and connection for backlighting with cold light source.
9. Directional specimen holder fixture with quick clamping system, standard clamp and universal cassette clamp.
10. Round specimen holder with all accessories.
11. Should have spacious, removable section waste tray with integrated armrest.
12. Universal knife holder base, disposable blade holder, disposable blades, stereo zoom microscope attachment for glass knife sectioning with cold light source using gooseneck. Glass knife maker, Glass knife holder. Glass knife box, high quality glass strips for making glass knife (~30 pcs). Glass knife maker and its accessories should complete the whole system from breaking to making of glass knife ready to use. The vendor should make sure that the glass knife holder of microtome accepts this glass for sectioning. The specimen holder of microtome should be capable of holding resin blocks for sectioning.
13. Instrument should be capable of making semi-thin section of resin embedded sections with the help of glass knife.
14. Instrument should have an operating voltage suitable for Indian plugs.
15. High profile disposable blades pack as well as low profile disposable blade pack, each.
16. Five years of warranty and validation of instrument should be done every six months.
17. One branded vacuum pump; Gast Vacuum/pressure diaphragm pump with gauges, regulators, and relief valve, single head, 1.0 cfm, 220/240 VAC.
18. Desiccator SCHOTT DURAN DN300, Outlet in Lid with Stopcock, flat flanges, NOVUS junction and porcelain plate should be quoted with the system.
19. One UVP make hybridization oven HB-1000 with orbital tray and rocker tray with stacking kit for UVP HB-2000.
20. Standard flat embedding mold made up of silicone at least twenty, with 21 numbered cavities measures: 14mm(L) x 5mm(W) x3mm (D). Should be reusable and must withstand 65°C temperature.
21. Slide warmer hot plate with digital temperature display and control.
22. A vibration free table to accommodate the instrument.
23. Dumont precision tweezers made of titanium, Type 5, six in numbers, (thickness of tip 0.01mm, width of tip 0.05mm and length 110mm), Type 3, six in numbers, (thickness of tip 0.1mm, width of tip 0.17mm and length 120mm).
24. Price of individual components should clearly be specified in the standard and optional format in the quote. The bidder should justify each specification point by point in their order of requirement and should provide the evidence for the same in the technical brochures of the instrument with page number. Photocopied catalogues will not be considered for technical specification evaluation. Quotation not done in the proper form may invite technical rejection and will be technically disqualified.
25. The microtome system has to be quoted with all other accessories, such as stabilizer if required, power chords, 4 extra lamps for stereozoom microscope, since these accessories are required for effective use of this system. Quotation missing any of the above mentioned items or their parts would be disqualified straightway.
26. Warranty - Three years

4. Incubator:- TECHNICAL SPECIFICATIONS -

- i. Should be operated on 230V,50Hz single phase AC supply, and having temperature ranging from ambient to 60°C
- ii. Should be double walled with stainless steel inner chamber having a minimum of two inner stainless steel shelves with holes and powder coated outer surface.
- iii. Inner chamber should be fabricated with ribs for adjusting shelves to convenient height.
- iv. Should have a minimum of chamber size of (L*B*H) of 450*450*450mm.
- v. Should be provided with three side heating elements.
- vi. Should have air circulating fan (Which can be turn ON/OFF on demand) for uniform temperature on all shelves.
- vii. Should have double door with acrylic transparent door.
- viii. Should provide with a microprocessor based digital temperature controller with digital display.
- ix. Should have synthetic rubber gasket at the door.
- x. Warranty – Three years

5. Refrigerator: cooling type :frost free side-by-side refrigerator, capacity : 565 L, shelf type : toughened glass, compressor type : reciprocatory compressor, performance features: vegetable crispers, chiller compartment, dimensions (h*w*d*): 179 x 90.8 x 65.5 cm, weight : 98 KG. Warranty : 1 year on product and 10 years warranty on compressor,

6. Water Bath:-The Bath should be double walled in construction. The inner wall is made of Stainless Steel Sheet and the outer wall made of Mild steel Sheet duly painted in an attractive stove enamel spray paint. Suitable insulation be provided in the Bath. Long lasting immersion heaters fixed at the bottom of the working chamber provide the Heating for above ambient temperatures. The temperature ranges from above ambient up to 100° C in this Bath. Temperature should be controlled by an EGO Thermostat. Should operate on 220 Volts. AC Single Phase. Warranty –Three years.

7.Split A.C.(2 ton capacity) with stabilizer :- Inverter Series, Watt: 1200 -1500 W, Display – EM 2/5 filter. Warranty – Two years.

8. Electronic Weighing balance (capacity 0.1 mg - 2 kgs) :

- i. Automatic calibrations with internal weight
- ii. Full tare range facility should be available as standard
- iii. The balance should have permanent shock and overload protection with Monobloc technology
- iv. Balance should have self diagnostics features eg. Keypad test, repeatability test
- v. Balance should have smart track to know how much of the entire weighing range has been used
- vi. Balance should have prohibition for battery operation with the use of re-chargeable battery
- vii. Piece counting, percent weighing, dynamics weighing, statical formulation totaling, free factor facility should be provided
- viii. Protection of main Balance configuration against manipulation
- ix. RS232C interface should be available.ISO 9001/ ISO 14001. Certificate should be provided for Quality and Environmental Standard
- x. Warranty – Two years



9. Infrastructural development (lab. Apparatus, chemicals, lab. Furniture, instrument platform, one computer with colour printer, one laptop, UPS, stabilizer, almirahs etc.) –

i. **MINOR LABORATORY EQUIPMENTS :-**

(Total cost of all items under this component i.e lab. equipments should be shown altogether)

SL. NO.	NAME OF EQUIPMENTS	QUANTITY
1	Disposable Hand gloves	2 dozens
2	Cotton pad	½ kg or 2 pkts
3	Stainless steel scissor for Biological substance (various sizes)	6 nos. 4", 6", 8", 10"
4	Petri dish (best quality) (small & big)	4 nos. Each 50 mm, 80 mm, 100 mm
5	Glass slides	10 pkts
6	Tearing Needle	1 dozen
7	Forceps of various sizes (best quality)	4 nos. each 5", 6", 8"
8	Cover slips	2 pkts each (3 sizes) Round, rectangle, square
9	Dropper (Borosilicate glass with teat)	1 dozen
10	Cellulose acetate sheet	1 pkts
11	Glass rod (Borosilicate glass)	½ Kg
12	Pipette (Borosil) 0.1 to 5 ml, 0.1 to 10 ml, 0.1 to 15 ml, 0.1 to 20 ml	1 no. each (4 nos.)
13	Cavity plate	6 pieces (3 small, 3 big)
14	EDTA coated test tubes	1 dozen
15	Blotting paper	1 Quiar
16	Whatman filter paper	1 Pkt
17	Spatula - stainless steel, both end flat (best quality), 4", 6", 8", 10"	1 no. each (4 nos.)
18	Tongs (best quality)	3 nos.
19	Plastic Tray 375 x 300 x 75 mm & 450 x 350 x 75 mm	1 no. each (2 nos.)
20	Test Tube Stand	3 nos.
21	a. Test tube (round bottom) b. Test tube Centrifuge	2 pkts 3 pkts
22	Test tube holder	6 pieces
23	Brush – 230 mm x 25 x 65 mm, 381 mm x 13 x 76 mm, 367 mm x 10 x 30 mm	6 nos. each (18 nos.)
24	Disposable syringe	1 pkt
25	PH paper	1 Roll

ii. LIST OF CHEMICALS FOR BIOLOGY / SEROLOGY DIVISION:

(Total cost of all items under this component i.e chemicals should be shown altogether)

Sl No.	Name of Chemical	Quantity
1	Alpha- Naphthyl Phosphate (Analytical)	1 Pkt.
2	Benzidine (Best quality)	1 Pkt.
3	Glacial Acetic Acid (Analytical grade)	2 Bottle
4	Phenolphthalein	1 Bottle
5	Sodium Chloride	1 Bottle
6	Fast B-Blue salt	1 Bottle
7	Rectified spirit	2 Bottle
8	Sodium acetate (Anhydrous)	1 Bottle
9	Aniline blue	1 Bottle
10	Eosin	1 Bottle
11	HCL (Analytical grade)	1 Bottle
12	Starch	1 Bottle
13	Agar	1 Bottle
14	Iodine	1 Bottle
15	Hydrogen Peroxide	1 Bottle
16	Zinc dust	1 Bottle
17	Picric Acid	1 Bottle
18	Sulphuric Acid	1 Bottle
19	Diethyl ether	1 Bottle
20	Acetone	1 Bottle
21	Absolute alcohol	1 Bottle

iii. One computer with colour printer including all accessories :- PROCESSOR- dual core 2.4 GHz+ (i7 series Intel processor or equivalent AMD), RAM – 16 GB, Hard Drive- 256 GB or larger solid state hard drive, Graphics Card – any Display port-/ HDMI or DVI support – desktop only, Wireless (for laptops) 802.11 ac (WPA2 support required), Monitor – 23" widescreen LCD with Display Port/HDMI or DVI support – desktop only, operating system – Windows 10, Home or Professional editions, or Apple OS X 10.12.3, Backup Device – External hard drive and/or USB Flash Drive . Warranty – 3 year warranty.

iv. Laptop :- CPU: 2.5GHz Intel core i7-6500U (dual core, 4MB cache, up to 3.1 GHz with Turbo Boost), Graphics: Intel HD Graphics 520, RAM: 8GB LPDDR3 SDRAM(1,866MHz), Screen: 13.3 inch, 1,920 x 1,080 FHD IPS UWVA Bright view corning Gorilla glass WLED-backlit display, Storage: 256 GB SSD (PCIe/NVMe/M.2), ports: 2 x USB-C Thunderbolt 3, 1x USB 3.1, Type-C, headphone jack, connectivity:802.11 ac Wi-Fi; Bluetooth 4.0, Camera: HP True Vision HD Webcam, Weight: 2.45 pounds, 12.8 x9.03 x0.41 inches (W X D X H). Warranty – Three years.

10. Heating Mantle :- Energy Control 1000 ml, Mantle made of knitted layer of glass fabric combined with flexible heating elements encased in an Aluminium Housing duly painted. The temperature ranges from ambient to 350 °C controlled by Sunvic Energy Regulator. Suitable glasswool insulation is provided to prevent heat loss. Supplied with suitable length of flexible wire to operate on 220 / 230 Volts, AC Supply. Warranty – Three years.

11. Rotary Mixer :-Mains input 230 V / 50Hz / 110V/60Hz A.C. supply, body ABS + METAL body, Motion tilting – fix degree at 38 speed 15 RPM, weight 1.2 Kg, size device 188(L) X 221 (W) X260 (H) mm, operation Quiet – No noise, Standard configuration 4 ml, vacutainer (EDTA) tubes – 12 nos, And ESR TUBE (8 mm) – 4 nos, (total 16 nos.), special configuration 16 tube of either type or mix as required. Warranty – Three years.

12. Micropipette (Set of 5 :- 5-50ul, 50-200ul, 100-1000 ul, 500-5000 ul and 1-10 ML):-

Technical Specification of Micropipette –5-50ul, 50-200ul, 100-1000 ul, 500-5000 ul and 1-10 ML Variable Vol.

- i. Variable Volume Micropipettes feature built-in tip ejectors and autoclavable tip cones.
- ii. Should work on a click-stop digital system, are easy to calibrate and maintain, and easy to disassemble for autoclaving.
- iii. Manufactured as per ISO 9001:2008,. Each pipette should be individually calibrated according to ISO 8655 standards
- iv. Calibration certificate must be provided with each pipette.
- v. Accuracy and Precision values should be those laid down in the ISO 8655 standards.
- vi. Built-in, streamlined tip ejector facilitates easy tip ejection and access to narrow necked bottles and tubes.
- vii. Variable Volume Pipette: 5-50 ul 8 Increments [ul]: 0.5 9 Volume [ul]: 5.0 to 50.0 10 Accuracy (\pm) %: 2.5 to 0.7 11 Precision (\pm) %: 1.5 to 0.3 12 It should be CE mark.

13. Microwave oven:-

Standard Specification for Microwave Oven.

- i. General Requirement : The microwave oven shall be simple in operation and with turnable. Capable in microwave cooking and defrosting.
- ii. Supply voltage : 220 volts, 50H., single phase A.C.
- iii. Power Consumption : 1300W approx.
- iv. Microwave Power : 700W - 850W
- v. Oven Capacity : 20 litre - 25 litre
- vi. Microwave Frequency : 2450 MHz
- vii. Control : Soft/one touch control
- viii. Timer : 60 minutes - 90 minutes
- ix. Exterior Dimensions : 520mm(W) x 360mm(H) x 450mm(D) approx.
- x. Oven Dimensions : 330mm(W) x 220mm(H) x 330mm(D) approx.
- xi. Safety : The equipment shall be bonded to earth effectively in accordance with the I.E.E. Wiring Regulations. Sufficient Safety Interlocks to prevent leakage of microwave.
- xii. Accessories : Shall be supplied with a glass/ceramic tray.
- xiii. Warranty – Three years

14. Vortex Mixer (Cyclo Mixer):- Connected Load: 30 Watts, Dimensions: 150 x 150 x 125 mm. Warranty – Three years.

15. Water Purification System:- Specification for Laboratory Water Purification Systems .

A. Analytical grade water system

1. Product water should have i) Resistivity > 5 Megaohm-cm ii) Conductivity < 0.2 Micro-Siemens iii) TOC level < 40 ppb iv) Flow rate > 8 lit / hour
2. The 'Analytical grade water system' should have i) Pretreatment cartridge with anti-scaling compound, activated carbon & 1-micron filter. ii) A high flux thin film Reverse Osmosis (RO) membrane iii) Self-regenerating Electrodeionisation module (EDI) with mixed bed ion exchange resin.



3. The RO membrane & EDI module of 'Laboratory water purification system' should be compatible with feed water quality of free chlorine level of 3 ppm, SDI upto 20 and conductivity of 2000 Micro-Siemens.
4. EDI module with mixed bed ion exchange resin, should have carbon bead at cathode and should not have conditioning cartridge before EDI
5. System should have auto diagnostic facility with Error & Alarm
6. Monitoring of system should be through Coaxial resistivity cell, with cell constant 0.01cm⁻¹
7. PE tank should have 100lit capacity. It should have sensor rod float switch for auto cut-off.
8. System should be supplied along with PREFILTRATION UNIT, having 5-micron & 1-micron depth filter to arrest particulate matters in the feed water & also having noise free DC pump.

B. Ultra pure water system

1. Ultra pure water system should take at least 100 Micro Siemens of Water conductivity and should deliver ultra pure product water by point of use dispenser with rocker arm, volumetric dispensing and auto shut off facility having i) Resistivity > 16 Megaohm-cm ii) Conductivity < 0.06 Micro-Siemens iii) TOC level < 10 ppb iv) Flow rate > 1 lit / min
2. Should have separate feed water specific purification cartridge and application specific polishing cartridge.
3. Should have a vertically placed dual wavelength (185 & 254nm) hotcathode, UV lamp with ballast and quartz sleeve placed in a electro polished housing.
4. Final filter 0.22 micron PVDF validated membrane. System should have option for producing Pyrogen/Rnase-free water with UF cartridge..
5. Point of use gun with rocker arm and volumetric and fixed volume dispensing (3% accuracy), with a green LED.
6. Built in coaxial resistivity meter with a cell constant of 0.01/cm and 0.1degree C accuracy thermistor.
7. Maintenance display for sanitization, exchange purification cartridges, activation of fast flush, depressurization, air purge.
8. Control display showing product water resistivity / conductivity both compensated and non compensated mode, product water temperature, product water resistivity greater or below set point.

C. Other points:

1. The supplier should have agents in India to provide after sales service and maintenance.
2. The equipment should be guaranteed for a period of 2 years from the date of commissioning. During the period, if there is any repair to be carried out at the suppliers works, transportation cost of equipment / component besides repair / replacement charges, if any, should be borne by the supplier.
3. Catalogue related to each and every item should be enclosed.
4. Installation & commissioning to be carried out by supplier at site.
5. Commissioning charges, if any, to be indicated.
6. Dimensions of equipment, weight and space requirements to be given
7. Pre-installation requirements should be furnished.
8. Compliance statement of specification to be submitted along with the offer. Without compliance statement, the offer is liable to be rejected. All tender specifications to be compared with equipment offered line by line and documentary evidence must be enclosed by the supplier along with quotation.
9. Two copies of operating manual to be provided.
10. The Offer should include sufficient Spares & consumable items used in 'Analytical grade water system' & 'Ultra pure water system' to ensure trouble free operation for at least 2 years.



16. High speeds Refrigerated Centrifuge (Floor Model) :-

- i. Maximum speed (rpm) 26,000 to 29,000
- ii. Maximum RCF (x g) 70,000 to 100,000
- iii. Maximum capacity (tubes x ml) 6 x 1000 in swing bucket or fixed angle
- iv. Drive motor : High – torque brushless high-frequency motor
- v. Imbalance tolerant drive
- vi. Temperature range must be (°C): -10 to +40
- vii. Controls: Microprocessor based, Touch-screen interface (can be used with gloved hand). Memory-based programmed operation 30 programmed operations possible.
- viii. Acceleration/deceleration profile: Nine stage variable acceleration. Nine stage braked deceleration, plus free deceleration.
- ix. Refrigeration system: CFC/HCFC free with 5-year non-prorated warranty
- x. Run time: 99 hrs; Hold
- xi. Programmability: 30 programs or more
- xii. Actual run timer
- xiii. Temp. Control Accuracy : $\pm 2^{\circ}\text{C}$ of set temperature
- xiv. Speed control accuracy : ± 20 rpm
- xv. Speed control range : 100 to 26,000 rpm or 500 to 29,000 rpm
- xvi. Machine should be compatible with continuous flow operation (for future upgradation)
- xviii. RCF calculation RCF integrator, RTC (real time control), over speed detector facility
- xix. Automatic rotor lock/self – locking system
- xx. Automatic rotor identification system
- xxi. Ambient temperature for operation: 2°C to 40°C
- xxii. Non Contact imbalance protection
- xxiii. Pre cooling chamber
- xxiv. Power: 200-240 VAC, 50 HZ, 30 A, single phase
- xxv. Mandatory 2 rotors to be quoted with the specifications mentioned below.
- xxvi. Should be supplied with suitable 10 KVA Servo Voltage Stabiliser.
- xxvii. Warranty : Comprehensive 5 years on both machine and rotor from the date of installation directly certified by the manufacturers
- xxviii. In addition during the entire warranty period 2 maintenance service visits by engineers is must.
- xxix. Proven after sales service records
- xxx. Company should provide user list with email and phone numbers of orders placed in the last 2 years.
- xxxi. The centrifuge must provide automatic and instant rotor identification, completed upon installation of the rotor into the centrifuge, before the run is started and a fast, simple, and secure mechanism to automatically lock the rotor onto the drive adapter, eliminating the need for a tool or to hand tighten. The centrifuge must have a vacuum system, with a HEPA filter option, which only operates when needed and can be user selected for high performance or for energy savings. The centrifuge must be able to run without the use of a partial vacuum to protect sensitive samples in microplates, as well as other tubes and bottles. The centrifuge must have an energy savings mode ("sleep mode") to reduce power consumption up to 15% by turning itself off if idle after a period of time. The centrifuge must be able to satisfy cULus and CE safety requirements without being bolted to the floor, to provide flexibility to relocate within the facility.

Required rotors:

1. Fixed angle rotor 8x50 ml RPM 25,000 and RCF 75,000 x g or above with Polyallomer 50ml tubes and adapter for 10 ml along with tubes (minimum 50 tubes of each volume should be quoted in main offer)
2. Swing bucket rotor 4x500ml RPM 5,300 or above and RCF 6,800 xg or above with adapters for 50 ml conical tubes, 15 ml conical tubes and MTP's carrier

17. Temperature control room-30 to 50 degree Celcius.(Technical specification of temperature control cold storage chamber)

Sl. No.	Description
1	Dimensions (External) : 3660 mm (L) x 3660 mm (D) x 3050 mm (H)
2	Ambient Temperature (maximum) : +42 deg C
3	Room Temperature : -18°C to -20°C
4	Product to be stored : Forensic
5	Product incoming temperature : 28 deg C
6	Insulation: PPGI on outside/inside eco-friendly pre-fab modular PUF panels.
7	Thickness of Insulation:120 mm
8	Lamination of Panels (Wall & Ceiling): 0.4 mm thick SS-304 inside & PPGI outside.
9	Floor Insulation: 100 mm thick slab with tar felt (concrete will be customer's scope)
10	Door details :Hinj door
11	Condensing unit make: Bitzen / Denfoss / Equivalent
12	Compressor type : HERMETIC scroll / reciprocating, Refrigerant: R404A
13	Power supply requirement :415 V/ 3PH / 50Hz
14	Evaporator make: Bitzen / Denfoss / Equivalent
15	Digital temperature indicator cum controller: PID controller of Honeywell make or equivalent with artificial intelligence panel
16	Internal lighting : Artificial intelligence based
17	Strip curtain:1 Nos
18	Hooter :1 Nos
19	Table / platform : SS-304,granite 3 no.s
20	Rack: chemical proof with 4 partitions; 4 no.s
21	Logo: TFT FSL logo
22	Supply and installation of suitable numbers of CFC free (R404a / R134a) refrigeration machines with each cold store completely independent. The unit should be split type having condenser to be located outside.
23	The refrigeration plant should have complete auto operation. No attendant should be required for the same.
24	All safety requirements are to be incorporated.
25	Ambient temperature for design is 45 degree C.
26	The salient features of PUF panel required are:- i) Cam locking system. ii) Ozone friendly R-141, blown foam, wall& ceiling insulation 120mm with 0.5mm sheet and density 40kg. per cum.
27	Complete installation and commissioning of the cold store room is included,
28	The other technical details with regard to cold store room and cooling unit to be supplied are given in the attached sheet
29	Refrigerant piping with copper pipes, drain piping and suction line insulation.
30	Warranty – one year, AMC – two years.

BALLISTICS DIVISION

1. SPECIFICATIONS/TECHNICAL FEATURES OF FULLY AUTOMATIC UNIVERSAL FORENSIC COMPARISON MICROSCOPE FOR FIRED AMMUNITIONS, TOOL MARKS, BULLETS, COMPLETE WITH HIGH RESOLUTION IMAGING WORKSTATION:-

- i) Motorized comparison microscope basic stand with height-adjustable motorized column (Z-range 255 mm or more), including motorized comparison bridge with four push button operated comparison modes with integrated +/- 4% zoom adaptation, integrated tilting ergo-binocular viewing port (5 - 35 degree, FOV=22 mm, upright & non-reversed image), microphoto & video documentation port, motorized magnification changer with factor = 1X and 1.5X, two macro carrier with macro tube lens, filter slots and coded 6-fold objective turret, two motorized X-Y stages (160 X 220 mm with glass insert 80 X 80 mm and travel range = 50 X 50 mm), integrated operating panel for the control of the bridge functions, motorized X-Y movement of the stages, remote control of two cold light sources.
- ii) 2-motorized focusing drives with focus speed adjusted to current magnification and travel 25 mm.
- iii) Smart move ergonomic remote control module supports precise, individual and synchronized control of motorized stages and focusing drives.
- iv) Pair of reflected light coaxial illumination unit with illumination optics, reflection system, polarized cube and port for the 9 mm fibre bundle.
- v) Pair of anti reflection module lambda/ 4 filter.
- vi) Pair of articulated/ joint arm with catch device/ holder for mounting the flexible fibre-optic guides.
- vii) Pair of LED cold light source, with cable for intensity remote control.
- viii) Pair of eyepiece HC PLAN s 10x/22 Br. M.
- ix) Ergo-workbench with universal power supply 90V-250V 50Hz-60Hz and motorized height- adjustable column with integrated toggle switch or optional foot pedal operation, table area = 1200 x 560 mm, height adjustment range = 619 mm + 300 mm Z- movement, lifting capacity = 2000 N, load capacity = 200 kg.
- x) Deviation in (left/right) magnification is less than 0.1 %.
- xi) Pair of apochromatic corrected macro objective 0.4X, numerical aperture = 0.014 -0.003, 5-step arresting aperture diaphragm for optimal contrast & depth of field setting, FWD = 60mm (pair)
- xii) Pair of apochromatic corrected macro objective 1X, telecentric optics, numerical aperture = 0.035 - 0.006, 5-step arresting aperture diaphragm for optimal contrast & depth of field setting, FWD = 60mm (pair)
- xiii) Pair of apochromatic corrected macro objective 2X, telecentric optics, numerical aperture = 0.07-0.01, 5-step arresting aperture diaphragm for optimal contrast & depth of field setting, FWD = 60mm (pair)
- xiv) Pair of apochromatic corrected macro objective 4X, telecentric optics, numerical aperture = 0.14 - 0.03, 5-step arresting aperture diaphragm for optimal contrast & depth of field setting, FWD = 60mm (pair)
- xv) Pair of tiltable stage diameter 75 mm, with grooved profile and tilting fixture up to 45°, clamping device for stage inclination setting.
- xvi) Pair of universal adjustable holder with rotating disc- to mount various push in mounts, inclinable in segmental guides, scale divisions for reproducible rotation and inclination settings, dovetail guide for lateral displacement of the segmental guides, reflection – minimizing black surface.
- xvii) Pair of attachment for mounting and fixing bullets of various sizes.
- xviii) Pair of centring device mounts to bullet holder.
- xix) Pair of pressure plate mounts to universal bullet/cartridge manipulator, use with the bullet holder and centering device.
- xx) Pair of cementing stages dia. 20 mm for mounting bullets and objects of various sizes.
- xxi) Pair of spring mounts for hunting cartridge cases.
- xxii) Pair of articulated holder with ball joint and tiring screw for tilting and rotating cartridge cases.



- xxiii) Sets of receptacles, each set consist of pair for cartridge cases with calibre 0.22, 6.35, 7.65, 7.63 M, 9, 0.45
- xxiv) Pair of pin mounts for calibre 10.
- xxv) Pair of object stages diameter 60 mm, with grooved profile and clamping device.
- xxvi) Pair of holder for lock cylinders.
- xxvii) Pair of wire holders for mounting cylindrical objects up to diameter 7 mm.
- xxviii) Pair of push-in fixtures for deformed bullets.
- xxix) Pair of mount for air gun ammunition.
- xxx) Sets of cementing cylinders, each set consist of pairs for 5mm, 8mm, 10mm dia for mounting bullets
- xxxi) Sets of brushes (3 pairs) for cal 0.22 – 0.45
- xxxii) Pair of white micrometer (10 mm = 100 divisions)
- xxxiii) Imaging software with dedicated modules for interactive measurement, live measurement, motorized multifocus, motorized multistep
- xxxiv) 10 megapixels HD Colour camera, HDMI Cable
- xxxv) C- mount adapter with .04X
- xxxvi) Dust cover
- xxxvii) PC workstation
- xxxviii) Warranty :- Three years

- 2) **Split AC (2 Ton) with stabilizer** - for dust proof environment -1 No.– for comparison microscope.
Warranty - Two years.

Items for Ballistics cases examinations (Total cost of all items i.e Sl. 3 to 32 required for ballistic cases examinations should be shown altogether)

- | | | | |
|-----|--|---|---------|
| 3) | Digital Vernier Callipers | - | 2 No. |
| 4) | Electronic Digital pointed jaw Callipers | - | 2 No. |
| 5) | Electronic Digital pointed jaw Scale | - | 2 No. |
| 6) | Measuring tape (tailoring) | - | 2 Nos. |
| 7) | Lens 10X | - | 2 Nos. |
| 8) | Electronic weighing Balance
minimum 01 gm to 300gms. | - | 1 No. |
| 9) | Spring Balance 1 kg to 10 kgs | - | 1 No. |
| 10) | Spring Balance 1 kg to 5 kgs | - | 1 No. |
| 11) | Magnifying Glass | - | 1 No. |
| 12) | Ram Rod (2/3 mm) | - | 2 Nos. |
| 13) | Vice (medium size) | - | 1 No. |
| 14) | Hammer (250/500 gms) | - | 1 each |
| 15) | Tool Kit Box | - | 1 Set |
| 16) | Cutting Player | - | 1 No. |
| 17) | Screw Driver Set | - | 1 Set |
| 18) | a) Test tube stand (12 to 20 Holes) | - | 2 Nos. |
| | b) China Dish | - | 20 Nos. |
| | c) Beaker (250 ml) | - | 20 nos |
| | d) Glass rod | - | 10 Nos. |
| | e) Test Tube (2.5 mm) | - | 50 Nos. |
| 19) | Regents bottle amber colour 8x10x10
inside thick iron lining should present
filled with cotton wool. | - | 10 Nos. |
| 20) | Ear muffers | - | 01 Set |
| 21) | Goggles | - | 1 Set |



22)	Boroscope (for observing riffling and measuring length and width of grooves of small arms including rifles both country and factory made caliber ranging from .22 inch to 7.62 mm)	-	1 set
23)	Screw Guage	-	1 No.
24)	Engraver (Mechanical)	-	1 No.
25	Trigger pull measurement equipments For both country and factory made with software and PC to record and archive data (10kg capacity). Calibre to be fired ranges from .22 inches to 7.62 mm	-	1 No
26)	Fire Arms storage Almirah	-	1 No.
27)	Glassware :- (Test tube, Conical flask, beakers (50 ml to 500 ml capacity) glass bottles, burettes, measuring cylinders (25 ml, 50ml, 100 ml, 250 ml & 500 ml)	-	3 nos of each items
28)	G.S.R. (Gun shot Residue collection kit)	-	1 set
29)	Chemical/ miscellaneous	-	As per basic requirement
30)	Drill Machine	-	1 No.
31)	Armourer Tool Box	-	1 set
32)	Heavy big size wooden table	-	1 No
33)	Bullet recovery box	-	2 Nos.

NARCOTICS DIVISION

Specification for Narcotics Division :-

(A) Laboratory Apparatus /Glassware required for Narcotics Division :- (Total cost of all apparatus/glasswares under this component i.e lab apparatus/ glassware should be shown altogether)

1. Chromatography Sprayer with rubber bellow Capacity – 100 ml – 6 nos, 150 ml – 6 nos., 250 ml – 6 nos.
2. Chromatography Sprayer Bottle type with interchangeable joints rubber bellow Capacity – 25 ml – 3 nos, 50 ml. – 3 nos., 100 ml – 3 nos.
3. Test tube stands made of Perspex/plexi glass sheet (a) No. of Holes 12 – Dia – 12mm – 50 Nos, (b) No. of Holes 24 , Dia – 18mm – 50 Nos.
4. Test tube Holder, chrome plated - 50 nos.
5. Spatula Stainless steel both end flat or end spoon size – 4 inches, 6 inches, 8 inches, & 10 inches, – 50 Nos.
6. Tongs for holding flask 12 " long Stainless Steel – 10 Nos.
7. Tongs for holding beaker 12 " long Stainless steel – 10 Nos.
8. Crucible Tongs – length 6", 8", 12", 18"stainless steel - 16 Nos.
9. Striring Rod - 25 ml. Indian glass – 10 nos.
10. Dropper with capillary jet & rubber teat 5 cm with 5 cm jet., 8 cm with 10 cm jet – 200 Nos.



11. Medicine Dropper with rubber teat 15 cm – 100 Nos.
12. Dropping Bottle, Soda glass, Polythene stopper with dust proof head, glass dropper & rubber teat capacity 60 ml, 12 ml - 80 Nos
13. Automatic pipette – 15 ml capacity – 20 Nos.
14. Specific Gravity bottle conical with cap capacity 25 ml - 10 Nos.
15. Membrane Filter Holder Assembly with support for membrane, Funnel, Flask & Clamp, Standard joint Fitting, Membrane dia, mm 25, Funnel Capacity. MI 300 & 50, Flask Capacity. MI, 1000 and 500 ml. – 1 No. each
16. Laboratory glass ware – washer with all necessary accessories.
17. Laboratory Glassware Drier, Electric with 60 Positions for placing different size.
18. Amber colour Solution Bottle tooled Neck.
Capacity (250 ml- 20 Nos) (500 ml-20 nos), (1000 ml- 5 Nos) ,(2000 ml - 5 Nos),
19. Amber colour Flask Conical / F. B./ R.B with inter changeable stopper, Capacity – 50 ml, 100 ml, 150 ml – 15 Nos each.
20. Amber colour Reagent Bottle W.M with inter changeable stopper, Capacity – 30 ml, 60 ml, 125 ml, 250 ml, 500 ml – 10 Nos each.
21. Amber colour Petri - Dishes , Culture with serial No. marked O. D. (Height) ml.(50 x 17 - 50 Nos), (70 x 17 - 50 Nos), (100 x 17 - 50 Nos.)
22. Silica Crucibles with lid with stands 800°C. Capacity 15 ml, 25 ml, 50 ml (Total 45 Nos (15 each ml.)
23. Silica crucibles without lid with stand 800°C Capacity – 15 ml, 25 ml, 50 ml – (Total 45 Nos) (15 each ml.)
24. Silica Basins with spout, Round Bottom, translucent with stand 800°C Capacity 35, 70, 100, 150 ml. Diameter – 50-55mm, 70-75mm, 80-85mm, 90-95mm – 48 Nos (12 Nos each).
25. Glass Basins with spout, Round Bottom, translucent with stand 800°C Capacity 35, 70, 100, 150 ml. Diameter – 50-55mm, 70-75mm, 80-85mm, 90-95mm – 48 Nos (12 Nos each).
26. Hard glass tubes-2.5cm diameter, 20 cm long, height size-OD X length- 25X100mm and size-OD X length- 25X200mm-100 nos. each.
27. Beaker of different sizes capacity 250 ml and 500ml-100 nos.
28. Test tube brush-100 nos.
29. Porcelain basin or china clay bowl for heating- m100 nos.
30. Precoated silicsa Gel G- Thickness 0.2mm on aluminium sheet-1 pack (25 nos.)
31. Measuring cylinder – Capacity-10ml, 50ml and 100 ml -30 Nos
32. Hand gloves (rubber) – 50 nos.
33. Disposable gloves – 150 nos.



(B) Chemicals required for Narcotics Division :- (Total cost of all chemical items under this component should be shown altogether)

1. Conc Sulphuric Acid- 1000ml
2. Formaldehyde --- 1000ml
3. Selenious Acid—1000ml
4. Molybdic Acid---1000ml
5. Ammonium Vandate—1000ml
6. Acetic Acid (Glacial)---1000ml
7. Copper Sulphate---500mg
8. Sodium Hydroxide - 500mg
9. Cobalt Thio Cyanate - 500mg
10. Stannous Chloride -500mg
11. Hydroclochloric Acid-1000ml
12. Nitric Acid- 1000ml
13. Sodium Bicarbonate -500mg
14. Cobalt (II) Acetate- 500mg
15. Methanol- 1000ml
16. Sodium Nitropruside-500mg
17. Acetaldehyde-500mg
18. Sodium Carbonate-500mg
19. Acetone-1000ml
20. Vannilin-500mg
21. Chloroform-1000ml
22. P-Dimethyl amino Benzaldehyde -100mg
23. Ethyl Acetate -500mg
24. Ammonia -1000ml
25. Toluene -1000ml
26. Ethariol -1000ml
27. Acetone -1000ml
28. Silica Gel -G-500mg
29. Di-Ethyl Amine—1000ml
30. Di-ethyl Ether-1000ml
31. N-Hexane-1000ml
32. Benzene-1000ml
33. Fast Blue B-Salt-500mg
34. Di-Chloromethane-1000ml



35. Petroleum Ether -1000ml
36. Sodium Hydroxide-500mg
37. Ferric Sulphate-500mg
38. P-Amino Phenol -500mg
39. Caustic Potash-500mg
40. Cyclohexene-1000ml
41. Butyl Ether-1000ml
42. Bismuth Subnitrate-100mg
43. Potassium Iodide-100mg
44. Plantinic Chloride-100mg
45. Ammonium molybdate-250gms
46. Glycerin-500ml
47. Sodium Acetate-250mg
48. Sodium Bisulphite-250mg
49. Sodium Chloride-250mg
50. Sodium Bicarbonate-250mg

(C) Refrigerator – Specification

Double door, Capacity - 200 Liters'. Warranty - Three years

(D) Steel Rack with three shelves: Length 1 feet 11 inch, height 1 feet for each shelf - 2 (two) Nos.

(E) Narcotic testing (detection) kit.

Sl.No	Name of the item with specifications	Quantity
1	Marquis Reagent (Opium Alkaloids)	Each for 10 test
2	Nitric Acid Reagent (Heroin/Morphine)	Each for 10 test
3	Dille-Koppanyi Reagent (Barbiturates)	Each for 10 test
4	Ehrlich's Reagent (LSD)	Each for 10 test
5	Duquenois-Levine Reagent (Marijuana, Hashish, Hash Oil, THC)	Each for 10 test
6	Scott Reagent modified (Cocaine HCl, Crack)	Each for 10 test
7	Methadone Reagent	Each for 10 test
8	Ethyl alcohol & Methyl alcohol testing kit	Each for 10 test
9	Special Opiates Reagent (Fentanyl, Heroine, Oxycodone)	Each for 10 test
10	Meckle's Reagent (All Heroine)	Each for 10 test
11	Talwin (Pentazocine) Reagent	Each for 10 test
12	Ephedrine Reagent (Ephedrine, Pseudoephedrine)	Each for 10 test
13	Vallium, Rohypnol, Ketamine Reagent	Each for 10 test
14	Sodium, Rohypnol, Ketamine Reagent	Each for 10 test
15	Acid Neutralizer, 1 oz.(30 ml)	Each for 10 test
16	Carrying case	Each for 10 test
		1



QUESTIONED DOCUMENT DIVISION

SPECIFICATIONS OF EQUIPMENTS OF QUESTIONED DOCUMENTS DIVISION

(I) **Equipment:-** Advance Video Spectral Comparator with Super Resolution Imaging for the examination of Questioned Documents:-

SPECIFICATIONS

Video Spectral Comparator should comprise:-

(I) **Camera, lenses and viewing filters with following specifications:-**

(a) Colour/IR high resolution live 5M pixel camera having spectral range of 350-1100nm with 22x zoom lens and supplementary lenses providing:-

(i) Standard field of view from 1.7x1.4mm to 209x167mm ($\pm 10\%$) which is equivalent to a magnification of up to 175X ($\pm 6\%$) on a (min) 32" UHD monitor.

(ii) Digital zoom up to 8x gives image magnification upto 1400x ($\pm 6\%$)

(iii) Super Resolution Imaging (SRI).

(iv) Automatic and manual control image integration from 1 milli second to 180 seconds.

(v) Automatic and manual control of camera contrast, brightness and gamma.

(vi) Image filters contain visible wavelength filter, long pass filters, UV pass filters (350-380nm), custom filter and a linear polariser for cross polar imaging.

(II) **Light Sources:-** It should have

(a) Visible light, Transmitted light, oblique light with variable angle selection, Spot light source (for IR fluorescence) with filters, background illumination with intensity control, Ultra Violet light (longwave, transmitted longwave, midwave, shortwave).

(b) Light source for viewing:- retro-reflective security printing, Anti-Stokes ink, Diffractive Optically Variable Devices/holograms, birefringent security features for differentiating fluorescent and phosphorescent security ink.

(III) **SYSTEM HARDWARE:-**

(a) Should have in-built/ integrated Micro spectrophotometer with hyper-spectral imaging module for non-destructive spectral analysis of documents using absorption, Reflectance, Fluorescence & Transmitted spectra from 400nm to 1000nm with a resolution of 3nm in real time and displayed on-screen in a simple graphical format.

(b) Should have software controlled stage for precise positioning of documents.

(c) Should have Optical Variable Ink (OVI) Viewer

(d) Computer and Monitor (minimum specification):-

- Intel Core i7 processor or equivalent with 8GB RAM and 1TB SATA HDD.

- graphics card with a minimum of 1GB RAM.

- 32 inch 4K UHD Flat Panel Monitor.

(IV) **SYSTEM SOFTWARE:-** The software suite should provide:-

(a) Control of all functions via quick access toolbar.

(b) Image storage, retrieval and video recording:- Facility to save images as Bitmap, Jpeg, Jpeg2000, TIF, PNG, RAW or PDF files or copied into Microsoft Word with details of illumination, camera filter, integration time, magnification, contrast setting etc.

(c) Casework management:- facility to organise case information, images, spectra, chromaticity charts with all examination settings, casework database facility

(d) Quick-check Automatic Examination Feature with store of images from each examination.

(e) Image Annotation, Image Enhancement and Image comparison (comparing live and stored image side by side, superimposition of images and rotation facilities)

(f) Optical Character Reader

(g) Calibration and Diagnostics:- Calibration of filters and light sources using NIST traceable standards. Automated diagnostics routines to check the status of motors, light sources and filters with on-screen reports (calibrator being provided by the supplier).

(h) Facility for 1D and 2D barcode analysis.

(i) Interactive tutorial software and on-screen operational manual.

(j) updates for the software suite



- (k) Integrated Document and Banknote database software
- (l) Reference database showing the security features of bank notes (supplied as the latest up-to-date collection at the time of despatch) and its annual subscription (updates for one year) must be offered and quoted.
- (V) Pack of consumable items must be supplied along with the equipment.
- (VI) Compatible UPS must be supplied along with the equipment.
- (VII) Satisfactory installation and operational training (at the location of installation) must be provided free of cost.
- (VIII) Three years warranty must be provided. Minimum three preventive maintenance visits (annually) plus breakdown maintenance visits (as and when called for) must be provided free of cost during warranty period.
- (IX) The computer, monitor, UPS are to be provided by the firm supplying the equipment.

QUESTIONED DOCUMENTS

II. Equipment:- Advance Stereoscopic Zoom Microscope with in-built HD (10 Megapixels) Camera, fitted with U.V. Light, Multi – contrast illumination for incident light, oblique illumination, Transmitted light illumination and Imaging System Complete with PC and Printer for the examination of Questioned Documents:-

SPECIFICATIONS

1. Advance Stereoscopic zoom microscope with Apochromatic corrected zoom optics with zoom ratio 12.5:1
2. Magnification range 5x – 256x.
3. Integrated iris diaphragm for adjustable depth of field and click stop zoom settings.
4. Objective 0.63x Planapochromatic grade with working distance 97 mm.
5. Eyepiece 10x/23B, dioptre adjustable, wide-field eyepiece for spectacle wearers, designed for using graticules, with exchangeable soft eyecups – 2 nos.
6. Eyepiece 40x dioptre adjustable, wide-field eyepiece for spectacle wearers, designed for using graticules, with exchangeable soft eyecups – 2 nos.
7. Stage micrometer, 50mm scale with 0.1mm and 0.01mm divisions for scaling during documentation and measurement.
8. Tiltable Ergo Tube with variable observation angle from 10° (ten degree) to 50° (fifty degree), Interpupillary distance 52 – 76 mm, should be made from antistatic material.
9. Motorized Focus drive with travel range/stroke of 400 mm or long with controller unit.
10. Large Base with Anti Shock feet.
11. Multi-Contrast illumination for incident light, oblique illumination for precise viewing of smallest uneven surfaces, repeatable contrast setting due to different illumination angles and direction.
12. LED Transmitted light base for illumination of minimum 77 mm size object field diameter and having a touch panel control.
13. Fluorescent UV illumination with Excitation wavelength of 365 nm.
14. Integrated Digital Colour Camera with 10 Mega Pixels resolution and High definition fast live image speed of 30 fps. Complete with cable and connection.
15. Image Analysis Software for acquisition, scaling and documentation with following feature:-
 - a) Interactive Measurement – Should offer object tracings to be stored and recalled in overlay format so that they can be reviewed effortlessly; Interactive Measurement should be designed to simplify the manual tasks involved when deriving calibrated measurement parameters such as length, area, perimeter, diameter and angles. By tracing around the object of interest, it is easy to identify areas of significance and perform sophisticated measurements upon them.
 - b) Live Measurement - To perform measurements directly on the live image saving time; Measurement templates to provide convenient means of comparing current and previous images; All the measurements to be

saved for further analysis. Multiple tools include Linear distance, curved length, Area, Angle, Baseline distance, Parallel line distance, Circles, Dual Circles, Segments, Sectors, Rectangles, Triangles etc. with almost 50 different parameters for complete versatility. Individual and summary results to be exported to MS Excel for a custom report.

16. Antistatic dust cover for the microscope.
17. The Microscope, Camera and Software should be from the same manufacturer for better integration and performance.
18. Computer System with Intel i5/i7 Processor, RAM – 32GB or higher, HDD -1 TB, Ext. Graphics – 2 GB or higher, DVD ROM, Mother Board slots – PCI Exp 1x & 16x, Win 7 Professional – 64 bit, Monitor – 24" and above.
19. Colour Printer.
20. Satisfactory installation and operational training (at the location of installation) must be provided free of cost.
21. Three years warranty must be provided. Minimum three preventive maintenance visits (annually) plus breakdown maintenance visits (as and when called for) must be provided free of cost during warranty period.
22. The computer, monitor, UPS, Colour Printer compatible with the microscope are to be provided by the firm supplying the equipment.

Evidence/sample collection, Labelling, Packing & sealing items (envelopes, jars, bags etc.)

Sl.No	Name of item required	specification
1	Vials for body fluids	7 ml, 10 ml, 50 ml
2	Zippy bags three size- transparent	Quality product / size : 3x5 inch, 4x6 inch & 5 x 7 inch
3	Envelopes size 10" – 15"	Inner plastic coated
4	Envelope size 23" – 10"	Inner plastic coated
5	Envelopes size 11" – 25"	Inner plastic coated
6	Evidence bags 350 x 250 mm (10 pcs in 1 pkt)	Self adhesive opaque
7	Evidence bags 216 x 180 mm (10 pcs in 1 pkt)	Self adhesive opaque
8	Evidence bags 406 x 355 mm (10 pcs in 1 pkt)	Self adhesive opaque
9	Labeling (adhesive) 6" x 6 "	Numbers- numerals and roman with English alphabets- A to Z
10	Plastic container	Set of three size 25 ml, 50 ml, 100 ml
11	Integrity evidence bags 315 x 230 mm (10 pcs in 1 pkt)	Electric selling transparent
12	Integrity evidence bags 195 x 135 mm (10 pcs in 1 pkt)	Electric selling transparent
13	Bio hazard levels (100 pcs in 1 pkt)	Fluorescent
14	Plastic jars with caps sterile, bilingual printed	Printed crime detail
15	Rechargeable vacuum cleaner	With recharging unit 100 watt
16	Electric sealing machine	In monograms (FSL) facility

Vials for body fluids :

These vials should be specially designed to centrifuge the liquid, collect the liquid by pipette drop it in vials and close the cap and send to lab for testing.

Zippy bags – three size :

Different size of zippy bags, which are printed with crime scene and chain of custody details.

Envelope inner plastic coated :

Different size of envelope, which are printed with crime scene and chain of custody details. The envelopes should be laminated sheet inside

Integrity Evidence Bags :

Different size of integrity evidence bags, which are bilingual with crime scene and chain of custody details.

Electric sealing Machine :

Should be useful to seal evidences at the crime scene.

Rechargeable vacuum cleaner :

The portable Rechargeable Evidence Vacuum kit is designed specifically for the collection of micro-particle evidence. The lightweight, compact unit is equipped with rechargeable batteries, permitting use in most remote or difficult-to-reach crime scenes. The hermetically sealed filter assemblies ensure against contamination. A valuable addition to professional crime scene investigation.



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