

**GOVERNMENT OF TELANGANA
POLICE DEPARTMENT
(FORENSIC SCIENCE LABORATORIES)**

Rc No. 326/A1 / 2022

Dated: 19th September, 2022

NOTIFICATION FOR RECRUITMENT OF POSTS IN TELANGANA STATE FORENSIC SCIENCE LABORATORIES ON OUTSOURCING BASIS FOR A PERIOD OF ONE YEAR ONLY UNDER SAFE CITY PROJECT, HYDERABAD.

1. VACANCIES:

The Telangana State Forensic Science Laboratory, Hyderabad invites applications from the eligible candidates through **OFFLINE** mode only in the prescribed proforma from **19-09-2022 to 09-10-2022** for recruitment on **OUTSOURCING BASIS** to the following posts in Forensic Science Laboratories of Telangana State under Safe City Project, Hyderabad City **for a period of One year only.**

S. No	Name of the Post	Laboratory	Post Code	No of Posts	Monthly remuneration incl of deductions
1.	Scientific Officer	DNA	01A	2	Rs 45,000
2.	Scientific Assistant	DNA	02A	4	Rs 40,000
3.	Lab- Assistant	DNA	03A	2	Rs 30,000
4.	Scientific Officer	Biology divn	01B	3	Rs 45,000
5.	Scientific Assistant	Biology divn	02B	3	Rs 40,000
6.	Lab- Assistant	Biology divn	03B	4	Rs 30,000
7.	Scientific Officer	Cyber Forensic Divn	01C	2	Rs 45,000
8.	Scientific Assistant	Cyber Forensic Divn	02C	6	Rs 40,000
9.	Lab- Assistant	Cyber Forensic Divn	03C	2	Rs 30,000
10.	Scientific Assistant	Chemical Divn	02D	4	Rs 40,000

2. Rule of Reservation shall be followed post-wise, division-wise, Starting from the roster point 1, Cycle 1 as indicated bellow. FACT qualified candidates will be taken on interview directly.

	Category
1	Open Competition – Women
2	Scheduled Castes – Women
3	Open Competition
4	Backward Classes (Gr-A) – Women
5	Open competition
6	Orthopedically Disabled
7	Scheduled Castes

****Note: Roster point 6 is interchanged with roster point 56 vide G.O Rt No.509 Home (SER.III) Department dated 27.04.2021.**

3. EDUCATIONAL QUALIFICATIONS:

Sl No	Name of the Post	Laboratory	Qualifications required
1.	Scientific Officer	DNA	Must have passed M.Sc. with Biology or Genetics or Zoology or Botany or Micro-Biology or Bio-Technology or Bio-Chemistry or Forensic Science with specialization in Biology/Serology/DNA, with minimum 65% aggregate marks of a University of India established or incorporated by or under a Central Act, State Act or a Provincial Act or an Institution recognized by the UGC or an equivalent qualification. The candidates with Post Graduation in Forensic science/Bio- Chemistry should have studied Biology/Serology/DNA /Zoology/Bio-Chemistry/Bio-Technology at Graduation level.
2.	Scientific Assistant	DNA	Must have passed M.Sc. with Biology / Zoology/ Botany/Microbiology/Bio-chemistry/Bio- technology / Genetics or Forensic Science with Biology / Zoology/ Botany / Microbiology/Bio-chemistry/Bio-technology as specialized subject, with minimum 60% aggregate marks from any University in India established or incorporated by Central Act, or Provincial act or a State Act or an Institution recognized by the University Grants Commission or an equivalent qualification. The candidates with Post Graduation in Forensic science should have studied Biology/ Botany / Zoology/ Bio-Chemistry/ Micro-Biology/Bio-technology at Graduation level.
3.	Lab- Assistant	DNA	Must have passed B.Sc. with Biology or Zoology or Bio-Chemistry or Bio-Technology or Microbiology or Botany or Genetics or BSc (Medical Lab Technician with Intermediate Bi.PC group) /B.Sc. Forensic Science from any University in India established or incorporated by or under Central Act or Provincial Act or a State Act or an Institution recognised by the University Grants Commission. Candidates who studied B.Sc Forensic Science should have passed Intermediate with Biology/ Zoology/Botany as one of the subject.
4.	Scientific Officer	Biology divn	Must have passed M.Sc. with Biology or Genetics or Zoology or Botany or Micro-Biology or Bio-Technology or Bio-Chemistry or Forensic Science with specialization in Biology/Serology/DNA, with minimum 65% aggregate marks of a University of India established or incorporated by or under a Central Act, State Act or a Provincial Act or an Institution recognized by the UGC or an equivalent qualification. The candidates with Post Graduation in Forensic science/Bio- Chemistry should have studied Biology/Serology/DNA /Zoology/Bio-Chemistry/Bio-Technology/Psychology at Graduation level.

Sl No	Name of the Post	Laboratory	Qualifications required
5.	Scientific Assistant	Biology divn	Must have passed M.Sc. with Biology / Zoology/ Botany/Microbiology/Bio-chemistry/Bio- technology / Genetics or Forensic Science with Biology / Zoology/ Botany / Microbiology/Bio-chemistry/Bio-technology/ Psychology as specialized subject, with minimum 60% aggregate marks from any University in India established or incorporated by Central Act, or Provincial act or a State Act or an Institution recognised by the University Grants Commission or an equivalent qualification. The candidates with Post Graduation in Forensic science should have studied Biology/ Botany / Zoology/ Bio-Chemistry/ Micro-Biology/Bio-technology at Graduation level.
6.	Lab- Assistant	Biology divn	Must have passed B.Sc. with Biology or Zoology or Bio-Chemistry or Bio-Technology or Microbiology or Botany or Genetics or BSc (Medical Lab Technician with Intermediate Bi.PC group) /B.Sc. Forensic Science from any University in India established or incorporated by or under Central Act or Provincial Act or a State Act or an Institution recognised by the University Grants Commission. Candidates who studied B.Sc Forensic Science should have passed Intermediate with Biology/ Zoology/Botany as one of the subject.
7.	Scientific Officer	Cyber Forensic Divn	Must have passed M.Sc. with Computers Science or M.Tech (EEE/ECE/Cyber Security/Cyber Forensics /CSC/IT) or MCA or Forensic Science (Computers), with minimum 65% aggregate marks from any University in India established or incorporated by Central Act, or Provincial act or a State Act or an Institution recognized by the University Grants Commission or an equivalent qualification. MCA/Forensic science candidates should have studied BSC with Physical Sciences/Computers as a specialization.
8.	Scientific Assistant	Cyber Forensic Divn	Must have passed M.Sc. with Computers Science or M.Tech (EEE/ECE/Cyber Security/Cyber Forensics /CSC/IT) or MCA or Forensic Science with Computers as special subject, with minimum 60% aggregate marks from any University in India established or incorporated by Central Act, or Provincial act or a State Act or an Institution recognized by the University Grants Commission or an equivalent qualification. The Candidates with Post Graduation in Forensic science / MCA candidates should have studied Physical Science / Computers as a specialization at Graduation level.
9.	Lab- Assistant	Cyber Forensic Divn	Must have passed Bachelors Degree with Computers as Specialized subject or BCA from any University in India established or incorporated by or under Central Act or Provincial Act or a State Act or an Institution recognised by the University Grants Commission.

Sl No	Name of the Post	Laboratory	Qualifications required
10.	Scientific Assistant	Chemical Divn	Must have passed M.Sc. with Chemistry or Forensic Science with Chemistry as specialized subject, with minimum 60% aggregate marks from any University in India established or incorporated by Central Act, or Provincial act or a State Act or an Institution recognised by the University Grants Commission or an equivalent qualification. The candidates with Post Graduation in Forensic science should have studied Chemistry / Toxicology as one of the subjects at Graduation level.

4. DISTANCE EDUCATION:

Candidates who have obtained Degree through Open Universities / Distance Education mode are required to have recognition by the University Grants Commission / AICTE / Distance Education Council, as the case may be. Unless such Degrees had been recognized by the relevant Statutory Authority, they will not be accepted for the purpose of Educational Qualification. The onus of proof of recognition by the relevant Statutory Authority that their Degrees / Universities have been recognized rests with the Candidate. Acceptance in this regard shall be subject to verification by TS FSL.

5. CANDIDATES TO CHECK THEIR ELIGIBILITY BEFORE APPLYING:

Candidates who are desirous and eligible REPEAT eligible only may apply through OFFLINE mode only after having satisfied themselves of their eligibility for this recruitment.

6. FEE STRUCTURE:

(i) Candidates applying for the posts notified herein will have to pay the fee as prescribed below for processing application, conduct of tests and examinations etc.,

SN	Post	Fee
1	Scientific Officer	Rs.500/- for OC, BC & Others. Rs.300/- for SC & ST of Telangana State.
	Scientific Assistant	Rs.500/- for OC, BC & Others. Rs.300/- for SC & ST of Telangana State.
2	Lab Assitant	Rs.400/- for OC, BC & Others. Rs.200/- for SC & ST of Telangana State.

(ii) **MODE OF PAYMENT:** A Demand Draft in favour of "Director Forensic Science Lab, Hyderabad" shall be drawn towards the fee applicable and submit along with the application form.

****NOTE: No refund of fee under any circumstances.**

(iii) Applications received without Demand Draft will be invariably rejected and no correspondence in this regard will be entertained.

7. INSTRUCTIONS TO CANDIDATES FOR FILLING THE OFFLINE APPLICATION FORM:

i. The candidates can send applications through the following modes by satisfying themselves with the terms and conditions of this outsourcing recruitment and their eligibility of educational qualifications.

a) Speed post/courier service /in person

****Note:** Applications received before the due date will only be accepted.

ii. The candidates applying for the posts notified should select the appropriate category/section of post based on their eligible educational qualifications.

iii. The last date for submission of application is on or before 10-10-2022 up to 5-00 P.M.

iv. The envelope containing the application and its enclosures should be superscribed with the 'APPLICATION FOR THE POST OF (NAME OF THE POST & POST CODE)' addressed to "THE DIRECTOR, TELANGANA STATE FORENSIC SCIENCE LABORATORIES, RED HILLS, NAMPALLY, Besides Niloufer Hospital, HYDERABAD – 500004".

The applications to be sent to the following address through registered post/courier service:

To
The Director,
Telangana State Forensic Laboratories
Red Hills, Nampally,
Hyderabad – 004

8. GENERAL INSTRUCTIONS:

a) Candidates are required to go through the Notification carefully and decide themselves as to their eligibility for this recruitment before applying and entering the particulars completely offline. No relevant column of the Application Form should be left blank; otherwise the Application Form will not be accepted.

b) Applications received offline shall only be considered and the Telangana State Forensic Science Laboratory (TS FSL) will not be held responsible for any kind of discrepancy.

c) TS FSL will not be responsible for any inconsistencies or errors in the application particulars submitted offline. Candidates are therefore, advised to strictly follow the instructions in their own interest and to verify the contents before submitting the Offline Application.

d) Particulars furnished by the Candidates in the Application Form will be taken as final. Candidates should therefore, be very careful in filling up the Application Form Offline.

e) Incomplete / Incorrect Application Form will be summarily rejected. The information, if any, furnished by the Candidate subsequently in any form will not be entertained by the TS FSL under any circumstances. Candidates should be careful in filling-up the Application Form before submission. If any lapse is detected at any stage of the recruitment process, the candidature will be rejected.

f) Candidates should not furnish any particulars that are false, tampered, fabricated and they shall not suppress or conceal any material information while making an Application. In case, if it is found at a later date that any false information has been provided, punitive action will be taken as per law.

g) Candidates are expected to behave in orderly and disciplined manner while appearing for the Examinations. Any impersonation will be viewed adversely and such candidates shall be criminally prosecuted besides being disqualified.

h) All the testimonials issued by the competent authorities shall compulsorily be produced as and when required. If the Candidate fails to produce the same, his / her candidature will be rejected / disqualified without any further correspondence.

i) The claim of the Candidates with regard to the Age, Date of Birth, Educational Qualifications, Community etc., are accepted only provisionally on the information furnished by them in their Application Form and Certificates produced, subject to verification and satisfaction of TS FSL, at an appropriate time. Mere admission to any Exam / Test or inclusion of the name of a Candidate in a Merit List will not confer on the Candidate any right for selection. The candidature is therefore, provisional at all stages and the TS FSL reserve the right to reject his / her candidature at any stage of the selection without any notice.

j) Candidates are requested to check their eligibility with reference to the laid down criteria carefully and fill in all the relevant columns in the Offline Applications Form.

k) Due to various age criteria and different age relaxations, being there for different posts, age validation is not being done in the Offline Application Form. It is the responsibility of the Candidate to satisfy themselves about their age eligibility for the Post(s) applied for.

l) If the Candidates who are Under-Age or Over-Age apply for this Recruitment Notification. TS FSL is not responsible and their candidature will be rejected at any time. Fees once paid will not be refunded.

9. DOCUMENTS TO BE ATTACHED TO THE APPLICATIONS:

i. SSC / Matriculation Certificate or its equivalent certificate in support of Date of Birth.

ii. Master's degree certificate from any University in India established or incorporated by or under a Central Act, or Provincial Act or State Act or an Institution recognized by the University Grants Commission on equivalent qualifications.

iii. Community Certificate issued by competent authority of Government of Telangana for age relaxation.

iv. Latest Non-Creamy Layer Certificate issued by Government of Telangana for BC Candidates, if they claim Reservation in Selection.

v. Study Bonafide Certificates from Class 1st to Class 7th only

vi. Previous Work Experience Certificate/ Internship Certificate (*Certified by the Head/Director of the Lab and self-attested*)

vii. **Demand Draft towards fee payment

****NOTE:** *Candidates will have to enclose one set of photocopies (duly self-attested) of the above documents along with the application form and the Demand Draft towards fee payment.*

10. PHYSICAL VERIFICATION OF ORIGINAL CERTIFICATES:

Candidates who qualify the written examination/Interview have to produce in person the following documents in **original along with one set of photocopies duly self-attested**. The date(s) and place(s) will be informed in due course. Failure to produce the same will lead to rejection of the candidature and no additional time will be given. Certificates to be produced are –

i) Secondary School / Matriculation Certificate or equivalent certificate in support of the date of birth.

ii) Educational Qualification – Degree or its equivalent examination Certificate & Master's Degree Certificate from any University in India established or incorporated by or under a Central Act, or Provincial Act or State Act or an Institution recognized by the University Grants Commission on equivalent qualifications.

iii) BC Candidates who wish to claim concession in age and also reservation specified for the Backward Classes should submit the Community Certificate and the latest Certificate of Non Creamy Layer issued by the competent authority of Telangana State. In case of failure to produce the Non Creamy Layer Certificate on the day of verification of Certificates, the Candidate's Candidature will be treated under "Open Competition", if otherwise eligible, and the status cannot be changed later, at the Candidate's will or choice, in any case.

iv) SC / ST Candidates who wish to claim concession in age and also reservation should submit the Community Certificate issued by the competent authority of Government of Telangana State.

v) Study Certificate from 1st to 7th Class issued by the School Authorities or Residence Certificate (in case the Candidate who did not study in any Educational Institution preceding SSC / Matriculation or equivalent (Private Study)) issued by Tahsildar of the concerned Mandal, for determining local status.

vi) Previous Work Experience Certificate (*Certified by the Head/Director of the Lab and self-attested*)

vii) Any other relevant documents in support of their qualification and post.

viii) In respect of the minimum educational qualifications prescribed for the post, the candidates should be able to produce any of the following at the time of physical verification of certificates i.e., Original Degree or Provisional Degree or Consolidated Marks Memo.

****Note – 1:** 1. The applications submitted will be shortlisted based on the qualifications and desirable qualifications for the post applied by the internal committee formed by the Director TS FSL.

****Note – 2:** Post-selection the antecedents of the candidates will be verified by the Police Department. Any documents found to be not-genuine/fabricated the candidates will be liable for penal action as per law.

10. WOMEN RESERVATION:

33 1/3 % of Vacancies for Women shall be followed.

11. RULES GOVERNING THE POSTS:

(i) The posts notified in this notification are **Outsourcing appointments** under Safe City Project, Hyderabad City for a period of One year only.

(ii) Selection to the posts notified herein does not confer any right for regularization of services or preference/seniority/weightage during regular recruitment in TS FSL or any other wings of Police Department or Government Organizations.

(iii) Selection to the posts notified is purely a Outsourcing engagement, and TS FSL reserves the right to terminate the engagement at any time depending on the individual performance, needs/requirements of the Organisation and tenures prescribed/further continued by Government/Competent Authority from time to time. The decision of Director, TS FSL in this regard would be final and binding on the candidate.

12. LOCAL CANDIDATE:

(i) TS FSL is a State Level Institution, the posts notified herein identified as State Cadre Post, hence reservation for Local Candidates is not applicable.

13. RELAXATION IN UPPER AGE LIMIT:

i) AGE LIMIT (General)

The minimum age limit is 18 years and the upper age limit for the posts notified is 34 years (computed as on 1st of July 2022) as per Rule 12 of State and Subordinate Service Rules.

ii) The Upper Age Limit will be relaxable up to a maximum of 5 (five) years if a Candidate belongs to a Backward Class or a Scheduled Caste or a Scheduled Tribe.

****Note:** Name and date of birth accepted by the TS FSL is that entered in the Secondary School Certificate or Matriculation or an equivalent examination certificate. No other document relating to age like horoscopes, affidavits, birth extracts from Municipal Corporation, Service Records and the like will be accepted.

14. INSTRUCTIONS TO BE READ CAREFULLY:

The requisite educational qualification, age, procedure to be followed for selection etc are given below. Candidates must read the instructions given in this Notification as well as "Instructions for filling the Offline Application" carefully in their own interest.

15. ELIGIBILITY CONDITIONS (CANDIDATES TO ENSURE THEIR ELIGIBILITY FOR THE EXAMINATION):

(i) Candidates applying for the examination should ensure themselves that they fulfill all the eligibility conditions for admission to the examination. Their admission at all the stages of the examination will be purely provisional and shall be subject to satisfying the prescribed eligibility conditions.

(ii) Mere issue of Hall Tickets to the Candidate will not imply that his / her candidature has been finally cleared by TS FSL.

(iii) TS FSL will take up verification of eligibility conditions with reference to original documents only after the Candidate has finally qualified or at an appropriate time.

16. MEDICAL STANDARDS:

Candidate should possess sound health and be free from any bodily defect or infirmity which will render him unfit for the Posts notified. *****(Read with para12above).f***

****Note:** Candidates are advised to have themselves examined by a Civil Surgeon before applying for the examination to ensure that they meet the prescribed Physical and Medical Standards and produce a certificate to that effect at the time of physical verification of original certificates.

17. SELECTION PROCEDURE: It will be notified to the candidates through email.

(c) IMPORTANT INSTRUCTIONS FOR WRITTEN TEST:

i) The applications will be shortlisted as per the qualifications and desirable qualifications specified. The candidates will be informed well in advance about the eligibility to appear in the examination.

ii) The candidates have to appear for Written Examination/Interview in the division and post they applied for. The date and place of examination will be communicated to the candidates in due course.

iii) An intimation letter will be sent to the candidates for appearing in the written examination through given email.

vii) Intimation Letter will be sent to the candidates to attend the Oral Interview/Test, which they should bring while coming for Oral Interview.

viii) **The paper pattern shall be division-wise as mentioned above. The candidates who satisfy themselves that they are eligible for more than one division can apply for more than one division through a fresh/separate application duly enclosing all the prescribed documents and payment of prescribed fees. As the examinations are different for each division, fee has to be paid per each division and post applied for.**

18. FINAL SELECTION:

Final selection of the Candidates will be made strictly based on the merit as obtained by them through their score in the Written Examination/Oral Interview for a total of 50 marks.

19. TERMINATION:

The Outsourcing engagement is liable to be terminated at any time for the reasons recorded in writing and providing prior notice to the person whosoever engaged on contract basis. The orders of the competent authority with regard to termination are binding on the person whosoever is engaged on Outsourcing basis.

20. SELECTION TO BE PROVISIONAL:

Selection of the Candidates shall be provisional and be subject to verification of the original certificates, antecedents and medical fitness.

21. INCLUSION IN MERIT LIST DOES NOT CONFER ANY RIGHTS:

Mere admission to any test or inclusion of a Candidate's name in a Merit List shall not confer on him / her any right for selection / appointment to such service, class or category. The provisional selection of the Candidates to the Posts mentioned in this Notification, are subject to the several other requirements described below.

22. VERIFICATION OF ANTECEDENTS:

No person shall be eligible for appointment to the posts notified unless he / she satisfies the selection authority as well as the appointing authority that his / her character, antecedents and medical fitness are such as to qualify him / her for such service.

23. DISQUALIFICATION FOR APPOINTMENT:

Candidates falling under the following categories shall be disqualified for selection / appointment, as per the rules.

(i) Suppression of material facts or Providing False / Erroneous Information (either in the Application Form or in the Attestation Form)

(ii) If the Candidate himself or through his / her relatives or friends or any other has canvassed or endeavored to enlist extraneous support whether from official or non-official sources for his candidature.

(iii) A person (a) who has entered into or contracted a marriage with a person having a spouse or (b) who, having a spouse living, has entered into or contracted a marriage with any other person. Provided that the State Government may, if satisfied that such marriage is permissible under the personal law applicable to such person, exempt any person from the operation of this rule.

(iv) A person who has been dismissed from the Services of a State or Central Government or from the service of any Central or State Government undertaking or local body or other authority.

(v) A person who has been convicted for any offence in any Court of Law.

(vi) A person who is involved in an offence involving moral turpitude.

24. SUPPRESSION / WITHHOLDING OF FACTS – NOT ADVISABLE:

Suppression of material facts or withholding any factual information in the Application or Attestation Form (which would be supplied to the Candidates who are declared provisionally selected) will disqualify the Candidate from being considered for appointment. In the event of any information being found false or incorrect or ineligibility being detected at any time even after appointment, he / she will be discharged from service forthwith by the appointing authority without giving any notice.

25. LEAVE:

Persons appointed on Outsourcing basis will be entitled to casual leave on par with regular employees in the Department. However, they will not be entitled to any other kind of leave such as Earned Leave, Half Pay Leave, Medical Leave etc.,

26. DECISION OF TS FSL TO BE FINAL:

i. The decision of the TS FSL in all aspects pertaining to the Application and its acceptance or rejection as the case may be, conduct of Examination at all consequent stages culminating in the selection or otherwise of any Candidate shall be final in all respects. The TS FSL also reserves the right to alter or modify time and conditions laid down in the Notification for conducting the recruitment at various stages up to selection, duly intimating details thereof to all concerned, as warranted by any unforeseen circumstances arising during the course of this recruitment process or as deemed necessary by the TS FSL at any stage of the recruitment.

ii. The Selection to the posts notified is purely a Outsourcing engagement, and TS FSL reserves the right to terminate the contract engagement at any time depending on the performance of the candidate and needs/requirements of the organization. The decision of Director, TS FSL in this regard would be final and binding on the candidate.

27. The candidates upon final selection will be posted to work anywhere in the State of Telangana as deemed necessary. The Director, TS FSL shall exercise full discretion in this regard.



DIRECTOR
TS FSL

Note: Syllabus for examinations is given below.

Contact Information: 040 – 29394449, 040 - 23307138 (FAX: 040 – 23394449).
Email: itcellfsl@gmail.com

ANNEXURE - (COMPUTER DIVISION)

SYLLABUS FOR EXAMINATION FOR SCIENTIFIC OFFICER/ SCIENTIFIC ASSISTANT-

I. FORENSIC AUDIO VIDEO & II. FORENSIC COMPUTERS

1. Digital Forensic and Cyber Crime: Understanding Cyber Crime: Indian IT Act 2008 and amendments, categories of cybercrimes i.e., unauthorized access and hacking, virus, worms & Trojan attacks, E-mail related crimes, Internet relay, chat relating crimes, sale of illegal articles, online gambling, phishing, Intellectual property crimes, web defacement, DOS attack, cyber stalking etc.,

2. Working with Windows and DOS Systems: Understanding File Systems, Exploring Microsoft File Structures, Examining NTFS Disks, Understanding Whole Disk Encryption, Understanding the Windows Registry, Understanding Microsoft Start-up Tasks, Understanding MS-DOS Start-up Tasks, and Understanding Virtual Machines. Macintosh and Linux Boot Processes and File Systems: Understanding the Macintosh File Structure and Boot Process, Examining UNIX and Linux Disk Structures and Boot Processes, Understanding Other Disk Structures. Free space Management Bit-Vector Linked List Grouping Counting Efficiency & Performance Recovery Physical Damage Physical Damage Recovery Logical Damage Logical, Damage Recovery.

3. Current Computer Forensics Tools: Evaluating Computer Forensic Tool Needs, Computer Forensics Software Tools, Computer Forensics Hardware Tools, Validating and Testing Forensics Software. Data Acquisition: Understanding Storage Formats for Digital Evidence, Determining the best Acquisition Method, Validating Data Acquisitions, Determining What Data to Collect and Analyze, Validating Forensic Data, Addressing Data-Hiding Techniques, Performing Remote Acquisitions. Performing RAID Data Acquisitions, Using Remote Network Acquisition Tools, and Using Other Forensic Acquisition Tools. Recovering Graphics Files: Recognizing a Graphics File, Understanding Data Compression, Locating and Recovering Graphics Files, Identifying Unknown File Formats, Understanding Copyright Issues with Graphics.

4. Audio /video forensics: Spectrography – Conversion of different voice file formats in to forensic voice module formats. Various types of spectrograms, spectrographic cues for vowels and consonants. Speech analysis in forensic sciences. Speech synthesis by analysis, Speech recognition and speaker identification. Fundamentals of Digital Signal processing and communication system. Analogue and digital systems, Analogue signal and digital signals, Analogue to digital and digital to analogue converters, need and advantages of digital systems and digital signal processing. Forensic extraction of video files from DVR and other storage media. Forensic examination of DVR containing video footages, its frame analysis. Forensic examination and authentication of meta data present in video/audio files. Enhancement of video/ Photo and its comparison/authentication, Fundamentals of Vibration, Transverse Motion – The Vibrating String, Longitudinal Vibrations, Pipes, Resonators and Filters, Noise, Signal Detection, Hearing and Speech, Sound levels and the Decibel, Control of Interfering Noise.

5. Computer hardware/Software:

Hardware: Basic PC Components, Monitors, Keyboard, Storage devices :Hard Disk ; Storage related simple problems, CD, Mother-board, Printers its classification etc, OCR, OMR, BAR Code etc. Memory Hierarchies : Basics of Semiconductor Memories, ROM Cells & Circuits, Address Decoding, Access Time, Examples of Integrated Circuit ROMs, PROMs, EPROMs, EEPROM, Static Read/Write (RAM) Memory. CPU ;ALU, Components of CPU ; Register, Accumulator, IR, etc. Software System- application Software and their Examples in real life. Operating System and their usage. Multitasking –Multiprogramming- Multiprocessing Operating System.

6. NON LINEAR DATA STRUCTURES AND HASH TABLES: Introduction- Definition and Basic terminologies of trees and binary trees. Hash Tables: Introduction- Hash Tables- Hash Functions and its applications. HASH FUNCTIONS AND DIGITAL SIGNATURES-Authentication functions-Message authentication codes-Hash functions-Hash Algorithms (MD5, Secure Hash Algorithm)-Digital signatures (Authentication protocols, Digital signature Standard).

7. Mobile phone forensics: Mobile phone data acquisition through logical, physical and file system techniques, forensic procedures, device data, external memory dump, evidences from memory card, Android forensics: Procedures for handling an android device, imaging android USB mass storage devices. Decrypting of encrypted files, analysis of .db files.Recovering of files, Voice.

8. Escalating privileges-Hiding Files- Steganography technologies- Countermeasures. Ethical Hacking terminology

9. Foot printing & Social engineering- Information gathering methodologies- Competitive Intelligence- DNS Enumerations- Social Engineering attacks. Analysis of Deep web/ dark web and silk road analysis

10. NUMBER SYSTEMS AND CODES: Basic Rules of Binary , Binary Number System, Octal Number System, Hexadecimal Number System, Bits and Bytes , 1's and 2's Complements, Decimal –to- Binary Conversion, Decimal-to- Octal Conversion, Decimal –to-Hexadecimal Conversion, Binary –octal and Octal – Binary Conversions , Hexadecimal – Binary and Binary –Hexadecimal Conversion, Hexadecimal –Octal and Octal –Hexadecimal Conversion.

11. TCP/IP: The Internet Protocol (IP), IP packet, IP addressing, subnet mask, classless interdomain routing (CIDR), address resolution, reverse address resolution, IP fragmentation and reassembly, ICMP, User Datagram Protocol (UDP), Transmission Control Protocol (TCP), TCP reliable stream services, TCP operation, TCP protocol, Dynamic Host Configuration Protocol (DHCP), mobile IP, IPv6, Internet routing protocols, routing information protocols, open shortest path first protocol, border gateway protocol, multicast routing, reverse path broadcasting, internet group management protocol, reverse path multicasting, distance vector multicast routing protocol. FILE SYSTEM, ACCESSING THE WORLD WIDE WEB-File systems, hypertext markup language, wireless application protocol, wireless data gram protocol, wireless transaction protocol, wsp/b over wtp, wsp/b as connectionless session service, wireless markup language, WTP class 0, WMLScript

12. NEXT GENERATION INTERNET PROTOCOL: Introduction to IPv6 – IPv6 Advanced Features –V4 and V6 header comparison – V6 Address types –Stateless auto configuration – IPv6 routing protocols – IPv4-V6 Tunnelingand Translation Techniques.

13. INITIAL RESPONSE AND FORENSIC DUPLICATION: Initial Response & Volatile Data Collection from Windows system - Initial Response & Volatile Data Collection from Unix system - Forensic Duplication: Forensic duplication: Forensic Duplicates as Admissible Evidence, Forensic Duplication Tool Requirements, Creating a Forensic Duplicate/Qualified Forensic Duplicate of a Hard Drive.

14. NETWORK FORENSICS: Performing Live Acquisitions, Developing Standard Procedures for Network Forensics, Using Network Tools. E-mail Investigations: Exploring the Role of E-mail in Investigations, Exploring the Roles of the Client and Server in E-mail, Investigating E-mail Crimes and Violations, Understanding E-mail Servers. Collecting Network Based Evidence - Investigating Routers - Network Protocols - Email Tracing - Internet Fraud, SYSTEMS INVESTIGATION AND ETHICAL ISSUES-Data Analysis Techniques - Investigating Live Systems (Windows &Unix) - Investigating Hacker Tools - Ethical Issues – Cybercrime, DATABASE AND WEB SPECIFIC INPUT ISSUES-Quoting the Input – Use of stored procedures-Building SQL statements securely- XSS related attacks and remedies.

15. RFID Security: Introduction, RFID Security and privacy, RFID chips Techniques and Protocols, RFID anti-counterfeiting, Man-in-the-middle attacks on RFID systems, Digital Signature Transponder, Combining Physics and Cryptography to Enhance Privacy in RFID Systems,

16. IMPLEMENTATION OF COVERT CHANNEL: Non self-reproducing Malware- Working principle of Trojan Horse- Implementation of Remote access and file transfer- Working principle of Logical Bomb, other worms. VIRUS AND WORM ANALYSIS-Klez Virus. Clone Virus- Doom Virus- Black wolf worm- Sasser worm- Happy worm 99. Virus components- Function of replicator, concealer and dispatcher- Trigger Mechanisms- Testing virus codes- Case Study: Brute force logical bomb

17. Ethical Hacking terminology: Five stages of hacking- Vulnerability Research- Legal implication of hacking- Impact of hacking. System Hacking-Password cracking techniques- Key loggers- Escalating privileges- Hiding Files- Steganography technologies- Countermeasures.

18. PUBLIC KEY CRYPTOGRAPHY: Principles of public key cryptosystems-The RSA algorithm-Key management -Diffie Hellman, Key exchange-Elliptic curve arithmetic-Elliptic curve cryptography.

ANNEXURE – B1 (COMPUTER DIVISION)

SYLLABUS FOR EXAMINATION FOR LAB ASSISTANT

- Fundamentals of Computers, IT.
- Different Operating Systems.
- Data Structures.
- Computer Networks.
- Fundamentals of Data Science and DBMS.

ANNEXURE – (BIOLOGICAL DIVISION)

SYLLABUS FOR EXAMINATION FOR SCIENTIFIC OFFICER/ASSISTANT (DNA/BIOLOGY)

I. DNA

1. **Definition and scope of Forensic Science** – History and Development of Forensic Science, Organization of the Forensic Science laboratory. Central and state forensic science laboratories, Directorate of forensic sciences. Functions of a Forensic Scientist.

2. **Physical Evidence:** Their significance, class and individual characteristics, identification and individualization of physical evidence, Locards's exchange principle, Mobile forensic science laboratory and its deployment in scenes of crimes.

3. **The scene of Crime:** Crime scene search for physical evidence, photography, sketching, collection, preservation, packing and transportation of evidence, maintaining the chain of custody.

4. **Microscopy:** principles and different types of microscopes and its forensic applications.

5. **DNA profiling:** History of DNA Typing, human genetics, heredity, alleles, mutations, population genetics, Hardy Weinberg Law, Variations and Polymorphism. Mitosis, meiosis, Cell theory, cell structure and function in eukaryotes.

6. HUMAN GENETICS

a. Genes, Genetic code, eukaryotic gene expression, regulation of gene expression, alleles, karyotypes, genetic disorders, mutation types and their causes.

b. Mendel's Law of inheritance, Extension of Mendelian principles- co-dominance, incomplete dominance, linkage and crossing over

7. **Forensic Genetics:** Elements of human genetics- Introduction, principles of heredity, human genetic variations, human chromosomes, chromosomal aberration, Mendelian, Dominant, recessive and sex-linked inheritances, polymorphic traits. Heritable human diseases. Metabolic/molecular basis and detection of inherited disease, Mendelian Population, gene pool, Hardy-Weinberg equilibrium and deviation, genotypes, phenotypes, multiple alleles, genetic variants, gene structure, gene mapping and gene Expression. Genetic markers and their forensic significance. Mutation – Classification, causes, mechanism, role of genetic analysis and evolution.

8. **Structure of DNA, functions and its properties,** Human genome, History of DNA fingerprinting, utility of DNA fingerprinting in crime investigation in parentage dispute, wild life, veterinary and agriculture etc., Legal and Ethical issues. Collection, preservation and transport of samples viz, semen, saliva, hair, bone, flesh etc for DNA profiling, DNA methodology for isolation, typing, interpretation of results, STR analysis, polymerase chain reaction, types and its application, mitochondrial analysis, determination of sex & species and racial origin.

9. **Types and distribution of body fluids:** Blood, blood stains, semen, seminal stains, urine (formation, composition, properties); amniotic fluid, sweat (formation, composition, properties); saliva, vaginal fluid, epithelial cells, etc., their analysis and forensic significance.

10. **General characteristics of Skeletal, muscle, nervous system in human body and human hair.**

11. Properties, classification and functions of carbohydrates, proteins, nucleic acids and lipids.

12. Nucleic Acids: Structure and functions, Isolation of DNA and RNA from biological sources. Physiochemical properties of nucleic acids, melting of DNA, T_m ; factors affecting T_m , Cot curve, classification of DNA based on cot curve. Chemical reactions of DNA and RNA. DNA Replication and Protein Synthesis: Structure and types of DNA, replication mechanism, enzymes involved in replication, Biosynthesis of Proteins.

13. Types of DNA and their role in human identification.

14. Sequencing of DNA: Maxam Gilbert method, Sanger method. Chargaff's rule, secondary structure of DNA. Watson and Crick model; B and Z DNA, other models of DNA structure. Other secondary structural features in DNA, stem loop structure, palindromic sequences, cruciform's. DNA protein interaction; zinc finger, leucine zipper, helix-turn-helix, other motifs, DNA bending and kinks.

15. Extraction of DNA from different types of biological samples, DNA extraction methods. Determining quality and quantity of DNA samples; contamination issues.

16. DNA amplification: Principle, Methodology, types of Polymerase Chain Reaction (PCR), PCR inhibitors and solutions, PCR primers and primer designing, applications of PCR in cloning and forensic science.

17. Electrophoretic techniques: Polyacrylamide gel electrophoresis, sodium dodecyl sulphate polyacrylamide gel electrophoresis, Agarose gel electrophoresis, Isoelectric focusing, Capillary electrophoresis. Visualizing proteins and DNA.

18. Wild life DNA Analysis and its applications in Forensic Science.

19. Intellectual property rights (IPR) and its importance in DNA profiling with case studies.

20. Forensic DNA profiling - International, national and state level cases

II. SEROLOGY

1. MOLECULES AND THEIR INTERACTION:

- a. Composition, structure and function of Bio-molecules (carbohydrates, lipids, proteins and nucleic acids).

2. ACID- BASE BALANCE AND ENZYMES:

- a. pH, buffer and buffer system.
- b. Enzyme, catalysis, enzyme regulation, enzyme inhibition, iso-enzymes.

3. CELLULAR ORGANIZATION:

- a. Structural organization and functions of cell including Plasma membrane, intracellular organelles (Nucleus, Mitochondria, Golgi-bodies, Lysosomes, Endoplasmic reticulum, Peroxisomes) and Chromosomes.
- b. Cell division and cell cycle.

4. HUMAN PHYSIOLOGY AND PATHOLOGY

- a. Physiology of digestive system. Saliva and gastric juices, digestion and absorption.
- b. Nervous system –reflex action, reflex-arc and nerve impulse

- c. Physiology of Respiratory system - exchange of gases, process of pulmonary respiration.
- d. Physiology of human circulatory system - Heart structure, double circulation, cardiac cycle and its regulation, blood pressure, composition of blood, mechanism of blood clotting, Anti coagulants for blood.
- e. Physiology of human reproductive system.
- f. Human male and female reproductive systems, gamete formation , fertilization and implantation.
- g. Forensic Pathology
 - i. Decomposition – Muscular Physiology
 - ii. Causes of Death – Shock, Syncope, Asphyxia etc.
 - iii. Post Mortem Examination – wounds, injuries, etc.
 - iv. Estimation of Time Since Death

5. FORENSIC SCIENCE

- a. Principles and basics of Forensic Science
- b. Growth of Forensic Science Laboratories in India – Central and State level laboratories.
- c. Services and functionalities provided by various Forensic Science Laboratories.
- d. Various divisions in the FSL – Ballistics, Biology, Chemistry Documents, Physics, Psychology, Serology, Toxicology, Cyber, Narcotics, DNA, Arson and Explosive

6. CRIME SCENE MANAGEMENT

- a. Types of crime scenes
- b. Crime scene Management – initial response, role of first responding officer, duty management
- c. Role and duties of Forensic Scientists.

7. PHYSICAL EVIDENCE COLLECTION & PACKAGING OF SEROLOGICAL MATERIALS

- a. Physical evidence, types and importance in a criminal investigation
- b. Protecting a scene of crime – various steps involved, contamination issues.
- c. Protection of Packaging & transportation Biological Evidences
- d. Documentation
- e. Chain of Custody
- f. Recognition of Biological evidences encountered in various cases.

8. SEROLOGICAL TECHNIQUES

- a. Electrophoresis Methods
- b. Presumptive & Confirmatory Tests for blood
- c. Identification of Blood Properties Blood Grouping

III. BIOLOGY

1. Fundamentals of Forensic Science and Scope of Forensic Biology: Definitions, History and Development. Crime Scene Management & Investigation; Collection, Lifting, Preservation, Packing and Forwarding of different kinds of biological exhibits for analysis. Legal & Court Procedure pertaining to Expert Testimony, Admissibility of Scientific & Technical evidence - 293 CrPc.

2. Tools and Techniques: Microscopy- Basic principles and working of simple and compound, comparison, phase-contrast, stereo-zoom, polarizing, Fluorescence, Scanning Electron & transmission electron microscope and U.V. light sources.

3. Immunological techniques: General principles, Precipitin reaction, Gel immune-diffusion, Immuno-electrophoresis, Radio Immuno Assay , ELISA, Immune system, immune response, innate and acquired immunity, antigens, antibodies, Immunoglobulins, raising of anti-sera, Lectins -their forensic significance. Buffers and biological reagents, Methods of sterilization employed for biological work.

4. Biosystematics & Taxonomy: Chemotaxonomy, Cytotaxonomy, Molecular Taxonomy and General classification of Animals.

5. Human Anatomy & Physiology: Cell structure and function: Membrane structure and its role in transportation. Cell organelles and Cell Division. Basic structure of DNA and RNA. Protein Synthesis, karyotyping. Sex Chromosomes/sex chromatin. Abnormal cell growth and tumors.

6. Introduction to Body Function: External and internal environment, homeostasis. Negative and positive feedback mechanism. Structure and function of the major organ systems: digestive, skeleton, respiratory, endocrine, nervous, excretory, reproductive, cardiovascular and neuromuscular. Mode of communication within the body. Importance of electrolytes, acids and alkalis, carbohydrates, proteins and fats in the body.

7. Tissues of the body: Epithelia and glands. Classification of epithelia/glands and their functions. Connective tissues. Cartilage- structure and types, Gross structure of bones, formation of bone, fracture and healing.

8. Skin and its appendages: Structure and functions, pigmentation, blood and nerve supply. Structure of hair, hair cycle- anagen, catagen, telogen. Sebaceous glands, nails, sweat gland. Skeletal muscle, striated and non-striated, muscle. Organization of muscle fibres. Tendons and Nerves.

9. Body Fluids & their stains: Introduction to various types of body fluids, Composition, Physical pattern and Identification of seminal stains: presumptive tests (U.V. test, Florence test, Spermine (Barberio) test, Choline test, Acid phosphatase test) and confirmatory test including Azoospermic semen stain (p-30, *Prostate-specific antigen* or PSA, Microscopic examination), Morphological structure of spermatozoa of human and animals, Identification of lochial and menstrual blood stains by microscopic, biochemical and immuno-electrophoretic method, Identification and examination of other body fluids/stains-vaginal, saliva, urine, faeces, vomit etc., Secretor and non -secretor. Identification and examination of body tissues of human/animal.

10. Forensic Anthropology: Personal identification techniques as somatoscopy and somatometry. Anatomical description of skeleton of human/animal as relevant to forensic, Ossification & Identification of bones for determination of age, sex, race, stature etc., Forensic Anthropometry/Osteometry and tools involved in it. Determination of personal identity, Sex differences in skull, Pelvis and other bones. Calculation of stature from long bones, Identification of burnt bones, Recovery and identification of skeletal remains in accident, crimes and mass disasters. Recovery, packaging and storage of fleshed and burnt bone remains of human/animal, forensic importance of skeletal pathology and trauma of bones.

11. Facial reconstructions & Superimposition: Cranio facial superimposition techniques as Photographic & Video superimposition.

12. Forensic Odontology: Dentition pattern, types, structure and growth of teeth, eruption sequence, age determination, identity of person, role in mass disaster, dental anomalies and their significance in personal identification. Bite marks analysis of human/animal.

13. Hair and Fibres: Morphology and Biochemistry of human/animal hair, determination of origin, race, sex and site.

14. Types and Identification of Fibres: Man-made and Natural fibres and its Forensic significance.

15. Forensic Botany: General plant classification schemes. specialisation of forensic botanymorphology, anatomy, systematic, ecology, limnology, Plant architecture- roots, stems, flowers, leaves. Practical plant classification schemes:- vegetables/herbs, fruit bearing trees and plants, trees, shrubs and grasses, plant cell structure and functions. Basic plant tissues.

16. Wood anatomy: Various types of woods, timbers, seeds and leaves and their forensic importance. Xylotomy-types of sections, staining and preparation of slides. Identification and matching of various types of wood, seeds and leaves.

17. Planktonic study: Various types of phytoplankton, diatoms and their forensic importance. Different kinds of diatoms and their morphology, Importance of diatom test in drowning cases, history of diatom test, drowning associated diatoms. Precaution in collection, preservation and forwarding of biological samples for diatom test, methods of isolation of diatoms from different body tissue/ bone marrow and water sample i.e. drowning medium. Preparation and observation of slides.

18. Forensic Microbiology: Isolation, classification and identification of microbial organism, cell structure of bacteria and fungi, their spores, microbes of soil and spoiled food, microbial organism related to sexual transmitted disease, Collection, Preservation and Forwarding of Samples, Microorganism encountered in biological warfare and its Forensic application.

19. Forensic Environmental Biology: Different kind of ecosystems, effects of pollution in aquatic habitat, identification of Algal bloom and their composition, Eutrophication and their effects, Identification methods for coliform bacteria , BOD (biological oxygen demand).

20. Wild life Forensics: Wild life, Importance of protected and endangered species of Animals and Plants. National and International scenario of wild life, Sanctuaries and National parks. Relevant provision of wild life and environmental act. Types of wildlife crimes, different methods of poaching of wildlife animals, Illegal Trade of wildlife material, Identification and examination of different kinds of wildlife crime exhibits. Examination of fabricated hides, ivory, nail etc.

21. Forensic Medicine: Death - Signs of death and changes after death. Somatic & Molecular death, Early changes after death - Algor mortis, rigor mortis, cadaveric spasm, heat stiffening, cold stiffening, changes in blood, cadaveric lividity etc. Late changes – putrefaction- external and internal changes. Adipocere, mummification, gastric and urinary bladder content and time of death from growth of hair and nails. Destruction of body and tissues by bacteria, maggots and other insects, determining time since death from different parameters, Medico legal aspects of death.

22. Forensic Entomology: Introduction, History, Significance, Classification and Biology of insects and other arthropods, Life cycle and forensic application of insects, determination of time since death (post-mortem interval ie PMI) - Dipterans larval development & succession on carrion and its relationship to determine time of death, impact of ecological factors on insects developments, rearing insects & calculating PMI, identification of larval instars, determining whether the body has been moved, linking suspect to the scene, Forensic Entomo-toxicology identification of drugs and toxins from the insects and larvae feeding on the body, collection and preservation of entomological evidence at a crime scene.

ANNEXURE – ((BIOLOGICAL DIVISION)

SYLLABUS FOR EXAMINATION FOR LAB ASSISTANT (DNA/BIOLOGY)

I. DNA

1. Definition and scope of Forensic Science – History and Development of Forensic Science, Organization of the Forensic Science laboratory. Central and state forensic science laboratories, Directorate of forensic sciences. Functions of a Forensic Scientist.
2. Physical Evidence: Their significance, class and individual characteristics, identification and individualization of physical evidence, Locards's exchange principle, Mobile forensic science laboratory and its deployment in scenes of crimes.
3. The scene of Crime: Crime scene search for physical evidence, photography, sketching, collection, preservation, packing and transportation of evidence, maintaining the chain of custody.
4. Microscopy: principles and different types of microscopes and its forensic applications.
5. DNA profiling: History of DNA Typing, human genetics, heredity, alleles, mutations, population genetics, Hardy Weinberg Law, Variations and Polymorphism. Mitosis, meiosis, Cell theory, cell structure and function in eukaryotes.
6. HUMAN GENETICS
 - a. Genes, Genetic code, eukaryotic gene expression, regulation of gene expression, alleles, karyotypes, genetic disorders, mutation types and their causes.
 - b. Mendel's Law of inheritance , Extension of Mendelian principles- co-dominance, incomplete dominance, linkage and crossing over
7. **Structure of DNA, functions and its properties**, Human genome, History of DNA fingerprinting, utility of DNA fingerprinting in crime investigation in parentage dispute, wild life, veterinary and agriculture etc., Legal and Ethical issues. Collection, preservation and transport of samples viz, semen, saliva, hair, bone, flesh etc for DNA profiling, DNA methodology for isolation, typing, interpretation of results, STR analysis, polymerase chain reaction, types and its application, mitochondrial analysis, determination of sex & species and racial origin.
8. Types and distribution of body fluids: Blood, blood stains, semen, seminal stains, urine (formation, composition, properties); amniotic fluid, sweat (formation, composition, properties); saliva, vaginal fluid, epithelial cells, etc., their analysis and forensic significance.
9. General characteristics of Skeletal, muscle, nervous system in human body and human hair.
10. Properties, classification and functions of carbohydrates, proteins, nucleic acids and lipids.
11. Nucleic Acids: Structure and functions, Isolation of DNA and RNA from biological sources. Physiochemical properties of nucleic acids, melting of DNA, T_m ; factors affecting T_m , Cot curve, classification of DNA based on cot curve. Chemical reactions of DNA and RNA. DNA Replication and Protein Synthesis: Structure and types of DNA, replication mechanism, enzymes involved in replication, Biosynthesis of Proteins.

12. Types of DNA and their role in human identification.
13. DNA amplification: Principle, Methodology, types of Polymerase Chain Reaction (PCR), PCR inhibitors and solutions, PCR primers and primer designing, applications of PCR in cloning and forensic science.
14. Electrophoretic techniques: Polyacrylamide gel electrophoresis, sodium dodecyl sulphate polyacrylamide gel electrophoresis, Agarose gel electrophoresis, Isoelectric focusing, Capillary electrophoresis. Visualizing proteins and DNA.
15. Forensic DNA profiling - International, national and state level cases.

II. SEROLOGY

1. MOLECULES AND THEIR INTERACTION:

- a. Composition, structure and function of Bio-molecules (carbohydrates, lipids, proteins and nucleic acids).

2. ACID- BASE BALANCE AND ENZYMES:

- a. pH, buffer and buffer system.
- b. Enzyme, catalysis, enzyme regulation, enzyme inhibition, iso-enzymes.

3. CELLULAR ORGANIZATION:

- a. Structural organization and functions of cell including Plasma membrane, intracellular organelles (Nucleus, Mitochondria, Golgi-bodies, Lysosomes, Endoplasmic reticulum, Peroxisomes) and Chromosomes.
- b. Cell division and cell cycle.

4. HUMAN PHYSIOLOGY AND PATHOLOGY

- a. Physiology of digestive system. Saliva and gastric juices, digestion and absorption.
- b. Nervous system –reflex action, reflex-arc and nerve impulse
- c. Physiology of Respiratory system - exchange of gases, process of pulmonary respiration.
- d. Physiology of human circulatory system - Heart structure, double circulation, cardiac cycle and its regulation, blood pressure, composition of blood, mechanism of blood clotting, Anti coagulants for blood.
- e. Physiology of human reproductive system.
- f. Human male and female reproductive systems, gamete formation, fertilization and implantation.
- g. Forensic Pathology
 - i. Decomposition – Muscular Physiology
 - ii. Causes of Death – Shock, Syncope, Asphyxia etc.
 - iii. Post Mortem Examination – wounds, injuries
 - iv. Estimation of Time Since Death

5. FORENSIC SCIENCE

- a. Principles and basics of Forensic Science
- b. Growth of Forensic Science Laboratories in India – Central and State level laboratories.
- c. Services and functionalities provided by various Forensic Science Laboratories.
- d. Various divisions in the FSL – Ballistics, Biology, Chemistry Documents, Physics, Psychology, Serology, Toxicology, Cyber, Narcotics, DNA, Arson and Explosive

6. CRIME SCENE MANAGEMENT

- a. Types of crime scenes
- b. Crime scene Management – initial response, role of first responding officer, duty management
- c. Role and duties of Forensic Scientists.

7. PHYSICAL EVIDENCE COLLECTION & PACKAGING OF SEROLOGICAL MATERIALS

- a. Physical evidence, types and importance in a criminal investigation
- b. Protecting a scene of crime – various steps involved, contamination issues.
- c. Protection of Packaging & transportation Biological Evidences
- d. Documentation
- e. Chain of Custody
- f. Recognition of Biological evidences encountered in various cases.

8. SEROLOGICAL TECHNIQUES

- a. Electrophoresis Methods
- b. Presumptive & Confirmatory Tests for blood
- c. Identification of Blood Properties Blood Grouping
- d. Recognition of Biological evidences encountered in various cases.

9. SEROLOGICAL TECHNIQUES

- a. Electrophoresis Methods
- b. Presumptive & Confirmatory Tests for blood
- c. Identification of Blood Properties Blood Grouping

III. BIOLOGY

1. Fundamentals of Forensic Science and Scope of Forensic Biology: Definitions, History and Development. Crime Scene Management & Investigation; Collection, Lifting, Preservation, Packing and Forwarding of different kinds of biological exhibits for analysis.

2. Tools and Techniques: Microscopy- Basic principles and working of simple and compound, comparison, phase-contrast, stereo-zoom, polarizing, Fluorescence, Scanning Electron & transmission electron microscope and U.V. light sources.

3. Immunological techniques: General principles, Precipitin reaction, Gel immune-diffusion, Immuno-electrophoresis, Radio Immuno Assay , ELISA, Immune system, immune response, innate and acquired immunity, antigens, antibodies, Immunoglobulins, raising of anti-sera, Lectins -their forensic significance. Buffers and biological reagents, Methods of sterilization employed for biological work.

4. Tissues of the body: Epithelia and glands. Classification of epithelia/glands and their functions. Connective tissues. Cartilage- structure and types, Gross structure of bones, formation of bone, fracture and healing.

5. Skin and its appendages: Structure and functions, pigmentation, blood and nerve supply. Structure of hair, hair cycle- anagen, catagen, telogen. Sebaceous glands, nails, sweat gland. Skeletal muscle, striated and non-striated, muscle. Organization of muscle fibres. Tendons and Nerves.

6. Body Fluids & their stains: Introduction to various types of body fluids, Composition, Physical pattern and Identification of seminal stains: presumptive tests (U.V. test, Florence test, Spermine (Barberio) test, Choline test, Acid phosphatase test) and confirmatory test including Azoospermic semen stain (p-30, *Prostate-specific antigen* or PSA, Microscopic examination), Morphological structure of spermatozoa of human and animals, Identification of lochial and menstrual blood stains by microscopic, biochemical and immuno-electrophoretic method, Identification and examination of other body fluids/stains–vaginal, saliva, urine, faeces, vomit etc., Secretor and non –secretor. Identification and examination of body tissues of human/animal.

7. Hair and Fibres: Morphology and Biochemistry of human/animal hair, determination of origin, race, sex and site.

8. Types and Identification of Fibres: Man-made and Natural fibres and its Forensic significance.

9. Forensic Botany: General plant classification schemes. specialisation of forensic botanymorphology, anatomy, systematic, ecology, limnology, Plant architecture- roots, stems, flowers, leaves. Practical plant classification schemes:- vegetables/herbs, fruit bearing trees and plants, trees, shrubs and grasses, plant cell structure and functions. Basic plant tissues.

10. Wood anatomy: Various types of woods, timbers, seeds and leaves and their forensic importance. Xylotomy-types of sections, staining and preparation of slides. Identification and matching of various types of wood, seeds and leaves.

11. Forensic Entomology: Introduction, History, Significance, Classification and Biology of insects and other arthropods, Life cycle and forensic application of insects, determination of time since death (postmortem interval ie PMI) - Dipterans larval development & succession on carrion and its relationship to determine time of death, impact of ecological factors on insects developments, rearing insects & calculating PMI, identification of larval instars, determining whether the body has been moved, linking suspect to the scene, Forensic Entomo-toxicology identification of drugs and toxins from the insects and larvae feeding on the body, collection and preservation of entomological evidence at a crime scene.

ANNEXURE – (CHEMICAL DIVISION)
SYLLABUS FOR EXAMINATION FOR SCIENTIFIC ASSISTANT

I. TOXICOLOGY

1. Introduction, definition, principles, scope and branches of Forensic Science.
2. Crime scene Investigation: Definition of crime scene, Classification of crime scenes indoor & outdoor, primary & secondary, macroscopic & microscopic crime scenes, Significance of crime scene and ethics of crime scene investigation
3. Physical Evidence: Definition, Classification, Sources, Significance and value of physical evidence. Linkage between crime scene, victim and criminal. Study of crime scenes relating to homicide, suicide, murder, mass disaster (Vehicle and Train accidents, Air-crash, Industrial accidents etc).
4. History and definition of Forensic Toxicology, General principles and management of acute poisoning, Definition, classification of poisons, mode of action, signs and symptoms in cases of common poisons. Heavy metal poisoning and metal antagonists, lead, mercury, arsenic. Organ phosphorus, Organochloro, Carbamate pesticides and Pyrethroids poisoning cases. Environmental impact on insecticides, Drug dependence and its management, Clinical toxicology, Action and administration of Drugs and Poisons, Different methods of extraction of drugs and poisons, clean up procedures and analysis.
5. Qualitative analysis: Sample preparation, dissolution, digestion and fusion, Nature of trace analysis, spot tests and spectroscopic methods. Screening tests commonly engaged in chemical and toxicological analysis of alcohol, drugs, pesticides, poisons and their metabolites from autopsied samples, blood and urine samples.
6. Quantitative analysis: Volumetric and Gravimetric analysis.
7. Solvent extraction: Advantage and application, Derivation of the relation between the percentage extraction and number of extractions, relation between distribution ratio and distribution coefficient, quantitative treatment of neutral chelate in extraction systems, Ph extraction curve, masking agent, salting out technique, multiple extractions, solid phase extraction.
8. Chromatography: Introduction IUPAC definition development methods - classification Theory (distribution coefficient rate of travel, retention time, adjusted retention time, retention volume, corrected retention volume, adjusted retention volume, Specific retention volume, relative retention, column capacity, separation number, peak capacity). Shapes of chromatographic peak, column efficiency, zone broadening, Van Demeter equation, resolution and optimization of column performance.
9. Introduction, principle, procedure and applications of - Paper chromatography, Thin Layer as Chromatography (TLC) and High-Performance Thin Layer Chromatography (HPTLC).
10. Gas Chromatography: Principles, Carrier gas, stationary phase, instrumentation, sample injection, column, detectors (FID, ECD, TCD, automatic emission detector and thermionic detectors). Effect of temperature of retention, temperature programming. GC-MS, qualitative and quantitative analysis of alcohols.
11. High Performance Liquid Chromatography (HPLC): Scope, Instrument, stationary phase, structural types of columns, packing column for bonded phase. Detector (absorbance detector, RI detector and electrochemical detector, Pre-column and post column derivatisation, mobile phase selection, effect of solvent strength, optimization.
12. Spectrophotometry: Basic principles, Beer-Lambert's Law. Principle and biochemical applications of UV-Vis spectrophotometry.

II. NARCOTICS

1. Introduction, definition, principles, scope and branches of Forensic Science.
2. Crime Scene Investigation: Definition of Crime scene, Classification of crime scenes indoor & outdoor. primary & secondary, macroscopic & microscopic crime scenes, Significance Of crime scene and ethics of crime scene investigation.
3. Physical Evidence: Definition, Classification, Sources, Significance and value of physical evidence. Linkage between crime scene, victim and criminal. Study of crime scenes relating to Gas explosions, Fire and arson, homicide, suicide, murder, mass disaster (Bomb blasts, Vehicle and Train accidents, Air-crash, Industrial accidents etc).
4. Different methods of extraction of drugs, clean up procedures, analysis and field tests.
5. Chemical periodicity, main group of elements and their compounds, concept of acids and bases, hard soft acid base concept, non-aqueous solvents, organometallic compounds-synthesis, bonding & structure and reactivity, characterization of inorganic compounds.
6. Chemistry of natural products - carbohydrates. **proteins and peptides, fatty acids, nucleic acids** /steroids and alkaloids. Terpenoids & Terpene
7. Qualitative analysis: Sample preparation, dissolution, digestion and fusion, Nature of trace analysis, spot tests and spectroscopic methods. Screening tests commonly engaged in chemical analysis of drugs samples.
8. Quantitative analysis: Volumetric and Gravimetric analysis. HPLC, GC
9. Atomic structure and spectroscopy, term symbols, many electron systems and anti-symmetry principles, Basic principles of magnetic resonance, Solid state Crystal structures, Bragg's law and its applications, Band structure of solids.
10. Chromatography: Introduction, principle, procedure and applications of - Paper chromatography, Thin Layer Chromatography (TLC), High Performance Thin Layer Chromatography (HPTLC), Adsorption chromatography, Column chromatography. Gas Chromatography Liquid Reverse(GLC). Ion-exchange Chromatography. chromatography, High Pressure Liquid Chromatography (HPLC), Liquid chromatography Mass spectrometry (LC-MS), Gas chromatography-Mass spectrometry (GC-MS).
11. Spectrophotometry Basic principles, Beer-Lambert's Law. Principle and applications of UV-Vis spectrophotometry, atomic absorption spectroscopy. Theory and applications of IR, Fourier Transform Infrared spectroscopy (FTIR). Nuclear Magnetic Resonance spectroscopy (NMR) in the study of macromolecular structures, Raman spectroscopy, Mass spectrometry.
12. Statistics: Types of data- basic concepts of frequency distribution, measure of central values-mean, median and mode, mean and standards deviation, correlation and regression analysis, variance and discriminating power, biostatistics: Z-test, Student "t" test, chi square test, a correlation, ANOVA test.
13. Types of Solutions, Solubility Raoultlaw, Ideal & nonideal solutions colligative properties Abnormal molar mars. Acids, basis, Sacts , pH, pKa, pKb, buffer
14. IUPAC Nomenclature. Alkanes, Alkenes, Alkynes, Alcohols, Aldehydes, Ketones, carboxylic acids, Esters, Aromatic compounds, Hetero cyclic compounds.

III. CHEMICAL SECTION

1. Introduction, definition, principles, scope and branches of Forensic Science
2. Crime Scene Investigation: Definition of crime scene, Classification of crime scenes indoor & outdoor, primary & secondary, macroscopic crime scenes, Significance of crime scene and ethics of crime scene investigation.
3. Physical Evidence: Definition, Classification, Sources, Significance and value of physical evidence. Linkage between crime scene, victim and criminal. Study of crime scenes relating to Gas explosions, Fire and arson, homicide, suicide, murder, mass disaster (Bomb blasts, Vehicle and Train accidents, Air-crash, Industrial accidents etc).
4. Chemical periodicity, main group of elements and their compounds, concept of acids and bases, hard soft acid base concept, non aqueous solvents, organometallic compounds-synthesis, bonding & structure and reactivity, characterization of inorganic compounds.
5. Study of properties of fuel oils & Vegetable oils.
6. Qualitative analysis: Sample preparation, dissolution, digestion and fusion, Nature of trace analysis, spot tests and spectroscopic methods. Screening tests commonly engaged in chemical analysis of explosive samples.
7. Quantitative analysis: Volumetric, Gravimetric and instrumental (HPLC & HPTLC) analysis.
8. Solvent extraction: Advantage and application, Derivation of the relation between the percentage extraction and number of extractions, relation between distribution ratio and distribution coefficient, quantitative treatment of neutral chelate in extraction systems, pH extraction curve, masking agent, salting out technique, single extraction verses multiple extractions, solid phase extraction, accelerated solvent extraction, ultrasonic extraction, heat reflux extraction.
9. Chromatography: -Introduction, Principle, Procedure and applications of- Paper chromatography, Thin Layer Chromatography (TLC), High Performance Thin Layer Chromatography (HPTLC), Adsorption chromatography, Column chromatography, Gas Liquid Chromatography (GLC), Ion-exchange Chromatography Reverse Phase chromatography, High Pressure Liquid Chromatography (HPLC), Liquid chromatography-Mass spectrometry (LC-MS), Gas chromatography-Mass spectrometry (GC-MS) & Gas Chromatography – Head Spectrometry (GC-HS).
10. Spectrophotometry - Basic principles, Beer-Lambert's Law. Principle and biochemical applications of UV-Vis spectrophotometry, atomic absorption spectroscopy. Theory and applications of IR, Fourier Transform Infrared spectroscopy (FTIR), Nuclear Magnetic Resonance spectroscopy (NMR) in the study of macromolecular structures, Raman spectroscopy, Mass spectroscopy & Polari meter.

APPLICATION FORM FOR OUTSOURCING POSTS UNDER SAFE CITY PROJECT,
HYDERABAD CITY

POST NAME & CODE:

(Please write the post applied for)

PAPER DIVISION:

(see para – 18 of the notification)

*Latest passport size
photo to be affixed and
self-attested across the
photo.*

1. **Name :**
2. **Date of Birth:**
3. **Age (as on 01.07.2022):**
4. **Gender: Male / Female**
5. **Father & Mother Name:**
6. **Nationality:**
7. **Category:**

OC	<input type="checkbox"/>	BC – A	<input type="checkbox"/>
BC – B	<input type="checkbox"/>	BC – C	<input type="checkbox"/>
BC – D	<input type="checkbox"/>	BC – E	<input type="checkbox"/>
SC	<input type="checkbox"/>	ST	<input type="checkbox"/>

8. **Whether the applicant claim reservation under BC Category (for BC applicants only): YES / NO**
9. **Address for correspondence:**
10. **Contact No:**
11. **E-mail address:**

12. Educational Qualification(mention the highest qualification possessed as per the qualification prescribed for the post applied):

SN	Name of Board/University/Institute	Degree/Examination Passed	Academic Period	% or CGPA	Subjects

13. Course presently pursuing if any, the University/Institute and its duration:

14. Additional Qualification (if any)

Year	Qualification	Institution	Marks Obtained

15. Work Experience / Internship (if any)

Year	Institute	Period	Work description

16. Identification Marks:

I certify that the above information furnished by me is true to the best of my knowledge and belief. I have read the notification issued for the post applied and the terms and conditions are acceptable to me.

Place: (Signature)

Date: (Name)

****Note: The documents as mentioned at Para – 8 of the notification to be enclosed to this form**