



JAMMU AND KASHMIR PUBLIC SERVICE COMMISSION

Solina Srinagar, Kashmir - 190001

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Subject: Filling up of the post of Scientific Officers in FSL, Jammu and Kashmir.
Reference: Home Department letter No. Home 13-FSL-2008-P Dated 02.03.2021.

Notification No: 06- PSC (DR-P) OF 2021
Dated: 07-07-2021

Applications through online mode are invited from the applicants who are domiciled in the Union Territory of Jammu & Kashmir possessing the Prescribed Academic Professional qualification and age for the post of Scientific Officer, in terms of the "Jammu & Kashmir, Home Department { Forensic Science Laboratory, (Gazetted)} Service Recruitment Rules, 2021 issued vide S.O 43 dated 09.02.2021 and "Jammu & Kashmir Probationer (Conduct of Service, Pay & Allowance) and Fixation of Tenure Rules, 2020" notified vide S.O. 192 of 2020 dated: 17.06.2020 and the Jammu and Kashmir Public Service Commission (Business and Procedure) Rules, 2021.

MOST IMPORTANT

- The Application Form together with instructions for filling up the Application Forms will be available at the website of the Commission from 12.07.2021
- Candidates are advised to go through the instructions and all the eligibility conditions prescribed for the post before filing the online Application Form. Candidates are advised to up date their One Time Registration before filling the application Form.
- Last date for filing of online Application complete in all respects along with the requisite fee (online mode only) is 11.08.2021
- The last date for receipt of online applications provided in the notification shall be the cut-off date for determining the eligibility as regards acquisition of Domicile Certificates and educational and professional qualifications.
- The minimum and maximum age will however be reckoned with reference to 1st January, 2021.
- Candidates can edit some of the fields in their online application form from 14.08.2021 to 16.08.2021. Instructions in this regard will be separately made available on the website.
- Candidates are not required to submit hard copy or any other documents to the Commission.
- Candidates are advised in their own interest to submit online applications much before the closing date and not to wait till the last date to avoid the possibility of disconnection/inability to pay fee or failure to login to the online application portal on account of heavy load on the website during the closing days.
- The tentative date of Written Examination will be notified separately.

2. Details of post with category wise breakup is given below

Item No.	Name of the Post	Pay level	OM	RBA	SC	ST	ALC/IB	SLC	PSP	EWS	Total
5	Scientific Officer, Narcotics	Level 8 (47600-151100)	01	00	00	00	00	00	00	00	01
6	Scientific Officer, Chemistry & Toxicology	Level 8 (47600-151100)	01	01	00	00	00	00	00	00	02
7	Scientific Officer, DNA	Level 8 (47600-151100)	01	00	00	00	00	00	00	00	01
8	Scientific Officer,	Level 8 (47600-	01	00	00	00	00	00	00	00	01

	Biology/Serology	151100)										
9	Scientific Officer, Physics	Level 8 (47600-151100)	01	00	00	00	00	00	00	00	00	01
10	Scientific Officer, Ballistics	Level 8 (47600-151100)	01	00	00	00	00	00	00	00	00	01
11	Scientific Officer, Documents	Level 8 (47600-151100)	01	00	00	00	00	00	00	00	00	01
12	Scientific Officer, Cyber Forensic	Level 8 (47600-151100)	01	00	00	00	00	00	00	00	00	01

Horizontal Reservation: 01 post of Scientific Officer, Chemistry and Toxicology has been earmarked for providing 4% horizontal reservation to the person with benchmark disabilities falling under the categories, viz(1) deaf and hard of hearing and (2) Locomotor disability including Cerebral Palsy, Leprosy cured Dwarfism Acid attack victims and Muscular Dystrophy under the relevant rules.

Note:-The Horizontal Reservation for physically handicapped persons to the extent of 4% means that the reservation would cut across the vertical reservation and the persons selected shall have to be placed in the appropriate category by making necessary adjustments.

3. Prescribed Qualification

Designation	Qualification
Scientific Officer, Narcotics	Master's Degree in Chemistry/Bio-Chemistry/Toxicology/Forensic Science with minimum 50% marks from any recognized University with at least two years experience of working in relevant field in the Government Lab or in a Lab of Government undertaking.
Scientific Officer, Chemistry & Toxicology	Master's Degree in Chemistry/Bio-Chemistry/Pharmacology/Pharmacy/Toxicology/Forensic Science with minimum 50% marks from any recognized University with at least two years experience of working in relevant field in the Government Lab or in a Lab of Government undertaking.
Scientific Officer, DNA	Master's Degree in Biology/Zoology/Botany/Micro-Biology/Bio-Technoolovy/Genetics/Forensic Science with minimum 50% marks from any recognized University with at least two years experience of working in relevant field in the Government Lab or in a Lab of Government undertaking.
Scientific Officer, Biology/Serology	Master's Degree in Biology/Zoology/Botany/Micro-Biology/Bio-technology/Genetics/Anthropology/ Molecular Biology/Forensic Science with minimum 50% marks from any recognized University with at least two years experience of working in relevant field in the Government Lab or in a Lab of Government undertaking.
Scientific Officer, Physics	Master's Degree in Physics/applied Physics/Biophysics//Forensic Science with minimum 50% marks from any recognized University with at least two years experience of working in relevant field in the Government Lab or in a Lab of Government undertaking.
Scientific Officer, Ballistics	Master's Degree in Physics/Mathematics/Applied Mathematics/Forensic Science with minimum 50% marks from any recognized University with at least two years experience of working in relevant field in the Government Lab or in a Lab of Government undertaking.
Scientific Officer,	Master's Degree in Physics/Chemistry/Computer

Documents	Science/Forensic Science with minimum 50% marks from any recognized University with at least two years experience of working in relevant field in the Government Lab or in a Lab of Government undertaking.
Scientific Officer, Cyber Forensic	Master's Degree in Physics/Electronics/IT/Forensic Science with minimum 50% marks from any recognized University with at least two years experience of working in relevant field in the Government Lab or in a Lab of Government undertaking.

Note: Format for working experience is annexed as Annexure-^B to this Notification.

4. Age as on 1st January 2021

The requirement of age for candidates belonging to Open Merit (OM) & various Reserved Categories is as follows:-

S.NO	Category	Age limit	Not born after	Not born before
1	OM	40	01.01.2003	01.01.1981
2	RBA	43	01.01.2003	01.01.1978
3	In service candidate/Government	40	01.01.2003	01.01.1981

5. Reservation

- i) A candidate seeking his/her consideration under Reserved Category (RBA) must ensure that he/she possesses a valid requisite Category certificate and on the cut-off date.
- ii) The candidature of the candidates will be provisional till the genuineness of the reserved category certificate is verified by the Appointing Authority.
- iii) Candidates may note that in case a claim for reservation is made on the basis of false/fake/fraudulent certificate, he/she shall be debarred from the examination(s) conducted by the J&K Public Service Commission, in addition to any other penal action as may be deemed appropriate.

6. Domicile

The candidate should be a Domicile of the Union Territory of Jammu & Kashmir. The candidate must possess the Domicile Certificate issued by the Competent Authority in the prescribed format as on the last date prescribed for submission of online application form.

7. Centre of Examination

- I. The examination will be held at Srinagar & Jammu centres. All the candidates shall indicate the option for examination centre as indicated above.
- II. The allotment of centres shall be at sole discretion of the Commission and once a centre is allotted to a candidate, request for a change of centre will not be entertained.
- III. Information about the Examination indicating the time table and Centre of Examination for the candidates will be uploaded on the websites of the Commission about two weeks before the date of examination. If any candidate does not find his/her Roll Number on the website of the Commission, one week before the date of examination, he/she must immediately contact the Commission's Office at Srinagar/Jammu, with proof of having submitted his/her application. Failure to do so will deprive him/her of any claim for consideration.
- IV. Candidate must submit his/her online application form, Email ID and Mobile Number along with his/her Name, Date of Birth and Name of the Examination, while addressing any communication to the Commission. Communication from the candidates not furnishing these particulars shall not be entertained.

- V. Admit Cards will be available for downloading about two weeks before the date of examination on the official website of the Commission i.e. jkpsc.nic.in. Candidate must bring printout of the Admit Card/Roll Number Slip to the Examination Hall.
- VI. For securing entry into the centre of examination, in addition to the Admit Card/roll Number Slip, it is mandatory to carry at least two passport size recent color photographs (not taken earlier than 01.01.2021) and any of the original valid Photo-Id proof such as:
- i. Aadhar Card/ E-Aadhar,
 - ii. Voter's ID Card,
 - iii. Driving License,
 - iv. PAN Card,
 - v. Passport,
 - vi. School /College/University I- Card
 - vii. Employer ID Card.

8. Requisite Fee

After successful submission of the online application form, candidate will be required to deposit requisite fee through online mode. The amount of fee to be paid is given below:

General Category	=	Rs.1000.00
Reserved Categories	=	Rs.500.00
PHC Candidates	=	Nil.

Note:

- i. The application Form submitted without deposition of the fee, which gets substantiated through reflection of the same on the application form, such application form shall be treated as incomplete and candidature shall be deemed to have been rejected without any notice. No representation against such rejection shall be entertained.
- i. Submission of multiple applications by way of prefixing Mr/Ms or through generation of multiple User ID's or any other mode, followed by either non-payment of fee particulars or fee particulars (TID) of one application (RID) being mentioned against another application with a different RID would lead to rejection of the online application. The applicants who are submitting multiple applications should note that only the applications with higher Registration ID (RID) number shall be entertained by the Commission and fee paid against one RID shall not be adjusted against any other RID number. Besides a strict disciplinary action shall be taken including the cancellation of candidature and debarment for future examinations of J&K PSC will be taken against such applicants.

9. Scheme of Examination/ Syllabus/Selection Criteria

The selection will be made on the basis following specified criteria :-

i	Written Examination	68 points
ii	Distinction in Sports (certified by Secretary, J&K Sports Council to be an outstanding Sports person in terms of J&K (Appointment of Outstanding Sports Persons)Rules, 1998	01 point
iii	Distinction in NCC activities (Holder of Grade "C" Certificate.	01 point
iv	Weightage of higher qualification as	Up to maximum of 04

	prescribed under rules 43 (ii) of Jammu and Kashmir Public Service Commission (Business and Procedure) Rules, 2021	points
v	Gold Medal for overall first position in the prescribed qualification	01 point
vi	Viva-voce/interview	25 points
Total	100 points	

I. Written Examination

- i. The written examination will be a 2 hour (120 minutes) Objective multiple choice question (MCQ) Exam having 120 questions.
- ii. There will be negative marking for incorrect answers (as detailed below) for all questions.
 - a) There are four alternative for the answers to every question. For each question for which a wrong answer has been given by the candidate, one fourth (0.25) of the marks assigned to that question will be deducted as penalty.
 - b) If a candidate gives more than one answer, it will be treated as a wrong answer even if one of the given answer happen to be correct and there will be same penalty as above for that question.
 - c) If a question is left blank i.e no answer is given by the candidate, there will be no penalty for that question.

II. The Syllabus for the written examination is enclosed as Annexure "A" and is also available on the website of the Commission (www.jkpsc.nic.in).

III. Interview/ Viva Voce

In the interview/viva voce, the candidates will be asked, in addition to the demonstration of domain knowledge/skills, questions on matters of general interest and matters related to the post for which he is being interviewed. The object of the interview is to assess the personal suitability of the candidate for a career in public service. The interview test is intended to judge the mental caliber of a candidate. In broad terms, this is really an assessment of not only his intellectual qualities but also social traits and his interest in current affairs. Some of the qualities to be judged are mental alertness, critical powers of assimilation, clear and logical exposition, balance of judgement, variety and depth of interest, ability for social cohesion and leadership, intellectual and moral integrity.

10. Provision of Compensatory Time and Assistance of Scribe

(i) On the request of a visually impaired (Blind) or any other candidate with Locomotor Disability and Cerebral Palsy where dominant (writing) extremity is affected to the extent of slowing the performance or function (minimum of 40% impairment), the candidate shall be provided assistance of an amanuensis (Scribe) on production of a Disability Certificate issued by the Standing Medical Board or Medical Board constituted by the Government. After verifying the genuineness of the certificate/satisfying itself, the Commission may provide services of scribe to the candidate on the day of examination, the scribe should have at least one qualification below than the requirement for the post applied for by the candidate(s) and further should be from an academic stream different from that stipulated for the post. The scribe shall be paid remuneration charges by the Commission equivalent to the honorarium paid to the Invigilator.

Provided the concerned Supervisor shall ensure that the scribe provided to the candidate shall not extend any type of help to the candidate in solving the questions.

(ii) Compensatory time of 20 minutes per hour shall be permitted for the visually impaired (Blind) candidates and candidates with Locomotor Disability and Cerebral Palsy where dominant (writing) extremity is affected to the extent of slowing the performance or function (minimum of 40% impairment) as certified by the Standing Medical Board.

11. The necessary instructions regarding filling up of online applications are given herein below:

- a) Candidates are required to apply online through the website of the Commission i.e. <http://www.jkpsc.nic.in>. No other means/ mode of application shall be accepted.
- b) Candidates are first required to go to the JKPSC website www.jkpsc.nic.in and click on the link “**One Time Registration**” or click on Login menu if you have already created your profile with the JK PSC.
- c) After logging into your account, candidates are required to fill all the requisite fields of One Time Registration (OTR) i.e. personal information, contact information & educational qualification, service details etc.
- d) The candidate shall also be required to upload the image of date stamped recent passport size color photograph and signature. The photograph should not be taken earlier than 01.01.2021.
- e) Size of the photograph (passport size) and signature must be between 10kB to 20kB in *.jpeg or *.jpg only.
- f) After successful submission of all the details in your OTR account, check the eligibility conditions as mentioned in the advertisement notification before applying for the post.
- g) Click on the “show examination” as shown against the respective post/examination you want to apply.
- h) On Clicking on the “show examination” a window will appear on your computer screen. Select the month of the advertisement notification for which you want to apply, a link(s) for the post(s) will appear on the computer screen.
- i) An “APPLY” button is shown against the respective post and the candidates will click on the APPLY button against the post he/she is eligible.
- j) On clicking “APPLY” button, an instruction window will appear. Candidates should read instructions carefully before clicking on “APPLY” button at the bottom of the webpage.
- k) On clicking “APPLY” button, the system will display all facts/particulars that a candidate may have mentioned while filling up the necessary fields of his/her OTR account. Candidate shall fill up the remaining required fields in the application form and accept the declaration thereof.
- l) Once the candidate is satisfied *about the correctness* of the filled in details, then, he or she may click on “SUBMIT” button to finally push the data into server with successful submission report.
- m) On successful submission of the basic details, the candidates will be required to pay the online fee and uploading of the documents, for final submission of the online application form.
- n) Candidates can pay the requisite fee through online mode in the “SUBMITTED APPLICATIONS” menu in your account.
- o) After successful payment of the fee, the fee status will get reflected on the Online Application form. Candidates can check the fee status by clicking on the **Print Application Button** in the submitted Applications menu in your JKPSC account. In case the payment status shows either “not submitted or under processing or status has not been reflected on your submitted application form”, candidates(s) are advised to contact the JKPSC office at Solina Srinagar/ReshamGhar Colony Jammu immediately for clarification. Further where the online fee is paid through other service providers the candidate must ensure that not only the amount of fee is debited from his/service provider’s Account but also credited into the official account of JKPSC.
- p) The candidate would be able get the printout of his/her submitted application only after the payment of the requisite fee and uploading of requisite documents *viz Date of Birth Certificate, Degree Certificate, Category Certificate and Domicile Certificate.*

- q) The JKPSC will not undertake detailed scrutiny of applications for the eligibility and other aspects at the time of Preliminary examination and therefore, candidature will be accepted only provisionally. The candidates are advised to go through the requirements of educational qualification, age, etc and satisfy themselves that they are eligible for the post(s). Copies of supporting documents will be sought at the time of document verification. When scrutiny is under taken, if any claim if made in the application is not found/substantiated by proof, the candidature will be cancelled and the Commission's decision shall be final and binding.
- r) Please note that the above procedure is the only valid procedure for applying. No other mode of application or incomplete steps would be accepted and such applications would be rejected.

12. Editing of the online application form

Candidates who have successfully submitted the online application form along with requisite fee will be allowed to edit some of the fields in their submitted online application form within three days after the cut-of date i.e. on **14.08.2021 (00.01 hours) to 16.08.2021 (23.59 hours)**. Detailed instruction in this regard will be made available on the website.

13. Action against candidates found guilty of misconduct

Candidates are advised that they should not furnish any particulars that are false or suppress any material information.

A candidate who is, or has been, declared by the Commission, to be guilty of:

- i. obtaining by wrongful support of his/her candidature by any means, or
- ii. impersonating, or
- iii. procuring impersonation by any person, or
- iv. submitting fabricated documents or documents which have been tampered with or
- v. making statements which are incorrect, or false or suppressing material information, or
- vi. resorting to any other irregular or improper means in connection with his/her candidature for the selection, or
- vii. using unfair means during the test, or
- viii. writing irrelevant matter including obscene language or pornographic matter, in the script(s), or
- ix. misbehaving in any other manner in the examination hall, or
- x. harassing or doing bodily harm to the staff employed by the Commission for the conduct of their test, or
- xi. attempting to commit or, as the case may be, abetting the Commission of all or any of the acts specified in the foregoing clauses may, in addition to rendering himself/herself liable to criminal prosecution.

shall be liable;

(a) to be disqualified by the Commission from selection for which he/she is a candidate, and/or

(b) to be debarred either permanently or for a specified period:-

(i) By the Commission from any examination or selection held by them.

(ii) By the Union Territory Government from any employment under them, and

(c) if he/she is already in service under Government, disciplinary action can be taken against him/her under the appropriate rules.


(R.K. Katoch) KAS
Secretary

J&K Public Service Commission

Dated: 07.07.2021

No: PSC/DR-II/Scientific Officer/2021/06

Copy to the: -

1. Principal Secretary to the Government, Home Department Civil Secretariat, Jammu/Kashmir.

2. Director, Information Department J&K. He is requested to publish the Notification in all the leading local dailies of the Union Territory of J&K, for at least three consecutive days.
3. General Manager, Govt. Press, Jammu/Kashmir for publication of Notification in the next issue of Govt. Gazette.
4. Deputy Secretary/Under Secretary (DR), J&K Public Service Commission for information.
5. P.S. to Chairman, J&K Public Service Commission for information of the Hon'ble Chairman.
6. P.S. to Member _____, J&K PSC for information of Hon'ble Member.
7. P.A. to Secretary, J&K Public Service Commission.
8. P.A. to Controller of Examination, J&K Public Service Commission.
9. In charge website, J&K Public Service Commission for uploading of the Notification on the website.
10. In charge Camp Office, Srinagar for pasting the notice on the notice board.
11. Notice Board, J&K Public Service Commission, Srinagar/Jammu.
12. Stock file/Main file.

Annexure - A. to notification no. 06-PSE
(DR-P) of 2021 dt. 07.7.2021

**SYLLABUS FOR RECRUITMENT TO THE POST OF
SCIENTIFIC OFFICERS IN FSL, J&K.**

1. Scientific Officer, Narcotics

- Introduction, Definition, Principles, Scope and branches of Forensic Science, Development of Forensic Science in India
- Crime Scene investigation: Definition of Crime Scene. Classification of Crime Scene, Indoor & Outdoor, Primary & Secondary, Macroscopic & Microscopic Crime scenes, Significance and Ethics of Crime Scenes.
- Physical Evidence: Definition, Classification, Source, Significance and value of Physical evidence. Linkage between Crime Scene victim and Criminal. Study of Crime Scene relating to gas explosion, Fire and Arson, homicide, suicide, murder, mass disaster. Tools and techniques in Crime Scene search. Collection, Preservation, Packaging of the material at Crime Scene. Re-Construction of Crime Scene. Chain Custody and safety measures at the Scene of Crime and in Laboratory.
- Basic Principles of Statistics - Probability, Mean, Median, Mode, Chi square, F-Test, measurement of uncertainty, Systematic and random sampling
- Expert testimony in court of Law - Admissibility of evidence, Laws and acts relevant to Forensic Science.
- History of Drug Abuse and related common terminologies, Roots of Administration, actions and symptoms of Narcotic Drugs and Psychotropic Substances, Different methods of extraction of Drugs, Cleanup Procedures, analysis and Field Test, Narcotics Drugs and Psychotropic substances, Introduction and Classification of Control Substances, Precursor Chemicals, Narcotic Raids and Drug Laboratories- Evidence and Forensic Examination, Mandatory Provisions of NDPS Act, NDPS Drugs, Classification of Drugs, Drug Dependence and Drug Tolerance
- Chemical Periodicity - Main Group of elements and their compounds, concept of acids and bases, Hard Soft acid base concept, Non aqueous solvents
- Chemistry of natural Products, Carbohydrates, Proteins and peptides, fatty acids, Nucleic acids, Steroids and alkaloids.
- Atomic Structure and spectroscopy – Terms, symbols, many electron systems and antisymmetric principles, basic principles of magnetic resonance. Solid State Chemistry- Solid state crystal structure, Bragg's law and its applications, band structure of solid and defects in solids.

- Solvent Extraction, pH extraction, masking agents, salting out techniques, relation between distribution ratio and distribution coefficient, advantage and application of solvent extraction, quantitative treatment of neutral chelate in extraction system, single extraction versus multiple extraction, solid phase extraction, accelerated solvent extraction, ultrasonic extraction, heat reflux extraction.
- Atomic and Molecular spectroscopy - Basic Principles, Beer Lambert's Law, Principles and Bio chemical applications of UV-VIS spectrophotometry, Atomic Absorption Spectroscopy, symbols, many electron system, basic principles of magnetic resonance, Theory and application of IR, Fourier Transform Infrared Spectroscopy (FTIR), Raman Spectroscopy, Mass Spectroscopy, advantages and applications of these techniques.
- Statistics - Types of data, basic concepts of frequency distribution, measures of central values mean, median and mode, mean and standard deviation, correlation and regression analysis, variance and discriminating powers, biostatistics : Z – test, Student “t” test, chi square test, correlation , ANOVA test.

2. Scientific Officer, Chemistry & Toxicology

- Introduction, Definition, Principles, Scope and branches of Forensic Science, Development of Forensic Science in India
- Crime Scene investigation: Definition of Crime Scene. Classification of Crime Scene, Indoor & Outdoor, Primary & Secondary, Macroscopic & Microscopic Crime scenes, Significance and Ethics of Crime Scenes.
- Physical Evidence: Definition, Classification, Source, Significance and value of Physical evidence. Linkage between Crime Scene victim and Criminal. Study of Crime Scene relating to gas explosion, Fire and Arson, homicide, suicide, murder, mass disaster. Tools and techniques in Crime Scene search. Collection, Preservation, Packaging of the material at Crime Scene. Re-Construction of Crime Scene. Chain Custody and safety measures at the Scene of Crime and in Laboratory.
- Basic Principles of Statistics - Probability, Mean, Median, Mode, Chi square, F-Test, measurement of uncertainty, Systematic and random sampling.
- Expert testimony in court of Law - Admissibility of evidence, Laws and acts relevant to Forensic Science.
- Narcotics Drugs and Psychotropic substances, Introduction and Classification of Control Substances, Precursor Chemicals, Narcotic Raids and Drug Laboratories- Evidence and Forensic Examination, Mandatory Provisions of NDPS Act, NDPS Drugs, Classification of Drugs, Drug Dependence and Drug Tolerance.
- Explosive Chemistry - Introduction, Assessment, Classification and Chemistry of Explosives, Various Types of IEDs and their reconstruction, Mechanism of Explosion and their effects. Oxygen Balance, Explosive power index, heat and temperature explosion, pressure of explosion, mechanism of ignition and hotspot formation, thermal decomposition, physical and chemical aspects of combustion, Kinetics of Explosive reactions, analysis of low and high explosives by different instrumental techniques, Processing of Explosion Scene of Crimes – Role of Forensic Science, Role of Forensic Scientists in Post Blast Investigation- documentation of bomb scene and collection of post blast residues- evaluation and assessment of explosion sites and reconstruction of sequence of events, analysis of post blast residues by chemical methods, microscopic methods and various instrumental techniques.

- Forensic Drug Chemistry - Introduction to Drugs, Forensic Examination of the Drugs/ Narcotics. Sample Preparation, Extraction Techniques - Chemical colour Test, Microcrystal Techniques and other instrumental techniques
- Petroleum Chemistry- Paraffins, iso-olefins, Olefin Hydrocarbons, Naphthalenes, Cycloparaffins, Aromatic Hydrocarbons, Sulphur Compounds, Nitrogen Compounds, Oxygen Compounds, Organo-Metallic Hydrocarbons, Physical Properties of Petroleum Products - density, viscosity, surface tension, fluorescence, cloud point, smoke point, boiling point, optical properties, flash point, refractive index and calorific values, Analytical Techniques: Quantitative and Qualitative Steps in Analysis of Petroleum.
- Forensic Nuclear Chemistry – introduction to nuclear forensic, nuclear threats, nuclear explosive device, radioactivity, radioactive decay rates, methods of detection and measurement of radioactive, application of radio isotopes.
- Chemical warfare agents – Classification, physical and biochemical properties, toxic effects, detection by biosensors and various instrumental techniques.
- Fire Chemistry- Fire and Energy, Basic Chemistry, Chemistry and Behaviour of Fire, State of Matter and Behaviour of Gases, Liquids and Solids, Flammable limits.
- Basic Biochemistry- Amino acids, Lipids, Proteins, Carbohydrates.
- Forensic Toxicology Examination- Law relating to Poison, Introduction to Poisons, Forms of Poisons, Classification and methods of administration of poisons, Mode of action of Poisons, Diagnosis and management of Poisons Cases, Factors effecting the affect of Poisons and medico legal aspects in Poison cases, Collection and Preservation of Biological evidences and circumstantial evidences in fatal and survival cases, Submission of samples to the laboratory, Specific analysis plan, isolation and extraction of Poison/ Drug by various methods using instrumental techniques.
- Basic Principles of Pharmacology and Forensic Pharmacology- forensic pharmacology studies, absorption, distribution, pharmacokinetics and metabolism, pathways of drug metabolism, drug toxicity, excretion of drugs and poisons. Detection of poison on the basis of their metabolic studies.

- Chemical Periodicity, Main Group of elements and their compounds, concept of acids and bases, Hard Soft acid base concept, Non aqueous solvents
- Solvent Extraction- Advantage and Applications- pH extraction, masking agents, salting out techniques, relation between distribution ratio and distribution coefficient, advantage and application of solvent extraction, quantitative treatment of neutral chelate in extraction system, single extraction versus multiple extraction, solid phase extraction, accelerated solvent extraction, ultrasonic extraction, heat reflux extraction.
- Organo-metallic Chemistry
- Qualitative and Quantative Analysis
- Nano technology
- Chromatography



3. Scientific Officer, DNA

- Introduction, Definition, Principles, Scope and branches of Forensic Science, Development of Forensic Science in India
- Crime Scene investigation: Definition of Crime Scene. Classification of Crime Scene, Indoor & Outdoor, Primary & Secondary, Macroscopic & Microscopic Crime scenes, Significance and Ethics of Crime Scenes.
- Physical Evidence: Definition, Classification, Source, Significance and value of Physical evidence. Linkage between Crime Scene victim and Criminal. Study of Crime Scene relating to gas explosion, Fire and Arson, homicide, suicide, murder, mass disaster. Tools and techniques in Crime Scene search. Collection, Preservation, Packaging of the material at Crime Scene. Re-Construction of Crime Scene. Chain Custody and safety measures at the Scene of Crime and in Laboratory.
- Basic Principles of Statistics - Probability, Mean, Median, Mode, Chi square, F-Test, measurement of uncertainty, Systematic and random sampling
- Expert testimony in court of Law - Admissibility of evidence, Laws and acts relevant to Forensic Science.
- Microscopy, Principles and different types of microscopes and its forensic applications.
- DNA Profiling – History of DNA, structure and functions, physiochemical properties of nucleic acid, types of DNA and their role, DNA Typing, Human Genetics, Hereditary, alleles, mutations, population Genetics, Hardy Weinberg Law, variations and polymorphism, Mitosis, Meiosis, cell biology.
- Sequencing of DNA- Maxam Gilbert method, Sanger method, Chargaff's rule, secondary structure of DNA, Watson crick model, V&Z DNA, other models of DNA structure, other secondary structural features in DNA, stem loop structure, palindromic sequences, cruciforms, DNA protein interaction; zinc finger, leucine zipper, helix-turn-helix, other motifs, DNA bending and kinks.
- Extraction of DNA from different types of biological samples, DNA extraction method, determining quality and quantity of DNA samples, Genetic Engineering.
- DNA Amplification – Principal Methodology, Types of Polymerase Chain reaction, PCR inhibitors, PCR Primers, application of PCR in cloning and forensic science.

- 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 their analysis and Forensic significance.
- General characteristics of skeletal muscle, nervous system in human body and human hair, animal physiology.
- Properties, classifications and functions of Carbohydrates, Proteins, Nucleic acid and Lipids.
- Electrophoresis techniques
- Intellectual property rights and its importance in DNA profiling.

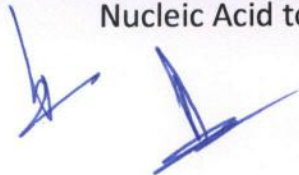


4. Scientific Officer, Biology

- Introduction, Definition, Principles, Scope and branches of Forensic Science, Development of Forensic Science in India
- Crime Scene investigation: Definition of Crime Scene. Classification of Crime Scene, Indoor & Outdoor, Primary & Secondary, Macroscopic & Microscopic Crime scenes, Significance and Ethics of Crime Scenes.
- Physical Evidence: Definition, Classification, Source, Significance and value of Physical evidence. Linkage between Crime Scene victim and Criminal. Study of Crime Scene relating to gas explosion, Fire and Arson, homicide, suicide, murder, mass disaster. Tools and techniques in Crime Scene search. Collection, Preservation, Packaging of the material at Crime Scene. Re-Construction of Crime Scene. Chain Custody and safety measures at the Scene of Crime and in Laboratory.
- Basic Principles of Statistics - Probability, Mean, Median, Mode, Chi square, F-Test, measurement of uncertainty, Systematic and random sampling
- Expert testimony in court of Law - Admissibility of evidence, Laws and acts relevant to Forensic Science.
- Bio systematic and taxonomy – Chemotaxonomy, cytotaxonomy, molecular taxonomy and General classification of animals.
- Human anatomy and physiology
- Composition and Biochemical Functions of Body Fluids - Bio chemical Nature and Forensic Significance
- Evaluation of Blood and Blood Stain – Visual Examination, Ultraviolet, Infrared Examination, Microscopy, Spectroscopy, Spectrophotometry, Chromatography, Colour and Crystal Test, Luminal Test, Morphology and Composition of Hair and Fibres. Methods used in their elucidation – Applications to Forensic Science
- Semen – Identification of semen, Seminal stains and Spermatozoa – Visual Observation test, Physical Test, Ultra Violet Test, Microscopic Test, Chemical test and Enzymatic Test
- Saliva and other Body fluids – Forensic importance of Saliva and other body Fluids such as Urine, Sweat, Vomit Stains, vaginal secretion and their identification by chemical test
- Forensic anthropology – Personal identification techniques as somatoscopy and somatometry, anatomical description of Skelton of human/animal as relevant to forensic, ossification and identification of

bones for determination age, sex, race etc., Forensic anthropometry and tools involved in it, determination of personal identity, recovery and identification of Skeletal remains in accident, crime and mass disaster.

- Forensic odontology – Dentition pattern types, structure and growth of teeth, eruption sequence, age determination, identity of person, role in mass disaster. White mark analysis of human/ animal.
- Forensic botany and wood anatomy, Forensic medicine, forensic entomology and wild life forensic.
- Forensic Microbiology- Isolation classification and identification of microbial organisms, cell structure of bacteria and fungi. microorganisms encountered in biological warfare and its forensic applications,
- Planktonics study- Various of phytoplankton's, diatoms and their forensic importance, importance of diatom test in drowning cases, precautions in collection, preservation and forwarding of biological samples for diatom test.
- Forensic Genetics- elements of human genetics, introduction, principles of hereditary, gene structure, gene mapping and gene expressions. Genetics markers and their forensic significance, mutations, structure of DNA, human genome, DNA methodology for isolation, typing interpretation of results, Characterisation, Properties and Structure of Nucleic Acid to Forensic DNA Application.

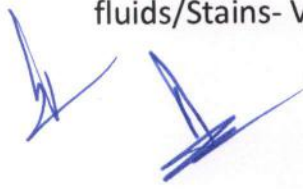


5. Scientific Officer, Serology

- Introduction, Definition, Principles, Scope and branches of Forensic Science, Development of Forensic Science in India
- Crime Scene investigation: Definition of Crime Scene. Classification of Crime Scene, Indoor & Outdoor, Primary & Secondary, Macroscopic & Microscopic Crime scenes, Significance and Ethics of Crime Scenes.
- Physical Evidence: Definition, Classification, Source, Significance and value of Physical evidence. Linkage between Crime Scene victim and Criminal. Study of Crime Scene relating to gas explosion, Fire and Arson, homicide, suicide, murder, mass disaster. Tools and techniques in Crime Scene search. Collection, Preservation, Packaging of the material at Crime Scene. Re-Construction of Crime Scene. Chain Custody and safety measures at the Scene of Crime and in Laboratory.
- Basic Principles of Statistics - Probability, Mean, Median, Mode, Chi square, F-Test, measurement of uncertainty, Systematic and random sampling
- Expert testimony in court of Law - Admissibility of evidence, Laws and acts relevant to Forensic Science.
- Cellular organisation- Structural Organisation and function of the cell including plasma membrane, intracellular organelles and chromosomes, cell division and cell cycle
- DNA replication and protein synthesis- Structures and types of DNA, replication mechanism, enzymes involved in replication, biosynthesis of proteins.
- Acid Base balance and enzymes – Molecules and their interaction
- Human physiology and pathology- Forensic pathology
- Human Genetics- Genes, genetic codes, gene expression, regulation of gene expression, alleles, karyotypes, genetic disorders, mutation types and their causes, Genetic markers and their Forensic significance, mutation, classification, cause, mechanism, role of genetic analysis and evolution, Mendel's law of inheritance, extension of Mendelian principles- co dominance, incomplete dominance, linkage and crossing over techniques,
- Forensic Immunology and DNA examination- Forensic Immunology – innate and adaptive immunity, B cell/ T cell, structural development, diversity and reorganisation, antigen, antibody, blood groups, application of ABO blood group in disputed paternity cases, polymorphic

enzymes and polymorphic proteins in reference to forensic serology, HLA antigen, secretors and non secretors, blood grouping in biology fluids other than blood, DNA Profiling- uses of DNA polymorphism in forensic cases, DNA typing and individualisation sources of DNA in forensic cases, isolation of DNA(organic extraction, PCR, SNP, STRs, Mitochondrial DNA polymorphism

- Forensic Serology – Types and properties of antigens and antibodies. Principles, determination of species origin of blood and blood stains, blood grouping Techniques in fresh and dried blood stains, Blood grouping Types and their importance in Forensic analysis. Estimation of age of Blood Stains.
- Serological Techniques- Electrophoresis methods, preservative and confirmatory test for blood, identification of blood property, blood grouping, Spectrophotometry , microscopy.
- Immuno Acid Methods – Immuno precipitation, Immuno Diffusion, Immuno Electrophoresis, ELISA
- Body Fluids and their Stains – Introduction to various kinds of body fluids, composition, physical pattern and identification of seminal stain- presumptive test and confirmatory test, morphological structure of spermatozoa of human and animals, identification of lochial and menstrual blood stain by microscopic biochemical and immune-electrophoretic method. Identification and examination of other body fluids/Stains- Vaginal, saliva, urine, faeces, vomit etc.



6. Scientific Officer, Physics

- Introduction, Definition, Principles, Scope and branches of Forensic Science, Development of Forensic Science in India
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- Basic Principles of Statistic - Probability, Mean, Median, Mode, Chi square, F-Test, measurement of uncertainty, Systematic and random sampling
- Expert testimony in court of Law- Admissibility of evidence, Laws and acts relevant to Forensic Science.
- Conservation Laws, collisions, impact parameters, centre of mass and lab systems with transformation of physical quantity, rotating frame of reference, coriolis force, motion of rigid bodies, moment of inertia, angular momentum, torque and precession of torque, central forces, motion under inverse square law, special theory of relativity, Michelson-Morley experiment, Lorentz transformation- addition of velocities, time dilation and length contraction, variation of mass with velocity, mass energy equivalence
- Oscillations, simple harmonic motion, damped Harmonic motion, force oscillations and resonance, Wave equation, harmonic solutions, plane and spherical waves, superposition of waves, beats, stationary waves, phase and group velocities. Conditions of interference, Newton's rings and Michelson's interferometer, diffraction, plane circular and elliptically polarised light, its production and detection.
- Kinetic theory of gases, Maxwell, Boltzmann, Bose Einstein and Fermi Dirac distribution. Maxwell's distribution of velocities, equipartition of energy, specific heats of gaseous, mean free path Brownian motion, black body radiations, Wien's Law, Planck's Law, solar constant, specific heat of solid= Einstein and Deyve's theory

7. Scientific Officer, Ballistics

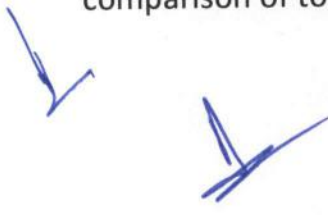
- Introduction, Definition, Principles, Scope and branches of Forensic Science, Development of Forensic Science in India
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- Basic Principles of Statistics - Probability, Mean, Median, Mode, Chi square, F-Test, measurement of uncertainty, Systematic and random sampling
- Expert testimony in court of Law- Admissibility of evidence, Laws and acts relevant to Forensic Science.
- Conservation Laws, collisions, impact parameters, centre of mass and lab systems with transformation of physical quantity, rotating frame of reference, coriolis force, motion of rigid bodies, moment of inertia, angular momentum, torque and precession of torque, central forces, motion under inverse square law, special theory of relativity, Michelson-Morley experiment, Lorentz transformation- addition of velocities, time dilation and length contraction, variation of mass with velocity, mass energy equivalence
- Oscillations, simple harmonic motion, damped Harmonic motion, force oscillations and resonance, Wave equation, harmonic solutions, plane and spherical waves, superposition of waves, beats, stationary waves, phase and group velocities. Conditions of interference, Newton's rings and Michelson's interferometer, diffraction, plane circular and elliptically polarised light, its production and detection.
- Kinetic theory of gases, Maxwell, Boltzmann, Bose Einstein and Fermi Dirac distribution. Maxwell's distribution of velocities, equipartition of energy, specific heats of gaseous, mean free path Brownian motion, black body radiations, Wien's Law, Planck's Law, solar constant, specific heat of solid, Einstein and Debye's theory

- Electric Field and Potential – Gauss's Law, Poisson's Law and Laplace equations, Dielectrics and polarisation, electromagnetic induction, transformer, transient behaviour of R-C and R-L circuit, time constant response of L-C-R circuits for alternating voltages, series and parallel resonance, bandwidth, and Q factor, magnetic properties of material, vector and scalar potential: electromagnetic field tensor, covariance of Maxwell's equation, total internal reflection, normal and anomalous dispersion
- DeBorglie waves, photoelectric effects, Compton effect, wave particle duality, uncertainty principle: Size of H atom, zero point energy, Finite width of energy level, Schrodinger wave equation with application, hydrogen spectral, electrons spin, stern- Gerlach experiments, space-quantisation, vector model of atom, Zeeman's effect, characteristics and quantinos x-rays
- Scanning and transmission, electron microscopies: band theory of solid, thermal property of solid, specific heat, elements of super conductivity, Kirchhoff's Law
- Metrics System – Units of measurement- SI unit, measuring devices, accuracy, sensitivity and precision of measuring instruments, errors in measurement, significant figures
- Laser – Production, Properties of Laser Beam such as intensity, Monochromatocity, coherence, directionality and Brightness. Basic Laser System. Gas Laser, Solid State Laser, Excimer Laser, Laser Beam Propagation.
- Probability- Sample space, probability axioms, real random variables (discrete and continuous), cumulative distribution function, probability mass/density functions, mathematical expectation, moments, moment generating function, characteristic function, Discrete distributions: binomial distribution, Poisson distribution, continuous distributions: normal distribution, exponential distribution, Joint cumulative distribution function and its properties, joint probability density functions, marginal and conditional distributions, expectation of function of two random variables, conditional expectations, independent random variables, Bivariate normal distribution, correlation coefficient, joint moment generating function and calculation of covariance, linear regression for two variables, Chebyshev's inequality, statement and interpretation of (weak) law of large numbers and strong, law of large

- Electric Field and Potential – Gauss's Law, Poisson's Law and Laplace equations, Dielectrics and polarisation, electromagnetic induction, transformer, transient behaviour of R-C and R-L circuit, time constant response of L-C-R circuits for alternating voltages , series and parallel resonance, bandwidth, and Q factor, magnetic properties of material, vector and scalar potential: electromagnetic field tensor, covariance of Maxwell's equation, total internal reflection, normal and anomalous dispersion.
- DeBorglie waves, photoelectric effects, Compton effect, wave particle duality, uncertainty principle: Size of H atom, zero point energy, Finite width of energy level, Schrodinger wave equation with application, hydrogen spectral, electrons spin, stern- Gerlach experiments, space-quantisation, vector model of atom, Zeeman's effect, characteristics and quantinuos x-rays
- Scanning and transmission, electron microscopies: band theory of solid, thermal property of solid, specific heat, elements of super conductivity, Kirchhoff's Law
- Metrics System – Units of measurement- SI unit, measuring devices, accuracy, sensitivity and precision of measuring instruments, errors in measurement, significant figures
- Laser – Production, Properties of Laser Beam such as intensity, Monochromatocity, coherence, directionality and Brightness. Basic Laser System. Gas Laser, Solid State Laser, Excimer Laser, Laser Beam Propagation.
- Spectroscopic methods in structural determination of organic compounds- Different units of wavelength frequency, different regions of electromagnetic radiations, interaction of radiations with matter, excitation of molecules with different energy levels, types of spectroscopy and advantages
- Basic concept of Statistics and elementary knowledge of computers.
- Forensic Physics - Soil – Formation and types of Soil, Composition and colour of soil, particle size distribution and turbidity test, microscopic examination, density gradient analysis, ignition loss, differential thermal analysis, elemental analysis.
- Paint – Types of Paint and their composition, macroscopic and microscopic studies, pigment distribution and colorimetry, micro-chemical analysis – solubility test, TLC, Pyrolysis chromatographic

techniques, IR absorption spectroscopy of paint samples & X ray diffraction, elemental analysis.

- Fibre – Classification of textile fibres – production, structure and properties, the structure of textiles – an introduction to the basics, ropes and cordage, visible & infrared microscopical examination of fibres, instrumental methods used in Fibre and dye examination.
- Impressions: Foot /Footwear/Type Impression, Collection, Tracing, Lifting, Casting of impressions, Gait Pattern and Identification characteristics, Superimposition of impression on footwear and foot imprints.
- Tool Marks: Types of tool marks: Compression marks, striated marks, combination of compression and striated marks, repeated marks, class characteristics and individual characteristics, tracing and lifting of marks, photographic examination of tool marks and cut marks on clothes, comparison of tool marks by comparison microscope.



numbers, Central Limit theorem for independent and identically distributed random variables with finite variance, Markov Chains, Chapman-Kolmogorov equations, classification, of states.

- Trigonometry- Angles, Angle Relationships and Similar Triangles, Trigonometric Functions, Using the Definitions of the trigonometric Functions, Trigonometric Functions of Non-Acute Angles, Approximations of Trigonometric Function Values, Linear and Angular Speed, Fundamental Identities, Verifying Trigonometric Identities, Trigonometric ratios of an acute angle of a right-angled triangle, Values of the trigonometric ratios, Relationships between the ratios, Trigonometric identities, Heights and Distances: Angle of elevation, Angle of Depression, Simple problems on heights and distances, Problems involve more than two right triangles, Angles of elevation / depression.
- Kinematics- Displacement, velocity and acceleration of a particle moving in a straight line: Including the derivation and use of the formulae for constant acceleration, and the use of displacement-time and velocity-time graphs, Non-uniform acceleration problems involving the setting up and solution of first-order differential equations of the separable type, Appreciation of the identity $dv/dt = v dv/dx$, Angular speed, constant angular acceleration, Motion in a horizontal circle with uniform speed including the conical pendulum and banked tracks, Problems on projectiles: equation of the path of a projectile, its horizontal range, its associated time of flight, and the maximum height.
- Fire Arms and tool marks – Types of Fire Arms, Fire arms Barrel, Anatomy of ammunition, Collection of Fire arms evidence, safety and operation testing, fire arm database, automated search system, distance of firing, Gun powder residues, short pattern, toolmarks- various types and comparison.
- History and development of fire arms – Their classification and characteristics, various characteristics of small arms, bore and caliber, Different mechanism used in small arms, cartridge firing mechanism, projectile velocity determination, determination of velocity of short charge, techniques of dismantling and assembling of various types of fire arms, identification of origin: various marks on fire arms and their constructional features
- Types of ammunition , classification and constructional features of different types of cartridges, types of Primers and priming composition

➤ Propellants and their composition

Use of brass/ copper for manufacture of cartridge cases, different shapes of cartridge cases, various types of bullets and compositional aspects.



8. Scientific Officer, Documents

- Introduction, Definition, Principles, Scope and branches of Forensic Science, Development of Forensic Science in India
- Crime Scene investigation: Definition of Crime Scene. Classification of Crime Scene, Indoor & Outdoor, Primary & Secondary, Macroscopic & Microscopic Crime scenes, Significance and Ethics of Crime Scenes.
- Physical Evidence: Definition, Classification, Source, Significance and value of Physical evidence. Linkage between Crime Scene victim and Criminal. Study of Crime Scene relating to gas explosion, Fire and Arson, homicide, suicide, murder, mass disaster. Tools and techniques in Crime Scene search. Collection, Preservation, Packaging of the material at Crime Scene. Re-Construction of Crime Scene. Chain Custody and safety measures at the Scene of Crime and in Laboratory.
- Basic Principles of Statistics - Probability, Mean, Median, Mode, Chi square, F-Test, measurement of uncertainty, Systematic and random sampling
- Expert testimony in court of Law - Admissibility of evidence, Laws and acts relevant to Forensic Science.
- Metrics System – Units of measurement- SI unit, measuring devices, accuracy, sensitivity and precision of measuring instruments, errors in measurement, significant figures
- Mechanics – Laws of motion, Linear and rotation Motion, Friction, elasticity.
- Magnetism and Electricity-Basic properties.
- Holography – Importance of Coherence, Principles of Holography and Characteristics, recording and re-construction, Classification of Hologram and application.
- Laser – Production, Properties of Laser Beam such as intensity, Monochromaticity, coherence, directionality and Brightness. Basic Laser System. Gas Laser, Solid State Laser, Excimer Laser, Laser Beam Propagation: Properties of Gaussian Beam, resonator stability, various types of resonators, resonators for high gain and high energy lasers, Gaussian beam focusing.
- Basic Concept of Spectroscopy- Atomic, molecular spectroscopy, imaging spectroscopy, interaction of radiation with matter and its consequences, reflection, absorption, transmission, scattering, emission, fluorescence, phosphorescence.

- Fluorescence and Phosphorescence Spectrophotometry- Types of sources, structural factors, instrumentation, comparison of luminescence and UV visible absorption method, infrared , spectrophotometry: dispersive and Fourier transform spectrophotometry, sample handling and preparation, quantitative analysis and interpretation of IR spectra forensic application.
- Raman Spectroscopy : Theory, instrumentation, sample handling, and preparation. Correlation of IR and Raman spectroscopy, applications
- Atomic Emission Spectrometry: Instrumentation and techniques, arc/spark emission, ICPMS, ICP-AES, quantitative analysis.
- Advance Microscopy: Compound microscope, comparison microscope, stereomicroscope, polarising microscope, micro spectrophotometer, scanning electron microscope.
- Detectors: Photographic detectors, thermal detectors, photoelectric detectors, PMP and semi conductor detectors.
- Statistics : Statistical evaluation of data obtained by instrumental methods, test of hypothesis- test of significance of attributes, Z-test of significance and coefficient of correlation, small sample test, paired test, chi-square, test, F-test for equality of variance, large sample test, normal test.
- 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, High pressure liquid chromatography (HPLC) and ultra performance liquid chromatography (UPLC).
- Nature and problems of document examination, Classification of documents. Types of forgeries. Allied problems – alterations, over writings, additions ad obliterations, Decipherment of secret, indented and charred documents, seal impressions and other mechanical impressions.
- Analytical techniques: Microscopy, spectroscopic techniques.

9. Scientific Officer, Cyber Forensic

- Introduction, Definition, Principles, Scope and branches of Forensic Science, Development of Forensic Science in India
- Crime Scene investigation: Definition of Crime Scene. Classification of Crime Scene, Indoor & Outdoor, Primary & Secondary , Macroscopic & Microscopic Crime scenes, Significance and Ethics of Crime Scenes.
- Physical Evidence: Definition, Classification, Source, Significance and value of Physical evidence. Linkage between Crime Scene victim and Criminal. Study of Crime Scene relating to gas explosion, Fire and Arson, homicide, suicide, murder, mass disaster. Tools and techniques in Crime Scene search. Collection, Preservation, Packaging of the material at Crime Scene. Re-Construction of Crime Scene. Chain Custody and safety measures at the Scene of Crime and in Laboratory.
- Basic Principles of Statistics- Probability, Mean, Median, Mode, Chi square , F-Test, measurement of uncertainty, Systematic and random sampling
- Expert testimony in court of Law - Admissibility of evidence, Laws and acts relevant to Forensic Science.
- Digital Forensic and Cyber Crime: Understanding cyber crime, Indian IT act 2008 and amendments, categories of cyber crimes, email related crimes, internet relay, chat relating crimes, online gambling, phishing, intellectual property crimes, web defacement, DOS attack.
- Working with windows and DOS System: understanding file system, exploring Microsoft file structure, examining and TFS disks , understanding whole disk , encryption, understanding the windows registry, understanding Microsoft startup task, understanding MS-DOS start up tasks, understanding virtual machines, Macintosh and Linux boot processes and file systems, understanding other disk structure, free space management, bit vector linked list grouping, counting efficiency and performance recovery, physical damage, physical damage recovery, logical damage, logical damage recovery.
- Current computer Forensic Tools: Tools needs computer forensic software tools, computer hardware tools, validated and testing forensic software, Data acquisition: understanding storage formats for digital evidence, determining the best acquisition method validating data acquisition, validating forensic data, addressing heading techniques, using remote network acquisition tools, recovering graphic files.

- Networking: LAN, MAN, WAN, Internet, Network Addressing techniques, TCP/IP protocol, FTP, HTTP, IMAP, SMTP, Telnet, SNMP, RPC, IPv6, ICMP, SLIP, Network devices- Repeater, Hub, Switch, Router, Bridge and Gateway.
- Mobile Computing: Cellular system, Hexagonal geometry cell and concept of frequency reuse, Channel Assignment Strategies Distance to frequency reuse ratio
- GSM-Channel allocation, call routing Architecture, PLMN interface, addresses and identifiers, network aspects, frequency allocation, authentication and security, Handoffs Technique. WAP applications, WAP Architecture, WAP Protocol Stack, introduction and features of 4G network, 4G network architecture.
- Network Security: Cryptography, Secret Key and Public Key Cryptosystems, Symmetric Ciphers, Block Ciphers and Stream Ciphers, DES, Triple DES, RSA. Network Security Applications, Authentications, Authentication Mechanisms: a) Passwords, b) Cryptographic authentication protocol, c) Smart Card, d) Biometrics, e) Digital signatures and seals, E-mail Security, PGP's/ MIME, IP security, Access and System Security, Intruders, Intrusion Detection and Prevention, Firewall a) Hardware Firewall b) Software Firewall c) Application Firewall d) Packet Filtering e) Packet Analysis, Proxy Servers, Firewall setting in Proxy, ACL in Proxy.
- Programming in C/C++
- Computer Hardware/Software
- Number System and Codes
- Next generation internet Protocol
- PCP/IP
- Non linear data structure and hash tables
- Initial response and forensic Duplication.
- Network Forensics
- RFID Security
- Implementation of cover channel
- Ethical Hacking Terminology
- Foot printing and social engineering.
- Public key cryptography.

Besides the candidates should possess the following ^(Posts) [Common for all Divisions]

Verbal Ability:

- The candidates are expected to have good command over English language and its usage. It will be tested with focus on Articles, Verbs, Tenses, Prepositions, Synonyms, Antonyms, Punctuation, Reading comprehension, Cloze passage, Grammar, Idioms and phrases

Analytical Ability:

- The candidates will be tested primarily on the various cognitive abilities using qualitative reasoning. The broad areas will include Letter Series, Number Series, Relationship Concepts, Direction Sense, Concept of Speed-Time-Distance, Coding-Decoding, Analogy etc.

General Awareness and Current Affairs:

- The objective of this section is to assess candidates' general knowledge about J&K, India and the World.



ANNEXURE "B"

**FORMAT FOR WORKING EXPERIENCE CERTIFICATE FOR THE POSTS OF
SCIENTIFIC OFFICER IN DIFFERENT DISCIPLINES IN FORENSIC SCIENCE
LABORATORY (HOME DEPARTMENT)**

Certified that Mr/Ms _____ has acquired working experience as _____ (here mention the nomenclature of the post) in the discipline/field of _____, Department of _____ (here mention "title of the Laboratory with name of the institution"), from _____ to _____.

It is further certified that the Laboratory is a Government Lab (Govt. of _____) or is a Lab of Government undertaking, Govt. of _____.

Signature of the Head of the Institution

Dated:- _____