

S. S. Jain Subodh P.G. Autonomous College
M Sc. First Semester Forensic Science
Paper-I
PGFSS1PI: Fundamentals of Forensic Science
Assignment 2026

Attempt four questions, one question from each unit

Unit – I

Q1. Discuss the multidisciplinary nature of forensic science and elaborate on its fundamental principles.

Or

Discuss the major laws and principles of Forensic Science collectively and explain how they help in establishing the association between a crime, victim, and suspect.

Unit – II

Q2. Discuss the major current and emerging research fields in Forensic Science. Explain how research and technological development contribute to modern forensic investigations.

Or

Discuss the role of the Indian Academy of Forensic Science and international organizations such as INTERPOL and the FBI in the development and application of forensic science.

Unit – III

Q3. Discuss the complete process of crime scene investigation from the arrival of Police personnel to the submission of forensic evidence and reports to the court, highlighting the role of both Police and Forensic Experts.

Or

Explain the importance of ethics in Forensic Science. Discuss the ethical responsibilities of forensic scientists.

Unit – IV

Q4. Discuss the integration of biometric technology with modern forensic science. Explain how biometric authentication and identification systems can assist law enforcement agencies in solving crimes and establishing identity.

Or

Explain the role of biometrics in forensic investigation and criminal identification. Discuss its advantages, limitations and forensic applications.

S. S. Jain Subodh P.G. Autonomous College
M Sc. First Semester Forensic Science
Paper-II
PGFSS1PII: Forensic Criminology
Assignment 2026

Attempt four questions, one question from each unit

Unit – I

Q1. Explain the concept of crime as a social phenomenon. Discuss the interaction between society and criminals and examine the major factors responsible for the occurrence of crime in India.

Or

Discuss violent crime, property crime, public order crime, cybercrime, and juvenile delinquency with suitable examples. Explain the social and economic factors contributing to these crimes.

Unit-II

Q2. Explain the concept of crime prevention and control. Discuss various strategies adopted by law-enforcement agencies and society for reducing crime.

Or

Explain Labelling Theory and Barrier Theory of criminology in detail. Discuss their relevance in understanding criminal behaviour and recidivism.

Unit-III

Q3. Explain the concept and procedure of police investigation. Discuss the importance of case diaries, different types of complaints, and the procedure followed by investigating agencies during a criminal investigation.

Or

Explain bailable and non-bailable offences and distinguish between police custody and judicial custody. Discuss the procedure for filing a charge sheet and its importance in criminal proceedings.

Unit-IV

Q4. Discuss the legal status, duties, and limitations of a forensic expert while presenting scientific evidence before a court. Explain the factors affecting the admissibility and reliability of expert evidence.

Or

Explain the major provisions of the POCSO Act relating to investigation and trial of offences against children. Discuss the role of forensic science in cases investigated under the Act.

S. S. Jain Subodh P.G. Autonomous College
M Sc. First Semester Forensic Science
Paper–III
PGFSS1PIII: Analytical Instrumental Techniques in Forensics
Assignment 2026

Attempt four questions, one question from each unit.

Unit I

Q. 1 Describe the principle and working of fluorescence microscopy. Mention its applications in biological studies.

Or

Describe the principle, working and applications of agarose gel electrophoresis. and discuss its significance in forensic science.

Unit II

Q. 2 Explain Beer–Lambert’s law and discuss its applications in quantitative analysis.

Or

Compare atomic absorption spectroscopy and atomic emission spectroscopy. explain their functions

Unit III

Q. 3 Explain the basic principle of mass spectrometry and how it works. Discuss the forensic application of mass spectrometry.

Or

Explain the principle, instrumentation and working of Gas Chromatography–Mass Spectrometry (GC–MS) and discuss its applications in forensic analysis.

Unit IV

Q4. Explain the Instrumentation and application of Raman spectroscopy in structural analysis.

Or

Explain the basic principle and theory of Nuclear Magnetic Resonance (NMR) spectroscopy. Describe its instrumentation.

S. S. Jain Subodh P.G. Autonomous College
M Sc. First Semester Forensic Science
Paper-IV
PGFSS1PIV: Advanced Forensic Toxicology
Assignment 2026

Attempt four questions, one question from each unit

Unit - I

Q1. Describe the major international organizations associated with forensic toxicology and explain their contributions to the development and standardization of toxicological practices.

Or

Explain the fundamental elements and scientific principles of forensic toxicology. Discuss the selection and handling of specimens and the role of instrumentation in toxicological investigations.

Unit-II

Q2. Explain the role of environmental forensic toxicology in the investigation of pollution-related cases. Discuss the collection and interpretation of environmental data, groundwater characterization, soil investigation and vapour surveys.

Or

Discuss the role of forensic toxicological techniques in environmental litigation. Explain how analytical findings can be used to establish contamination, identify its source and support legal proceedings.

Unit-III

Q3. Explain the mechanism of absorption of toxic substances through the gastrointestinal tract and discuss various methods used for preventing or reducing their absorption.

Or

Discuss the distribution and metabolism of toxicants in the human body. Explain the factors affecting these processes and their significance in interpreting poisoning cases.

Unit-IV

Q4. Describe the general scheme of toxicological analysis of a suspected poisoning case, from preliminary examination to confirmatory identification. Discuss the importance of extraction, separation, and identification techniques.

Or

Explain the procedures for collecting, preserving, and examining biological and non- biological samples in suspected poisoning cases. Discuss the special problems encountered during the examination of decomposed specimens.

S. S. Jain Subodh P.G. Autonomous College
M Sc. Third Semester Forensic Science
Paper-I
PGFSS3 PI: Ballistics and Forensic Physics
Assignment 2026

Attempt four questions, one question from each unit

Unit – I

Q1. Describe internal ballistics? Describe the various propellant ? Explain the factors affecting the internal ballistics?

Or

Write the various constituents of ammunition ? Describe cartridge-firing mechanism ?

Unit – II

Q2. Describe terminal ballistics ? briefly describe the effect of instability of bullet in terminal Ballistics?

Or

Explain the principle of external ballistics? Briefly explain the effect of air resistance on trajectory of ammunition? Explain the escape velocity and ricochet?

Unit – III

Q3. Define the various firearm injuries in detail? How can we determine the range of fire from firearm injuries?

Or

Define GSR ? Describe how we can collect GSR from a crime scene and what are the various sources from where we can collect GSR ? List and describe the Chemical test for GSR ?

Unit – IV

Q4. List the Various types of glasses ? Describe the method of matching , comparison and forensic examination of glass fractures ?

Or

What are toolmarks? What are the individual and class characteristics of a tool mark? Describe the method of restoration of erased marks ?

S. S. Jain Subodh P.G. Autonomous College
M Sc. Third Semester Forensic Science
Paper-II
PGFSS3 PII: Forensic Medicine and Anthropology
Assignment 2026

Attempt four questions, one question from each unit

Unit – I

Q1. Discuss the methods used for determination of time since death. Explain the various post-mortem changes useful in estimating the post-mortem interval.

Or

Explain electrical injuries and lightning injuries. Discuss their mechanisms, characteristic findings, causes of death, and medico-legal importance.

Unit – II

Q2. Define Medical Jurisprudence and discuss its scope and importance in forensic science. Explain the relationship between Law and Medicine.

Or

Explain the principles and procedures involved in personal identification during mass disasters. Discuss the role of forensic experts and the importance of systematic identification methods.

Unit – III

Q3. Discuss facial reconstruction using photography and clay modelling. Explain the major stages involved in reconstructing facial features from a skull.

Or

Discuss the identification of a human skull. Explain the morphological features used to differentiate human skeletal remains from non-human remains.

Unit – IV

Q4. Discuss the methods used for reconstruction of stature from long bones. Explain the principles, measurements, and medico-legal significance of stature estimation.

Or

A fragmented skeleton is recovered from a suspected crime scene. Describe the systematic forensic examination that should be performed to establish whether the remains are human, estimate biological profile, assess trauma, estimate stature and establish identity.

S. S. Jain Subodh P.G. Autonomous College
M Sc. Third Semester Forensic Science
Specialization A : Forensic Biology, Serology and DNA Profiling
Paper–III A
PGFSS3 EP III A: Forensic Serology
Assignment 2026

Attempt four questions, one question from each unit

Unit - I

Q1. What is biological evidence in forensic serology? Explain the collection, preservation, packaging, transportation and storage of biological samples.

Or

What is contamination of biological evidence? Explain the precautions and procedures used for its prevention during crime-scene examination and laboratory analysis.

Unit - II

Q2. Discuss the identification and forensic examination of biological stains and fluids. Write their significance in forensic investigation.

Or

Compare the methods of immunodiffusion and immunoelectrophoresis with the precipitin test for species determination and discuss their forensic applications.

Unit - III

Q3. What are the properties and composition of blood? Discuss about the ABO blood group system in detail.

Or

What is the significance of blood groups in forensic investigations? Write a short note on parentage exclusion and limitations of conventional serological techniques.

Unit - IV

Q4. Write short notes on mRNA and microRNA markers.

Or

Discuss in detail about the quality assurance and quality control in forensic serological laboratories.

S. S. Jain Subodh P.G. Autonomous College
M Sc. Third Semester Forensic Science
Specialization A : Forensic Biology, Serology and DNA Profiling
Paper–IV A
PGFSS3 EP IV A : Forensic Genetics and DNA Profiling
Assignment 2026

Attempt four questions, one question from each unit

Unit – I

Q1. Explain the process of DNA replication in detail. Discuss the molecular mechanisms of DNA mutation and their forensic significance.

Or

Discuss the importance of genetic variation and polymorphic DNA markers in human identification and forensic investigations.

Unit – II

Q2. Describe DNA purification and quality assessment methods. Explain the factors affecting the quality and quantity of forensic DNA samples.

Or

Explain PCR inhibition and contamination in forensic DNA analysis. What are methods of contamination control and laboratory quality assurance?

Unit – III

Q3. Give a detailed account of the principles of DNA fingerprinting.

Or

Write the applications of DNA profiling in violent crimes, missing-person investigations, mass disasters and wildlife investigations.

Unit – IV

Q4. What is Rapid DNA technology? Explain its principle, workflow, advantages, limitations and forensic applications.

Or

Explain the role of Artificial Intelligence (AI) in DNA interpretation. Discuss its applications, advantages, limitations and future perspectives in forensic genomics.

S. S. Jain Subodh P.G. Autonomous College
M Sc. Third Semester Forensic Science
Specialization A : Forensic Biology, Serology and DNA Profiling
Paper–V A
PGFSS3 EP VA: Forensic Immunology, Proteomics and Bioinformatics
Assignment 2026

Attempt four questions, one question from each unit

Unit - I

Q1. Discuss the cells and organs involved in the immune system.

Or

Write short notes on:

- a) Hypersensitivity reactions
- b) Role of cytokines in immune response

Unit - II

Q2. Explain the applications of various immunological techniques.

Or

Write short notes on:

- a) Flow cytometry
- b) Emerging tools in forensic investigations

Unit - III

Q3. Write the procedure for protein extraction from biological samples for proteomic analysis.

Or

Explain in detail applications of proteomics in forensic analysis.

Unit - IV

Q4. Discuss how the integration of bioinformatics has transformed modern forensic science.

Or

Write short notes on:

- a) Artificial intelligence and machine learning in forensic biology
- b) Forensic DNA databases

S. S. Jain Subodh P.G. Autonomous College
M Sc. Third Semester Forensic Science
Specialization B : Digital and Cyber Forensics
Paper–III B
PGFSS3 EP III B: Cyber law, Risk and Compliance
Assignment 2026

Attempt four questions, one question from each unit

Unit – I

Q1. Explain the importance of IT governance and compliance in an organization. Discuss how effective governance contributes to information security and risk management.

Or

Discuss the different types of IT audits. Explain their objectives, scope and applications with suitable examples.

Unit – II

Q2. Discuss the devices and components associated with each of the seven domains of IT infrastructure. Explain their relevance from an auditing and security perspective.

Or

Discuss the devices and components associated with each of the seven domains of IT infrastructure. Explain their relevance from an auditing and security perspective.

Unit – III

Q3. Define risk analysis. Discuss its objectives, importance and role in organizational information security and risk management.

Or

Define risk assessment. Explain the systematic process of assessing the likelihood and impact of identified risks and determining their significance.

Unit – IV

Q4. Define Disaster Recovery (DR) planning. Discuss its objectives, importance and major components in an organizational environment.

Or

Discuss different Disaster Recovery strategies. Explain backup, replication, redundancy, alternate sites and other recovery approaches.

S. S. Jain Subodh P.G. Autonomous College
M Sc. Third Semester Forensic Science
Specialization B : Digital and Cyber Forensics
Paper–IV B
PGFSS3 EP IVB: Incident Response and Digital Forensic
Assignment 2026

Attempt four questions, one question from each unit

Unit – I

Q1. Discuss incident management in detail. Explain the roles and responsibilities of an Incident Response Team (IRT).

Or

Explain incident reporting mechanisms and vulnerability resources. Discuss the importance of timely reporting, vulnerability information and threat intelligence in incident management.

Unit – II

Q2. Discuss network monitoring and network data analysis in incident response. Explain network monitoring setup, log collection and the identification of suspicious network activity.

Or

Define live response. Discuss its objectives, importance, tools and data collection methods for conducting live response on Windows systems.

Unit – III

Q3. Define data recovery and data carving. Discuss their importance, major methods, applications, and limitations.

Or

Explain the concept of chain of custody. Discuss its components, documentation requirements and importance in establishing the authenticity and admissibility of digital evidence.

Unit – IV

Q4. Discuss Windows Event Logs in detail. Explain the structure, significance and forensic analysis of EVT and EVTX files.

Or

Discuss the forensic analysis of installed applications and connected devices. Explain how application and device artefacts can provide evidence about user activities.

S. S. Jain Subodh P.G. Autonomous College
M Sc. Third Semester Forensic Science
Specialization B : Digital and Cyber Forensics
Paper-V B
PGFSS3 EP VB: Ethical Hacking and Penetration Testing
Assignment 2026

Attempt four questions, one question from each unit

Unit – I

Q1. Discuss Nessus and Netcat in detail. Explain their major features, applications and role in network security assessment.

Or

Discuss the major network protocols used at different network layers. Explain their functions and significance in network communication.

Unit – II

Q2. Discuss Nmap in detail. Explain its major scanning techniques, host discovery, port scanning, service detection, version detection and OS detection capabilities.

Or

Explain OS fingerprinting. Discuss its purpose, working principles, methods and importance in network penetration testing.

Unit – III

Q3. Discuss the Metasploit Framework and its role in authorized penetration testing. Explain its major components and how it supports vulnerability validation and controlled exploitation.

Or

Define privilege escalation. Differentiate between vertical and horizontal privilege escalation and explain common causes, detection approaches and preventive controls.

Unit – IV

Q4. Explain Burp Suite and its role in web application security testing. Discuss its major components and applications in identifying web vulnerabilities.

Or

Define Cross-Site Request Forgery (CSRF). Explain its working mechanism, security impact, detection and preventive measures.