

DEPARTMENT OF FORENSIC SCIENCE
PUNJABI UNIVERSITY, PATIALA

Syllabus for Ph.D. Entrance Test for Session 2023-24

SECTION -A
(RESEARCH METHODOLOGY)

Research : Definition, Key elements, Designing of research, Formulating and Testing Hypothesis.
Literature: Resources and Review Sampling, Collection of Data, Various Tools of Data Collection.
Elements of Experiment, Experimental Research, Experimental Designs.
Research Report Writing, Bibliography, Plagiarism.
Statistical concepts in Research: Various Tools of Statistics, Use of Computers in Research as a Control Tool, Analytical Tool.

SECTION -B
(SUBJECT)

1. **General Forensic Science** : History and Development of Forensic Science, Organization & setup of Forensic Science Laboratories, Methods of Investigation, Education of Forensic Science, Quality management system.
2. **Criminology & Criminal Law** : Definition of Crime, Causes of Crime, Control and Prevention of Crime ,Criminal Behavior and Psychology, Criminal Profiling .
3. **Instrumentation** : Chromatography -TLC, HPTLC, GC, GC-MS, Forensic applications, Neutron Activation Analysis, X-Ray, Microscopy- Types of microscopes- Comparison, Fluorescence, Polarized, Stereo, Their basic principles and Applications in Forensic Science UV/Vis spectroscopy, IR spectroscopy, Electrophoretics techniques and their Forensic Applications.
4. **Questioned Documents & Photography**: Classification and Preliminary Examination, Handwriting Characteristics, Forgery, Disguise, Alterations, Comparison of Handwriting, Indented and Invisible Writings, Determination of Age of Document, sequence of intersecting strokes, Modern Developments in Photography, Digital Photography, Crime scene photography, Analysis of photocopies materials.
5. **Criminalistics**: Crime Scene investigation, Physical evidence, Tool marks.
6. **Forensic Ballistics** : History of Firearms, Classification, Ammunition, Internal Ballistics, External Ballistics, Terminal Ballistics, Matching of crime & test Bullets, Determination of Range of fire, Time of fire, GSR, Firearm injuries, Matching of Crime and test bullets.
7. **Computer & Cyber Crimes**: Introduction, Imaging Software, Photoshop, Photo paint etc., Software piracy, Data recovery, Networked Computer Crimes
8. **Forensic Chemistry & Toxicology** : Arson, Drugs of abuse, Analysis of Petroleum products & residue, Beverages, Explosives, physiological action, Collection and preservation of viscera, Systematic Extraction, Isolation identification & Estimation of poisons from viscera, Animals poisons, Metabolism & excretion of poisons.
9. **Forensic Biology, Serology & DNA** : Importance , Nature, location, collection, their evaluation, Bloodstains, Semen, Saliva, DNA Profiling, Blood Grouping from stains - Polymorphic enzymes, Wildlife Forensics, Forensic Microbiology.
10. **Forensic Anthropology & Forensic Medicine** : Forensic Anthropology-identification from skeletal remains, Forensic odontology, Personal identification, Medico Legal aspects of death, causes of death, Determination of time since death, Determination of age of the living person, Classification of injuries, anti-mortem and post-mortem of injuries, Bite Marks.
11. **Finger Prints** : History and Development of Finger Prints as Science for Personal identification, Type of Finger Prints, Classification of Finger Prints, Latent Finger Prints, Development of Latent Finger prints, Conventional and modern methods, Comparison of Finger Prints, ridge details, AFIS.