

**SYLLABUS FOR THE POST OF SCIENTIFIC OFFICER (BIOLOGY) IN FORENSIC SCIENCE LABORATORY**  
**AND ITS UNITS- POLICE DEPARTMENT**

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 India, 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. Evaluation of blood and blood stain: Visual examination, Ultra Violet, Infrared examination, Microscopy, Spectroscopy, Spectrophotometry, Chromatography, Colour and crystal tests, Luminol tests.
5. Composition and biochemical functions of body fluids: i.e. blood, semen, saliva, urine sweat, biochemical nature and forensic significance.
6. Semen:- Nature, location, identification of semen, seminal stains and spermatozoa. Visual observation test, Physical test, Ultra Violet test, Microscopic test, Chemical tests and enzymatic tests.
7. Saliva and other body fluids:- Forensic importance of saliva and other body fluids such as Urine, faecal matter, sweat, vomit stains and vaginal secretions and their identification by chemical tests.
8. Morphology and composition of hair and fibers. Methods used in their elucidation – applications to forensic science.
9. Characterization, properties and structure of nucleic acids to forensic DNA applications.
10. 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. Secretors and non-secretors status.
11. Immunoassay methods : Immunoprecipitation, Immunodiffusion Immunoelectrophoresis, Immunofluoresces, Radioimmunoassay(RIA) and ELISA.
12. Forensic DNA Examination: Basic principles of genetics. Importance of DNA in Forensic analysis. Forensic DNA profiling techniques including DNA automated analysis systems.
13. Diatom examination: Importance of Diatom examination in forensic samples, Methods of examination and significance in drowning cases.