SYLLABUS- FORENSIC SCIENCE

SECTION-'B'

Unit- 1- Forensic Science-

Definition, scope and need of forensic science. Historical development and basic principle of forensic science, branches of forensic science. Ethics in forensic science. Duties and qualification of forensic scientist. Crime scene management and investigation including its protection and documentation like note taking, sketching, photography and videography. Physical evidences: their types, significance, nature, location, collection, packing, preservation, labelling and forwarding to the forensic science laboratory. Chain of custody. Reconstruction of crime scene.

Development of Forensic Science in India

Functioning and Organisational set up:- BPR&D, DFSS, CFSLs and State FSLs, GEQD and SEQD, Finger Print Bureau, Scene of Crime Mobile Forensic Units and their role and functioning at district level, Model of Madhya Pradesh. Criminal Justice System.

Unit-2- Physical Evidence


Unit-3- Microscopy

Microscope and its parts, function and application in forensic science. Basic principles, working and forensic application of simple, compound, comparison, fluorescence, phase contrast, polarizing, stereo and scanning electron microscope.

Microscopic Examination of various forensic exhibits- Biological (various biological fluids, Hairs, Diatoms), Physical (Various marks & Impressions, Fibers, Glass, Soil, Fired Cartridges & Bullets).

Unit-4-Spectrophotometry- Introduction, fundamental laws of spectrophotometry, principles, techniques and application of ultra-violet spectroscopy, Visible Spectroscopy, infra-red spectroscopy, Raman spectroscopy, atomic absorption, atomic emission spectroscopy, ICP-AES, NMR spectroscopy and mass spectrometry in forensic science. Interference in AAS and background correction methods. Interference and background correction in AES.

X-ray Techniques: introduction, proprieties of x-rays, overview of various x-rays techniques. Basic theory and principles, instrumentation, forensic application of x-ray diffraction and x-ray fluorescence.
Unit-5- Chromatography

Introduction, basic principles and types of chromatography. Paper, column and thin layer chromatography: basic principle theory and instrumentation, visualization, densitometry, HPTLC-method, forensic applications. Gas chromatography: basic principle, theory and instrumentation pyrolysis GC, GC-MS and forensic application. Liquid chromatography: basic principle, theory, and instrumentation, LC-MS and forensic application.

Unit-6- Electrophoresis

Basic principle, theory, and general principles, various factors affecting electrophoresis, low and high voltage electrophoresis, horizontal and vertical electrophoresis. Theory and basic principles, instrumentation, and forensic application of immuno-electrophoresis, polyacrylamide gel electrophoresis and capillary electrophoresis.

Unit-7- Psychological Techniques in Forensic Science

Principles and legal aspects of Polygraph, Narco analysis and Brain mapping including their concepts, significance, method, future perspective of the technique, limitations.

Unit-8- Wild Life Forensic and Forensic Medicine


Unit-9- Computer Forensic


Unit-10- Forensic Statistics

Type of data, collection of data, measure of central tendency, dispersion of data. Probability and proof. Distribution and of random errors, reliability of results, tests of significance, confidence interval, paired t-test, correlation and linear regression, the number of replicate determination, analysis of variance, the value of statistics in forensic science.