

Forensic Toxicology Syllabus

Section- C

Unit-1

Introduction and development of forensic toxicology, definition, branches of forensic toxicology, significance, scope, duties and responsibilities of forensic toxicologist and analysis report.

Unit-2

Poisons: definition, classification of poisons, types of poisoning, mode of action, factors modifying the action of poisons. Methods of poison administration, toxicological exhibits in poisoning cases, their collection and preservation, choice of preservatives, containers and storage (viscera, blood, urine, breathe, oral fluids, vitreous humor, viscera, nails, hair, gastro contents, vomit, bile, skin, skeletal muscles, neonatal samples, breast milk and non-human samples.)

Unit-3

Extraction and isolation of poison from viscera and other biological specimens in reference to volatile poison, non-volatile organic poison, insecticide and pesticide, metallic poison, toxic anions and other poisons.

Unit-4

Introduction of absorption, distribution, metabolism and excretion of Poisons: introduction, pathways of drug-metabolism-non synthetic pathway or phase-I reactions like oxidation, hydroxylation, N-and -O de-alkylation and sulphoxide formation, Synthetic pathways of phase II reactions like conjugation, acetylation, methylation of drugs/poisons as exemplified by alcohols, cyanides, barbiturates, amphetamines, opiates and cannabis.

Unit-5

Analysis of corrosive, irritant and metallic poisons: oxalic acid, acetic acid, HCL, nitric acid, H₂SO₄, HCN, arsenic, antimony, lead, barium Copper, mercury, zinc, thallium and their sampling in living and dead cases, examination in laboratory by various methods.

Unit- 6

Analysis of toxic anions- nitrite, nitrate, sulphide, sulphate, phosphide, chlorate borate, bromide, fluoride, bromate etc. Analysis of barbiturates, chloral hydrate and tranquilizers.

Unit-7

Drugs of abuse: introduction, classification, narcotic drugs & psychotropic substances, sampling, specific drugs types (cannabis, heroin, cocaine, amphetamine, LSD, Phencyclidine, MDMA, peyote), drugs of abuse in sports and their methods of analysis.

Unit-8

Alkaloids: definition, classification, isolation and general characterization. Analysis of hydromorphone, methadone, mescaline, phencyclidine, atropine, cocaine, tyrosamine.

Food poisoning- botulism, ptomine poisoning.

Unit-9

Introduction, absorption, distribution, metabolism, excretion, sampling and analysis of methanol, ethanol, acetone, chloroform and ether, estimation of liquor in breath, blood and urine. carbon monoxide, carbon dioxide, arsine, chlorine, phosgene, hydrogen cyanide, hydrogen sulphide, signs and symptoms, methods of diagnosis, tests for identification.

Unit-10

Nature, type, mode of action, extraction, isolation, identification of opium, strychnos nux vomica, mexican prickly poppy, dhatura, aconite, atropa, kaner, madar, cannabis, abrus, ricinus, bhilawa, plumbago, poisonous fungi (ergot etc.), cyanogenetic glycosides, poisonous mushrooms. Animal poisons: Snake venom, composition, site of action, mode of action, effect on the body as a whole and tests for identification of canthridine, scorpion.

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