ANNEXURE-A

1) SYLLABUS FOR ASSISTANT DIRECTOR (TOXICOLOGY)

Poisons: Definition, classification, mode of action and factors affecting the poisoning, form of poisons, types of poisoning, medico-legal aspects in poisoning, methods of administration, Diagnosis and management of poisoning cases. Collection and preservation of viscera in fatal and survival cases. Submission of samples to the laboratory, and postmortem examination report/findings study, specific analysis plan/ approach to toxicological examinations of poisoning samples, Classification of matrices

Forensic Toxicological Examination: Concepts, significance**,** Law relating to poisoning cases, visceral samples for toxicological examinations. Methods of extraction: Classical and Modern methods, Isolation and clean up procedures using conventional as well as modern techniques such as solid phase micro extraction technique.

Instrumental Techniques: Principle, instrumentation and forensic application of the following: Microscopy: Comparison microscope, Phase contrast microscope, Stereoscopic microscope, Polarizing microscope, Fluorescence microscopy, IR microscopy, and Electron Microscope. Spectroscopy: Ultraviolet and visible spectroscopy, Infrared Spectroscopy, Raman Spectroscopy, Flame emission spectrometry, Atomic absorption spectrometry Atomic Fluorescence Spectrometry and Mass Spectroscopy Chromatography: Paper Chromatography, Thin Layer Chromatography, High Performance Thin Layer Chromatography, Gas Solid and/or Liquid Chromatography, Gas Chromatography – Head Space Technique, High Performance Liquid Chromatography, Gas Chromatography – Mass Spectroscopy, Gas Chromatography – Mass Spectroscopy – Mass Spectroscopy, High Performance Liquid Chromatography – Mass Spectroscopy and High Performance Liquid Chromatography – Mass Spectroscopy – Mass Spectroscopy, Neutron Activation Analysis, X-Ray Techniques and Nuclear Magnetic Resonance

Analysis of Poisons: Inorganic poisons (cations and anions), Neutral poison (organic non volatile), Method of analysis of Basic drugs / poisons, Method of analysis of Acidic drugs /poisons, Method of analysis of metallic poisons and volatile poisons, Method of quantization of some volatile poisons including alcoholic beverages in biological materials. Analysis of samples taken under Food Adulteration Act.

Miscellaneous poisons: Insects and animal toxins and their examination. Plant poisons: Classification and characteristics, method of extraction and stripping of plant poisons in matrices and analysis by chemical and instrumental techniques.

Food Poisoning: Identification and cause of poisoning. Toxicological analysis of decomposed materials. Interpretation of toxicological findings and preparation of reports.

Forensic Pharmacology: Forensic pharmacological studies, absorption, distribution, pharmacokinetics and metabolism, pathways of drug metabolism, drug toxicity, excretion of drugs and poisons. Detection of poison on the basis of their metabolic studies, interpretation of analytical data and forming of opinion.

2) SYLLABUS FOR SCIENTIFIC OFFICER (TOXICOLOGY)

Poisons: Definition, classification, mode of action and factors affecting the poisoning, form of poisons, types of poisoning, medico-legal aspects in poisoning, methods of administration, Diagnosis and management of poisoning cases. Collection and preservation of viscera in fatal and survival cases. Submission of samples to the laboratory, and postmortem examination report/findings study, specific analysis plan/ approach to toxicological examinations of poisoning samples, Classification of matrices

Forensic Toxicological Examination: Concepts, significance**,** Law relating to poisoning cases, visceral samples for toxicological examinations. Methods of extraction: Classical and Modern methods, Isolation and clean up procedures using conventional as well as modern techniques such as solid phase micro extraction technique.

Instrumental Techniques: Principle, instrumentation and forensic application of the following: Microscopy: Comparison microscope, Phase contrast microscope, Stereoscopic microscope, Polarizing microscope, Fluorescence microscopy, IR microscopy, and Electron Microscope. Spectroscopy: Ultraviolet and visible spectroscopy, Infrared Spectroscopy, Raman Spectroscopy, Flame emission spectrometry, Atomic absorption spectrometry Atomic Fluorescence Spectrometry and Mass Spectroscopy Chromatography: Paper Chromatography, Thin Layer Chromatography, High Performance Thin Layer Chromatography, Gas Solid and/or Liquid Chromatography, Gas Chromatography – Head Space Technique, High Performance Liquid Chromatography, Gas Chromatography – Mass Spectroscopy, Gas Chromatography – Mass Spectroscopy – Mass Spectroscopy, High Performance Liquid Chromatography – Mass Spectroscopy and High Performance Liquid Chromatography – Mass Spectroscopy – Mass Spectroscopy, Neutron Activation Analysis, X-Ray Techniques and Nuclear Magnetic Resonance

Analysis of Poisons: Inorganic poisons (cations and anions), Neutral poison (organic non volatile), Method of analysis of Basic drugs / poisons, Method of analysis of Acidic drugs /poisons, Method of analysis of metallic poisons and volatile poisons, Method of quantization of some volatile poisons including alcoholic beverages in biological materials. Analysis of samples taken under Food Adulteration Act.

Miscellaneous poisons: Insects and animal toxins and their examination. Plant poisons: Classification and characteristics, method of extraction and stripping of plant poisons in matrices and analysis by chemical and instrumental techniques.

Food Poisoning: Identification and cause of poisoning. Toxicological analysis of decomposed materials. Interpretation of toxicological findings and preparation of reports.

Forensic Pharmacology: Forensic pharmacological studies, absorption, distribution, pharmacokinetics and metabolism, pathways of drug metabolism, drug toxicity, excretion of drugs and poisons. Detection of poison on the basis of their metabolic studies, interpretation of analytical data and forming of opinion.

3) SYLLABUS FOR SCIENTIFIC ASSISTANT (TOXICOLOGY)

Poisons and Forensic Toxicological Examination: Definition, classification, mode of action and factors affecting the poisoning, route of administration, Diagnosis and management of poisoning cases. Collection and preservation of viscera in fatal and survival cases. Submission of samples to the laboratory, and postmortem examination report/ findings study, specific analysis plan/ approach to toxicological examinations of poisoning samples, Classification of matrices Methods of extraction of poison from visceral tissues and biological fluids.

Instrumental Techniques: Principle, instrumentation and forensic application of Microscopy, Spectroscopy, Chromatography, Neutron Activation Analysis, X-Ray Techniques and Nuclear Magnetic Resonance.

Analysis of Poisons: Inorganic poisons (cations and anions), Neutral poison (organic non volatile), Method of analysis of Basic drugs / poisons, Method of analysis of Acidic drugs / poisons, Method of analysis of metallic poisons and volatile poisons, Method of quantization of some volatile poisons including alcoholic beverages in biological materials. Analysis of samples taken under Food Adulteration Act.

Miscellaneous poisons: Insects and animal toxins and their examination. Plant poisons: Classification and characteristics, method of extraction and stripping of plant poisons in matrices and analysis by chemical and instrumental techniques.

Food Poisoning: Identification and cause of poisoning. Toxicological analysis of decomposed materials. Interpretation of toxicological findings and preparation of reports.

Forensic Pharmacology: Forensic pharmacological studies, absorption, distribution, pharmacokinetics and metabolism, pathways of drug metabolism, drug toxicity, excretion of drugs and poisons. Detection of poison on the basis of their metabolic studies, interpretation of analytical data and forming of opinion.