1411E1179

Candidate's Seat No : _____

M.Sc. Sem.-3 Examination

502

Forensic Science

November-2025

Time : 2-30 Hours] **[Max. Marks : 70**

Ques.1 Answer the following questions:

i. Explain the classification of poisons based on their mode of action with examples. 7Marks

ii. Describe the postmortem findings in cases of death due to poisoning 7Marks

OR

i. List the various factors that modify the action of poisons in the body and explain their significance. 7Marks

ii. Explain the fate of poisons in the human body and the role of the liver in detoxification. 7Marks

Ques.2 Answer the following questions:

i. Discuss the following extraction methods: 7Marks
   I. Solvent extraction
   II. Distillation

ii. Explain extraction of non-volatile organic compounds using micellar extraction method 7Marks

OR

i. Explain the fundamental principle, components, working and the advantages of solid phase extraction 7Marks

ii. Discuss any two methods for that you can use to extract and identify carbon monoxide from the blood sample of a victim of carbon monoxide poisoning. 7Marks

Ques.3 Answer the following questions:

i. Describe the cellular mechanism of toxicity of Arsenic, detailing its primary effect on sulfhydryl groups and its consequence for cellular energy metabolism. 7Marks

ii. Explain how cannabis shows a Biphasic effect. 7Marks

OR

i. What are the key aspects related to Opium poisoning including active principle, fatal dose & period, Postmortem appearances and Forensic analysis. 7Marks

ii. Explain three factors that can decrease the rate of ethanol absorption from the stomach and small intestine. Additionally, briefly explain why the Volume of Distribution (Vd) for ethanol is generally smaller in women than in men. 7Marks

Ques.4 Answer the following questions:

i. Briefly describe the main mechanisms by which drugs cross the gastrointestinal (GI) barrier to reach systemic circulation. 7Marks

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ii. List non-renal drug excretion routes (e.g., lungs, saliva, sweat). Give one drug example per route and state what influences excretion through each. 7Marks

OR

i. Define and differentiate among cytotoxicity, carcinogenicity, mutagenicity and teratogenicity as adverse outcomes of drug toxicity. 7Marks

ii. Explain the different routes of Drug administration. 7Marks

Ques.5 Attempt any seven out of twelve. 14Marks

1. What are chelating agents? Explain in brief.
2. How route of administration and condition of stomach affect poison absorption?
3. What is a fulminant poisoning?
4. Which are the factors affecting choice of extraction method in toxicology?
5. Which is the fundamental principle employed in extraction using a universal trace residue extractor?
6. State any two advantages of using a solid phase extractor (SPE) compared to column chromatography.
7. Name the primary enzyme responsible for converting ethanol into acetaldehyde in the liver.
8. What is the estimated fatal dose of Nicotine for an adult?
9. Name the primary toxic principle (active compound) found in the Semicarpus anacardium nut.
10. What is the effect of polymorphism on drug absorption?
11. What is apparent volume of distribution?
12. Name three nonrenal routes of drug excretion.

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