

1711E1309

Candidate's Seat No : \_\_\_\_\_

M.Sc. Sem.-3 Examination

504

Toxicology (EA)

(Forensic Toxicology)

November-2025

Time : 2-30 Hours]

[Max. Marks : 70

Q1A	Define forensic toxicology. Discuss in detail the scope and significance of forensic toxicological examination in medico-legal investigations.	7 Marks
Q1B	Discuss the postmortem findings in poisoning cases and explain how toxicological examination assists in establishing the cause of death.	7 Marks
<b>OR</b>		
Q1A	Elaborate on the medico-legal procedures to be followed in a suspected case of poisoning, including collection, preservation, and forwarding of exhibits for chemical examination.	7 Marks
Q1B	Describe the mode of action of poisons and discuss the factors that modify the action of poisons in the human body.	7 Marks
<b>OR</b>		
Q2A	Discuss the procedure for the collection and preservation of biological samples from a patient in a survival case of suspected poisoning. Include an explanation of the types of samples typically collected and the critical importance of immediate documentation.	7 Marks
Q2B	Discuss the significance and collection method for Vitreous Humour and Cerebrospinal Fluid (CSF) as alternative toxicological samples.	7 Marks
<b>OR</b>		
Q2A	Detail the procedure for the collection and preservation of viscera (including stomach, liver, and blood) in a suspected fatal poisoning case. State the recommended quantity for each sample and specify the preservative used for the viscera.	7 Marks
Q2B	Describe the requirements for the container used to preserve viscera and outline the protocol for the dispatch of viscera to the Forensic Science Laboratory (FSL). Specifically mention the process of sealing and the accompanying documents.	7 Marks
<b>OR</b>		
Q3A	Describe the cellular mechanism of toxicity of Arsenic, detailing its primary effect on sulfhydryl groups and its consequence for cellular energy metabolism.	7 Marks
Q3B	Outline the three major forms of Mercury poison (Elemental, Inorganic, and Organic) and list one key source of exposure for each. Explain the primary molecular mechanism of mercury toxicity based on its strong affinity for Sulfhydryl (-SH) Groups.	7 Marks
<b>OR</b>		

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<b>Q3A</b>	The nut of <i>Semicarpus anacardium</i> has a corrosive oil. Explain its mechanism of action involving Skin and Mucosal Irritation and Immune Activation.	7 Marks
<b>Q3B</b>	Explain the concept of Molecular Mimicry as a key mechanism of action of Lead (Pb <sup>2+</sup> ) in the body, detailing how it interferes with Calcium.	7 Marks
<b>OR</b>		
<b>Q4A</b>	What is the structure and function of Snake Venom Metalloproteinases (SVMPs)?	7 Marks
<b>Q4B</b>	What are the toxic and immune responses caused by insect bites and stings?	7 Marks
<b>OR</b>		
<b>Q4A</b>	How do Snake Venom Serine Proteinases (SVSPs) affect blood coagulation and fibrinogen?	7 Marks
<b>Q4B</b>	What are the limitations of conventional antivenoms and how can recombinant antivenoms overcome them?	7 Marks
<b>OR</b>		
<b>Q5</b>	<b>Answer the following questions (Any Seven)</b>	<b>14 Marks</b>
<b>I</b>	Write two clinical features and two postmortem findings of cardiotoxic poisons.	2 Marks
<b>II</b>	Mention two laws regulating the use or possession of poisons in India.	2 Marks
<b>III</b>	What is the chain of custody and why is it important in toxicological evidence handling?	2 Marks
<b>IV</b>	What is Viscera? Give two examples of visceral organs found in the abdominal cavity.	2 Marks
<b>V</b>	What is the purpose of the ligature tied at the lower end of the oesophagus when collecting the stomach?	2 Marks
<b>VI</b>	Name two samples collected specifically in a survival case of suspected poisoning.	2 Marks
<b>VII</b>	What is the estimated fatal dose of Nicotine for an adult?	2 Marks
<b>VII</b>	Give one feature that differentiates a lesion caused by <i>Semicarpus</i> juice from a genuine bruise.	2 Marks
<b>IX</b>	Name and briefly describe the patchy brown skin pigmentation seen in chronic Arsenic poisoning.	2 Marks
<b>X</b>	Name two common insects whose bites cause allergic reactions.	2 Marks
<b>XI</b>	What is the principle behind antivenom therapy?	2 Marks
<b>XII</b>	Define volatile poisons and give two examples.	2 Marks

**BEST OF LUCK**