

# Faculty of Science

## End Semester Examination May 2025

### FS3CO23 Forensic Toxicology

<b>Programme</b>	:	B. Sc. (Hons.)	<b>Branch/Specialisation</b>	:	FS
<b>Duration</b>	:	3 hours	<b>Maximum Marks</b>	:	60

**Note:** All questions are compulsory. Internal choices, if any, are indicated. Assume suitable data if necessary.  
 Notations and symbols have their usual meaning.

<b>Section 1 (Answer all question(s))</b>				<b>Marks CO BL</b>
<b>Q1.</b> Who is considered the father of forensic toxicology?				1    1    2
<input checked="" type="radio"/> Mathieu Orfila			<input type="radio"/> Sherlock Holmes	
<input type="radio"/> Edmund Locard			<input type="radio"/> Albert Osborne	
<b>Q2.</b> The main responsibility of a forensic toxicologist is to:				1    1    2
<input type="radio"/> Solve the crime			<input checked="" type="radio"/> Determine the cause of death based on toxic substances	
<input type="radio"/> Perform autopsies			<input type="radio"/> Provide psychological counseling	
<b>Q3.</b> Which of the following factors may modify the action of a poison?				1    2    2
<input type="radio"/> Age of the person			<input type="radio"/> Gender of the person	
<input type="radio"/> Genetic factors			<input checked="" type="radio"/> All of the above	
<b>Q4.</b> Which type of poisoning occurs when a substance accumulates in the body over time?				1    2    2
<input type="radio"/> Acute poisoning			<input checked="" type="radio"/> Chronic poisoning	
<input type="radio"/> Allergic poisoning			<input type="radio"/> Induced poisoning	
<b>Q5.</b> Arsenic poisoning is commonly detected by which of the following methods?				1    3    1
<input type="radio"/> Blood gas analysis			<input checked="" type="radio"/> Marsh test	
<input type="radio"/> Gas chromatography			<input type="radio"/> Immunohistochemistry	
<b>Q6.</b> Which of the following is a symptom of methanol poisoning?				1    3    2
<input checked="" type="radio"/> Blurred vision			<input type="radio"/> Increased appetite	
<input type="radio"/> Rash on the skin			<input type="radio"/> Excessive sweating	
<b>Q7.</b> What does NDPS stand for?				1    4    1
<input type="radio"/> National Drugs and Pharmaceutical Standards			<input checked="" type="radio"/> Narcotic Drugs and Psychotropic Substances	
<input type="radio"/> Non-Dangerous Pharmaceutical Substances			<input type="radio"/> Narcotic Drugs and Psychoactive Substances	
<b>Q8.</b> What is the primary active ingredient in cannabis?				1    4    1
<input type="radio"/> LSD			<input checked="" type="radio"/> THC (Tetrahydrocannabinol)	
<input type="radio"/> MDMA			<input type="radio"/> Mescaline	
<b>Q9.</b> What part of the <i>Ricinus</i> plant (castor bean) is toxic?				1    5    2
<input type="radio"/> Flowers			<input checked="" type="radio"/> Seeds	
<input type="radio"/> Roots			<input type="radio"/> Leaves	

**Q10.** Which of the following is the most commonly used toxic compound in Datura?

1 5 2

- Strychnine
- Scopolamine
- Morphine
- Ricin

### Section 2 (Answer all question(s))

**Q11.** Define forensic toxicology.

Marks CO BL  
3 1 2

Rubric	Marks
definition	3

**Q12. (a)** Explain the significance and scope of forensic toxicology in criminal investigations.

7 1 2

Rubric	Marks
significance of forensic toxicology	3.5
scope of forensic toxicology	3.5

(OR)

**(b)** Explain the steps involved in preparing a forensic toxicology analysis report.

Rubric	Marks
collection, preservation and selection of analytical method	3.5
conduction, interpretation and documentation	3.5

### Section 3 (Answer all question(s))

Marks CO BL  
4 2 2

**Q13.** What is chronic poisoning? Explain with suitable example.

Rubric	Marks
definition	2
example	2

**Q14. (a)** Explain the factors that modify the action of poisons in the body.

6 2 1

Rubric	Marks
dose, route of exposure, age and health	3
metabolism, chemical nature and duration	3

(OR)

**(b)** Discuss the classification of poisons based on their origin.

Rubric	Marks
natural poison	2
chemical poison	2
biological poison	2

### Section 4 (Answer all question(s))

Marks CO BL  
3 3 2

**Q15.** What is the significance of analyzing ethanol in urine in forensic toxicology?

Rubric	Marks
significance 2 marks method 1 mark	3

**Q16. (a)** Discuss the methods used for the detection of metallic poisons in living and dead cases. Include at least four metals in your answer.

7 3 3

Rubric	Marks
detection of metal from dead body	3.5
detection of metal from live	3.5

(OR)

**(b)** Evaluate the various laboratory methods used to identify and quantify nitrites, nitrates, and sulphides in forensic toxicology.

Rubric	Marks
quantify and identify methods for nitrite	2.5
quantify and identify methods for nitrates	2.5
quantify and identify method for sulphide	2

### Section 5 (Answer all question(s))

**Q17.** What are the most common drugs of abuse in sports? How do they impact athletic performance?

Marks CO BL

4 4 2

Rubric	Marks
description of common drugs	2
their impact on athletes performance	2

**Q18. (a)** What are the active ingredients in cannabis? How do they affect the brain?

6 4 1

Rubric	Marks
description of active ingredient of cannabis	3
impact on human brain	3

(OR)

**(b)** Explain the classification of narcotic drugs and psychotropic substances.

Rubric	Marks
classification of narcotic drugs	3
classification of psychotropic substances	3

### Section 6 (Answer all question(s))

**Q19.** What are the main active compounds in opium? How do they affect the human body?

Marks CO BL

4 5 2

Rubric	Marks
active ingredients of opium	2
impact on human body	2

**Q20. (a)** How does strychnine poisoning affect the human body?

6 5 2

Rubric	Marks
active ingredient of strychnine and origin	3
effects	3

**(OR)**

**(b)** Explain detection method of cannabis and bhilawa from sample.

Rubric	Marks
detection method of cannabis	3
detection method of bhilawa	3

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