

Faculty of Science

End Semester Examination May 2025

FS3CO09 Forensic Chemistry

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

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

Section 1 (Answer all question(s))

- Q1.** Statement 1: A brewery produces through fermentation of grains.
 Statement 2: Distillery produces spirits (liquor) by fermented liquids.

Marks CO BL
 1 1 2

Rubric	Marks
Both statement are correct.	1

- Statement 1 correct Statement 2 correct
 Statement 1 & 2 correct Statement 1 & 2 incorrect

- Q2.** Color change of the phenolphthalein in Trap cases is due to presence of-

1 1 3

Rubric	Marks
Weak Acid & Weak Base	1

- Weak acid & weak base Strong acid & strong base
 Weak acid Strong base

- Q3.** A commonly abused drug on street "Miss Emma" is a common name of-

1 2 1

Rubric	Marks
Morphine	1

- Methadone Morphine
 Oxycodone Fentanyl

- Q4.** Which is the correct combination of MARQUIS TEST result for narcotic drug?

1 2 2

Rubric	Marks
Purple may indicate presence of Heroin	1

- Purple may indicate presence of Heroin Orange - Brown may indicate presence of Oxycodone
 Yellow to Brown to Violet may indicate presence of Methamphetamine Orange - Brown may indicate presence of Cocaine

Q5. Which of the following is in-correctly matches for fire investigation?

1 3 2

Rubric	Marks
Rubber COLOR OF SMOKE (White) COLOR OF FLAME (Yellow- Blue)	1

- Rubber color of smoke (White) color of flame (Yellow- Blue)
- Gasoline color of smoke (black) color of flame (yellow to white)
- Kerosene color of smoke (Green) color of flame (yellow)
- Cloth color of smoke (gray to brown) color of flame (yellow to red)

Q6. Narcotic Drugs and Psychotropic Substances Act, 1985 last amended on year-

1 2 1

Rubric	Marks
2021	1

- 2020
- 2021
- 2000
- 2023

Q7. Assertion: If the raw petroleum is of a high density then the petroleum classification is termed 'heavy' and if it is of a low density the petroleum classification is termed 'light'. 1 4 2

Reason: If it contains a great deal of long-chain hydrocarbons, the petroleum will be denser. If it contains a greater proportion of short-chain hydrocarbons it will be less dense.

Rubric	Marks
Assertion is correct explanation of Reason	1

- Assertion is correct
- Assertion is correct explanation of reason
- Reason is correct
- Both assertion & reason is in-correct.

Q8. Which of the following is correct match of adulterant of petroleum product? 1 4 1

Rubric	Marks
All of these	1

- Petrol - Orange dye
- Kerosene- Blue dye
- Disel - Yellow dye
- All of these

Q9. Which of the following is a low explosive? 1 5 1

Rubric	Marks
Black powder	1

- Nitroglycerin
- Ammonium Nitrate
- Nitrocarbonitrates
- Black powder

Q10. Give the full form of high explosive as PETN? 1 5 1

Rubric	Marks
Pentaerythritoltetranitrate	1

- Cyclotrimethylenetrinitramine
- Tri-nitro-toluene
- Pentaerythritoltetranitrate
- None of these

Section 2 (Answer all question(s))

Marks CO BL

Q11. Give any four differences between alcoholic & non-alcoholic beverages.

2 1 1

Rubric	Marks
0.5 marks for one difference.	2

Q12. Define licit and Illicit alcohol as per BIS & PFA act.

3 1 1

Rubric	Marks
.5 for each definition	3

Q13. (a) Describe complete classification of beverages.

5 1 1

Rubric	Marks
Answer according to Food and berverages act.	5

(OR)

- (b)** Explain the complete method for examination of dyes in Ink and other material by TLC & U.V. Spectrophotometer.

Rubric	Marks
explain in 250 words	5

Section 3 (Answer all question(s))

Marks CO BL

Q14. What are Narcotic Drugs as per NDPS Act? Give any three examples.

3 2 1

Rubric	Marks
Definition - 2 marks	3
Example - 1 marks	

Q15. (a) Explain the complete classification of narcotic drugs.

7 2 2

Rubric	Marks
Explain in 300 words.	7

(OR)

- (b)** Describe any three preliminary test for drug analysis.

Rubric	Marks
Deginition of preliminary test - 1 marks	7
Each preliminary test - 2 marks	

Section 4 (Answer all question(s))

Marks CO BL

Q16. Give the difference between fire & arson.

3 3 2

Rubric	Marks
Each difference carrieed 1 marks	3

Q17. (a) Explain complete chemistry of fire.

7 3 2

Rubric	Marks
Explain in 300 words.	7

(OR)

(b) Describe the method for collection, preservation and analysis of evidences at fire crime scene.

Rubric	Marks
Definition of fire scene - 1 marks	7
Collection - 2 marks	
Preservation - 2 marks	
Analysis - 2 marks	

Section 5 (Answer all question(s))

Marks CO BL

3 4 1

Q18. What is adulteration? Give the name of common adulterants of petroleum products.

Rubric	Marks
Definition - 1 marks	3
Name of common adulterants - 2 marks	

Q19. (a) Describe the composition of petroleum product based on number of hydrocarbons and other contents of petroleum.

7 4 2

Rubric	Marks
explain in 300 words	7

(OR)

(b) Explain the methods for analysis of petroleum products.

Rubric	Marks
explain in 300 words.	7

Section 6 (Answer all question(s))

Marks CO BL

5 5 2

Q20. Define explosives. Give the examples of high and low explosives.

Rubric	Marks
Definition - 2 marks	5
Examples - 3 marks	

Q21. (a) Explain the complete classification of explosives with example of each.

5 5 2

Rubric	Marks
explain in 300 words	5

(OR)

(b) Describe the process for analysis and examination of post-blast residue.

Rubric	Marks
Analysis - 2.5 marks	5
Examination - 2.5 marks	
