Total No. of Questions: 6 *Total No. of Printed Pages:2*

Enrolment No.....

Faculty of Science

End Sem (Even) Examination May-2022

FS3CO09 Forensic Chemistry

Programme: B.Sc. (FS) Branch/Specialisation: Forensic Science

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

Q.1 i. The Specific Gravity of ethanol is- **1**

(a) 0.79 gm (b) 0.75 gm (c) 0.71 gm (d) None of these

ii. Rectified Spirit is- **1**

(a) 99% w/w ethanol (b) 90% w/w ethanol
(c) 97% w/w ethanol (d) 96% w/w ethanol

iii. Fire is- **1**

(a) Exothermic Oxidation Reaction
(b) Endothermic Oxidation Reaction
(c) Both (a) & (b)
(d) None of these

iv. Pyromania Belong to- **1**

(a) Alcohol (b) Fire
(c) Food (d) None of these

v. When a liquid is converted into a gas, this process called as- **1**

(a) Crystallization (b) Evaporation
(c) Filtration (d) None of these

vi. Boiling temperature of water- **1**

(a) 212 ^{o}F (b) 200 ^{o}F (c) 150 ^{o}F (d) 230 ^{o}F

vii. Which of the following is/are unrefined petroleum product? **1**

(a) Asphalt (b) Bitumen
(c) Natural gas (d) All of these

viii. Which is the heavy distillates product of petroleum- **1**

(a) Wax (b) Gasoline
(c) Kerosine (d) None of these

ix. Propellent is **1**

(a) High explosive (b) Low explosive
(c) Secondary high explosive (d) None of these

P.T.O.

x. Gun Cotton is- **1**

(a) Ammonium nitrate (b) Ammonia dynamite
(c) Nitrocellulose (d) All of these

Q.2 i. Write definition of beverage. **2**

ii. Write about alcohol beverage and their composition. **3**

iii. Give brief Note on "Abkari Act". **5**

OR iv. Explain distinction between licit and illicit liquors. **5**

Q.3 i. Write difference between fire and arson. **2**

ii. Explain chemistry of fire in details. **8**

OR iii. How to search, collect, preserve and analysis of fire and arson related evidences. **8**

Q.4 i. Give brief introduction of filtration. **3**

ii. Explain principle, instrumentation and application of distillation in forensic science. **7**

OR iii. Write essay on "SPME" with forensic application. **7**

Q.5 i. Define fractionation. **2**

ii. Write long note on "Adulteration of petroleum products" **8**

OR iii. How to analysis of traces of petroleum products in forensic exhibits. **8**

Q.6 Write short note on any two:

i. Classification of explosive. **5**

ii. Mechanism of explosive. **5**

iii. Blast injuries. **5**

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Marking Scheme
FS3CO09 Forensic Chemistry

Q.1	i.	The Specific Gravity of ethanol is- (a) 0.79 gm		**1**
	ii.	Rectified Spirit is- (b) 90% w/w ethanol		**1**
	iii.	Fire is- (a) Exothermic Oxidation Reaction		**1**
	iv.	Pyromania Belong to- (b) Fire		**1**
	v.	When a liquid is converted into a gas, this process called as- (b) Evaporation		**1**
	vi.	Boiling temperature of water- (a) 212 ºF		**1**
	vii.	Which of the following is/are unrefined petroleum product? (d) All of these		**1**
	viii.	Which is the heavy distillates product of petroleum- (a) Wax		**1**
	ix.	Propellent is (b) Low explosive		**1**
	x.	Gun Cotton is- (c) Nitrocellulose		**1**
Q.2	i.	Definition of beverage.		**2**
	ii.	Definition of alcohol beverage	1 mark	**3**
		Composition	2 marks	
	iii.	Introduction of "Abkari Act"	1 mark	**5**
		Important sections of act	3 marks	
		Uses and application of act	1 mark	
OR	iv.	Any 5 Differences	(1 mark * 5)	**5**
Q.3	i.	Definition of fire and arson	1 mark	**2**
		Motive behind fire and arson	1 mark	
	ii.	Definition and introduction of fire	2 marks	**8**
		Chemistry of fire	4 marks	
		Uses of fire	2 marks	
OR	iii.	Searching	2 marks	**8**
		Collection	2 marks	
		Preservation	2 marks	
		Analysis	2 marks	
Q.4	i.	Definition of filtration	1 mark	**3**
		Technique of filtration	2 marks	
	ii.	Definition of distillation	1 mark	**7**
		Instrumentation of distillation	5 marks	
		Application of distillation	1 mark	
OR	iii.	Definition of SPME	1 mark	**7**
		Instrumentation of SPME	4 marks	
		Application of SPME	2 marks	
Q.5	i.	Definition of fractionation.		**2**
	ii.	Definition and introduction of adulteration & petroleum	1 mark	**8**
		Types of adulteration & petroleum products	3 marks	
		Analysis methods and techniques of adulteration of petroleum	4 marks	
OR	iii.	How to analysis of traces of petroleum products in forensic exhibits.		**8**
		Definition and introduction of petroleum products	2 marks	
		Types of traces	2 marks	
		Analysis methods and techniques of traces of adulteration of petroleum	4 marks	
Q.6		Write short note on any two:		
	i.	Classification of explosive based on intensity	3 marks	**5**
		Classification of explosive based on uses	2 marks	
	ii.	Definition of Mechanism of explosive	1 mark	**5**
		Chemistry behind Mechanism of explosive	2 marks	
		Physic behind Mechanism of explosive	2 marks	
	iii.	Definition of injuries and blast	2 marks	**5**
		Types of blast injuries	3 marks	

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