



Enrollment No.....

Faculty of Science

End Sem (Odd) Examination Dec-2019

FS3EL01 Forensic Physics

Programme: B.Sc. (Forensic) 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 technique used to reveal the crystalline nature of paint is **1**
 (a) I R Spectroscopy (b) U V Spectrophotometry
 (c) Solubility test (d) X-Ray diffraction
- ii. Evidentiary value of paint increases whenever it is recovered from **1**
 (a) Suspect vehicle of a hit and run cases
 (b) Shoe or clothing of an accused person
 (c) Suspected house breaking implements
 (d) All of these
- iii. The crack which is parallel to rib mark is **1**
 (a) Hackle marks (b) Radial mark
 (c) Rib mark (d) Concentric mark
- iv. Bullet proof glass contain **1**
 (a) Boron
 (b) Alternate layer of bakelite polymer
 (c) Alternate layer of vinyl resin plastic
 (d) None of these
- v. Soil is formed originally from rocks as a result of **1**
 (a) Erosion process (b) Oxidation process
 (c) Hydration process (d) All of these
- vi. Presence of soil in shoes can be helpful in deducting **1**
 (a) Time of crime (b) Mode of crime
 (c) Place of crime (d) Type of crime
- vii. The cement that do not require water treatment in order to retain **1**
 strength is known as
 (a) White cement (b) Non hydraulic cement
 (c) Hydraulic cement (d) None of these

- viii. The interval between addition of water to the cement and the stage **1**
 when the needle ceases to penetrate completely is called
 (a) Final setting time (b) Initial setting time
 (c) Setting time (d) Threshold time
- ix. Hemp fibre is a type of **1**
 (a) Vegetable fibre (b) Synthetic fibre
 (c) Regenerated fibre (d) Asbestos fibre
- x. Silk produced from salivary glands of **1**
 (a) Pupa (b) Maggot (c) Larva (d) None of these
- Q.2 i. Explain types of paint and their composition. **2**
 ii. Write forensic significance of paint evidence. **3**
 iii. Describe **5**
 e chemical and instrumental analysis of paint evidence.
- OR iv. Explain microscopic analysis of paint pigments. **5**
- Q.3 i. Discuss method of determination of Refractive index of glass **2**
 fragments.
 ii. Explain types of glass and their composition. **8**
- OR iii. Discuss forensic examination of glass fractures. **8**
- Q.4 i. Write the sample preparation and removal of contaminants of soil **3**
 evidence sample
 ii. Describe the density gradient method of soil comparison. **7**
- OR iii. Discuss forensic significance of soil evidence. **7**
- Q.5 i. Write the composition of Portland Cement and white cements. **4**
 ii. Discuss the examination of adulterated cement. **6**
- OR iii. Write an essay on Mortar and concrete analysis. **6**
- Q.6 Attempt any two:
 i. Define fibre and their types with forensic aspects of fibre **5**
 examination.
 ii. Explain the difference between natural and man-made fibres. **5**
 iii. Discuss fibre comparison of dye components. **5**

P.T.O.

Marking Scheme
FS3EL01 Forensic Physics

Q.1	i.	The technique used to reveal the crystalline nature of paint is (d) X-Ray diffraction	1
	ii.	Evidentiary value of paint increases whenever it is recovered from (d) All of these	1
	iii.	The crack which is parallel to rib mark is (a) Hackle marks	1
	iv.	Bullet proof glass contain (c) Alternate layer of vinyl resin plastic	1
	v.	Soil is formed originally from rocks as a result of (d) All of these	1
	vi.	Presence of soil in shoes can be helpful in deducting (c) Place of crime	1
	vii.	The cement that do not require water treatment in order to retain strength is known as (b) Non hydraulic cement	1
	viii.	The interval between addition of water to the cement and the stage when the needle ceases to penetrate completely is called (b) Initial setting time	1
	ix.	Hemp fibre is a type of (a) Vegetable fibre	1
	x.	Silk produced from salivary glands of (a) Pupa	1
Q.2	i.	Types of paint Their composition	1 mark 1 mark 2
	ii.	Paint description Forensic significance	1.5 mark 1.5 marks 3
	iii.	Chemical analysis Instrumental analysis	2.5 marks 2.5 marks 5
	OR iv.	Paint and paint pigments Microscopic analysis	2 marks 3 marks 5
Q.3	i.	Refractive index Method	1 mark 1 mark 2
	ii.	Definition of glass and types Composition	5 marks 3 marks 8

OR	iii.	Glass fracture and its type Forensic examination	5 marks 3 marks 8
Q.4	i.	soil and its contaminants Sample preparation	1.5 marks 1.5 marks 3
	ii.	Process of density gradient method Theory and use	4 marks 3 marks 7
OR	iii.	Description of soil and use as evidence Significance	4 marks 3 marks 7
Q.5	i.	Portland Cement White cement	2 marks 2 marks 4
	ii.	Cement and adulteration Examination	3 marks 3 marks 6
OR	iii.	Mortar and concrete Analysis	4 marks 2 marks 6
Q.6		Attempt any two:	
	i.	Definition of fibre and their types Forensic aspects of fibre examination	2.5 marks 2.5 marks 5
	ii.	Natural fibres Man-made fibres	2.5 marks 2.5 marks 5
	iii.	Fibre and dye Components	3 marks 2 marks 5
