Total No. of Questions: 6 *Total No. of Printed Pages:3*

Enrollment No.....

Faculty of Science
End Sem Examination Dec-2023
FS3EL07 Forensic Serology

Programme: B.Sc. (Hons.) 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. Assume suitable data if necessary. Notations and symbols have their usual meaning.

Q.1 i. FTA paper is usually used for- **1**
(a) Preservation of blood DNA for further DNA typing
(b) To prevent the blood from coagulation
(c) For blood grouping
(d) All of these

ii. FTA stands for- **1**
(a) Forensic Tracing Appliance
(b) Flinders Tracing Appliance
(c) Forensic Technological Analysis
(d) Flinders Technology Associates

iii. Hapten is- **1**
(a) A type of antigen
(b) Required a carrier molecule to act as an antibody
(c) Both (a) and (b)
(d) None of these

iv. Which of the following cell types of the innate immune system does not perform phagocytosis? **1**
(a) Macrophages
(b) Neutrophils
(c) Basophils
(d) Eosinophils

v.	A single recessive gene can express itself in humans. Two allelic genes are found on the same chromosome. (a) Any two chromosomes (b) Two non-homologous chromosomes (c) Two homologous chromosomes (d) Same chromosomes		**1**
vi.	HDN stands for- (a) Hemolytic disease of newborn (b) Hemolytic disease of neonatal (c) Both (a) and (b) (d) None of these		**1**
vii.	Centrifugation is useful in one of the following types of dispersions- (a) Coarse dispersions (b) Colloidal dispersions (c) Molecular dispersions (d) Multi – Size dispersions		**1**
viii.	When electrophoresis is not used? (a) Separation of Liquid (b) Separation of protein (c) Separation of solid (d) Separation of nucleic acid		**1**
ix.	Electrophoresis was developed by: (a) Tswett (b) Tsvedberg (c) Tiselius (d) Sanger		**1**
x.	ELISA (enzyme-linked immunosorbent assay) allows for rapid screening and quantification of the presence of _____ in a sample. (a) Amino acid (b) DNA (c) Antigen (d) Protein		**1**
Q.2	i.	What is forensic serology?	**2**
	ii.	Differentiate between forensic biology and forensic serology.	**3**
	iii.	State any five roles of forensic serologist.	**5**
OR	iv.	Explain the collection process of different serological samples.	**5**
Q.3	i.	Define the antigen-antibody interaction with a diagram.	**2**
	ii.	Illustrate a well labelled structure of an antibody with a brief description.	**8**
OR	iii.	Write a note on- (a) Radio immune assay (b) Western Blotting	**8**

Q.4	i.	Write forensic significances of enzyme polymorphism.	**3**
	ii.	Explain about the ABO blood grouping system.	**7**
OR	iii.	Define mixed agglutination and absorption inhibition.	**7**
Q.5	i.	Write about forensic application of centrifugation.	**4**
	ii.	Write a detailed note on PAGE.	**6**
OR	iii.	Write about various type of centrifuge machine.	**6**
Q.6		Attempt any two:	
	i.	Illustrate the ELISA technique in brief.	**5**
	ii.	Explain agglutination based assay.	**5**
	iii.	Brief about: (a) Precipitation based assays (b) Immunochromatographic assays	**5**

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