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Q.5	i.	Explain the significance of control and standard samples in evidence preservation	4	03	03	04	02
	ii.	Describe the steps for collecting and preserving blood samples at a crime scene.	6	03	03	04	03
OR	iii.	Compare the techniques for collecting biological vs. chemical evidence.	6	04	03	04	02
Q.6		Attempt any two:					
	i.	Design a reconstruction plan for a crime scene involving glass fracture patterns and bloodstains.	5	03	03	05	02
	ii.	Analyze the role of tire and skid mark patterns in vehicular crime scene reconstructions.	5	04	03	05	03
	iii.	Describe the principles for reconstruction.	5	03	03	05	02

Total No. of Questions: 6

Total No. of Printed Pages:4

Enrollment No.....



Faculty of Science
End Sem Examination Dec 2024
FS3EL03 Criminalistics

Programme: B.Sc. 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.

			Marks	BL	PO	CO	PSO
Q.1	i.	A criminalist arrives at a crime scene and observes signs of tampering. Which initial steps should they take to protect the crime scene-	1	03	03	01	02
		(a) Call for backup					
		(b) Document initial observations without altering the scene					
		(c) Seal the area and prevent unauthorized access					
		(d) All of these					
	ii.	Evaluate the following scenarios and select the most effective search method for a large, open field crime scene-	1	05	03	01	02
		(a) Line search					
		(b) Spiral search					
		(c) Grid search					
		(d) Zone search					
	iii.	In a situation where first responders find evidence spread across multiple rooms, what is the recommended sequence for documenting-	1	04	03	02	02
		(a) Take photographs before sketching the layout					
		(b) Sketch first, then record notes					
		(c) Videotape first and then takes photos					
		(d) Collect evidence immediately to prevent contamination					

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- iv. An investigator must document an outdoor scene during adverse weather. which documentation technique would be most reliable under these conditions-
 (a) Photography with water-resistant equipment
 (b) Sketching with detailed measurements
 (c) Videography from various angles
 (d) Immediate evidence collection
- v. Which one has the highest probative value in linking a suspect to a murder case?
 (a) Blood evidence with DNA match
 (b) Fingerprint with partial smudge
 (c) Fiber on the victim's clothing
 (d) Soil sample from suspect's shoe
- vi. Evaluate the potential outcomes of mishandling evidence at a crime scene. What is the likely legal impact?
 (a) Evidence may be excluded in court
 (b) Case may be dismissed
 (c) Investigator may face legal consequences
 (d) All of these
- vii. Evaluate the following steps. Which is most crucial to maintaining the integrity of the evidence during transport-
 (a) Controlled temperature during transport
 (b) Immediate documentation
 (c) Proper sealing and labelling
 (d) Minimizing handling
- viii. When collecting a blood sample at a crime scene, which preservation technique should be applied-
 (a) Store in airtight plastic
 (b) Use a paper container
 (c) Label and refrigerate immediately
 (d) Freeze sample after sealing

1 03 03 02 02

1 04 04 02 02

1 05 03 03 02

1 05 02 03 02

1 03 03 03 02

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- ix. Given several theories of reconstruction, which approach best validates the sequence of events in a staged crime scene-
 (a) Pattern evidence correlation
 (b) Witness statements alone
 (c) Physical evidence proximity
 (d) All available data integration
- x. To reconstruct a crime scene effectively, what should be considered when analysing glass fracture patterns-
 (a) Direction of impact
 (b) Type of glass used
 (c) Force exerted
 (d) All of the above
- Q.2 i. Define criminalist. **2** 02 03 01 02
 ii. Describe the importance of crime scene protection. **3** 03 03 01 02
 iii. Analyze the impact of legal considerations in crime scene investigation. **5** 03 03 01 02
- OR iv. Create a plan to ensure safety measures at a crime scene involving hazardous materials. **5** 06 03 01 02
- Q.3 i. Explain the importance of crime scene logs and recording notes. **2** 04 03 02 02
 ii. Apply the 5Ws and 1H (who, what, when, where, why, and how) to a hypothetical crime scene. **8** 03 02 02 02
- OR iii. Evaluate the effectiveness of coordination between police and forensic scientists during a crime scene investigation. **8** 05 03 02 02
- Q.4 i. List and describe types of evidence that might be found in an assault case. **3** 02 03 03 02
 ii. Analyze the evidence collection process for murder and poisoning cases. **7** 04 03 03 02
- OR iii. Discuss evidence handling protocol for a complex crime scene involving fire and arson. **7** 03 04 03 03

Marking Scheme**FS3EL03 (T) Criminalistics (T)**

Q.1	i)	(d) All of the above	1
	ii)	(a) Spiral Method	1
	iii)	(a) Take photographs before sketching the layout	1
	iv)	(a) Photography with water-resistant equipment	1
	v)	(a) Blood evidence with DNA match	1
	vi)	(d) All of the above	1
	vii)	(c) Proper sealing and labelling	1
	viii)	(c) Label & refrigerate immediately	1
	ix)	(d) All available data integration	1
	x)	(d) All of the above	1
Q.2	i.	Define criminalist- Clear and concise definition- 1 mark Mention of their role or area of expertise 1 mark	2
	ii.	Describe the importance of crime scene protection- Mentioning why crime scene protection is necessary (preservation of evidence)- 1 mark Explanation of potential consequences of failing to protect the crime scene (evidence contamination, legal challenges)- 1 mark Examples or specific measures for protection-1 mark	3
	iii.	The impact of legal considerations in crime scene investigation- Five Point with Description- 1 Marks each	5
OR	iv.	A plan to ensure safety measures at a crime scene involving hazardous materials- Five Point with Description- 1 Marks each	5
Q.3	i.	Importance of crime scene logs- 1 Marks Importance of recording notes- 1 Marks	2
	ii.	Apply the 5Ws and 1H (who, what, when, where, why, and how) to a hypothetical crime scene- Explanation of each of the 5Ws and 1H- 2 marks Application to a detailed hypothetical scenario (e.g., describing a crime scene)- 3 marks Clear and logical integration of all elements into the scenario-3 marks	8
	OR iii.	Evaluate the effectiveness of coordination between police and forensic scientists during a crime scene investigation-	8

Explanation of the roles of police and forensic scientists- 2 marks
Discussion on how their coordination impacts evidence collection and analysis- 2 marks
Case studies or examples demonstrating effective/ineffective collaboration- 2 marks
Conclusion on the overall impact of coordination- 2 marks

Q.4	i.	List and describe types of evidence that might be found in an assault case- Listing types of evidence (e.g., physical, biological, trace)- 1 mark Brief descriptions of each type- 2 mark	3
	ii.	Analyze the evidence collection process for murder and poisoning cases- Overview of general collection procedures- 2 marks Specific protocols for murder cases (e.g., handling blood evidence, securing the scene)- 3 marks Specific protocols for poisoning (e.g., collecting bodily fluids, identifying chemical substances)- 2 marks	7
OR	iii.	Discuss evidence handling protocol for a complex crime scene involving fire and arson- Explanation of fire and arson investigation principles-2 marks Detailed handling procedures for evidence (e.g., protecting partially burned items, chemical residue analysis)- 3 marks Special considerations for preserving fragile or perishable evidence-2 marks	7
Q.5	i.	Accurate definition of control and standard samples-1 mark Stating their primary purpose in evidence comparison and validation-1 mark Clear example or illustration of their use in forensic processes-1 mark Insight into the broader significance, like maintaining the chain of custody, supporting scientific rigor, and the impact on legal admissibility- 1 mark	4
	ii.	Describe the steps for collecting and preserving blood samples at a crime scene- Explanation of initial steps (e.g., documentation, safety measures)- 2 marks Proper collection methods (e.g., swabbing, scraping)- 2 marks Preservation and transport (e.g., refrigeration, use of specific containers)- 2 marks	6

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- OR iii. Compare the techniques for collecting biological vs. chemical evidence- **6**
Description of techniques for biological evidence (e.g., DNA swabs, blood collection)- 2 marks
Description of techniques for chemical evidence (e.g., residue collection, air sampling)- 2 marks
Comparative analysis highlighting differences and challenges-2 marks

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- Q.6 Attempt any two:
- i. Design a reconstruction plan for a crime scene involving glass fracture patterns and bloodstains- **5**
Identification of necessary reconstruction elements (e.g., trajectory, pattern analysis)- 2 marks
Step-by-step procedure of analysis-2 marks
Integration of findings to create a logical scene reconstruction-1 mark
- ii. Analyze the role of tire and skid mark patterns in vehicular crime scene reconstructions- **5**
Explanation of tire and skid mark analysis- 2 marks
Description of how they contribute to understanding vehicle movement and accident cause-2 mark
Example or case study illustrating effectiveness- 1 mark
- iii. Describe the principles of pattern evidence in reconstruction- **5**
Definition and overview of pattern evidence-2 mark
Explanation of different types of patterns (e.g., bloodstains, footprints)- 2 marks
Application of these principles in reconstructing events-1 mark
