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

Enrollment No.....

Faculty of Science

End Sem (Odd) Examination Dec-2022

FS3CO12 Forensic Ballistics

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.

Q.1 i. Who coined the term "forensic ballistics"? **1**

(a) Marin Marz (b) Hatcher

(c) Charles Daly (d) Calvin Goddard

ii. In matchlock firearms, ammunition gets its ignition flare from the use of- **1**

(a) Mechanical hitting

(b) A flammable chemical

(c) Slow-burning piece of cord

(d) Touch hole with self-ignitable priming charge

iii. Which is not an advantage of aluminium cased ammunition? **1**

(a) Cost-Effective

(b) Less robust than brass

(c) Less effective accuracy

(d) Only used in shotgun ammunition

iv. To add hardness to the lead bullets, which of the metal is alloyed? **1**

(a) Antimony (b) Tin

(c) Casting Iron (d) Both (a) and (b)

v. The cutting of barrel length in shotgun causes- **1**

(a) Decrease in dispersion

(b) Increase in dispersion of pellets

(c) No change in dispersion of pellets

(d) Distortion of pellets

P.T.O.

vi. Ricochet means- **1**
(a) Tampered bullet (b) Unfired bullet
(c) Deflection of the bullet (d) Blunting of the bullet

vii. A 'Dum-Dum' bullet causes greater devastation in body because- **1**
(a) It disintegrates on impact
(b) It mushrooms after impact
(c) Remain unaltered because it is jacketed
(d) All of these

viii. Presence of pellets in the body indicates that the firearms used was a- **1**
(a) Shotgun (b) Rifle (c) Pistol (d) Revolver

ix. For comparison of bullets following is examined- **1**
(a) Firing pin marks (b) Striation marks
(c) Extractor marks (d) Ejector marks

x. Fouling is useful in the determination of approximate- **1**
(a) Distance of fire (b) Time of fire
(c) Penetration of projectile (d) Velocity of projectile

Q.2 i. Write in brief about the wheel lock firearms. **2**
ii. Write a short note on basic parts of firearms. **3**
iii. Explain different working mechanism of firearms. **5**
OR iv. Write about the classification of firearms. **5**

Q.3 i. Write about gun powder and its types. **2**
ii. What are the different types of marks produced on cartridges during firing and their significance? **8**
OR iii. What the characteristics and features of different type of cartridges? **8**

Q.4 i. What do you understand by internal ballistics? **3**
ii. Discuss in brief about the various factors affecting the internal ballistics. **7**
OR iii. Write a short note on ballistic coefficient and limiting velocity. **7**

Q.5 i. Define terminal ballistics. **4**
ii. Write about factors affecting the ricocheting of bullet. **6**
OR iii. Write about firearm injuries and their forensic significance. **6**

Q.6 Attempt any two:
i. Describe the methods of analysis of gunshot residues from shooting hands and targets. **5**
ii. How will you determine the range and time of fire? **5**
iii. Write about matching of bullets and cartridge in regular firearms. **5**

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Marking Scheme
FS3CO12 Forensic Ballistics

Q.1	i.	Who coined the term "forensic ballistics"? (d) Calvin Goddard		**1**
	ii.	In matchlock firearms, ammunition gets its ignition flare from the use of- (c) Slow-burning piece of cord		**1**
	iii.	Which is not an advantage of aluminium cased ammunition? (c) Less effective accuracy		**1**
	iv.	To add hardness to the lead bullets, which of the metal is alloyed? (d) Both (a) and (b)		**1**
	v.	The cutting of barrel length in shotgun causes- (b) Increase in dispersion of pellets		**1**
	vi.	Ricochet means- (c) Deflection of the bullet		**1**
	vii.	A 'Dum-Dum' bullet causes greater devastation in body because- (b) It mushrooms after impact		**1**
	viii.	Presence of pellets in the body indicates that the firearms used was a- (a) Shotgun		**1**
	ix.	For comparison of bullets following is examined- (b) Striation marks		**1**
	x.	Fouling is useful in the determination of approximate- (b) Time of fire		**1**
Q.2	i.	Definition of wheel lock firearms.		**2**
	ii.	Any six basic parts of firearms. 0.5 mark for each	(0.5 mark * 6)	**3**
	iii.	Any five-working mechanism of firearms. 1 mark for each	(1 mark * 5)	**5**
OR	iv.	Classification of firearms. Example	2.5 marks 2.5 marks	**5**
Q.3	i.	Composition of gun powder and its types.		**2**
	ii.	Types of marks produced with its mechanism Significances of marks produced	6 marks 2 marks	**8**
OR	iii.	Types of characteristics of cartridges characteristics of cartridges Individual Class	5 marks 1.5 marks 1.5 marks	**8**
Q.4	i.	Definition of internal ballistics Example	2 marks 1 mark	**3**
	ii.	Definition of internal ballistics Any five factors affecting the internal ballistics	2 marks 5 marks	**7**
OR	iii.	Ballistic coefficient with example & equation Limiting velocity with example & factors affecting	3.5 marks 3.5 marks	**7**
Q.5	i.	Definition of terminal ballistics.		**4**
	ii.	Factors affecting the ricocheting of bullet.		**6**
OR	iii.	Firearm injuries and their forensic significance.		**6**
Q.6		Attempt any two:		
	i.	Methods of analysis of gunshot residues from shooting hands and targets.		**5**
	ii.	Determination of the range and time of fire?		**5**
	iii.	Matching of bullets and cartridge in regular firearms.		**5**

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