

Forensic Science Practice Questions (50 MCQs)

Syllabus Covered: Forensic Science, General Science, Laboratory Techniques & Instrumentation

Forensic Science (Q1–Q30)

1. The primary objective of forensic science is:
 - A) Medical treatment
 - B) Entertainment
 - C) Application of science to law
 - D) Industrial research
2. The first step at a crime scene is:
 - A) Collect evidence
 - B) Photograph evidence
 - C) Secure and isolate the scene
 - D) Interrogate witnesses
3. Locard's Exchange Principle states that:
 - A) Every criminal leaves a confession
 - B) Every contact leaves a trace
 - C) Evidence cannot be destroyed
 - D) DNA is unique
4. Which type of fingerprint pattern is most common?
 - A) Arch
 - B) Loop
 - C) Whorl
 - D) Composite
5. Fingerprints are primarily formed by:
 - A) Sweat glands and friction ridges
 - B) Hair follicles
 - C) Blood vessels
 - D) Nerve endings
6. The study of handwriting is known as:
 - A) Serology
 - B) Ballistics
 - C) Questioned Document Examination
 - D) Toxicology

7. Which instrument is commonly used to compare two bullets?

- A) Microscope
- B) Comparison microscope
- C) Telescope
- D) Spectrometer

8. Gunshot residue mainly contains:

- A) Sodium chloride
- B) Lead, barium, and antimony
- C) Iron oxide
- D) Calcium carbonate

9. Which biological sample is most suitable for DNA profiling?

- A) Hair without root
- B) Saliva
- C) Sweat only
- D) Tears

10. PCR stands for:

- A) Polymerase Chain Reaction
- B) Protein Chain Reaction
- C) Polymer Chemical Reaction
- D) Protein Chemical Replication

11. Blood group determination is mainly based on:

- A) DNA
- B) Antigens on RBCs
- C) Platelets
- D) Plasma proteins

12. Which blood group is called the universal donor?

- A) A+
- B) AB+
- C) O-
- D) B-

13. Toxicology is the study of:

- A) Microorganisms
- B) Poisons and their effects
- C) Blood cells
- D) Bones

14. Cyanide poisoning mainly affects:

- A) Liver
- B) Cellular respiration

- C) Kidney
- D) Skin

15. Rigor mortis refers to:

- A) Cooling of the body
- B) Stiffening of muscles after death
- C) Decomposition
- D) Blood clotting

16. Livor mortis is:

- A) Body cooling
- B) Blood settling after death
- C) Muscle contraction
- D) Bone fracture

17. Which evidence is considered trace evidence?

- A) Firearm
- B) Hair fiber
- C) Knife
- D) Mobile phone

18. Chain of custody means:

- A) Transport of prisoners
- B) Documentation of evidence handling
- C) Crime scene photography
- D) Witness protection

19. DNA is primarily located in:

- A) Cytoplasm
- B) Nucleus
- C) Cell membrane
- D) Ribosomes

20. Which forensic branch deals with insects?

- A) Forensic botany
- B) Forensic entomology
- C) Forensic geology
- D) Forensic anthropology

21. The ABO blood group system was discovered by:

- A) Watson
- B) Karl Landsteiner
- C) Mendel
- D) Fleming

22. Which chemical is commonly used to develop latent fingerprints on paper?

- A) Ninhydrin
- B) Iodine
- C) Silver nitrate
- D) All of the above

23. Which evidence is considered class evidence?

- A) DNA profile
- B) Fingerprint
- C) Blood group
- D) Iris pattern

24. Ballistics deals with:

- A) Drugs
- B) Firearms and projectiles
- C) Fibers
- D) Explosives only

25. Which DNA region is commonly analyzed in forensic identification?

- A) STR
- B) rRNA
- C) mRNA
- D) tRNA

26. Crime scene reconstruction involves:

- A) Destroying evidence
- B) Recreating events using evidence
- C) Recording witness statements only
- D) Medical examination only

27. Which evidence is most reliable for personal identification?

- A) Footwear impression
- B) Fingerprint
- C) Blood group
- D) Hair color

28. Which reagent detects blood stains?

- A) Benedict's solution
- B) Kastle-Meyer reagent
- C) Fehling's solution
- D) Molisch reagent

29. Which body fluid contains the highest concentration of DNA?

- A) Saliva
- B) Semen

- C) Sweat
- D) Tears

30. Which document feature helps detect forgery?

- A) Ink analysis
 - B) Paper examination
 - C) Handwriting comparison
 - D) All of these
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General Science (Q31–Q40)

31. SI unit of force is:

- A) Joule
- B) Newton
- C) Watt
- D) Pascal

32. The pH of pure water is:

- A) 5
- B) 6
- C) 7
- D) 8

33. Which vitamin is produced in sunlight?

- A) Vitamin A
- B) Vitamin C
- C) Vitamin D
- D) Vitamin K

34. The powerhouse of the cell is:

- A) Nucleus
- B) Ribosome
- C) Mitochondria
- D) Golgi body

35. The speed of light in vacuum is approximately:

- A) 3×10^8 m/s
- B) 3×10^6 m/s
- C) 3×10^5 km/s
- D) 3×10^7 m/s

36. Which gas is essential for photosynthesis?

- A) Oxygen

- B) Nitrogen
- C) Carbon dioxide
- D) Hydrogen

37. Which law explains the relationship between voltage, current, and resistance?

- A) Newton's law
- B) Ohm's law
- C) Faraday's law
- D) Boyle's law

38. The atomic number represents:

- A) Number of neutrons
- B) Number of protons
- C) Atomic mass
- D) Valency

39. The derivative of x^2 is:

- A) x
- B) $2x$
- C) x^2
- D) 2

40. The SI unit of energy is:

- A) Watt
- B) Joule
- C) Newton
- D) Volt

Laboratory Techniques & Instrumentation (Q41–Q50)

41. Chromatography is mainly used for:

- A) Heating samples
- B) Separation of mixtures
- C) Measuring pressure
- D) Measuring pH

42. In paper chromatography, separation is based on:

- A) Boiling point
- B) Partition between stationary and mobile phases
- C) Density
- D) Magnetic properties

43. UV spectroscopy is primarily used to study:

- A) Molecular absorption of ultraviolet light
- B) Sound waves
- C) Heat energy
- D) Radioactivity

44. IR spectroscopy identifies:

- A) Functional groups
- B) Atomic mass
- C) Blood groups
- D) DNA sequence

45. Electrophoresis separates molecules based on:

- A) Color
- B) Charge and size
- C) Density only
- D) Temperature

46. Agarose gel electrophoresis is commonly used for:

- A) DNA separation
- B) Metal purification
- C) Water analysis
- D) Fingerprint development

47. Which detector is commonly used in gas chromatography?

- A) Flame Ionization Detector (FID)
- B) Microscope
- C) Thermometer
- D) pH meter

48. Which laboratory instrument measures mass accurately?

- A) Burette
- B) Analytical balance
- C) Pipette
- D) Beaker

49. A spectrophotometer measures:

- A) Pressure
- B) Light absorbance
- C) Humidity
- D) Temperature

50. Calibration of laboratory instruments is essential to ensure:

- A) Decoration
- B) Accuracy and reliability

- C) Faster operation only
- D) Lower electricity consumption

Answer Key:

1-C, 2-C, 3-B, 4-B, 5-A, 6-C, 7-B, 8-B, 9-B, 10-A,
11-B, 12-C, 13-B, 14-B, 15-B, 16-B, 17-B, 18-B, 19-B, 20-B,
21-B, 22-D, 23-C, 24-B, 25-A, 26-B, 27-B, 28-B, 29-B, 30-D,
31-B, 32-C, 33-C, 34-C, 35-A, 36-C, 37-B, 38-B, 39-B, 40-B,
41-B, 42-B, 43-A, 44-A, 45-B, 46-A, 47-A, 48-B, 49-B, 50-B.

Forensic Science Practice MCQs (Q51–Q100)

Forensic Science

51. Which branch of forensic science deals with skeletal remains?

- A) Forensic Botany
- B) Forensic Anthropology
- C) Forensic Toxicology
- D) Forensic Biology

52. Which fingerprint pattern is the least common?

- A) Loop
- B) Arch
- C) Whorl
- D) Composite

53. Which biological sample generally provides the highest quality DNA?

- A) Bone marrow
- B) Buccal swab
- C) Saliva
- D) Hair shaft

54. The main purpose of crime scene photography is:

- A) Decoration
- B) Permanent documentation
- C) Advertisement
- D) Entertainment

55. Which of the following is individual evidence?

- A) Shoe size
- B) DNA profile
- C) Blood group
- D) Fiber type

56. Fingerprints remain unchanged throughout:

- A) Childhood only
- B) Adulthood only
- C) Entire lifetime
- D) Old age only

57. Which powder is commonly used to develop latent fingerprints on dark surfaces?

- A) White powder
- B) Black powder
- C) Red oxide
- D) Lime powder

58. Which instrument is used to examine bullets and cartridge cases?

- A) Compound microscope
- B) Comparison microscope
- C) Telescope
- D) Binocular

59. The rifling marks inside a firearm barrel help identify:

- A) Shooter's age
- B) Specific firearm
- C) Bullet weight
- D) Gunpowder type

60. Which poison mainly affects the nervous system?

- A) Arsenic
- B) Mercury
- C) Cyanide
- D) Carbon monoxide

61. Which body fluid is commonly examined in sexual assault cases?

- A) Sweat
- B) Semen
- C) Tears
- D) Saliva only

62. Which chemical is used to preserve biological specimens?

- A) Acetone
- B) Formalin
- C) Benzene
- D) Ether

63. The study of insects for estimating time of death is called:

- A) Palynology
- B) Entomology

- C) Botany
- D) Osteology

64. Which document feature can reveal erased writing?

- A) UV light
- B) Candle light
- C) Torch
- D) Microscope only

65. Which DNA analysis technique is widely used in forensic laboratories?

- A) PCR
- B) ELISA
- C) Gram staining
- D) Western blot

66. Which biological material usually contains no nuclear DNA?

- A) Blood
- B) Bone
- C) Hair shaft
- D) Saliva

67. Blood spatter analysis helps determine:

- A) Weather conditions
- B) Direction of impact
- C) Victim's height only
- D) Fingerprint pattern

68. Which evidence requires airtight packaging?

- A) Wet blood-stained clothes
- B) Dry fingerprints
- C) Glass fragments
- D) Coins

69. Which evidence should be air-dried before packaging?

- A) Firearm
- B) Biological evidence
- C) Bullet
- D) Knife

70. Which type of evidence is transferred according to Locard's Principle?

- A) Trace evidence
 - B) Digital evidence
 - C) Documentary evidence
 - D) Oral evidence
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General Science

71. SI unit of electric current is:

- A) Volt
- B) Ampere
- C) Ohm
- D) Coulomb

72. Which particle has no electric charge?

- A) Proton
- B) Electron
- C) Neutron
- D) Positron

73. Which gas forms about 78% of Earth's atmosphere?

- A) Oxygen
- B) Carbon dioxide
- C) Nitrogen
- D) Argon

74. The human heart has:

- A) Two chambers
- B) Three chambers
- C) Four chambers
- D) Five chambers

75. Which blood vessel carries blood away from the heart?

- A) Vein
- B) Artery
- C) Capillary
- D) Venule

76. Unit of frequency is:

- A) Watt
- B) Hertz
- C) Joule
- D) Pascal

77. Which acid is present in vinegar?

- A) Hydrochloric acid
- B) Acetic acid
- C) Sulfuric acid
- D) Nitric acid

78. Which scientist proposed the atomic theory?

- A) Rutherford
- B) Dalton
- C) Bohr
- D) Thomson

79. Speed equals:

- A) Distance $\times$ Time
- B) Distance $\div$ Time
- C) Time $\div$ Distance
- D) Force $\times$ Distance

80. The SI unit of pressure is:

- A) Pascal
- B) Newton
- C) Joule
- D) Watt

81. Which vitamin helps blood clotting?

- A) Vitamin A
- B) Vitamin K
- C) Vitamin C
- D) Vitamin D

82. Which organ filters blood in the human body?

- A) Liver
- B) Kidney
- C) Heart
- D) Lungs

83. Which gas is produced during respiration?

- A) Oxygen
- B) Nitrogen
- C) Carbon dioxide
- D) Hydrogen

84. The smallest unit of life is:

- A) Tissue
- B) Organ
- C) Cell
- D) Molecule

85. Which metal is liquid at room temperature?

- A) Iron
- B) Mercury

- C) Copper
 - D) Zinc
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Laboratory Techniques & Instrumentation

86. Which chromatography uses a liquid mobile phase under high pressure?

- A) Paper chromatography
- B) TLC
- C) HPLC
- D) GC

87. Gas chromatography is mainly used for:

- A) Non-volatile compounds
- B) Volatile compounds
- C) Metals only
- D) Proteins

88. Which spectroscopy measures molecular vibrations?

- A) UV
- B) IR
- C) X-ray
- D) Gamma

89. Beer-Lambert law is associated with:

- A) UV-Visible spectroscopy
- B) Chromatography
- C) Electrophoresis
- D) Microscopy

90. Which instrument measures pH?

- A) pH meter
- B) Thermometer
- C) Balance
- D) Voltmeter

91. Electrophoresis separates molecules based on:

- A) Shape only
- B) Charge
- C) Weight only
- D) Color

92. DNA fragments move toward which electrode during electrophoresis?

- A) Positive electrode (Anode)

- B) Negative electrode (Cathode)
- C) Both
- D) Neither

93. Which detector is commonly used in UV spectroscopy?

- A) Photodiode
- B) Speaker
- C) Microphone
- D) Magnet

94. Which laboratory glassware measures volume most accurately?

- A) Beaker
- B) Measuring cylinder
- C) Volumetric flask
- D) Test tube

95. The stationary phase in TLC is usually:

- A) Water
- B) Silica gel
- C) Alcohol
- D) Air

96. Which analytical balance is commonly used in forensic laboratories?

- A) Spring balance
- B) Triple beam balance
- C) Electronic analytical balance
- D) Kitchen balance

97. Which laboratory instrument is used for sterilization?

- A) Incubator
- B) Autoclave
- C) Centrifuge
- D) Oven

98. A centrifuge separates substances based on:

- A) Density
- B) Color
- C) Temperature
- D) Smell

99. Which instrument is used to observe microorganisms?

- A) Microscope
- B) Spectrometer
- C) Telescope
- D) Calorimeter

100. Quality control in a laboratory primarily ensures:

- A) Attractive reports
- B) Accurate and reliable results
- C) Lower cost only
- D) Faster testing only

Answer Key (51–100)

51-B, 52-B, 53-B, 54-B, 55-B, 56-C, 57-B, 58-B, 59-B, 60-C,
61-B, 62-B, 63-B, 64-A, 65-A, 66-C, 67-B, 68-A, 69-B, 70-A,
71-B, 72-C, 73-C, 74-C, 75-B, 76-B, 77-B, 78-B, 79-B, 80-A,
81-B, 82-B, 83-C, 84-C, 85-B, 86-C, 87-B, 88-B, 89-A, 90-A,
91-B, 92-A, 93-A, 94-C, 95-B, 96-C, 97-B, 98-A, 99-A, 100-B.