

ANSWER KEYS

(Correct Answers are marked in bold letters)

SECTION-A

1. **In forensic DNA profiling, probability calculations are used to:**
 - a. **Determine allele frequency**
 - b. Determine Gene frequency
 - c. Determine DNA frequency
 - d. Determine STR frequency
2. **Which design feature is most commonly found on revolver cartridges to prevent them from slipping through the cylinder?**
 - a. Extractor groove
 - b. **Rimmed case head**
 - c. Tapered body
 - d. Rebated rim
3. **The null hypothesis in forensic hypothesis testing usually states:**
 - a. Evidence is conclusive
 - b. **No significant difference exists**
 - c. Suspect is guilty
 - d. Witness is reliable
4. **Bharatiya Nyaya Sanhita (BNS), 2023 replaces which earlier legislation?**
 - a. **Indian Penal Code, 1860**
 - b. Indian Evidence Act, 1872
 - c. Code of Criminal Procedure, 1973
 - d. Indian Contract Act, 1872
5. **Which area of the hand is considered the primary target for GSR collection because it is most likely to catch discharge gases?**
 - a. The palm and the base of the wrist
 - b. The fingertips and under the fingernails
 - c. **The web area between the thumb and index finger**
 - d. The knuckles and outer edge of the pinkie finger
6. **Under which section of Indian law provision have been made that the Court can form an opinion by an expert upon a point of science**
 - a. **Section 39 of BSA**
 - b. Section 47 of BSA
 - c. Section 329 of BNSS
 - d. Section 45 of BSA
7. **Within forensic anthropology, which limitation applies when determining cause versus manner of death?**
 - a. **Cannot definitively establish physiological cause of death; only skeletal trauma**
 - b. Can always determine homicide manner from sharp force trauma
 - c. Can uniquely establish physiological cause when decomposition prevents toxicology
 - d. Uses isotopic bone analysis to determine cause of death
8. **Faraday bags used for mobile devices block RF signals by:**
 - a. Altering wavelength of signals
 - b. Generating active jamming signals
 - c. **Creating conductive enclosure that cancels fields**
 - d. Absorbing RF waves into thermal energy

9. **When examining a crime scene for specific fibres or fluorescent powders, why is 365 nm (Longwave) typically preferred over 254 nm (Shortwave)?**
- Shortwave UV is too weak to cause fluorescence.
 - Longwave UV is safer for the eyes and skin during prolonged searches.**
 - Shortwave UV only works on dark-coloured surfaces.
 - Longwave UV penetrates deep into the substrate to find hidden blood.
10. **Which Indian institution collaborated with the ICRC to establish a humanitarian forensics initiative?**
- National Forensic Sciences University (NFSU)**
 - All India Institute of Medical Sciences (AIIMS)
 - Central Bureau of Investigation (CBI)
 - National Crime Records Bureau (NCRB)
11. **Which parameter in a gait pattern refers to the angle formed between the "line of progression" and the "long axis of the foot"?**
- Step Width
 - Foot Angle (or Toe-out/Toe-in angle)**
 - Stride Length
 - Cadence
12. **Which ISO number is for the competence and quality assurance of forensic science laboratories (testing and calibration)?**
- ISO/IEC 9001
 - ISO/IEC 14001
 - ISO/IEC 17025**
 - ISO/IEC 27001
13. **Which Indian state has the largest coastline?**
- Kerala
 - Gujarat**
 - Andhra Pradesh
 - Maharashtra
14. **Choose the word that best completes the analogy:
Ephemeral: Permanent: Transparent?**
- Opaque**
 - Clear
 - Translucent
 - Bright
15. **Which of the following sentences contains an error?**
- Neither of the boys is guilty.
 - Each of the players are ready.**
 - Everyone has submitted the form.
 - Much has been done already.
16. **A train 180 m long crosses a pole in 9 seconds. What is its speed?**
- 60 km/h
 - 72 km/h**
 - 80 km/h
 - 90 km/h
17. **The ratio of ages of A and B is 3:5. If A is 24 years old, what is B's age?**
- 36 years
 - 40 years**
 - 30 years
 - 28 years

18. **Find the missing term: 7, 14, 28, 56,?**
- 84
 - 112**
 - 126
 - 98
19. **Assertion: Photography of the scene of crime plays a very important role in crime scene investigation.**
Reason: What a human may not be able to see can be recorded by a camera.
- Both Assertion and Reason are false
 - Both Assertion and Reason are true**
 - Assertion is true but Reason is false
 - Assertion is false but Reason is true
20. **The jury system in India was formally abolished after which landmark case exposed its weaknesses in impartiality and susceptibility to public/media influence?**
- K.M. Nanavati v. State of Maharashtra**
 - Kesavananda Bharati v. State of Kerala
 - Indira Gandhi v. Raj Narain
 - State of Uttar Pradesh v. Rajesh Talwar
21. **In a certain code, "ROAD" is written as "URDG". How is "PATH" written?**
- SDWK**
 - QBUJ
 - RCUK
 - TCVL
22. **Which global pioneer is known as the "Father of Criminalistics"?**
- Hans Gross**
 - Edmond Locard
 - Alphonse Bertillon
 - Francis Galton
23. **The acronym ISO, widely referenced in forensic laboratories and quality assurance systems, stands for:**
- International Security Organization
 - International Standards Organization
 - International Organization for Standardization**
 - International Scientific Observatory
24. **Which of the following is not a class characteristic of evidence?**
- Shoe size
 - Fiber type
 - DNA profile**
 - Caliber of firearm
25. **The chain of custody ensures:**
- Evidence is admissible in court**
 - Evidence is stored permanently
 - Evidence is photographed
 - All of the above
26. **Which fingerprint development technique is most effective on non-porous surfaces?**
- Ninhydrin
 - Cyanoacrylate fuming**
 - Silver nitrate
 - Iodine fuming

Which microscope is most suitable for examining trace fibres?

27. a. **Compound microscope**
b. Electron microscope
c. Stereo microscope
d. Phase contrast microscope
28. **If the probability of finding a specific fibre at a crime scene is 0.02, what is the probability of not finding it?**
a. 1.00
b. 0.98
c. 0.20
d. 98.98
29. **The Chi-square test statistic is calculated as:**
a. $\Sigma(\text{Observed} - \text{Expected})^2 / \text{Expected}$
b. $\Sigma(\text{Observed} - \text{Expected}) / \text{Expected}$
c. $\Sigma(\text{Observed} \times \text{Expected})$
d. $\Sigma(\text{Observed} + \text{Expected})$
30. **Measurement of uncertainty is crucial in forensic science because:**
a. **It quantifies reliability of results**
b. It eliminates errors
c. It replaces expert testimony
d. None of the above
31. **In criminal trials, the “CSI Effect” is most accurately described as:**
a. The tendency of forensic experts to exaggerate scientific findings in court to secure convictions.
b. The influence of crime television shows on jurors’ expectations regarding the availability and conclusiveness of forensic evidence.
c. The psychological trauma experienced by investigators after repeated exposure to violent crime scenes.
d. The procedural bias created when investigators rely exclusively on circumstantial evidence instead of forensic science.
32. **Arrange the changes that appear in a cadaver in sequential order.**
a. Rigor, Marbling, Cooling, Mummification
b. Cooling, Rigor, Mummification, Marbling
c. Cooling, Rigor, Marbling, Mummification
d. Rigor, Cooling, Marbling, Mummification
33. **Preservation of surface dust print of footprint cannot be done by the following:**
a. Photography method
b. Tracing method
c. Electrostatic method
d. Casting method
34. **Arrange the following steps of criminal investigation in a proper sequence:**
I) Preservation of physical evidences
II) Photography and sketching
III) Protection of scene of crime
IV) Information related to crime
a. I, III, IV, II
b. III, IV, II, I
c. IV, III, II, I
d. II, I, IV, III
35. **The Frye v. United States (1923) case introduced the “general acceptance” test. Which scientific method was being proposed?**

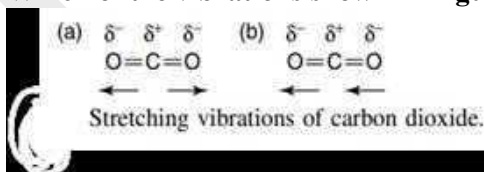
- a. Truth serum interview with scopolamine
 - b. Acoustic spectrographic voice analysis
 - c. Probability matrix for ridge identification
 - d. Systolic blood pressure deception test**
36. **Which forensic scientist pioneered fingerprint classification in India?**
- a. B.N. Mullick
 - b. Hem Chandra Bose**
 - c. Lalji Singh
 - d. P.C. Mahalanobis
37. **Which principle in forensic science asserts that while individuals may lie, the evidence and facts themselves remain truthful?**
- a. Locard's Exchange Principle
 - b. Law of Individuality
 - c. Principle of Analysis
 - d. None of the above**
38. **Which landmark Indian case established admissibility of expert scientific evidence?**
- a. State of Maharashtra v. Damu**
 - b. Kesavananda Bharati v. State of Kerala
 - c. Maneka Gandhi v. Union of India
 - d. None of the above
39. **Which case is recognized as the first in the world to be solved using DNA fingerprinting evidence?**
- a. O.J. Simpson case (1995, USA)
 - b. Colin Pitchfork case (1987, UK)**
 - c. Green River Killer case (2001, USA)
 - d. Josef Mengele identification (1985, Brazil)
40. **Which of the following is a non-destructive forensic analysis technique?**
- a. Fourier Transform Infrared Spectroscopy (FTIR)**
 - b. Atomic Absorption Spectroscopy (AAS)
 - c. Gas Chromatography – Mass Spectrometry (GC_MS)
 - d. Inductively Coupled Plasma-Optical Emission Spectroscopy (ICP-OES)
41. **Which of the following is a quality assurance measure in forensic laboratories?**
- a. Peer review of reports**
 - b. Destroying old evidence
 - c. Ignoring inconclusive results
 - d. Skipping calibration
42. **Which forensic discipline historically struggles most with Popperian falsifiability due to reliance on subjective interpretation?**
- a. Forensic DNA Profiling
 - b. Forensic Toxicology
 - c. Bitemark Analysis**
 - d. None of the above
43. **Which of the following is considered pattern evidence?**
- a. Fingerprints**
 - b. Blood group
 - c. DNA
 - d. All of the above
44. **Which of the following is a class characteristic of firearms evidence?**
- a. Caliber**
 - b. Unique striation marks

- c. Firing pin impression
 - d. Breech face marks
45. **The National Forensic Sciences University (NFSU) was formally established in India in which year?**
- a. 2015
 - b. 2020**
 - c. 2010
 - d. 2000
46. **Digital evidence must be authenticated using:**
- a. Encryption keys
 - b. Passwords
 - c. Hash values**
 - d. Firewalls
47. **Precision in forensic measurement refers to:**
- a. Closeness to true value
 - b. Repeatability of results**
 - c. Accuracy of instruments
 - d. Standardization
48. **The headquarters of the International Court of Justice is located at:**
- a. Paris
 - b. The Hague**
 - c. Geneva
 - d. New York
49. **In forensic handwriting analysis, the most common stroke pattern represents:**
- a. Mean
 - b. Mode**
 - c. Median
 - d. Range
50. **In forensic ballistics, the average velocity of bullets is calculated using:**
- a. Mode
 - b. Mean**
 - c. Median
 - d. Range

SECTION-B

51. Which analytical technique is most commonly used as the initial method for the forensic examination of paint fragments because it helps in studying layer sequence, colour distribution, and morphology?
- Gas Chromatography
 - Optical Microscopy**
 - Neutron Activation Analysis
 - Atomic Absorption Spectroscopy
52. Which feature is considered the MOST individualistic characteristic during bite mark comparison?
- Arch width
 - Inter-canine distance
 - Shape of the tongue
 - Rotations, spacing, and chipping of teeth**
53. Which of the following is NOT a type of electromagnetic radiation used in spectroscopy?
- Infrared
 - Ultraviolet**
 - Gamma rays
 - Sound waves
54. Beer–Lambert law deviations at high analyte concentrations are MOST commonly attributed to:
- Increased monochromaticity of incident radiation
 - Reduction in molecular rotational energy levels
 - Insufficient transmitted light intensity and intermolecular interactions at high concentration**
 - Elimination of vibrational transitions in the solution phase
55. Which instrument is primarily used to measure oral and nasal airflow during speech with minimal interference to articulation?
- Spirometer
 - Electroglottograph
 - Magnetometer
 - Pneumotachograph (Rothenberg mask)**
56. CCTV systems, what does “real-time” video mean in the National Television System Committee (NTSC) and Phase Alternating Line (PAL) standards, respectively?
- 24 fps in NTSC and 50 fps in PAL
 - 25 fps in NTSC and 30 fps in PAL
 - 30 fps in NTSC and 25 fps in PAL**
 - 60 fps in NTSC and 50 fps in PAL
57. In forensic audio analysis, what is the minimum requirement for a *positive identification* of a speaker?
- 70% of comparable words must be similar aurally and spectrally, with at least 10-word segments.
 - 80% of comparable words must be similar aurally and spectrally, with at least 15-word segments.
 - 90% of comparable words must be very similar aurally and spectrally, with more than 20-word segments, and each word must have at least 3 usable formants.**
 - 100% of comparable words must be identical aurally and spectrally, with unlimited word segments.
58. Why are CNT-based sensors are considered superior for trace explosive detection?
- Provide isotopic ratio analysis
 - Quantum confinement & ballistic transport → higher SNR**
 - It gives fluorescence under UV light

- d. None of them
59. Which of the following tests is most appropriate for checking the equality of variances between two datasets?
- t-test
 - Chi-Square test
 - F-test**
 - Z-test
60. Why does nanoscale particle size (<100 nm) provide a decisive advantage in forensic applications such as fingerprint visualisation and explosive residue detection?
- Smaller size reduces chemical reactivity, ensuring stability
 - Nanoscale dimensions increase the surface-area-to-volume ratio, enhancing adsorption and sensitivity to trace evidence**
 - Larger particles (>1 μm) provide clearer ridge detail in fingerprints
 - Particle size has no significant role in forensic detection
61. Which compounds in Portland cement are primarily responsible for early strength development?
- Dicalcium silicate (C2S)
 - Tricalcium silicate (C3S)**
 - Tricalcium aluminate (C3A)
 - Tetracalcium aluminoferrite (C4AF)
62. The Greenhill formula for calculating rifling twist rate is primarily based on which parameter?
- Bullet weight
 - Bullet length**
 - Bullet velocity
 - Specific gravity of powder
63. Which aerodynamic phenomenon generates a side force on a spinning projectile due to velocity differences across its surface, especially in crosswind or yawed flight?
- Pitch damping
 - Wave drags
 - Overturning moment
 - Magnus effect**
64. Which phenomenon indicates close or contact range firearm injury due to absorption of carbon monoxide in tissues?
- Tattooing
 - Blackening
 - Pink colouration**
 - Dirt ring
65. Which instrumental technique is considered the gold standard for GSR detection due to its ability to provide both qualitative and quantitative analysis while preserving the sample?
- Atomic Absorption Spectroscopy (AAS)
 - Neutron Activation Analysis (NAA)
 - Scanning Electron Microscopy with Energy Dispersive X-ray Analysis (SEM-EDX)**
 - Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
66. Which of the vibrations shown in Figure is 'infrared-active'?



- both is infrared active
- neither is infrared active

- c. a is infrared active
d. **b is infrared active**
67. **In an Inductively Coupled Plasma (ICP), the phenomenon of "over-ionization" (where ion line intensities are significantly higher than predicted by a 6000 K thermal equilibrium model) is most likely attributed to:**
- a. The use of high-frequency generators above 40 MHz which directly ionize the analyte.
b. **Energy transfer from argon metastable levels, $E \approx 11.9$ eV, via the Penning effect or charge transfer from argon ions.**
c. The suppression of electron number density in the toroidal zones of the plasma.
d. Radiative recombination of free electrons with ground-state analyte atoms.
68. **The diffraction peak of a forensic sample in XRD experiment shows a Full Width at Half Maximum (FWHM) of 0.01 radians at a 2θ position to be at very low angle. If the X-ray wavelength is 1 Å, calculate the average crystallite size L in Å. (Use Scherrer Constant $K = 0.9$)**
- a. **90**
b. 80
c. 70
d. 85
69. **Radial fractures in glass:**
- a. Form circular patterns
b. Indicate glass thickness
c. Are always parallel
d. **Radiate outward from point of impact**
70. **The most important physical property of paint in forensic comparison is:**
- a. **Color layer sequence**
b. Density
c. Weight
d. Temperature
71. **Which of the following statements are correct with respect to Harrison Gilroy Test for detection of GSR**
1. **Presence of Sn is Indicated by the appearance of orange ring.**
2. **Presence of Ba is indicated by the appearance of orange ring.**
3. **Presence of Pb is Indicated by the appearance of blue color.**
- a. 1 and 2 only
b. 1, 2, and 3
c. **1 and 3 only**
d. None of the above statements
72. **The purpose of maintaining a chain of custody is to:**
- a. Increase the quantity of evidence
b. **Ensure evidence integrity and accountability**
c. Speed up laboratory analysis
d. Identify suspects quickly
73. **The Sectional Density (SD) of a projectile is given by what formula (W- Weight, d- cross sectional diameter):**
- a. $SD = W/d$
b. **$SD = W/d^2$**
c. $SD = W/d^3$
d. $SD = W/2d$
74. **"ARSENAL" is a ballistic identification system given by which of following countries**
- a. Australia
b. China
c. **Russia**

- d. Turkey
75. **What is the formula of Ballistic coefficient (where C = ballistic coefficient; w = weight of bullet; i = form factor; d = diameter of the bullet).**
- C = $w/i2d$
 - C = w^2/id
 - C = w/id^2**
 - C = w/id
76. **Which condition in case of firing may lead to Ricochet of the bullet**
- Striking Angle > Critical Angle
 - Striking Angle < Critical Angle**
 - Striking Angle = Critical Angle
 - None of the above
77. **Why should forensic photographs be captured in both RAW and JPG formats?**
- RAW ensures unprocessed data, and JPG provides processed files**
 - RAW files are smaller, JPG files are larger
 - RAW allows artistic editing, JPG prevents manipulation
 - RAW is for video, JPG is for still images
78. **Which of the following is known as the modern alternative of black Powder?**
- Nitrocellulose
 - Pyrodex**
 - Lesmok
 - None of the above
79. **Pharynx is an important structure in determining -----of speech**
- Nasality
 - Resonance**
 - Frequency
 - Intensity
80. **The correct sequence speaker identification in spectrographic approach is:**
- Recording of specimen**
 - Segregation of voice**
 - Extraction of clue words**
 - Spectrographic analysis**
 - Opinion/Report writing**
- A, B, C, D, E**
 - A, D, E, B, C
 - C, A, B, D, E
 - C, B, A, E, D
81. **Which of the following is example of morpheme**
- The letter ç
 - The word cat
 - The prefix un**
 - The sound m
82. **If the suspect attempts to damage the CCTV hard drive, what forensic technique is used to recover video?**
- Key logging
 - File carving/data recovery**
 - Network sniffing
 - Hash analysis
- Which cable is standard for IP cameras?**

83. a. Coaxial
b. HDMI
c. Fiber
d. Ethernet (cat 5/6)
84. **Which law of physics is most used to analyze collision impacts?**
a. Bernoulli's principle
b. Ohm's law
c. Newtons third law of thermodynamics
d. Law of conversation of momentum
85. **Non hydraulic cement hardens because of carbonation of lime with**
a. Atmospheric oxygen
b. Atmospheric nitrogen
c. Atmospheric carbon dioxide
d. Carbon monoxide
86. **When restoring an obliterated serial number on a cast-iron engine block, which chemical reagent is most effective for etching to reveal the cold-worked metal beneath?**
a. Fry's Reagent
b. Sodium Hydroxide
c. Hume-Rothery Reagent
d. Villela's Reagent
87. **What is the term for the characteristic 'rib marks' or stress lines seen on the edges of broken glass which indicate crack propagation direction?**
a. Chatter Mark
b. Wallner Lines
c. Forking Lines
d. Becke Line
88. **EDR (Event Data Recorder) data combined with tyre skid mark analysis is used mainly to determine:**
a. The tyre brand and manufacturing date
b. Pre-impact vehicle speed and braking behaviour
c. The weight of the vehicle at time of impact
d. The angle of tyre sidewall wear
89. **When a forensic physicist uses a Bayesian Network to analyse a crime scene, what do the 'nodes' in the graph typically represent?**
a. Variables or propositions considered with reference to the crime scene
b. The physical tools used to collect evidence at the scene.
c. The distance between the suspect and the victim.
d. The sequence of events from the start of the crime to the end.
90. **A forensic analyst wants to study the relationship between bullet velocity and penetration depth. Which statistical tool is most appropriate?**
a. t-test
b. Chi-square test
c. Pearson's correlation
d. ANOVA
91. **Which of the following would decrease the discriminating power of a forensic examination?**
a. Improving the sensitivity of the analytical equipment.
b. Increasing the number of independent variables measured.
c. Using a combination of physical and chemical properties.
d. Using a test where most samples in the population are dependent

92. **In the context of forensic evidence, how is the Likelihood Ratio (LR) mathematically defined using Bayes' Theorem?**
- The ratio of the prior odds to the posterior odds of a specific hypothesis being true.
 - The absolute probability that the defendant committed the crime based on physical evidence.
 - The sum of the probabilities for the prosecution and defense hypotheses.
 - The ratio of the probability of the observing the evidence given the prosecution hypothesis to the probability of observing the evidence given the defense hypothesis.**
93. **Which measure of central tendency is not affected by outliers?**
- Mean
 - Median**
 - Variance
 - Standard deviation
94. **In the context of crime scene processing, which search technique is considered most appropriate for locating trace evidence such as fibres, hair, and glass fragments in an indoor homicide scene with limited space and multiple investigators?**
- Spiral search
 - Zone/Quadrant search**
 - Strip/Line search
 - Wheel/Ray search
95. **Which classification system is used by forensic odontologists to categorize the various patterns of grooves found on the human labial mucosa (lip prints)?**
- Iannarelli System
 - Galton Points System
 - Santos Classification System
 - Suzuki & Tsuchihashi System**
96. **Semi-Smokeless Powder is a mixture of black powder and nitrocellulose. What percentage of Nitrocellulose makes semi smokeless powder**
- 30%
 - 25%
 - 20%**
 - 10%
97. **What is the primary responsibility of the first officer arriving at a crime scene?**
- Collect all physical evidence immediately
 - Interrogate witnesses at the scene
 - Secure and isolate the crime scene**
 - Photograph the evidence
98. **How much Constriction is done in Quarter Choke in Shotguns**
- 0.25cm
 - 0.25mm**
 - 10/4mm
 - 1/2 mm
99. **What is the composition of Tear gas Cartridge case**
- chloroacetophenone (CN) or o-chlorobenzalmalonitrile (CS)**
 - Di chloroacetophenone (CN) or o-dichlorobenzalmalonitrile (CS)
 - trichloroacetophenyl (CN) or o-trichlorobenzalmalonitrile (CS)
 - None of the above
100. **Pairs of consonant sounds that differ only with regard to their voicing classification known as**
- Cognates
 - Syllable
 - Continuants**

- d. Resonance
101. **Which of the following parameters are required to determine the probable speed of a vehicle:**
- Length of skid mark
 - Friction coefficient
 - Vehicle's moving direction
 - Both A and B**
102. **Which among the following is not an alloy?**
- Hydronalium
 - Italma
 - Alnico
 - Americium**
103. **Ballistics co-efficient is the ability of a projectile to overcome air resistance. Which of the following is correct explanation?**
- Ratio of Projectile mass to its Cross-Sectional Area**
 - Ratio of Cross-Sectional Area to Projectile mass
 - Ratio of Density to Length of Projectile
 - Ratio of length of projectile to its mass.
104. **The terminology 'simple cubic', 'body centric cubic' and 'face centric cubic' are related to :**
- Crystal lattices in materials**
 - Gunshot pattern on human body.
 - Placement of security features in currency notes
 - Assessment of vehicular accidents.
105. **Which one of the following is 'Incorrect' about Scanning Electron Microscopy (XRD)?**
- Beam of electrons focuses and scans specimen surfaces.
 - Secondary electrons, backscattered electrons, and diffracted backscattered electron are produced.
 - It identifies the Elements as well gives live imaging and viewing of particle
 - It gives below the surface information of the sample using Infrared.**
106. **The Decipherment of Erased numbers from the steel surface, following method have been used:**
- Neutron Activation Analysis.
 - Chemical reagents (Vilella's solution)**
 - Stereo Zoom Microscope
 - HPLC
107. **Assertion (A): While dispatching the exhibit to the Forensic Science Laboratory the sample of the seal used on packed exhibits is also dispatched along – with exhibits.**
Reason (R): It helps in ascertaining the chain of custody in investigation.
- Both (A) and (R) are incorrect.
 - Both (A) and (R) are correct.**
 - (A) is correct, but (R) is incorrect.
 - (A) is incorrect, but (R) is correct.
108. **ISO/IEC is abbreviated of:**
- International Organization for Standardization / International Electro Technical Commission**
 - International Standardization Organization/ International Electro Chemical Commission
 - Indian Organization for Standardization / Indian Electro Technical Commission
 - Indian Standardization Organization/ Indian Electro Chemical Commission .
109. **The 'Hackle Marks' are helpful in the forensic examination of which one of the following:**
- Fracture on the glass.**

- b. Wound caused by gun shot
 c. Stabbing marks of sharp-edged weapon.
 d. Strangulation marks.
110. **Harrison Gilroy Test is related to which one of the following:**
 a. Alcohol % in blood
b. detection of firearm discharge residue
 c. pigment detection in paint samples
 d. to measure tyre impressions
111. **Which among the following type of radiation is not emitted by the electronic structure of Atoms?**
 a. Visible light
 b. X-rays
c. Gamma (γ) -rays
 d. Ultraviolet light
112. **What is the purpose of the 'Cannelure' in Bullets?**
a. To fix the bullet firmly in the cartridges case.
 b. To give direction to the bullets.
 c. To measure the bullets length
 d. To count the no. of land and grooves
113. **A set of planned and systematic actions that provide confidence that all processes affecting the quality of laboratory results and reports are functioning properly, both individually and collectively is:**
 a. Quality Control (QC)
 b. Quality management system (QMS)
 c. Compliance
d. Quality assurance (QA)
114. **A particle is projected at 60° to the Horizontal with a Kinetic energy K. The Kinetic Energy at the highest point is :**
 a. 0
 b. K
 c. K/2
d. K/4
115. **In a He-Ne Laser, the actual transitions take place in:**
 a. He
b. Ne
 c. Both He and Neon Equally
 d. None of the above.
116. **Automotive Layer Sequence In automotive paint forensics, the correct order of a typical OEM layer system from substrate outward is:**
 a. Primer \rightarrow electrocoat \rightarrow basecoat \rightarrow clearcoat
b. Electrocoat \rightarrow primer \rightarrow basecoat \rightarrow clearcoat
 c. Basecoat \rightarrow primer \rightarrow electrocoat \rightarrow clearcoat
 d. Clearcoat \rightarrow basecoat \rightarrow primer \rightarrow electrocoat
117. **In bloodstain pattern analysis, the angle of impact (θ) is calculated using the width (W) and length (L) of the stain. Which formula is correct?**
a. $\theta = \sin^{-1}\left(\frac{W}{L}\right)$
 b. $\theta = \cos^{-1}\left(\frac{W}{L}\right)$
 c. $\theta = \tan^{-1}\left(\frac{W}{L}\right)$

d. $\theta = \sin^{-1}\left(\frac{L}{W}\right)$

118. **What is the full form of LPCC?**

- a. Longer prediction centrum coefficient
- b. Linear predictive centrum coefficient
- c. Linear prediction cepstral coefficients**
- d. Longer pause corium coefficient

119. **Which analytical technique is considered the MOST rapid and reliable method for identifying the generic class of manufactured fibres in forensic examinations?**

- a. Thin-layer chromatography
- b. Infrared spectrophotometry**
- c. Gas chromatography
- d. Neutron activation analysis

120. **Which surveillance technology allows video monitoring and recording over LAN/WAN/Internet without dedicated point-to-point cabling?**

- a. Analogue VCR systems
- b. Standalone DVR systems
- c. PC-based DVR systems
- d. IP Network Cameras**