

## ANSWER KEYS

(Correct Answers are marked in Bold Letters)

### SECTION-A

1. **The classical confirmatory test for arsenic poisoning is known as:**
  - a. Marquis test
  - b. Mandelin's test
  - c. Marsh test**
  - d. Vitali's test
2. **Which of the following alkaloids belongs to the Isoquinoline group?**
  - a. Morphine
  - b. Cocaine
  - c. Papaverine**
  - d. Reserpine
3. **Which of the following compounds belongs to the class of polychlorinated hydrocarbons?**
  - a. Malathion
  - b. Parathion
  - c. Endrin**
  - d. Diazinon
4. **Which among the following poisons is volatile in nature?**
  - a. Cyanide**
  - b. Methyl parathion
  - c. Brucine
  - d. All of the above
5. **The Bharatiya Nyaya Sanhita primarily governs:**
  - a. Civil disputes
  - b. Administrative tribunals
  - c. Rules of evidence
  - d. Substantive criminal law**
6. **"Who propounded the term 'White-Collar Crime'?"**
  - a. Cesare Lombroso
  - b. Edwin Sutherland**
  - c. Emile Durkheim
  - d. Karl Marx
7. **For photographing tyre impressions at night, the best lighting technique is:**
  - a. Flash directly from above
  - b. Oblique lighting at low angle from multiple sides**
  - c. No light needed
  - d. UV light only
8. **Within the scope of forensic anthropology and pathology, establishing the 'cause' of death is distinct from determining the 'manner' of death. Which of the following represents an accurate limitation regarding the scope of forensic anthropology in this context?**
  - a. Forensic anthropology generally cannot definitively establish the physiological cause of death; it only characterizes the skeletal trauma associated with the fatal event.**
  - b. Forensic anthropology can definitively determine a homicide manner of death based solely on the presence of a peri-mortem sharp force trauma lesion.

- c. Forensic anthropology is uniquely qualified to establish the physiological cause of death when advanced decomposition prevents soft tissue toxicology.
- d. Forensic anthropology's primary scope is to utilize the Law of Progressive Change to determine the cause of death via isotopic bone analysis.
9. **Arrange the following cannabis preparations in ascending order of tetrahydrocannabinol (THC) concentration: Bhang, Ganja, Charas, Hashish oil.**
- Bhang → Ganja → Charas → Hashish oil**
  - Ganja → Bhang → Charas → Hashish oil
  - Hashish oil → Charas → Bhang → Ganja
  - Ganja → Hashish oil → Charas → Bhang
10. **Which factor is MOST important in determining the credibility of an expert witness in court?**
- duration of experience in relevant field
  - Number of appearances in court
  - Scientific qualifications, expertise, and methodology adopted**
  - type of evidences collected by the experts
11. **Choose the option nearest in meaning to the word 'Obfuscate':**
- Clarify
  - Illuminate
  - Confuse intentionally**
  - Simplify
12. **Free legal aid to ensure equal justice is provided under which Article of the Indian Constitution?**
- Article 21
  - Article 39A**
  - Article 32
  - Article 36
13. **Which of the following is considered transient evidence?**
- Fingerprints
  - Bloodstains
  - Oduor**
  - Footwear impressions
14. **In information technology and ergonomics, "HCI" refers to:**
- High Computer Internet
  - High Computer Interference
  - Hold Human Complex
  - Human Computer Interaction**
15. **Which of the following is NOT recognized as a fundamental principle of forensic science?**
- Principle of Exchange
  - Principle of Relativity**
  - Principle of Individuality
  - Principle of Probability
16. **Which element among the following possesses the highest electron affinity?**
- Nitrogen
  - Oxygen
  - Fluorine
  - Chlorine**
17. **The Implicit Association Test (IAT), developed by Greenwald et al. (1998), is primarily designed to assess:**
- Perception
  - Attention
  - Implicit prejudice and attitudes**

- d. Intelligence quotient
18. **Which chromatographic technique is most suitable for separation of non-volatile compounds?**
- GCMS
  - Gas chromatography
  - GCHS
  - HPLC**
19. **If sales increase from 200 units to 260 units, calculate the percentage increase.**
- 20%
  - 25%
  - 30%**
  - 35%
20. **In forensic odontology, the term “Chiloscopy” refers to:**
- Study of palatal rugae patterns for identification
  - Analysis of bite marks on human skin
  - Examination of lip print patterns for personal identification**
  - Microscopic study of dental pulp tissues
21. **Which constitutional body among the following is incorrectly categorized as constitutional?**
- Election Commission of India
  - Union Public Service Commission
  - Finance Commission
  - NITI Aayog**
22. **The cerebellum is primarily associated with:**
- Hormonal regulation
  - Body temperature control
  - Coordination of voluntary movements**
  - Long-term memory storage
23. **Choose the correct preposition:**  
**“He is addicted \_\_\_\_\_ gambling.”**
- with
  - for
  - to**
  - on
24. **The null hypothesis ( $H_0$ ) generally represents:**
- Maximum certainty
  - Presumption of guilt
  - Alternative explanation
  - No effect or no difference**
25. **A footwear impression discovered in soft soil should be photographed:**
- Close-up scaled photography
  - Long-range photography
  - Mid-range photography
  - All of the above**
26. **In a positively skewed forensic dataset, the most appropriate measure of central tendency is generally the:**
- Mean
  - Range
  - Median**
  - Variance
27. **Which statement regarding admissibility of forensic evidence is most accurate?**
- Forensic evidence is admissible only if collected under the Exchange Principle (Locard), regardless of chain of custody.

- b. **Reports of Senior Scientific Officers (SSO) in State Forensic Science Laboratories are automatically admissible under Section 293 CrPC and Section 329 BNSS.**
- c. Admissibility of forensic evidence is governed by the Best Evidence Rule and requires proper chain of custody and expert testimony.
- d. Digital evidence is admissible only if accompanied by oral testimony of the investigating officer, not under Section 65B of the Indian Evidence Act
28. **Which statement regarding expert opinion under the Bharatiya Sakshya Adhiniyam is correct?**
- a. Expert opinion is conclusive proof
- b. Expert testimony is inadmissible
- c. **Expert opinion assists the court in technical matters**
- d. Courts are legally bound by expert conclusions
29. **While Calvin Goddard is popularised as the 'father of modern ballistics,' the critical instrumentation, the comparison microscope adapted specifically for comparing bullets side-by-side, was primarily engineered by which of his colleagues at the Bureau of Forensic Ballistics?**
- a. Alexandre Lacassagne and Victor Balthazard
- b. **Charles Waite and Philip Gravelle**
- c. Albert S. Osborn and John Wigmore
- d. Paul Kirk and August Vollmer
30. **Dr. E.H. Hankin served as a renowned Chemical Examiner and Bacteriologist in the late 19th and early 20th century. In which Indian city was his laboratory located, famously known for its rigorous medico-legal analysis and foundational work on cholera bacteriophages?**
- a. **Agra**
- b. Madras
- c. Lahore
- d. Bombay
31. **Grammar:Language::Formula: ?**
- a. Equations
- b. Calculations
- c. **Mathematics**
- d. Numeral
32. **Which of the following best explains the role of the sympathetic nervous system?**
- a. Regulation of digestion during rest
- b. Control of voluntary skeletal movements only
- c. **Activation of the fight-or-flight response**
- d. Long-term memory storage
33. **Under the Bharatiya Sakshya Adhiniyam (BSA), 2023, what is the evidentiary status of a video recording that is simultaneously stored on a server and broadcast live?**
- a. The server recording is primary; the broadcast is secondary
- b. **Both are considered primary evidence**
- c. Only the server recording is admissible
- d. Both are secondary evidence requiring 65B certification
34. **Bandura's Social Learning Theory emphasizes the importance of which mechanism in the acquisition of behavior?**
- a. Genetic predisposition
- b. **Observational learning and modeling**
- c. Unconscious childhood conflicts
- d. Direct reinforcement only
35. **Which constitutional amendment reduced the voting age in India from 21 years to 18 years?**
- a. 42nd Amendment

- b. 44th Amendment
  - c. 61st Amendment**
  - d. 73rd Amendment
36. **The headquarters of the World Trade Organization (WTO) is situated in:**
- a. Brussels
  - b. Geneva**
  - c. Paris
  - d. New York
37. **Which of the following gases is NOT categorized as a greenhouse gas?**
- a. Methane
  - b. Nitrogen**
  - c. Carbon dioxide
  - d. Nitrous oxide
38. **If observed frequencies and expected frequencies are nearly identical, the Chi-square value will generally be:**
- a. Very high
  - b. Negative
  - c. Equal to one
  - d. Very low**
39. **Choose the antonym of the word "Ephemeral":**
- a. Fleeting
  - b. Temporary
  - c. Transient
  - d. Eternal**
40. **Which of the following correctly matches the typical magnifying powers of microscopes commonly used in forensic science?**
- a. Stereo microscope – up to 1000× magnification
  - b. Compound light microscope – up to 100× magnification
  - c. Comparison microscope – up to 400× magnification
  - d. Electron microscope – up to 1,000,000× magnification**
41. **Which casting material is most suitable for recovering fine tool marks from a steel surface at a crime scene?**
- a. Plaster of Paris
  - b. Dental stone
  - c. Mikrosil / Silicone-based casting compound**
  - d. Alginate
42. **In forensic analysis, systematic error produces:**
- a. Random fluctuations
  - b. Increased objectivity
  - c. Greater precision only
  - d. Consistent deviation from the true value**
43. **McNaughten's Rule is primarily associated with:**
- a. Determination of criminal insanity and understanding of the nature of the act**
  - b. Victim compensation mechanisms
  - c. Witness examination procedure
  - d. Police investigation methods
44. **Which search technique is generally considered most appropriate for a large outdoor crime scene with limited investigators?**
- a. Zone search
  - b. Spiral search
  - c. Strip/Line search**

- d. Wheel search
45. **The Scheimpflug principle used in forensic photography states that:**
- The lens must shift laterally to increase focal depth
  - Lens tilt should remain orthogonal to the subject
  - Hyperfocal distance determines tilt angle
  - Lens plane, image plane, and subject plane intersect along a common line**
46. **In forensic photogrammetry, which intrinsic camera parameter is essential for extracting accurate three-dimensional measurements?**
- Camera XYZ coordinates
  - Principal point and lens distortion coefficients**
  - Tripod pitch-roll-yaw angles
  - Focal plane distance to evidence marker
47. **The first practical application of fingerprinting in criminal identification in India is associated with:**
- Lord Curzon
  - Sir William Herschel**
  - Lord Dalhousie
  - Lord Cornwallis
48. **Adipocere formation is seen in:**
- Dead body exposed to air
  - Dead body buried in damp, clay soil**
  - Burial in dry hot air
  - All
49. **To accurately photograph bite marks using reflected short-wave ultraviolet radiation (254 nm), the camera lens must be manufactured from which specialized optical material?**
- Extra-low dispersion glass
  - Quartz or fluorite**
  - Polycarbonate-coated optics
  - Barium crown glass
50. **Which of the following is NOT recognized as a metabolite of diazepam?**
- Lorazepam**
  - Temazepam
  - Oxazepam
  - Desmethyldiazepam

## SECTION-B

51. The term 'Tattoo-Marks' is given to which category of defects?
- Halo in a stroke –written or printed
  - Identifying defects/imperfections in typewriting**
  - Spots or defects in the photocopy
  - Defects of electronic printers
52. Who invented the first LASER Printer belonging to the organization?
- Gary Starkweather, Xerox Lab**
  - Richard Phony, IBM
  - Brian Surry, Canon
  - Mandoch Russel, Hewlett-Packard
53. Match the following and select the correct option
- |                          |   |
|--------------------------|---|
| A. <b>Micro printing</b> | i) <b>Dandy Roll</b>                              |
| B. <b>Water mark</b>     | ii) <b>3-D laser-made image</b>                   |
| C. <b>Hologram</b>       | iii) <b>Difficult to read with the naked eyes</b> |
| D. <b>Dicuts</b>         | iv) <b>Passport</b>                               |
- A-i), B-ii), C-iii), D-iv)
  - A-iii), B-i), C-ii), D-iv)**
  - A-ii), B-i), C-iv), D-iii)
  - A-iv), B-iii), C-ii), D-i)
54. Match the following writing instruments with their respective period of introduction in the world market and select the correct option.
- | Writing Instrument | Year                |
|--------------------|---------------------|
| A. Ball point Pen  | i) Around 1964      |
| B. Fiber Tip Pen   | ii) Around 1945     |
| C. Gel Pen         | iii) Around 1968-70 |
| D. Roller ball Pen | iv) Around 1984     |
- A-i), B-ii), C-iii), D-iv)
  - A-ii), B-i), C-iv), D-iii)**
  - A-iii), B-iv), C-i), D-ii)
  - A-ii), B-iv), C-iii), D-i)
55. IPC Sections 120A and B, used to deal with Criminal Conspiracy its punishment in the past. Now in BNS 2023 as per new criminal laws, which section(s) define criminal Conspiracy and its punishment?
- 68A and 68B
  - 102A and 102 B
  - 61**
  - 71A and 71B
56. Which book did A S Osborn not author?

- a. Mind of the Juror
  - b. Questioned Document Problems
  - c. The problems of Proof
  - d. **Questioned Documents Trails**
57. **During forensic examination of an Indian recent blue passport, when the HAUUV-laminated sheet is exposed to UV light, what happens and what is visible?**
- a. Text in 16 lines is visible- wherein 2 lines are in red and the remaining 14 lines are in yellow, out of which 1 yellow line is sandwiched between 2 red lines.
  - b. **Text in 18 lines is visible- wherein 2 lines are in red and the remaining 16 lines are in yellow, out of which 3 yellow lines are sandwiched between 2 red lines.**
  - c. Text in 17 lines is visible- wherein 3 lines are in red and the remaining 14 lines are in yellow, out of which 2 yellow lines are sandwiched between 3 red lines.
  - d. Text in 16 lines is visible- wherein 3 lines are in red and the remaining 13 lines are in yellow, out of which 4 yellow lines are sandwiched between 3 red lines.
58. **Which one is not a digital platform for automated Handwriting examination?**
- a. **Writeomatic**
  - b. CEDAR-FOX
  - c. Write-ON
  - d. FISH
59. **Indian banking instruments (cheques) that comply with the Reserve Bank of India's CTS-2010 (Cheque Truncation System) standard have mandatory, standardized security features. If an examiner uses a VSC and observes that the paper substrate of the cheque fluoresces brightly under 365nm UV light, and the bank's central logo is invisible under the same wavelength, what is the most scientifically sound forensic conclusion?**
- a. The cheque is authentic, but the UV-fluorescent ink on the logo has degraded due to chemical washing.
  - b. **The document is likely a counterfeit, as CTS-2010 standards mandate a UV-dull paper substrate and a UV-fluorescent bank logo.**
  - c. The cheque is an authentic pre-2010 instrument, which mandated optical brightening agents in the paper.
  - d. The examiner is using the incorrect UV wavelength; CTS-2010 features only respond to short - wave UV (254nm).
60. **A Forensic Lab Accredited and certified as per NABL guidelines, following ISO/IEC17025:2017 standards. In which year ISO/IEC17025 standards updated and where is it's headquarter located?**
- a. Year 1995/ Hague
  - b. **Year 1999/ Geneva**
  - c. Year 1989/ Paris
  - d. Year 1993/ Munich
61. **Which Journal on Forensic Science is not published in the USA**
- a. Journal of Forensic Sciences
  - b. Journal of ASQDE
  - c. Journal of Forensic Identification
  - d. **Forensic Science International**
62. **The difference between MSI and HSI ( multi and hyperspectral imaging) is of**
- a. Spectral Range
  - b. Spectral Intensity
  - c. **Resolution**
  - d. Image Size
63. **"Simon Newcomb's Theory of Probability," as mentioned by A S Osborn, is-**
- a. **"The probability of concurrence of all the events is equal to the continued product of the probabilities of all the separate events."**

- b. "The probability of non-concurrence of all the events is equal to the continued product of the probabilities of all the separate events."
- c. "The concurrence of probability of events is equal to the continued sum of the probabilities of all the separate events."
- d. "The probability of coincidence of all the facts is equal to the cumulative effect of the probabilities of all the separate events."
64. A UV-fluorescent thread used to stitch passport visa pages has \_\_\_\_\_ type of stitching.
- Criss-Cross
  - Double cross
  - Coiled
  - Reverse
65. The author's name and corresponding book titles of Questioned Documents have been jumbled in the following columns. Kindly match the author with the correct book title and choose the correct options.
- | Author                 | Book title  |
|------------------------|---|
| A. JS Kelly & Lindblom | (i) Digital and Document Examination                            |
| B. David Ellen         | (ii) Evidential Documents                                       |
| C. Max M Houck         | (iii) The Scientific Examination of Questioned Documents        |
| D. VP Conway           | (iv) Scientific Examination of Documents-Methods and Techniques |
- A(ii), B(iv), C(i), D(iii)
  - A(iii), B(iv), C(i), D(ii)
  - A(i), B(iii), C(ii), D(iv)
  - A(iv), B(ii), C(iii), D(i)
66. In which Book the terms such as 'Style Characteristics', 'Master pattern' and 'Personal Characteristics' found?
- Evidential Documents
  - Scientific Examination of Questioned Documents
  - Suspect Documents
  - Contested Documents
67. Which Section of BSA 2023 allows 'Secondary Evidence' (Reproduction copies, etc.) in the court when an original document is not available for scrutiny to the court in a legal matter?
- 61 BSA
  - 51 BSA
  - 62 BSA
  - 58 BSA
68. Match the following:-
- |       |          |
|-------|----------|
| Crime | BNS      |
|       | Sections |

- A) **Counterfeiting of currency notes** (i) **180**
- B) **Possession of forged or counterfeit currency notes** (ii) **179**
- C) **Making or using documents resembling Currency notes** (iii) **178**
- D) **Using as genuine forged or counterfeit Currency notes** (iv) **182**
- a. A (i), B (ii), C (iv), D (iii)
- b. A (iii), B (i), C (iv), D (ii)**
- c. A (iv), B (iii), C (ii), D (i)
- d. A (ii), B (iii), C (i), D (iv)
69. **Which standard of ICAO governs MRTDs?**
- a. Doc 4444
- b. Doc 9303**
- c. Doc 9871
- d. Doc 10001
70. **Assertion (A): Determination sequence of stroke is conditional and not always possible.**  
**Reason (R): Similar ink composition and equal penetration may obscure layering.**  
**Choose the correct option:**
- a. **Both (A) and (R) are true, and (R) is the correct explanation of (A)**
- b. Both (A) and (R) are true, but (R) is NOT the correct explanation of (A)
- c. (A) is true, but (R) is false
- d. (A) is false, but (R) is true
71. **Assertion (A): Identification of the author of forged signatures may sometimes be possible in case of simulated forgeries.**  
**Reason (R): Because forgery is a conscious act, where the forger tries to hide writing habits unsuccessfully.**
- a. **Both (A) & (R) are correct**
- b. (A) is correct and (R) is wrong
- c. (A) is wrong and (R) is correct
- d. Both (A) & (R) are wrong
72. **The printer that uses electric charge to deform the crystal, mechanically pushing the ink out, is called**
- a. Bubble jet Printer
- b. Thermal Jet Printer
- c. LED Printer
- d. Piezoelectric Printer**
73. **Micro-printing font size in LSI Indian passports is-**
- a. Smaller than 0.15 mm/ 0.10 pica point
- b. Smaller than 0.25 mm/ 0.7 pica point**
- c. Smaller than 0.35 mm/ 0.8 pica point
- d. Smaller than 0.45 mm/ 0.12 pica point

74. Match the contents of 'List-I' with the respective contents given in 'List-II' and select the correct answer from the given options:

List-I	List-II
A. Alignment of writing	1. Reduced Legibility
B. Indicator of fast writing speed	2. Presence of Abbreviations
C. Effect of increase in writing speed	3. Actual or imaginary baseline
D. Indicator of genuineness of writing	4. Simplification of letter forms

- a. A (2), B(3), C (1), D(4)  
**b. A (3), B(1), C (4), D(2)**  
 c. A (4), B(3), C (2), D(1)  
 d. A (1), B(2), C (3), D(4)
75. "The Seven physiological principles of handwriting"-- have originated from-
- Scientific Examination of Documents- Ordway Hilton
  - Suspect Documents-Their Scientific Examination-- by Wilson R Harrison
  - Experiments With Handwriting- by Robert Saudek**
  - Forensic Document Examinations: Principles and Practice-- Katherine M. Koppenhaver
76. Which type of items 'Ludlow or Linotype manufacturing process' was used for making?
- Ball point
  - Metallic Seal
  - Typewriter
  - Rubber stamp**
77. Who said these words after having conviction: "Dot Handwriting is the worstest thing against me" in the famous kidnapping case?
- Col. Henry
  - Lindberg
  - Angelo D Marca
  - Hauptmann**
78. Most commonly used wavelengths of the UV used in Questioned Document Examination are-
- 280, 350 and 375nm
  - 254, 312 and 365nm**
  - 250, 310 and 350nm
  - 258, 314 and 376nm
79. IPC has been amended now, and sections on various legal issues (subject) have been changed in the new criminal laws i.e., BNS 2023. The following subjects and related sections have been jumbled. Kindly match the subject with the relevant correct sections and select the correct option.
- | Subject      | Section   |
|--------------|-----------|
| (A) Document | (i) 2(5)  |
| (B) Court    | (ii) 2(8) |
| (C) Forgery  | (iii) 318 |
| (D) Cheating | (iv) 336  |
- A (i), B (ii), C (iii) and D (iv)
  - A (i), B (iii), C (ii) and D (iii)
  - A (ii), B (i), C (iv), and D (iii)**

- d. A (iii), B (i), C (iv) and D (ii)
80. **Who is the Scientist in the USA, who worked/researched on the following topics of Handwriting and proved scientifically the following?**

- 1) Individuality of Handwriting  
 2) Determination of authorship from Homogenous groups  
 3) Discriminability of Handwriting of Twins

- a. Albert S Osborn  
 b. Daniel Ames  
 c. Paul Kirk  
 d. **S. Srihari**
81. **'FLASH-ID', stands for what in extended form?**
- a. A type of photo lens synced with Flash Light for document photography  
 b. Forensic Language Identification System for Handwriting  
 c. Forensic Light Illumination And Identification of Spurious Handwriting  
 d. **Forensic Language-Independent Analysis System for Handwriting Identification**
82. **What is 'Cyber-Sign' ?**
- a. A specialized biometric signature verification system  
 b. A private vendor for signature verification solutions  
 c. **Both (a) and (b) are correct**  
 d. (a) is correct, (b) is incorrect
83. **Match the following effect/mark/process with the relevant subject and answer the correct option**

<b>Effect/Mark/ Process</b>	<b>Forensic Context</b>
<b>A. Herschel effect process</b>	<b>(i) Anti-counterfeit</b>
<b>B. Moire effect Documents</b>	<b>(ii) Photocopied</b>
<b>C. Gerber Mark</b>	<b>(iii) B&amp;W Photography</b>
<b>D. Detailed &amp; tonal depth</b>	<b>(iv) Cylinder mould</b>

- a. A(ii), B(iii), C (i), D (iv)  
 b. **A(iii), B(i), C (ii), D (iv)**  
 c. A(i), B(ii), C (iv), D (iii)  
 d. A(iii), B(ii), C (i), D (iv)
84. **IEA has been amended, and sections of various legal issues (subject) have been changed in the new criminal laws i.e. BSA 2023. The following subjects and related relevant sections have been jumbled. Kindly match the subject with the relevant correct sections and select the correct option.**

<b>Subject</b>	<b>Sections</b>
<b>(A) Document defined</b>	<b>(i) 72</b>
<b>(B) Procurement of standards</b>	<b>(ii) 57</b>
<b>(C) Primary Evidence</b>	<b>(iii) 2(8)</b>
<b>(D) Expert defined</b>	<b>(iv) 39</b>

a. A (i), B (ii), C (iii) and D (iv)

- b. A (ii), B (i), C (iv) and D (iii)  
 c. **A (iii), B (i), C (ii) and D (iv)**  
 d. A (iv), B (ii), C (iv) and D (iii)
85. 'Squeegee effect', is typical phenomenon associated with –  
 a. Relief printing  
 b. Gravure Printing  
 c. **Screen printing**  
 d. Offset printing
86. Which Indian public sector Bank issued credit card first time in India?  
 a. Bank of Baroda  
 b. Indian Bank  
 c. State Bank of India  
 d. **Central Bank of India**
87. The basic difference between Analog and Digital photocopiers is in-  
 a. **Mechanism of transfer of the image on the drum**  
 b. Mechanism of exposure to the Document to be copied  
 c. Mechanism of deposition of toner  
 d. Type and Quality of toner
88. Assertion (A): More deviation from copybook style and less is frequency of occurrence of a character more is identifying value.  
 Reason (R): More deviation from copybook style will lead simplifications and loss of identifying features and less frequency of occurrence means less additive to individuality.  
 a. Both (A) and (R) are true  
 b. Both (A) and (R) are false  
 c. (A) is false, but (R) is true  
 d. **(A) is true, but (R) is false**
89. Match the terms/system (List-I) with the relevant author/term provider/ system discoverer (List-II) and select the correct answer from the given options:
- | List I                 | List II               |
|------------------------|-----------------------|
| A. Criminalistics      | (1) Gerard McMenamin  |
| B. Forensic Stylistics | (2) Chester Carlson   |
| C. White-collar Crimes | (3) Edward Sutherland |
| D. Photocopier         | (4) Gross Hans        |
- a. A(3), B(2), C(1), D(4)  
 b. A(4), B(2), C(3), D(1)  
 c. A(3), B(2), C(4), D(1)  
 d. **A(4), B(1), C(3), D(2)**
90. f-Stop, controls which one of the aspect of camera in photography?  
 a. Field of depth  
 b. Focus  
 c. **Light reaching the film**  
 d. Resolution
91. When evaluating a disguised handwriting sample, the phenomenon where the writer involuntarily reverts to their natural writing habits over a long passage of text is known as:  
 a. The Auto-kinetic effect  
 b. **The lapse of disguise**  
 c. The fundamental divergence

- d. The master pattern regression
92. **"Write-On" software, developed for forensic document examiners, is primarily utilized for:**
- Automatically identifying the author of a document using AI.
  - Extracting phenoxyethanol from digital documents.
  - Assisting the examiner in parsing, indexing, and visually comparing large volumes of questioned and known handwriting samples.**
  - Restoring deleted Microsoft Word files.
93. **The "Stoke's Shift" is the fundamental physical principle behind which forensic instrument used in non-destructive ink analysis?**
- ESDA
  - Video Spectral Comparator (VSC)
  - Raman Spectrometer**
  - Gas Chromatograph
94. **"Anti-Stokes Luminescence" is a rare optical property used in high-security inks. What does it do?**
- Absorbs UV and emits visible light.
  - Absorbs visible light and emits IR.
  - Absorbs long-wavelength IR light and emits shorter-wavelength visible light (up-conversion).**
  - It completely absorbs all light.
95. **Which of the following should be considered while obtaining writing samples?**
- Writer should not be under any drug influence**
  - Writer should be allowed to comfortably sit**
  - Writer should be told how to spell a word**
  - Writer should be shown the questioned text**
  - Writer should be given similar pen and paper as that of questioned document**
- Only 2, 3, 4, 5 are correct
  - Only 3, 4, 5 are correct
  - Only 1 & 2 are correct
  - Only 1, 2, 5 are correct**
96. **Assertion: Genuine banknotes always fluoresce uniformly under UV light.**  
**Reason: Fluorescence depends on embedded security materials.**
- Both Assertion and Reason are true, and Reason correctly explains Assertion
  - Both are true, but Reason does not correctly explain Assertion
  - Assertion is true, Reason is false
  - Assertion is false, Reason is true**
97. **Guilloche patterns are difficult to counterfeit primarily because:**
- They require radioactive inks
  - They consist of mathematically generated fine-line structures**
  - They dissolve in solvents
  - They use magnetic paper fibers
98. **Which instrumental method is most appropriate for determining the depth profile of a multi-layered toner application on a document?**
- Scanning Electron Microscopy (SEM)
  - X-ray Fluorescence (XRF)
  - Transmission Electron Microscopy (TEM)
  - Confocal Laser Scanning Microscopy (CLSM)**
99. **The Machine Readable Zone (MRZ) in passports is generally printed using:**
- OCR-B font**
  - Helvetica font
  - Magnetic ink coding
  - Dot matrix script

- 100 **Assertion: Infrared luminescence can differentiate visually similar inks. Reason: Different dye molecules possess distinct infrared emission properties.**
- Both Assertion and Reason are true, and Reason correctly explains Assertion
  - Both are true, but Reason does NOT correctly explain Assertion
  - Assertion is true, Reason is false
  - Assertion is false, Reason is true
- 101 **Which of the following technique is commonly used to decipher charred documents?**
- UV-Visible examination
  - IR Photography**
  - Electrostatic Detection
  - X-Ray Fluorescence
- 102 **Which factor most complicates determination of stroke sequence at line intersections?**
- Uniform paper thickness
  - Capillary diffusion and ink penetration**
  - Standardized handwriting systems
  - Ink color intensity
- 103 **A questioned signature is significantly more skilled than the known writer's ability. According to this situation \_\_\_\_\_**
- Requires at least 100 exemplars for certainty
  - Suggests the questioned signature may be non-genuine even with a single known example**
  - Is scientifically inconclusive
  - Indicates improvement in motor coordination
- 104 **When examining a document for 'obliterated' text using Infrared luminescence, the examiner expects the top layer of ink to:**
- Reflect IR radiation equally with the paper
  - Be transparent to IR while the underlying ink fluoresces**
  - Shift the wavelength of the underlying ink
  - Absorb all IR radiation
- 105 **Which of the following is not an obvious sign of forgery?**
- Patched writing & baseline defects
  - Hesitations as revealed by ink blobs
  - Tremors & poor line quality
  - Absence of erasures & alterations**
- 106 **Match the security feature with its primary function/application:**

**Column I**

(P) Holograms on plastic cards

(Q) EMV chip in banking cards

(R) Intaglio tactile features

(S) Laser engraving on polycarbonate cards

**Column II**

(i) Dynamic transaction authentication

(ii) Difficult to reproduce with ordinary printers

(iii) Tamper-resistant internal marking

(iv) Overt anti-counterfeiting security

- P-iv, Q-iii, R-ii, S-i

- b. P-iii, Q-ii, R-iv, S-i
- c. P-ii, Q-iv, R-i, S-iii
- d. **P-iv, Q-i, R-ii, S-iii**

## 107 Match MRTD Component with Function

**List I**

A. MRZ

B. RFID chip

C. BAC

D. Digital signature

**List II**

1. Contactless data storage

2. Optical machine reading

3. Chip access protection

4. Data authenticity

- a. P-3, Q-1, R-2, S-4
- b. P-1, Q-2, R-4, S-3
- c. **P-2, Q-1, R-3, S-4**
- d. P-2, Q-4, R-1, S-3

## 108 In forensic questioned document examination ATR-FTIR Spectroscopy is primarily used for:

- a. Recovering indented writing impressions from underlying sheets of paper
- b. Determining the chronological sequence of crossed ballpoint pen strokes
- c. **Identifying and comparing the chemical composition of inks, toners, and paper coatings in disputed documents**
- d. Enhancing erased writing through alternate light photography

## 109 Match the signature examination feature with its forensic significance:

**Column I****(P) Individual writing rhythm****(Q) Patching in signatures****(R) Overall pictorial similarity****(S) Slow forged signature**

- a. **P-iii, Q-i, R-ii, S-iv**
- b. P-ii, Q-iii, R-iv, S-i
- c. P-iv, Q-ii, R-i, S-iii
- d. P-i, Q-iv, R-iii, S-ii

**Column II****(i) Indicates attempts to improve simulation accuracy****(ii) Least reliable feature in signature comparison****(iii) Distinguishes genuine signatures from simulated forgery****(iv) Produces blunt starts and stops**

## 110 Match the forensic examination concept with the correct explanation:

**Column I****(P) Disguised writing****(Q) Fraud tremor****Column II****(i) Examiner should not rely on tremor alone to conclude forgery****(ii) Produced by slow drawing movement**

**(R) Genuine pathological tremor (iii) Persistent in natural writing patterns**

**(S) Tremor evaluation in forensic examination (iv) Intentional modification of one's own handwriting**

- a. P-iv, Q-ii, R-iii, S-i
- b. P-ii, Q-iii, R-i, S-iv
- c. P-iii, Q-i, R-iv, S-ii
- d. P-iv, Q-i, R-ii, S-iii

111 **Assertion (A): Cryptographic digital signatures provide security features. Reason (R): They verify identity, prevent tampering, and ensure sender cannot deny signing.**

- a. Both A and R are true, and R is the correct explanation of A
- b. Both A and R are true, but R is not the correct explanation of A
- c. A is true, but R is false
- d. A is false, but R is true

112 **Match the forensic effect with its correct physical/chemical basis:**

**Column I**

**Column II**

**(P) Mechanical erasure under microscopy**

**(i) Alters fluorescence behavior of paper**

**(Q) Chemical obliteration effect**

**(ii) Fiber lifting and roughened surface**

**(R) Infrared examination**

**(iii) Reveals hidden writing beneath overwriting**

**(S) UV response change due to chemicals**

**(iv) Paper discoloration and fluorescence shift**

- a. P-i, Q-ii, R-iv, S-iii
- b. P-ii, Q-iv, R-iii, S-i
- c. P-iv, Q-iii, R-i, S-ii
- d. P-ii, Q-iii, R-iv, S-i

113 **Match the forensic document examination technique with its correct principle/application:**

**Column I**

**Column II**

**(P) Thin Layer Chromatography (TLC) of inks**

**(i) Volatile solvent evaporation patterns**

**(Q) Ink aging estimation**

**(ii) Solubility and adsorption behavior**

**(R) Raman spectroscopy**

**(iii) UV fluorescence examination**

**(S) Optical brightening agents detection**

**(iv) Non-destructive molecular characterization**

- a. P-iv, Q-iii, R-ii, S-i
- b. P-i, Q-ii, R-iii, S-iv
- c. P-ii, Q-i, R-iv, S-iii
- d. P-ii, Q-iv, R-i, S-iii

114 **The greatest limitation in absolute ink dating is:**

- i. **Lack of chromatography methods**
  - ii. **Environmental variability affecting solvent evaporation and degradation**
  - iii. **Absence of paper fibers**
  - iv. **Absence of databank of paper ageing**
  - v. **Inability to identify dyes**
- a. Only 1,2,3 are correct
  - b. Only 2,3,4 are correct
  - c. Only 3,4,5 are correct
  - d. **Only 2,4 are correct**
- 115 **A key difference between a genuine watermark and a forged one is that a genuine watermark:**
- a. Is printed on the surface with white ink
  - b. **Is created by thinning the paper and has feathered edges when viewed microscopically**
  - c. Can be easily scraped off with a sharp blade
  - d. Is only visible under infrared light source
- 116 **A primary difference between rollerball pen ink and ballpoint pen ink is that rollerball ink is:**
- a. Oil-based and highly viscous
  - b. **Water-based or gel-based and less viscous**
  - c. Permanent and water-proof
  - d. Composed of solid graphite particles
- 117 **Match the following:**
- | List I                                | List II                              |
|---------------------------------------|--------------------------------------|
| (P) Gooping                           | (i) letter of the alphabet           |
| (Q) Filiform                          | (ii) letter formation                |
| (R) Hiatus                            | (iii) Cursive writing                |
| (S) Grapheme                          | (iv) break between letters in a word |
| (T) Inscriptive movement              | (v) ball-point pens                  |
| a. P-v, Q-ii, R-iv, S-iii, T-i        |                                      |
| b. P-v, Q-ii, R-iii, S-i, T-iv        |                                      |
| c. P-iv, Q-v, R-i, S-ii, T-iii        |                                      |
| d. <b>P-v, Q-iii, R-iv, S-i, T-ii</b> |                                      |
- 118 **Match the following:**
- | List I                           | List II                        |
|----------------------------------|--------------------------------|
| (P) Tyvek                        | (i) writings over an erasure   |
| (Q) Bradygraphica                | (ii) tear-resistant paper      |
| (R) Ataxic                       | (iii) lack of movement control |
| (S) Palimpsest                   | (iv) slow writing              |
| a. P-i, Q-ii, R-iii, S-iv        |                                |
| b. P-iv, Q-ii, R-i, S-iii        |                                |
| c. <b>P-ii, Q-iv, R-iii, S-i</b> |                                |
| d. P-iv, Q-iii, R-i, S-ii        |                                |
- 119 **Which of the following is most crucial for determining the sequence of strokes when two different pens are used to cross a signature?**
- a. Infrared luminescence

- b. Electrostatic Detection Apparatus (ESDA)
  - c. **Stereomicroscope examination**
  - d. Ultraviolet illumination
- 120 In typewriter identification, 'escapement' refers to:
- a. The vertical movement of the ribbon.
  - b. **The horizontal spacing along the line of typewriting.**
  - c. The pressure applied by the typebar.
  - d. The tilting of the type-ball.

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