

## Forensic Science 21 March 2025 Shift 1

|                                |                           |                             |
|--------------------------------|---------------------------|-----------------------------|
| <b>Time Allowed :1.5 Hours</b> | <b>Maximum Marks :300</b> | <b>Total questions : 75</b> |
|--------------------------------|---------------------------|-----------------------------|

### General Instructions

#### General Instructions:

1. Question Paper contains 75 Questions .
2. Each correct answer will have +4 marks and wrong answer will lead to -1

**1. What is the basic sequence of operation of the key /bar type writer?**

- A. The typist strikes the key on the keyboard
- B. The ribbon transfers the impression to the sheet of paper behind it and the platen absorbs the force of the strike
- C. As the key bar falls back into place, the carriage usually moves one unit to the next typing space and ribbon advances
- D. The type block strikes the ribbon
- E. Through mechanical linkage or electric triggering, a type bar is thrown up from the type basket towards the platen

- (1) A, E, D, B, C
  - (2) C, A, D, E, B
  - (3) A, B, C, D, E
  - (4) C, E, A, B, D
- 

**2. Which one of the following confirms the ante-mortem hanging?**

- (1) Dripping of Saliva
  - (2) Fracture of femur bone
  - (3) Post-mortem caloricity
  - (4) Presence of vomit
- 

**3. In death due to drowning, diatoms are found in which of these samples?**

- (1) Nails
  - (2) Hair
  - (3) Femur
  - (4) Fingerprints
- 

**4. Searching methods at the scene of a crime from the center of a circle to its radii is known as**

- (1) Spiral
- (2) Wheel

- (3) Grid
  - (4) Zone or Quad
- 

**5. Who among the following is not associated in the process for exhumation of a dead body?**

- (1) District Magistrate
  - (2) Sub Divisional Magistrate
  - (3) Advocate General
  - (4) Judicial Magistrate
- 

**6. The witness is first examined in the Hon'ble court by the side which has called him, the examination of such witness is known as**

- (1) Cross examination
  - (2) Re-examination
  - (3) Expert Opinion
  - (4) Examination-in-chief
- 

**7. A document compelling the attendance of a witness on a specific day and time in a court of law under penalty is?**

- (1) Oath
  - (2) Conduct money
  - (3) Subpoena
  - (4) Perjury
- 

**8. When a dead body is exposed to freezing temperatures, cold stiffening of the body occurs due to solidification of:**

- (1) Proteins present in the body
- (2) Carbohydrates present in the body
- (3) Fats present in the body
- (4) Minerals present in the body

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**9. Match the LIST-I (Evidence, etc.) with LIST-II (Example, Construction etc.)**

**LIST-I**

**LIST-II**

- |                          |                       |
|--------------------------|-----------------------|
| A. Biological evidence   | I. Cell phone records |
| B. Latent print evidence | II. Soil              |
| C. Trace evidence        | III. Fingerprints     |
| D. Digital evidence      | IV. Blood             |

(1) A - I, B - II, C - III, D - IV

(2) A - IV, B - III, C - II, D - I

(3) A - I, B - II, C - IV, D - III

(4) A - III, B - IV, C - I, D - II

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**10. Arrange the working of photo offset machine in the correct sequence.**

A. The plate is placed into the printing press.

B. The ink is then transferred to a setting (soft) roller which will come into contact with paper and print.

C. The ink is received by the image on the plate and is rejected in the non exposed areas that receive water.

D. An electrostatic image of the document is transferred to a specially treated plate, then the plate is preserved through a process of heating and the application of chemicals.

(1) A, B, C, D

(2) D, A, C, B

(3) D, C, B, A

(4) C, B, D, A

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**11. The genetic constitution of the combined paternal and maternal DNA responsible for producing the different ABO blood groups is referred as:**

(1) Phenotype

(2) Genotype

(3) Multiple genes

(4) Pseudo genes

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**12. The investigation of a crime scene is carried out in the following sequence.**

- A. Reconstruction of crime
- B. Crime scene management
- C. First officer response
- D. Information of crime

- (1) D, C, B, A
- (2) B, C, D, A
- (3) D, A, C, B
- (4) C, A, B, D

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**13. The term Criminalistics was first coined by:**

- (1) Edmund Locard
- (2) Paul Kirk
- (3) Alphonse Bertillon
- (4) Henry Fannids (likely a misspelling of Hans Gross)

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**14. Arrange the following in the correct sequence followed in Ultra Performance Liquid Chromatography.**

- A. Mobile phase reservoir
- B. Guard column
- C. Separation column
- D. Detector

- (1) A, B, C, D
- (2) A, B, D, C
- (3) B, A, D, C
- (4) C, B, D, A

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**15. What are the precautions taken during fingerprint photography?**

- A. The camera should be parallel to the fingerprint

- B. The scale is to be used with the fingerprint for photography
- C. The arrangement light should be even on the fingerprint
- D. Generally, ultra slow shutter speed is not preferable for fingerprint photography.

- (1) A and B only
  - (2) B and D only
  - (3) A and D only
  - (4) B and C only
- 

**16. Arrange the following in correct steps for collection of tool marks from the crime scene.**

- A. Trace evidence associated with tool marks should be prevented from loss or contamination
- B. Marks on metal should be covered with oil to prevent oxidation
- C. Cast of tool marks should be prepared to take impression or the whole object to be transported to the crime lab
- D. Close-up photography

- (1) A, D, C, B
  - (2) D, A, B, C
  - (3) C, B, D, A
  - (4) A, C, B, D
- 

**17. The Bureau of Police Research and Development (BPR&D) is an agency functioning under:**

- (1) State Government
  - (2) Central Government
  - (3) Interpol
  - (4) United Nations (UN)
- 

**18. Non identity of questioned writings can be established by comparing it with known writings, if:**

- A. A known and questioned writings have a considerable number of general similarities that

outnumber a few fundamental repeated differences.

B. The presence of a combination of identifying attributes and a coexistent lack of basic divergences between questioned and known writings.

C. The presence of a combination of identifying attributes and coexistence of a few basic divergences between questioned and known writings.

D. If known and questioned writings are very much alike but not identical.

- (1) A, B and C only
  - (2) B, C and D only
  - (3) A, C and D only
  - (4) A, B and D only
- 

**19. The full form of CBI is?**

- (1) Criminal Bureau of Investigation
  - (2) Central Bureau of Investigation
  - (3) Civil Bureau of Investigation
  - (4) Criminal Base of Investigators
- 

**20. Which of the following is not a factor in Daubert Standard?**

- (1) Whether the theory or technique can be tested
  - (2) Whether the expert is Internationally certified
  - (3) Whether the methodology has been peer reviewed
  - (4) Known or potential error rate of the method
- 

**21. Match the LIST-I with LIST-II**

**LIST-I**

**LIST-II**

- |                     |                          |
|---------------------|--------------------------|
| A. Calvin Goddard   | I. Forensic Toxicology   |
| B. Karl Landsteiner | II. Forensic Ballistics  |
| C. Albert Osborn    | III. Blood Grouping      |
| D. Mathieu Orfila   | IV. Document examination |

- (1) A - III, B - IV, C - I, D - II
- (2) A - IV, B - II, C - I, D - III

(3) A - II, B - III, C - IV, D - I

(4) A - II, B - IV, C - III, D - I

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**22. Which of the following properties of the glass plays a key role in the Beckline method?**

(1) Melting point

(2) Type of fracture

(3) Refractive Index

(4) It's manufacturing

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**23. The Government of India Printing press to print banknotes in India is located at?**

(1) Chennai

(2) Nasik

(3) New Delhi

(4) Kolkata

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**24. Which of the following can be classified by Henry's system of classification?**

(1) Questioned documents

(2) Digital evidences

(3) Poisons

(4) Fingerprints

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**25. A DNA Expert in a forensic science laboratory confirms:**

A. Toxin in exhibit

B. Age of individual

C. Identity of an individual

D. Gender of an individual

E. Height of an individual

(1) A, B and E

(2) B, C and E



(3) B, C and D

(4) A, C and E

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**26. Match the LIST-I with LIST-II**

**LIST-I**

**LIST-II**

- |               |                                                                                                          |
|---------------|----------------------------------------------------------------------------------------------------------|
| A. Ridges     | I. Two most inner ridges which start parallel, diverge and surround or tend to surround the pattern area |
| B. Type Lines | II. A single ridge bifurcates and reunites to enclose some space                                         |
| C. Delta      | III. The raised portion of the friction skin of the fingers                                              |
| D. Enclosure  | IV. The ridge characteristics nearest to the point of divergence of type lines                           |

(1) A - III, B - II, C - I, D - IV

(2) A - IV, B - II, C - III, D - I

(3) A - III, B - I, C - IV, D - II

(4) A - III, B - I, C - II, D - IV

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**27. For voice analysis, the exhibits are forwarded to \_\_\_\_\_ division of the Forensic Science Laboratory.**

(1) Chemistry

(2) Physics

(3) Ballistics

(4) Documents

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**28. Which of the following statements correctly explains the relationship between force and momentum?**

(1) The rate of change of momentum of a body is directly proportional to the applied force and occurs in the direction of the force.

- (2) The rate of change of momentum of a body is inversely proportional to the applied force and always oppose the direction of the force.
- (3) The rate of change of momentum of a body is proportional to the square of the applied force and takes place in the direction opposite to the force.
- (4) The rate of change of momentum of a body is independent of the applied force but depends on the direction of motion of the body.
- 

**29. While casting a footwear print on sand, which of the following should be used prior to casting?**

- (1) Melted candle wax
- (2) Shellac in alcohol spray
- (3) Shellac in water spray
- (4) Talcum powder
- 

**30. The study which involves the examination and analysis of soil is known as:**

- (1) Phrenology
- (2) Pedology
- (3) Petrology
- (4) Podology
- 

**31. Among the given options, select the parts which are present in UV visible spectrophotometer.**

- A. Interferometer
- B. Monochromator
- C. Hollow cathode lamp
- D. Deuterium lamp
- (1) B and D only
- (2) A and B only
- (3) B and C only
- (4) A and D only

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**32. As per the Mendelian inheritance pattern for the ABO blood group, which of these is incorrect with respect to the blood group of the child?**

- (1) Mother and Father both have "O" blood group and Child has "A" blood group
- (2) Mother, Father and Child all have "A" blood group
- (3) Mother has "A" blood group, Father has "B" blood group and Child has "AB" blood group
- (4) Mother and child has "O" blood group and Father has "B" blood group

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**33. The angle or inclination of the axis of letters relative to the baseline is known as:**

- (1) Baseline
- (2) Baseline alignment
- (3) Alignment
- (4) Slant

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**34. Which of the following detectors can be coupled with a gas chromatographic system?**

- A. Thermal conductivity detector
  - B. Photo diode-array detector
  - C. Flame ionization detector
  - D. Electro chemical detector
- (1) A and D only
  - (2) C and D only
  - (3) A and C only
  - (4) B and D only

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**35. Which of the following is the correct sequence for restriction fragment length polymorphisms (RFLP) steps sequence?**

- A. Probing hybridization of separated DNA.
- B. Blotting of digested DNA onto a membrane.

C. Isolation and restriction digestion of the DNA.

D. Visualization by autoradiography.

(1) A, B, C, D

(2) C, B, A, D

(3) B, A, D, C

(4) C, B, D, A

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**36. Which of the following produce antibodies directly?**

(1) B-lymphocytes

(2) Helper T cells

(3) Nerve cells

(4) T-lymphocytes

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**37. Which of the following is correct about alpha-keratin in hair?**

(1) It is alpha-helix, cross-linked by disulfide bonds.

(2) It is alpha-helix, but not cross-linked by disulfide bonds.

(3) It is alpha-fold, but not cross-linked by disulfide bonds.

(4) It is beta-sheet, cross-linked by disulfide bonds.

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**38. What fundamental concepts are demonstrated by Young's Double slit experiment**

A. All light behaves as particle

B. Light exhibits wave like behaviour

C. The formation of bright and dark fringes through interference

D. Reflection of light from surface

E. Interference pattern produced using mono chromatic light

(1) B, C and E only

(2) A, B and D only

(3) A, C and D only

(4) B, C and D only

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**39. Which of the following is correct about saliva?**

- (1) Alpha-amylase is the only enzyme found in saliva.
  - (2) Saliva has salivary pepsin
  - (3) Saliva has alpha-amylase and lysozyme
  - (4) Lysozyme is the only enzyme found in saliva.
- 

**40. From the given options, which is not the type of primary incision?**

- A. U shaped
- B. Y-shaped
- C. Modified-Y shaped
- D. I-shaped
- E. T-shaped

- (1) A and E only
  - (2) B and C only
  - (3) C and E only
  - (4) A and D only
- 

**41. Match the LIST-I (Element) with LIST-II (Group)**

**LIST-I    LIST-II**

- A. O<sub>2</sub>    I. Transitional metals
  - B. Po    II. Non-metal
  - C. Os    III. Metalloid
  - D. Se    IV. Noble gas
- (1) A - I, B - II, C - III, D - IV
  - (2) A - IV, B - III, C - II, D - I
  - (3) A - IV, B - III, C - I, D - II
  - (4) A - III, B - IV, C - I, D - II
- 

**42. On the end joints of the fingers, a number of basic patterns are formed by the friction ridge skin and remain constant:**

- A. Since its formation during embryonic life
- B. Till delivery of the child
- C. Through out the life of an individual after birth
- D. Only till 6 months of gestation

- (1) A and B only
  - (2) B and C only
  - (3) A and C only
  - (4) C and D only
- 

**43. Which one of the following is a correct combination of ionizer and analyser that can make a Mass Spectrometer useful to analyze biomolecules?**

- (1) Quadrupole(Q)-Time-of-flight (TOF)
  - (2) Matrix-assisted laser desorption ionization (MALDI)-Time-of-flight (TOF)
  - (3) Time-of-flight (TOF)
  - (4) Quadrupole-ion trap
- 

**44. Which one of these is an instrumental technique used to examine the DNA?**

- (1) Electrophoresis
  - (2) Gas chromatography
  - (3) AAS
  - (4) NMR
- 

**45. Choose the characters which can be classified as individual character of a foot wear print:**

- A. Imbedded material
  - B. Wear pattern
  - C. Design
  - D. Sole material
  - E. Imperfections
- (1) A, C and D only

- (2) A, B and E only
  - (3) A, B and C only
  - (4) B, C and D only
- 

**46. Arrange the following microscope in the increasing order of resolving power:**

- A. SEM
  - B. Compound
  - C. TEM
  - D. Polarising
  - E. Fluorescence
- (1) B, D, E, A, C
  - (2) A, B, C, D, E
  - (3) D, C, B, E, A
  - (4) E, D, C, A, B
- 

**47. Match the LIST-I (Spectroscopy) with LIST-II (Application)**

- | <b>LIST-I</b>                 | <b>LIST-II</b>                                                  |
|-------------------------------|-----------------------------------------------------------------|
| A. Visible light spectroscopy | I. Identification on the basis of absorption in infrared region |
| B. Fluorescence spectroscopy  | II. Identification on the basis of m/z ion                      |
| C. FTIR spectroscopy          | III. Identification on the basis of color                       |
| D. Mass Spectroscopy          | IV. Identification on the basis of fluorophore present          |
- (1) A - IV, B - III, C - II, D - I
  - (2) A - I, B - II, C - III, D - IV
  - (3) A - III, B - IV, C - I, D - II
  - (4) A - III, B - IV, C - I, D - II
- 

**48. Arrange the following elements in increasing order of their atomic number:**

- A. Zr
- B. Xe

C. Ag

D. Ba

E. Rb

(1) A, B, E, C, D

(2) E, C, A, D, B

(3) E, A, C, B, D

(4) A, B, C, D, E

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**49. Match the LIST-I with LIST-II**

**LIST-I**

**LIST-II**

A. Forensic Psychiatry    I. Bite marks analysis

B. Forensic Engineering    II. Information derived from digital devices

C. Forensic Odontology    III. Behavioural pattern of criminal

D. Computer Forensics    IV. Origin of metallic fracture

(1) A - I, B - II, C - III, D - IV

(2) A - IV, B - I, C - II, D - III

(3) A - III, B - IV, C - I, D - II

(4) A - II, B - IV, C - III, D - I

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**50. Which of the following method is considered as the most basic and least accurate form of crime scene mapping?**

(1) Triangulation

(2) Rectangular coordinate

(3) Base line

(4) Polar/grid coordinate

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**51. The permanent record of the size and distance between the crime scene and the physical evidence, is best preserved in the form of:**

(1) Crime scene photography

(2) Crime scene videography

(3) Crime scene sketching



(4) Crime scene sketching

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**52. Match the LIST-I with LIST-II**

**LIST-I**

- A. Metallic protrusion where the primer gets compressed and explodes...
- B. A cardboard or a plastic disc of 12mm...
- C. The steel block which closes the breech in firearms
- D. A cardboard or a plastic piece inside the brass head of a shotgun cartridge

**LIST-II**

- I. Breech block
- II. Cushion Wad
- III. Anvil
- IV. Base wad

(1) A - III, B - II, C - I, D - IV

(2) A - I, B - II, C - III, D - IV

(3) A - I, B - II, C - IV, D - III

(4) A - III, B - IV, C - I, D - II

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**53. Arrange the instruments in increasing order of their sensitivity:**

- A. GC-ECD
- B. TLC
- C. HPLC-PDA
- D. GC-QToF
- E. HPLC-RI

(1) A, B, C, D, E

(2) B, E, C, A, D

(3) C, E, A, D, B

(4) E, A, D, C, B

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**54. Which of the following is not one of the basic types of vehicular accident crime scene photography?**

- (1) Over all photograph
- (2) Mid range photograph

- (3) Close up photograph
  - (4) Panoramic photograph
- 

**55. Arrange the instruments in increasing order of their sensitivity:**

- A. GC-ECD
  - B. TLC
  - C. HPLC-PDA
  - D. GC-TCD
  - E. HPLC-RI
- (1) A, B, C, D, E
  - (2) B, E, C, A, D
  - (3) C, E, A, D, B
  - (4) E, B, D, C, A
- 

**56. The Gustafson Method is used to calculate the age of human beings”:**

- (1) Above 21 years
  - (2) Upto 10 years
  - (3) Foetus in womb
  - (4) Between 10-20 years
- 

**57. Which acid is known as aqua fortis?**

- (1) Sulphuric acid
  - (2) Nitric acid
  - (3) Hydrochloric acid
  - (4) Carbonic acid
- 

**58. The composition of gun powder is:**

- (1) Potassium nitrate 75%, Sulphur 15%, Charcoal 10%
- (2) Nitroglycerin 30%, Nitrocellulose 65%, Mineral jelly 5%
- (3) Nitrated wood Cellulose 20%, Potassium Nitrate 60%, Carbon 20%

(4) Nitroglycerin 58%, Nitrocellulose 37%, Mineral jelly 5%

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**59. Which metal poisoning caused Minamata disease which took place in Japan by eating contaminated fish in 1956?**

- (1) Lead
  - (2) Arsenic
  - (3) Mercury
  - (4) Thallium
- 

**60. Match the LIST-I with LIST-II**

**LIST-I**

**LIST-II**

- |                  |                             |
|------------------|-----------------------------|
| A. Ricin         | I. Snake venom              |
| B. Abrin         | II. Stops protein synthesis |
| C. Hyaluronidase | III. Used to lull cattle's  |
| D. Histamines    | IV. Bee and wasp venom      |

(1) A - II, B - I, C - III, D - IV

(2) A - I, B - II, C - III, D - IV

(3) A - I, B - II, C - IV, D - III

(4) A - III, B - IV, C - I, D - II

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**61. Kozelka and Hine test is used to detect**

- (1) Blood Alcohol
  - (2) Metallic poisons in blood
  - (3) Drugs in blood
  - (4) Blood sugar
- 

**62. CNS depressant Speed balls are combination of:**

- (1) Cannabis and cocaine
- (2) Alcohol and chloral
- (3) Heroin and cocaine

(4) Heroin and opium

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**63. Which of the following statements are true?**

- A. Ganja is prepared from dried root and stem
- B. Majoon is prepared by combining ganja with opium
- C. Ganja is also known as ganjhabhanga
- D. Hashish is a viscous oil obtained from Cannabis Sativa

- (1) B and D only
  - (2) B and C only
  - (3) A and D only
  - (4) C and D only
- 

**64. The method which is used for three dimensional reconstruction of crime scene that requires many parts of the crime scene to be measured for determining the height and size of evidence is known as:**

- (1) Anthropometry
  - (2) Photogrammetry
  - (3) Geometry
  - (4) Micro colourmetry
- 

**65. Irradiation of a mixture of ethylene and mercury vapor with light of wavelength 253.7nm brings about the dissociation of ethylene. The reaction is an example of:**

- (1) Chemiluminescence
  - (2) Bioluminescence
  - (3) Photosensitized reaction
  - (4) Internal conversion reaction
- 

**66. When a person leans up against an object present at the scene of crime and leaves behind the pattern of his or her clothing, is called as:**

- (1) Biofing impression

- (2) Fiber impression
  - (3) Fabric impression
  - (4) Ligature impression
- 

**67. If two bodies named A and B exert force  $F_{AB}$  and  $F_{BA}$  on each other, the expression  $F_{AB} = -F_{BA}$  signifies which law?**

- (1) Newton's law
  - (2) Bernoulli's Principle
  - (3) Boyle's law
  - (4) Kepler's law
- 

**68. Which of the following acid is also known as spirit of salts?**

- (1) Sulphuric acid
  - (2) Nitric acid
  - (3) Hydrochloric acid
  - (4) Oxalic acid
- 

**69. Pure alkaloidal cocaine which can also be smoked is commonly known as?**

- (1) Eve
  - (2) Crystal
  - (3) Base ball
  - (4) Angel dust
- 

**70. Match the LIST-I (CPO) with LIST-II (Motto)**

- | LIST-I          | LIST-II                              |
|-----------------|--------------------------------------|
| A. CRPF         | I. Seva aur Nishtha                  |
| B. SSB          | II. Seva Parmo Dharma                |
| C. ITBP         | III. Shaurya, Dridhata, Karm Nishtha |
| D. Assam Rifles | IV. Sanrakshan, Seva, Samikshan      |
- (1) A - I, B - II, C - III, D - IV

(2) A - I, B - III, C - IV, D - II

(3) A - III, B - IV, C - II, D - I

(4) A - I, B - III, C - II, D - IV

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**71. Arrange in the proper sequence the process/procedure for making paper.**

A. The pulp is cooled in large digesters.

B. The pulp is sent to refiners where the fibers are cut to a standard size.

C. It is bleached and put into a beater where color and size can be added.

D. It is blown under pressure to separate the fibers and remove extraneous materials.

E. The paper is dried and calendered.

(1) A, B, C, D, E

(2) A, D, C, B, E

(3) A, C, B, D, E

(4) A, C, D, B, E

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**72. The United States Department of Justice started a training programme called ICITAP mainly to train police officers of which part of the world?**

(1) Middle East

(2) Indian Subcontinent

(3) Oceania

(4) Latin America

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**73. The Cobra battalion works under the operational command of which of the following Police organization?**

(1) SSB

(2) CRPF

(3) ITBP

(4) CISF

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**74. The Ministry which governs BSF is :**

- (1) Ministry of Defense
  - (2) Ministry of Home Affairs
  - (3) Ministry of Foreign Affairs
  - (4) Directly under PMO
- 

**75. The Headquarters of Assam rifles is located at:**

- (1) Shillong
  - (2) Dibrugarh
  - (3) Guwahati
  - (4) New Delhi
-