

Test Booklet Code & Serial No.

प्रश्नपत्रिका कोड व क्रमांक

D**Paper-III**
FORENSIC SCIENCE**Signature and Name of Invigilator**

Seat No.

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1. (Signature)

(In figures as in Admit Card)

(Name)

Seat No.

(In words)

2. (Signature)

(Name)

OMR Sheet No.

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(To be filled by the Candidate)

APR - 39317**Time Allowed : 2½ Hours]****[Maximum Marks : 150****Number of Pages in this Booklet : 20****Number of Questions in this Booklet : 75****Instructions for the Candidates**

- Write your Seat No. and OMR Sheet No. in the space provided on the top of this page.
- This paper consists of **75** objective type questions. Each question will carry **two** marks. **All** questions of Paper-III will be compulsory, covering entire syllabus (including all electives, without options).
- At the commencement of examination, the question booklet will be given to the student. In the first 5 minutes, you are requested to open the booklet and compulsorily examine it as follows :
 - To have access to the Question Booklet, tear off the paper seal on the edge of this cover page. Do not accept a booklet without sticker-seal or open booklet.
 - Tally the number of pages and number of questions in the booklet with the information printed on the cover page. Faulty booklets due to missing pages/questions or questions repeated or not in serial order or any other discrepancy should not be accepted and correct booklet should be obtained from the invigilator within the period of 5 minutes. Afterwards, neither the Question Booklet will be replaced nor any extra time will be given. The same may please be noted.**
 - After this verification is over, the OMR Sheet Number should be entered on this Test Booklet.
- Each question has four alternative responses marked (A), (B), (C) and (D). You have to darken the circle as indicated below on the correct response against each item.
Example : where (C) is the correct response.

(A)	(B)	(C)	(D)
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- Your responses to the items are to be indicated in the **OMR Sheet given inside the Booklet only**. If you mark at any place other than in the circle in the OMR Sheet, it will not be evaluated.
- Read instructions given inside carefully.
- Rough Work is to be done at the end of this booklet.
- If you write your Name, Seat Number, Phone Number or put any mark on any part of the OMR Sheet, except for the space allotted for the relevant entries, which may disclose your identity, or use abusive language or employ any other unfair means, you will render yourself liable to disqualification.
- You have to return original OMR Sheet to the invigilator at the end of the examination compulsorily and must not carry it with you outside the Examination Hall. You are, however, allowed to carry the Test Booklet and duplicate copy of OMR Sheet on conclusion of examination.
- Use only Blue/Black Ball point pen.**
- Use of any calculator or log table, etc., is prohibited.**
- There is no negative marking for incorrect answers.**

विद्यार्थ्यांसाठी महत्वाच्या सूचना

- परिक्षार्थींनी आपला आसन क्रमांक या पृष्ठावरील वरच्या कोपऱ्यात लिहावा. तसेच आपणांस दिलेल्या उत्तरपत्रिकेचा क्रमांक त्याखाली लिहावा.
- सदर प्रश्नपत्रिकेत **75** बहुपर्यायी प्रश्न आहेत. प्रत्येक प्रश्नास **दोन** गुण आहेत. या प्रश्नपत्रिकेतील **सर्व** प्रश्न सोडविणे अनिवार्य आहे. सदरचे प्रश्न हे या विषयाच्या संपूर्ण अभ्यासक्रमावर आधारित आहेत.
- परीक्षा सुरु झाल्यावर विद्यार्थ्यांना प्रश्नपत्रिका दिली जाईल. सुरुवातीच्या 5 मिनीटांमध्ये आपण सदर प्रश्नपत्रिका उघडून खालील बाबी अवश्य तपासून घ्याव्यात.
 - प्रश्नपत्रिका उघडण्यासाठी प्रश्नपत्रिकेवर लावलेले सील उघडावे. सील नसलेली किंवा सील उघडलेली प्रश्नपत्रिका स्विकारू नये.
 - पहिल्या पृष्ठावर नमूद केल्याप्रमाणे प्रश्नपत्रिकेची एकूण पृष्ठे तसेच प्रश्नपत्रिकेतील एकूण प्रश्नांची संख्या पडताळून घ्यावी. पृष्ठे कमी असलेली/कमी प्रश्न असलेली/प्रश्नांचा चुकीचा क्रम असलेली किंवा इतर त्रुटी असलेली सदोष प्रश्नपत्रिका सुरुवातीच्या 5 मिनिटातच पर्यवेक्षकाला परत देऊन दुसरी प्रश्नपत्रिका मागवून घ्यावी. त्यानंतर प्रश्नपत्रिका बदलून मिळणार नाही तसेच वेळही वाढवून मिळणार नाही याची कृपया विद्यार्थ्यांनी नोंद घ्यावी.
 - वरीलप्रमाणे सर्व पडताळून पहिल्यानंतरच प्रश्नपत्रिकेवर ओ.एम.आर. उत्तरपत्रिकेचा नंबर लिहावा.
- प्रत्येक प्रश्नासाठी (A), (B), (C) आणि (D) अशी चार विकल्प उत्तरे दिली आहेत. त्यातील योग्य उत्तराचा रकाना खाली दर्शविल्याप्रमाणे ठळकपणे काळ्या/निळ्या करावा.
उदा. : जर (C) हे योग्य उत्तर असेल तर.

(A)	(B)	(C)	(D)
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- या प्रश्नपत्रिकेतील प्रश्नांची उत्तरे ओ.एम.आर. उत्तरपत्रिकेतच दर्शवावीत. इतर ठिकाणी लिहीलेली उत्तरे तपासली जाणार नाहीत.
- आत दिलेल्या सूचना काळजीपूर्वक वाचाव्यात.
- प्रश्नपत्रिकेच्या शेवटी जोडलेल्या कोऱ्या पानावरच कच्चे काम करावे.
- जर आपण ओ.एम.आर. वर नमूद केलेल्या ठिकाणा व्यतिरिक्त इतर कोठेही नाव, आसन क्रमांक, फोन नंबर किंवा ओळख पटेल अशी कोणतीही खूण केलेली आढळून आल्यास अथवा असभ्य भाषेचा वापर किंवा इतर गैरमागीचा अवलंब केल्यास विद्यार्थ्यांना परीक्षेस अपात्र ठरविण्यात येईल.
- परीक्षा संपल्यानंतर विद्यार्थ्यांनी मूळ ओ.एम.आर. उत्तरपत्रिका पर्यवेक्षकांकडे परत करणे आवश्यक आहे. तथापी, प्रश्नपत्रिका व ओ.एम.आर. उत्तरपत्रिकेची द्वितीय प्रत आपल्याबरोबर नेण्यास विद्यार्थ्यांना परवानगी आहे.
- फक्त निळ्या किंवा काळ्या बॉल पेनचाच वापर करावा.**
- कॅलक्युलेटर किंवा लॉग टेबल वापरण्यास परवानगी नाही.**
- चुकीच्या उत्तरासाठी गुण कपात केली जाणार नाही.**

APR - 39317/III—D

Forensic Science
Paper III

Time Allowed : 2½ Hours]**[Maximum Marks : 150**

Note : This Paper contains **Seventy Five (75)** multiple choice questions. Each question carrying **Two (2)** marks. Attempt *All* questions.

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| 1. Total number of bones in the hand of person aged 25 years are :
(A) 28
(B) 20
(C) 27
(D) 22 | 4. Among the following bones, which would provide a better estimate of stature ?
(A) Scapula
(B) Tibia
(C) Humerus
(D) Radius |
| 2. Isoenzyme typing can be performed with :
(A) Cavity tiles
(B) Electrophoresis
(C) Chrometography
(D) Filter membrane | 5. DNA was first used to aid criminal investigation in U.K. in murder/rape case by :
(A) Alec Jeffreys
(B) Stuart Miller
(C) Kary Mullis
(D) Murray L. Barr |
| 3. Pronounced alveolar and facial prognathism is noticed among the people with :
(A) European ancestry
(B) Chinese ancestry
(C) African Negro ancestry
(D) Japanese ancestry | |

6. The Polymerase Chain Reaction (PCR) technique was discovered by :

- (A) Alec Jeffreys in 1985
- (B) Kary Banks Mullis in 1983
- (C) Boorman in 1982
- (D) Watson and Krick in 1953

7. Extracts of seeds of gorse (*Ulex europaeus*) result into a substance which reacts strongly with :

- (A) O blood
- (B) B blood
- (C) A blood
- (D) AB blood

8. First Fingerprint Bureau was established in 1897 at :

- (A) Madras (Chennai)
- (B) Delhi
- (C) Calcutta (Kolkata)
- (D) Bombay (Mumbai)

9. The carabellis cusp is most commonly found among the :

- (A) Caucasoids
- (B) Chinese
- (C) Tibetans
- (D) Japanese

10. Straight type of head hair are most frequently found among :

- (A) Mongoloids
- (B) Caucasoids
- (C) Negroids
- (D) Australian Aborigines

11. Anterolateral (sphenoidal) fontanelle usually closes by which age in infants ?
- (A) By the end of 3rd post-natal month
- (B) By the end of 1st year
- (C) By the end of 10th post-natal month
- (D) By the end of 6th post-natal month
12. Earliest regression formulae for estimation of stature from long bones of human relation were developed by :
- (A) Hrdlicka
- (B) Trotter and Gleser
- (C) Pearson
- (D) Bertillon
13. In DNA profiling, the technique of transfer of electrophoresis-separated DNA fragments to a filter membrane and subsequent fragment detection by probe hybridization is known as :
- (A) Western Blotting
- (B) DNA transfer
- (C) Southern Blotting
- (D) Eastern Blotting
14. Which of the following statements is *flase* in connection with determination of sex from human skull ?
- (A) Male skull has a heavier jaw
- (B) Male skull has more prominent brow ridges
- (C) Male skull is generally larger
- (D) Male skull has a more rounded chin

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| <p>15. Perfect fabrication of fingerprints has <i>not</i> been achieved due to :</p> <p>(A) The forger has not harnessed the computer to commit the forger</p> <p>(B) It is not feasible to create similar pore patterns.</p> <p>(C) There are too many ridge characteristics in the patterns</p> <p>(D) The ridges are very fine.</p> <p>16. After successful visualizing a latent print on an object, an investigator should next :</p> <p>(A) Lift the print with adhesive tape.</p> <p>(B) Take 1 : 1 photograph of the print.</p> <p>(C) Classify the print</p> <p>(D) Apply superglue fuming to make the print permanent.</p> | <p>17. What do you understand by means of tagging of ink ?</p> <p>(A) Putting a price tag after manufacturing</p> <p>(B) Adding something to ink</p> <p>(C) As a marker for ink-dating during manufacturing process</p> <p>(D) Identification of manufacturer</p> <p>18. Obliteration in writing is considered as :</p> <p>(A) Addition of words</p> <p>(B) Obscuring by superimposition</p> <p>(C) Secret writing</p> <p>(D) Erasing something</p> <p>19. Which of the following is not an anti-counterfeiting measure that may be incorporated into printed documents ?</p> <p>(A) A water mark</p> <p>(B) An iridescent stripe</p> <p>(C) a dandy roll</p> <p>(D) A hologram patch</p> |
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| <p>20. Copy prepared by superimposing the document is called :</p> <p>(A) Assymetrical forgery</p> <p>(B) Free-hand forgery</p> <p>(C) Traced forgery</p> <p>(D) Simulated forgery</p> <p>21. are used to mark the voters in various countries during election.</p> <p>(A) Washable inks</p> <p>(B) Indelible inks</p> <p>(C) Soluble inks</p> <p>(D) Permanent inks</p> <p>22. In documents examination, OVI stands for :</p> <p>(A) Optically variable ink</p> <p>(B) Overall visual imaging</p> <p>(C) Overall visual inking</p> <p>(D) Optically visible ink</p> | <p>23. The scale thickness of human hair is about :</p> <p>(A) 14 nanometer</p> <p>(B) 1 nanometer</p> <p>(C) 0.4 nanometer</p> <p>(D) 0.9 nanometer</p> <p>24. Rule of 9 (nine) in burns is used to denote :</p> <p>(A) Depth of burns</p> <p>(B) Percentage of total body surface area</p> <p>(C) Severity of burns</p> <p>(D) Type of burns</p> <p>25. Saliva dribbling from mouth is <i>not</i> characteristic of :</p> <p>(A) Postmortem hanging</p> <p>(B) Antemortem hanging</p> <p>(C) Suicidal hanging</p> <p>(D) Homicidal hanging</p> |
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26. Match the following :

List I

- (i) Polarized light microscope
- (ii) Fluorescence microscope
- (iii) Phase contrast microscope
- (iv) Electron microscope

List II

- (a) Phase annulus
- (b) Analyzer
- (c) Electron lenses
- (d) Barrier filter

Codes :

- (i) (ii) (iii) (iv)
- (A) (b) (a) (d) (c)
- (B) (b) (c) (d) (a)
- (C) (b) (d) (a) (c)
- (D) (b) (d) (c) (a)

27. **Assertion (A) :** Thermal conductivity detector detects the overall physical property when coupled with a gas chromatogram.

Reason (R) : This is due to the fact that the response to the carrier gas forms the base line.

- (A) (A) is true but (R) is false
- (B) (A) is false but (R) is true
- (C) Both (A) and (R) are false
- (D) Both (A) and (R) are true but (R) is not correct explanation to (A)

28. Pyrolysis gas chromatography is a useful technique for the characterization of which of the following paint constituent ?
- (A) Pigment
 - (B) Binder
 - (C) Lacquer
 - (D) Solvent
29. Select the constituents which make semen stains to fluorescence under ultra-violet light.
- (A) Choline
 - (B) Zinc
 - (C) Flavin
 - (D) Spermine
30. ABD grouping is based on :
- (A) Red cell surface antigen
 - (B) Plasma proteins
 - (C) Red cell Enzyme
 - (D) Nuclear chromatin
31. Which of the following is used to test for semen ?
- (A) Acid phosphatase test
 - (B) Fluorescein test
 - (C) Luminol test
 - (D) Takayama test
32. On the basis of blood grouping , in cases of disputed paternity involving father which of the following is *correct* ?
- (A) Inclusion of paternity is decisive.
 - (B) Exclusion of paternity is decisive.
 - (C) Both exclusion and inclusion of paternity is decisive.
 - (D) Neither inclusion nor exclusion is decisive.

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| <p>33. CZE, MEKC, MECC, CGE are the different forms of :</p> <p>(A) Chromatography</p> <p>(B) Spectroscopy</p> <p>(C) Electrophoresis</p> <p>(D) Immunoassay</p> | <p>36. When a person shows symptoms of systemic absorption of organophosphorus compounds, in such a case the person should be administered with :</p> <p>(A) Atropine</p> <p>(B) Benzodiazepin group drugs</p> <p>(C) Codine</p> <p>(D) Morphine</p> |
| <p>34. The complementary base pairs among four nucleotides (A, C, T, G) in DNA are as :</p> <p>(A) A = G and T = C</p> <p>(B) A = C and G = T</p> <p>(C) A = T and G = C</p> <p>(D) AT = GT and TC = GC</p> | <p>37. GSR of smokeless powder :</p> <p>(A) has blackish-grey smoke particles</p> <p>(B) has no smoke particles</p> <p>(C) has white-grey smoke particles</p> <p>(D) has blackish particles only</p> |
| <p>35. The chemical 3-amino-pathalhydrazide is used in which of the following screening tests for the detection of blood in dried stains ?</p> <p>(A) Luminol test</p> <p>(B) Haematin crystal test</p> <p>(C) Absorption-Inhibition test</p> <p>(D) Trickmann test</p> | |

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| <p>38. Secretions of seminal vesicles in male reproductive organ is :</p> <p>(A) Acidic in nature</p> <p>(B) Alkaline in nature</p> <p>(C) Neutral in nature</p> <p>(D) Variable in nature</p> <p>39. The another name of cyclotol is :</p> <p>(A) RDX + PETN</p> <p>(B) TNT + PETN</p> <p>(C) RDX + TNT</p> <p>(D) Picric acid + TNT</p> <p>40. The common name of 2, 2-Dichloroethenyl dimethyl phosphate insecticide is :</p> <p>(A) Dichlorvos</p> <p>(B) Dichlorophen</p> <p>(C) Diclofenamide</p> <p>(D) Dieldrin</p> | <p>41. Pepper corn type of hair are most often found among :</p> <p>(A) Europeans</p> <p>(B) Australian Aboriginals</p> <p>(C) Chinese</p> <p>(D) Bushman and Hottentots</p> <p>42. The speed of high explosives detonation starts from :</p> <p>(A) 1000 m/s</p> <p>(B) 2000 m/s</p> <p>(C) 4000 m/s</p> <p>(D) 3000 m/s</p> <p>43. In the treatment of alcoholism which one of the following is used as a mood stabilizer ?</p> <p>(A) Diazepam</p> <p>(B) Lithium Carbonate</p> <p>(C) Disulfiram</p> <p>(D) Nicotine</p> |
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| <p>44. Monocrotaline is :</p> <ul style="list-style-type: none">(A) A fungicide(B) An insecticide(C) A herbicide(D) An alkaloid <p>45. During evaluation layer structure is compared in :</p> <ul style="list-style-type: none">(A) Paint(B) Glass(C) Soil(D) Tool marks <p>46. Which of the following statements about the Reconstruction of Crime is <i>not correct</i> ?</p> <ul style="list-style-type: none">(A) It is a complex process(B) It is a sequence of steps about how crime has been committed.(C) It requires both knowledge and experience in order to obtain accurate and meaningful results.(D) It does not provide any information about modus-operandi. | <p>47. Mohs scale was developed by the German Scientist in :</p> <ul style="list-style-type: none">(A) 1810(B) 1822(C) 1872(D) 1900 <p>48. In which of the following situations direct physical fit pattern <i>cannot</i> be achieved ?</p> <ul style="list-style-type: none">(A) Article may either be broken, torn, or cut into two or more pieces.(B) Random process of breaking.(C) Intervening piece is missing(D) The suitable material can be fitted in unique fashion to achieve common origin. |
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49. As mentioned below, which one of the following is a sleep regulating hormone ?

- (A) Dopamine
- (B) Melatonin
- (C) Noradrenaline
- (D) Sermorelin

50. Match the following :

List I

- (i) Aconite
- (ii) Barbitol
- (iii) Caffeine
- (iv) Citalopram

List II

- (a) Xanthine
 - (b) SSRI
 - (c) Alkaloid
 - (d) Barbiturate
- (i) (ii) (iii) (iv)
- (A) (a) (b) (c) (d)
 - (B) (b) (a) (c) (d)
 - (C) (c) (d) (b) (a)
 - (D) (c) (d) (a) (b)

51. The following change occurs in adipocere :

- (A) Bone and tendons into gelatinous mass
- (B) Blood into watery serum
- (C) Muscle into fatty tissue
- (D) Body fat into soapy and wax

52. Carper's dictum is used for :

- (A) Establishing cause of death
- (B) Establishing weapon of injury
- (C) Estimation of time since death
- (D) Identification of body

53. Cherry red discolouration of blood is due to :

- (A) Oxyhaemoglobin
- (B) Red haemoglobin
- (C) Carboxyhaemoglobin
- (D) Cyanometh haemoglobin

54. The feature of the incised wound is that its :

- (A) Length is maximum
- (B) Width is maximum
- (C) Depth is maximum
- (D) All dimensions are equal

55. Stains of fecal matter can be identified with :

- (A) Urobilinogen test
- (B) Gunzberg test
- (C) Berberio test
- (D) Creatinine test

56. Subpoea or Summon to appear in court witness comes under :

- (A) Section 174 IPC
- (B) Section 87 Cr PC
- (C) Section 61-69 Cr PC
- (D) Section 54 IPC

57. Dying deposition is recorded by :

- (A) Doctor
- (B) Magistrate
- (C) Police officer
- (D) Lawyer

58. 'Daubert' criteria came into force in the year :

- (A) 1923
- (B) 1973
- (C) 1993
- (D) 1953

59. Death sentence can be awarded by :

- (A) First Class Magistrate
- (B) Second Class Magistrate
- (C) Chief Judicial Magistrate
- (D) Session Court

60. Which of the following statements is *false* ?

- (A) Physical evidences help in linking the suspect with victim
- (B) Physical evidence does not link suspect to crime scene.
- (C) Physical evidences help in approving or disapproving a witness testimony.
- (D) Physical evidences provide an investigative lead.

61. In chromatography suppressor column is placed between :

- (A) Injector and Analytical column
- (B) Pump and Injector
- (C) Analytical column and Detector
- (D) Detector and Integrator

62. A gas derived from an oil well by extraction at the surface is known as :

- (A) Residue gas
- (B) Dry gas
- (C) Purified gas
- (D) Casing head gas

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| <p>63. Choking is constricting device within the barrel at the muzzle end of :</p> <p>(A) Revolver</p> <p>(B) 0.303 rifle</p> <p>(C) Shotgun</p> <p>(D) Semi-automatic pistol</p> <p>64. Percussion cap contains :</p> <p>(A) Potassium nitrate</p> <p>(B) Sodium chlorate</p> <p>(C) Mercury fulminate</p> <p>(D) Sodium nitrate</p> <p>65. In the comparison of bullet, the following is examined :</p> <p>(A) firing pin marks</p> <p>(B) striation marks</p> <p>(C) extraction marks</p> <p>(D) ejector marks</p> | <p>66. Among the following which does <i>not</i> constitute a part of firearm injury ?</p> <p>(A) The entrance wound</p> <p>(B) The exit wound</p> <p>(C) The internal wound</p> <p>(D) Wound ballistics</p> <p>67. Type of medulla found among humans is :</p> <p>(A) Vacuolated</p> <p>(B) Lattice</p> <p>(C) Amorphous</p> <p>(D) Serial</p> |
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68. Which of the following instruments uses an atomiser ?

- (A) Colorimeter
- (B) Mass spectrometer
- (C) Fluorescence spectrometer
- (D) Atomic Absorption spectrometer

69. While using a percoated TLC plate with fluorescent indicator, the analyte spot appears a spots against green fluorescent background when seen under UV light.

- (A) White
- (B) Dark
- (C) Pink
- (D) Green

70. Which of the following statements is *not true* ?

- (A) Fluorescence occurs when light of shorter wavelength interact with a sample to produce light of a longer wavelength.
- (B) Fluorescence can be studied visually, photographically or with instruments.
- (C) Fluorescence can also be studied with fluorescence microscope or spectrophotofluoremeter.
- (D) Float glass lacks fluorescence property.

71. The sex chromosome constitution in Klinefelter syndrome is :

- (A) XY
- (B) XXY
- (C) OX
- (D) XXX

72. Which of the following statements is *not true* ?

- (A) Glass has unusual property of non-crystalline.
- (B) Glass is super cooled liquid.
- (C) First synthetic type of glass is called sodalime.
- (D) Pyrex is one of the most common trade name of soda-lime glass.

73. 'Coning and Quartering' process is carried out in the evaluation of :

- (A) Paint
- (B) Soil
- (C) Glass
- (D) Minerals

74. In tire track, development of individual characteristics does *not* depend upon :

- (A) Type of surface commonly driven.
- (B) Vehicle's mechanical or physical condition.
- (C) Driver's driving habits.
- (D) Manufacturing company

75. Which of the following is *correct* statement about RRR- test in glass.

- (A) Right angle is formed on the reverse side.
- (B) In a radial crack right angle is formed on the reverse side, where force has been applied.
- (C) Right angle, reverse side.
- (D) Right angle is formed on the reverse side in concentric crack.

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