

Test Booklet Code & Serial No.

प्रश्नपत्रिका कोड व क्रमांक

**Paper-II**

**FORENSIC SCIENCE**

**D**

**Signature and Name of Invigilator**

Seat No.

--	--	--	--	--	--	--	--

1. (Signature) .....

(In figures as in Admit Card)

(Name) .....

Seat No. ....

(In words)

2. (Signature) .....

(Name) .....

OMR Sheet No.

--	--	--	--	--	--	--	--

(To be filled by the Candidate)

**JUN - 39219**

**Time Allowed : 2 Hours]**

**[Maximum Marks : 200**

**Number of Pages in this Booklet : 16**

**Number of Questions in this Booklet : 100**

**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 100 objective type questions. Each question will carry two marks. All questions of Paper II will be compulsory.
- 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.  

<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
A	B	C	D
- 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 100 बहुपर्यायी प्रश्न आहेत. प्रत्येक प्रश्नास दोन गुण आहेत. या प्रश्नपत्रिकेतील सर्व प्रश्न सोडविणे अनिवार्य आहे.
- परीक्षा सुरु झाल्यावर विद्यार्थ्यांला 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 पाहिल्यानंतरच 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 काळा/निळ्या करावा.  
**उदा. :** जर (C) हे योग्य उत्तर असेल तर.  

<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
A	B	C	D
- या प्रश्नपत्रिकेतील प्रश्नांची उत्तरे ओ.एम.आर. उत्तरपत्रिकेतच दर्शवावीत. इतर ठिकाणी लिहिलेली 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 व्यतिरीक्त इतर कोठेही नाव, आसन क्रमांक, फोन नंबर किंवा ओळख पटेल अशी कोणतीही खूण केलेली आढळून आल्यास अथवा असभ्य भाषेचा वापर किंवा इतर गैरमार्गाचा अवलंब केल्यास विद्यार्थ्यांला परीक्षेस अपात्र ठरविण्यात येईल.
- परीक्षा संपल्यानंतर विद्यार्थ्यांने मूळ ओ.एम.आर. उत्तरपत्रिका पर्यवेक्षकांकडे परत करणे आवश्यक आहे. तथापि, 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.

**JUN - 39219/II—D**

**FORENSIC SCIENCE****Paper II****Time Allowed : 120 Minutes]****[Maximum Marks : 200**

**Note :** This Paper contains **Hundred (100)** multiple choice questions. Each question carrying **Two (2)** marks. Attempt *All* questions.

- |   |  |
|---|--|
| <p>1. Choose the <i>correct</i> option in what is 'washing effect'.</p> <p>(I) It is a gradual erosion and carrying away of the metal by the gases at higher temperature</p> <p>(II) It loosen the barrel and affect both aim and range</p> <p>(A) (I) is correct</p> <p>(B) (II) is correct</p> <p>(C) (I) and (II) are correct</p> <p>(D) Neither (I) nor (II) is correct</p> <p>2. Which of the following refers to the way address data is read and stored ?</p> <p>(A) Offset</p> <p>(B) Slack</p> <p>(C) Endianness</p> <p>(D) Metadata</p> <p>3. Cordite contains :</p> <p>(A) Nitroglycerine (58%) nitrocellulose (37%) and mineral jelly (5%)</p> <p>(B) Nitroglycerine (37%) nitrocellulose (58%) and mineral jelly (5%)</p> <p>(C) Nitroglyecrine (58%) and Nitrocellulose (42%)</p> <p>(D) Nitrocellulose (58%) and mineral jelly (42%)</p> | <p>4. Universal Forensic Extraction Device is used for :</p> <p>(A) Data extraction from mobile phones</p> <p>(B) Data extraction from CCTV</p> <p>(C) Estimation of location of a mobile phone</p> <p>(D) Duplication of solid state drive</p> <p>5. Abrasion, contusion and dirt colors are characteristic of :</p> <p>(A) Contact range</p> <p>(B) Close range</p> <p>(C) Long range</p> <p>(D) All the above</p> <p>6. <b>Assertion :</b> Drift is a result of the gyrostatic properties of the rifling-induced spin of a bullet.</p> <p><b>Reason :</b> Drift is caused due to burning of propellant inside the cartridge.</p> <p>(A) Both Assertion and Reason are true</p> <p>(B) Assertion is true but Reason is false</p> <p>(C) Assertion is false but Reason is true</p> <p>(D) Both Assertion and Reason are false</p> |
|---|--|

7. The most widely measured smoke property is :  
 (A) Light extinction coefficient  
 (B) Burgis coefficient  
 (C) Henry coefficient  
 (D) Bonger coefficient
8. Which of the following is having the highest detonation velocity ?  
 (A) HMX  
 (B) PETN  
 (C) TNT  
 (D) RDX
9. Which of the following is a poor water resistance explosive ?  
 (A) Gelatin dynamite  
 (B) Cartridge emulsion  
 (C) Poured ANFO  
 (D) Packaged ANFO
10. The function of primer is :  
 (A) To propel the bullet  
 (B) To ignite the main charge  
 (C) To provide lubrication  
 (D) To save from corrosion
11. **Assertion (A) :** Simplification of letter forms is an indication of fast writing.  
**Reason (R) :** Writing speed affects the appearance of the writing.  
 (A) Both (A) and (R) are true  
 (B) Both (A) and (R) are false  
 (C) (A) is true but (R) is false  
 (D) (A) is false but (R) is true
12. Cylithography, thermal transfer and cibachrome are examples of :  
 (A) Black-and-white copier processes  
 (B) Printing mechanism  
 (C) Color copier processes  
 (D) Scanning technology
13. To which of the following fingerprint patterns, a numerical value is assigned in the development of a primary classification formula of fingerprints ?  
 (A) Ulnar loop  
 (B) Tented arch  
 (C) Whorls  
 (D) Ulnar loop as well as composites
14. DFO reacts with which substance present in latent fingerprint to form highly fluorescent derivatives ?  
 (A) Fatty material  
 (B) Sodium chloride  
 (C) Amino acids  
 (D) Calcium
15. Complexity in handwriting is determined by :  
 (A) The number of times the pen changes directions  
 (B) The fullness of the curves  
 (C) The degree of angularity  
 (D) Fluency
16. Which of the following practices of collecting exemplars will help to minimize the chance of the writer deliberately altering his or her writing ?  
 (A) Have the subject stand up while writing  
 (B) Dictate long passages  
 (C) Show the subject questioned document  
 (D) Always use lined paper to make sure that the subject writes in straight line

17. **Assertion (A) :** For comparison purpose of handwriting non-request standards are also desirable.

**Reason (R) :** They are free of international disguise.

- (A) Both (A) and (R) are true
- (B) Both (A) and (R) are false
- (C) (A) is true but (R) is false
- (D) (A) is false but (R) is true

18. In a fingerprint, two innermost ridges which start parallel from the lower corner of the pattern, flow inward, diverge and surround or tend to surround the pattern are termed as :

- (A) Primary ridges
- (B) Distal transverse system
- (C) Type lines
- (D) Proximal transverse system

19. The chemical name of the 'super glue' use to develop latent prints is :

- (A) Dimethyletriketo ester
- (B) Alkyl-2-Cyanoacrylate ester
- (C) Triketohydrindene hydrate
- (D) Hydroquinone

20. Which of the following often involves writing on media other than paper, such as walls, locker doors, or mirrors ?

- (A) Cacography
- (B) Graffiti
- (C) Hieroglyphics
- (D) Acrograph

21. Which one of the undermentioned statement is not related to an intravenous dosage ?

- (A) All the drug enter the systemic circulation
- (B) Almost instantaneously peak plasma concentration is attained after administration
- (C) Is administered by non-invasive mechanism
- (D) Required stable solution of drug

22. Match the following :

**List I**

- (a) Opium
- (b) Cannabis
- (c) 6 MAM
- (d) Nux vomica

**List II**

- (i) Heroin
- (ii) Caffeine
- (iii) THC
- (iv) Strychnine
- (v) Codeine

**Codes :**

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

23. Industrial cannabis is characterized by ..... THC content and ..... canabidiol content.  
 (A) High and high  
 (B) Low and high  
 (C) High and zero  
 (D) Very high and low
24. The boiling point of any petroleum product depends on :  
 (A) Presence of water molecule  
 (B) Number of oxygen atoms  
 (C) Presence of organic constituents  
 (D) Number of carbon atom
25. The petroleum product having more than  $C_{50}$  will be known by :  
 (A) Naphtha  
 (B) Wax  
 (C) Gel  
 (D) Coke
26. Match the following :
- List I**
- (a) Cannabis  
 (b) Morphine  
 (c) Carbon monoxide  
 (d) Ethyl alcohol
- List II**
- (i) Kozelka and Hine test  
 (ii) Hoppe-Seyler's test  
 (iii) Marquis test  
 (iv) Duquenois Levine test
- Codes :**
- |     |       |       |       |       |
|-----|-------|-------|-------|-------|
|     | (a)   | (b)   | (c)   | (d)   |
| (A) | (iv)  | (iii) | (ii)  | (i)   |
| (B) | (i)   | (ii)  | (iii) | (iv)  |
| (C) | (ii)  | (i)   | (iv)  | (iii) |
| (D) | (iii) | (iv)  | (i)   | (ii)  |
27. Which of the following is an ultra short acting barbiturates ?  
 (A) Pentobarbital  
 (B) Pentothal sodium  
 (C) Amobarbital  
 (D) Phenobarbitone
28. Which of the following is *not* a stupefying agent ?  
 (A) Dhatura  
 (B) Cannabis  
 (C) Chloral hydrate  
 (D) Oleander
29. Phosphine is liberated in gastrointestinal tract upon consumption of which of the following poisons ?  
 (A) Aluminum phosphide  
 (B) Carbaryl  
 (C) Chlorthion  
 (D) Malathion
30. Potassium permanganate in gastric lavage is used in the strength of which of the following :  
 (A) 1 : 500  
 (B) 1 : 1500  
 (C) 1 : 5000  
 (D) 1 : 10,000

31. Method for fragmenting molecules in tandem mass spectroscopy is known as :

- (A) Mass Induced Dissociation
- (B) Collision Induced Dissociation
- (C) Charge Induced Dissociation
- (D) Impact Induced Dissociation

32. Which of the following is the use of inter-laboratory comparison for determining the performance of individual laboratories for specific tests :

- (A) Quality assurance
- (B) Proficiency testing
- (C) Quality control
- (D) Confirmatory assessment

33. Abolition of untouchability is mentioned under which of the following articles of the Constitution ?

- (A) Article 14
- (B) Article 15
- (C) Article 16
- (D) Article 17

34. Andaman and Nicobar Islands is under the jurisdiction of which of the following high courts ?

- (A) Calcutta High Court
- (B) Gauhati High Court
- (C) Delhi High Court
- (D) Bombay High Court

35. Tache noire refers to :

- (A) Post-mortem staining
- (B) Flaccidity of eyeball
- (C) Black spots of sclera
- (D) Maggot growth

36. Match the following :

**List I**

- (a) Bestiality
- (b) Coprolalia
- (c) Gerontophilia
- (d) Coprophilia

**List II**

- (i) Sexual stimulation by obscene telephone calls
- (ii) Sexual arousal by faces
- (iii) Sex with animals
- (iv) Sex with old people

**Codes :**

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

37. Postmortem lividity helps in the determination of the following, *except* :
- (A) Cause of death
  - (B) Time of death
  - (C) Motive of death
  - (D) Position of dead body
38. Anoxic anoxia produced by all *except* :
- (A) Drowning
  - (B) Trapped in a closed almira
  - (C) Cyanide poisoning
  - (D) Strangulation
39. Considering source/filter theory of voice production, for given vocal tract length 17.5 cm and velocity of sound equals to 350 m/s, second formant frequency will be :
- (A) 1000 Hz
  - (B) 1500 Hz
  - (C) 2000 Hz
  - (D) 500 Hz
40. Collection of blood in subcutaneous tissue is called :
- (A) Bruise
  - (B) Stab wound
  - (C) Lacerated wound
  - (D) Chop wound
41. The first Serology Department of Govt. of India was established in :
- (A) 1910
  - (B) 1915
  - (C) 1925
  - (D) 1947
42. Scientific method always begins with a question, which in crime scene reconstruction is often called as :
- (A) Investigative question
  - (B) Leading question
  - (C) Associative question
  - (D) Concluding question
43. The first forensic science school was started in the world at :
- (A) University of Lausanne
  - (B) University of Saugar
  - (C) University of Michigan
  - (D) University of London
44. GSR collection from live subjects should be done within :
- (A) 12 hours
  - (B) 2 hours
  - (C) 6 hours
  - (D) 24 hours



45. **Assertion :** In case of crime scene photography, use the flash attachment and get it off the camera.  
**Reason :** Even in available light situations the flash attachment bring out the details of crime scene which is otherwise missed.
- (A) Both Assertion and Reason are true  
(B) Assertion is true but Reason is false  
(C) Assertion is false but Reason is true  
(D) Both Assertion and Reason are false
46. Molarity is defined as :
- (A) Moles of solute present in 1 liter of solution  
(B) Moles of solute present in 1 kg of solution  
(C) Number of equivalent of solute present in 1 liter of solution  
(D) Is expressed as amount of solute in (g) in 1 liter of solution
47. Separation of two compounds A and B is done by reverse phase chromatography. If A is more polar than B, which statement is *correct* ?
- (A) A will elute followed by B  
(B) B will elute followed by A  
(C) A and B both elute together  
(D) B will prevent elution by A
48. A suspect's wallet was found at the scene of crime, the evidence is better known as :
- (A) Transient evidence  
(B) Pattern evidence  
(C) Associative evidence  
(D) Conditional evidence
49. The term refers to the destruction or alteration of evidence or the failure to preserve property as evidence in pending or potential litigation :
- (A) Plundering  
(B) Destruction  
(C) Spoilation  
(D) Despoiling
50. The process of separation based on the differential rate of migration of charged species in a buffer solution across which an electric field is applied is known as :
- (A) Ion chromatography  
(B) Paper chromatography  
(C) Micellar liquid chromatography  
(D) Electrophoresis
51. Which of the following is *not* the advantage of reciprocating pump used in UHPLC ?
- (A) High output pressure  
(B) Small solvent capacities  
(C) Adaptability to gradient elution  
(D) Small internal volume
52. Which of the following is caused by collisions of the absorbing atoms with other molecules or atoms present in flames ?
- (A) Lorentz broadening  
(B) Resonance lines  
(C) Walsh phenomena  
(D) Doppler phenomena

53. In elliptical polarized light :
- The magnitude of light vector remains same but orientations change
  - The magnitude and orientation both vary continuously
  - The magnitude of light vector changes but orientation remains same
  - Neither magnitude nor orientation changes
54. **Assertion (A) :** In most of commercial spectrophotometer lamp as source is preferred over laser as source.  
**Reason (R) :** Laser as source is used only while using very small sample amount or volume as in case of coupling with separation technique.
- (A) is correct but (R) is wrong
  - (A) is wrong but (R) is correct
  - Both (A) and (R) are correct but (R) is not the correct explanation to (A)
  - Both (A) and (R) are wrong
55. Which of the following statements is *not* correct regarding radionuclide analytical methods ?
- Quality and quantity of signal producing decay are independent of influences like temperature, pressure, chemical environment of the nucleus
  - Synthesis of labelled compound is easy
  - Pre-determination of counting precision
  - The sample material cannot returned to normal use after analysis
56. International Association of Blood stain Pattern Analysis (IABPA) was formed in the year :
- 1972
  - 1983
  - 1985
  - 1989
57. The distance between the first formant and the second formant is the better predictor of :
- Roundness of vowel
  - Height of vowel
  - Opening of vowel
  - Backness of vowel
58. Match the following term used in chromatography with their abbreviation :
- List I**
- N
  - B/A
  - K
  - RT
- List II**
- Dead time
  - Capacity factor
  - Retention time
  - Asymmetry factor
  - Efficiency
- Codes :**
- |     |      |      |       |       |
|-----|------|------|-------|-------|
|     | (a)  | (b)  | (c)   | (d)   |
| (A) | (ii) | (iv) | (i)   | (iii) |
| (B) | (v)  | (iv) | (ii)  | (iii) |
| (C) | (ii) | (v)  | (i)   | (iv)  |
| (D) | (v)  | (ii) | (iii) | (i)   |

59. Match the undermentioned light source in List I with that of corresponding technique in List II :

**List I**

- (a) Low pressure mercury vapour lamp
- (b) High pressure xenon arc lamp
- (c) Nd : YAG laser
- (d) Ordinary tungsten filament lamp

**List II**

- (i) Near infrared
- (ii) Spectrofluorimeter
- (iii) Filter fluorimeter
- (iv) Photoluminescence
- (v) Atomic absorption

**Codes :**

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

60. The major industry identifier (MII) for master card is :

- (A) 3
- (B) 4
- (C) 5
- (D) 6

61. A pronounced alveolar and facial prognathism is an important trait in skulls of :

- (A) Mongoloids
- (B) Caucasoids
- (C) Negroids
- (D) Negroids as well as caucasoids

62. Which of the following is a database for outsole pattern of footwears ?

- (A) AFIS
- (B) CODIS
- (C) SICAR
- (D) CHEMPLAST

63. Pelvic cavity in human female is :

- (A) Longer and more conical
- (B) Shorter, more cylindrical and more spacious
- (C) Shorter, conical and less spacious
- (D) Longer, less cylindrical and less spacious

64. Life cycle of *Musca domestica* in winter season is :

- (A) 5 days
- (B) 10 days
- (C) 15 days
- (D) 22 days

65. Which permanent tooth among humans emerges first ?

- (A) Maxillary central incisor
- (B) First molar
- (C) Maxillary canine
- (D) Mandibular lateral incisor

66. Which of the following hair type/s is/are found in human foetus ?  
(A) Terminal Hair  
(B) Vellus Hair  
(C) Lanugo Hair  
(D) Terminal and Vellus Hair
67. Which of the following is the most suitable casting material for preserving footwear print impression ?  
(A) Plasticine  
(B) Paraffin Wax  
(C) Plaster of Paris  
(D) Zelgan Powder
68. The ends of bones which ossify from secondary centres of ossification are called :  
(A) Epiphysis  
(B) Diaphysis  
(C) Metaphysis  
(D) Periosteum
69. Vomit of bluish-green color is due to acute poisoning of which of the following ?  
(A) Barium carbonate  
(B) Nickel sulphide  
(C) Copper sulphate  
(D) Arsenic trioxide
70. Inter-pupillary distance (IPD) for a lower resolution face image is considered to be less than :  
(A) 40  
(B) 30  
(C) 60  
(D) 50
71. Daugmans rubber sheet model is mostly used for :  
(A) Iris encoding  
(B) Iris normalization  
(C) Iris matching  
(D) Iris segmentation
72. Herzberg's stain is related to the examination of which of the following ?  
(A) Saliva  
(B) Fibre  
(C) Hair  
(D) Vomit
73. A computerized database that allows an analyst to obtain information relative to an individual's DNA profile is :  
(A) PCR  
(B) CODIS  
(C) AFIS  
(D) PDQ
74. Among the following which group of fibres are regenerated from naturally occurring proteins :  
(A) Azlon group  
(B) Rayon  
(C) Sericin  
(D) Synthetic
75. The glass that is made stronger than the ordinary glass by introducing stress through rapid heating and cooling of glass surface is known as :  
(A) Laminated glass  
(B) Tempered glass  
(C) Plasticized glass  
(D) Insulated glass

76. IgG and IgM activate compliment, IgM is better activator the IgG because of :
- (A) Lower molecular weight
  - (B) Lower concentration in blood
  - (C) Pentavalent structure
  - (D) Lack of secretory type
77. Phthalocyanine is an example of :
- (A) Solvent
  - (B) Lacquer
  - (C) Binder
  - (D) Pigment
78. Half life of acid phsophatase in semen stored at 37°C is :
- (A) 12 months
  - (B) 6 months
  - (C) 24 months
  - (D) 6 weeks
79. Dacron is the trade name of :
- (A) Polyethylene tetraphthalate (PET)
  - (B) Dimethylene tetraphthalate
  - (C) Nylon 6, 6
  - (D) Nylon 6
80. The molecular weight of prostate specific antigen is :
- (A) 25 kDa
  - (B) 30 kDa
  - (C) 35 kDa
  - (D) 40 kDa
81. Isoamyl alcohol is added to phenol-chloroform mixture in organic extraction of DNA to :
- (A) Increase concentration of DNA
  - (B) To enhance quality of DNA
  - (C) To reduce foaming
  - (D) To extract proteins from aqueous solution
82. The control region in mitochondrial genome is known as :
- (A) A loop
  - (B) H loop
  - (C) L loop
  - (D) D loop
83. Which of the following enzymes gives fluorescent bands ?
- (A) PGM
  - (B) ESD
  - (C) GLO
  - (D) EAP
84. Multisystem of electrophoresis to analyse isozymes was developed by :
- (A) Culliford
  - (B) Wraxall and Stolorow
  - (C) Rothwell
  - (D) Brinkmann

85. Club shape root in human hair is present in which of the following growth phase ?  
(A) Anagen  
(B) Catagen  
(C) Telogen  
(D) Both Anagen and Catagen
86. Which of the following techniques is preferred to determine the ABO blood group from saliva fluid ?  
(A) Absorption Inhibition Technique  
(B) Absorption Elution Technique  
(C) Latter Technique  
(D) Mixed Agglutination
87. Secretion of prostate glands in male reproductive organs is :  
(A) Alkaline in natural  
(B) Neutral in nature  
(C) Variable in nature  
(D) Acidic in nature
88. After removal of which of the following clear portion of the blood or plasma is called serum ?  
(A) Gamma globulin  
(B) Agglutinin  
(C) Agglutinin  
(D) Fibrinogen
89. Which of the following ASTM standard covers the determination of portland cement content of a sample of hardened hydraulic-cement concrete ?  
(A) ASTM C 1084-10  
(B) ASTM C 1085-11  
(C) ASTM C 1086-07  
(D) ASTM C 1089-03
90. In seminal stains examination, DNA is present in :  
(A) Sperms  
(B) Seminal fluid  
(C) Tail  
(D) Prostate-specific antigen
91. FISH in reference to handwriting examination is an acronym of :  
(A) Forensic Information System for Handwriting  
(B) Forensic Identification of Signature and Handwriting  
(C) Forensic Identification System for Handwriting  
(D) Forensic Identification System for Handwriting and Signature
92. Half choke has the degree of constriction in inches :  
(A) 40/1000  
(B) 30/1000  
(C) 20/1000  
(D) 15/1000

93. Which of the following can be tailor made to suit the ballistics of a particular firearm ?
- (A) Dense powder
  - (B) Bulk powder
  - (C) Progressive powder
  - (D) Black powder
94. Which of the following is the unit for Heat Release Rate (HRR) ?
- (A) Kilowatt
  - (B) Kilo joule
  - (C) Kilowatt per kelvin
  - (D) Kilo joule per kelvin
95. Hang fire is :
- (A) due to higher loading density
  - (B) due to lower loading density
  - (C) due to improper loading density
  - (D) not affected due to loading density
96. Ballistics coefficients is directly proportional to :
- (A) Weight of bullet
  - (B) Diameter of bullet
  - (C) Form factor
  - (D) Type of the bullet
97. The Greenhill formula of rate of twist is based on consideration that specific gravity of bullet is generally :
- (A) 7.9
  - (B) 8.9
  - (C) 9.9
  - (D) 10.9
98. Which of the following refers to shattering power of an explosive ?
- (A) Flame speed
  - (B) Deflagration
  - (C) Detonation
  - (D) Brisance
99. Pressure develop in 0.303 rifle is :
- (A) 3400 kg per cm<sup>2</sup>
  - (B) 500 kg per cm<sup>2</sup>
  - (C) 1000 kg per cm<sup>2</sup>
  - (D) 1500 kg per cm<sup>2</sup>
100. Lead in discharge residue is best identified with :
- (A) X-ray radiography
  - (B) Dermal nitrate test
  - (C) IR photometry
  - (D) UV ray analysis

**JUN - 39219/II—D**

**ROUGH WORK**