

Test Booklet No.

प्रश्नपत्रिका क्र.

M

Paper-III

FORENSIC SCIENCE

Seat No.

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(In figures as in Admit Card)

Signature and Name of Invigilator

1. (Signature)

(Name)

2. (Signature)

(Name)

Seat No.

(In words)

OMR Sheet No.

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(To be filled by the Candidate)

AUG - 39315

Time Allowed : 2½ Hours]

[Maximum Marks : 150

Number of Pages in this Booklet : 24

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 विद्यार्थ्यांला प्रश्नपत्रिका दिली जाईल. सुरुवातीच्या 5 मिनीटांमध्ये आपण सदर प्रश्नपत्रिका उघडून खालील बाबी अवश्य तपासून पहाव्यात.
 - 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 पहावी. 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 काळ/निळ करवा.
उदा. : जर (C) हे योग्य उत्तर असेल तर.

(A)	(B)	(C)	(D)
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- या प्रश्नपत्रिकेतील प्रश्नांची उत्तरे **ओ.एम.आर. उत्तरपत्रिकेतच दर्शावावीत**. 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 व्यतिरिक्त इतर कोठेही नाव, आसन क्रमांक, फोन नंबर किंवा ओळख पटेल अशी कोणतीही खुण केलेली आढळून आल्यास अथवा असभ्य भाषेचा वापर किंवा इतर गैरमागीचा अवलंब केल्यास विद्यार्थ्यांला 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.**
- कॅल्क्युलेटर किंवा लॉग टेबल वापरण्यास परवानगी नाही.**
- चुकीच्या उत्तरासाठी गुण कपात केली जाणार नाही.**

AUG - 39315/III

Forensic Science**Paper III****Time Allowed : 2½ Hours]****[Maximum Marks : 150**

Note : This paper contains **Seventy Five (75)** multiple choice questions, each carrying **Two (2)** marks. Attempt *All* questions.

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|--|---|
| <p>1. The yellow needle shaped crystals produced in barberios test for seminal fluid examination are because of :</p> <p>(A) Choline Iodide</p> <p>(B) Choline Asperase</p> <p>(C) Spermine Picrate</p> <p>(D) Acid Phosphatase</p> <p>2. Fluroglucein test for jute gives :</p> <p>(A) Blue color</p> <p>(B) Brick red color</p> <p>(C) Pink color</p> <p>(D) Pale yellow color</p> | <p>3. Dacron is the trade name of :</p> <p>(A) Polyethylene Tetraphthalate (PET)</p> <p>(B) Dimethylene Tetraphthalate (PCDT)</p> <p>(C) Nylon 6, 6</p> <p>(D) Nylon 6</p> <p>4. Potassium ferricyanide is used for detection of which component of urine ?</p> <p>(A) Urea</p> <p>(B) Creatinine</p> <p>(C) THG</p> <p>(D) Ammonia</p> |
|--|---|
-

5. Which chemical is not responsible for oxidation of disulphide bonds in hair ?
- (A) Hydrogen peroxide
 - (B) Mercapto ethanol
 - (C) Thioglycollic acid
 - (D) Sodium hydroxide
6. For comparison purpose, the difference in refractive index reference and questioned glass must exceed :
- (A) 0.02
 - (B) 0.002
 - (C) 0.0002
 - (D) 0.00002
7. Thymol phthalein test is used to detect the presence of :
- (A) Brick material
 - (B) Cement
 - (C) Dyes
 - (D) Pigments
8. The spacing in between the striations crossed by a tool having thin cutting edge changes with :
- (A) Nature of teeth on tool
 - (B) Angle of tilt
 - (C) Angle of progression
 - (D) Relative hardness of tool and surface

9. When tyre impressions are found at crime scene, it is possible for the forensic examiner to determine :
- (A) The speed at which the vehicle was moving
 - (B) The style and/or manufacturer of the tyre
 - (C) The wear and mileage on the tyre
 - (D) The make and model of the car
10. Release and re-application of brakes is responsible for creation of :
- (A) Impending skid marks
 - (B) Gap skid marks
 - (C) Bounce skid marks
 - (D) Scuff marks
11. The frequency of Carabeli's cusp is higher among :
- (A) Mongoloids
 - (B) Caucasoids
 - (C) Nigroids
 - (D) Mongoloids as well as Nigroids
12. An accessory cusp that is found on the anterior side of the buccal surface of mandible molar, more often on first molar and rarely on second and third molar, is called a :
- (A) Carabeli's cusp
 - (B) Protostylid
 - (C) Enamel pearl
 - (D) Hypocone

13. The most commonly found congenitally missing teeth are :
- (A) Third molar and lateral incisors
 - (B) First molar and canines
 - (C) Canines and second molar
 - (D) Central incisor and second pre-molar
14. Which of the following parameters can be used to determine age from skull of an infant of less than two years of age ?
- (A) Closure of sagittal suture
 - (B) Emergence of permanent teeth
 - (C) Closure of frontanelles
 - (D) Closure of basilar suture
15. The sex of an unknown human pelvis can be better found out from which of the following parameters ?
- (A) Sub-pubic angle and width and depth of greater sciatic notch
 - (B) Length of ilium
 - (C) Size of obturator foramen
 - (D) Thickness of sacrum
16. What is FORDISC ?
- (A) It is a government agency that gives money to forensic anthropologists
 - (B) A special school for forensic anthropology
 - (C) An acronym for Forensic Odontological Research, Department of Intensive Skeletal Collection
 - (D) It is a computer program used to perform metric analyses on contemporary skeletal remains

17. The divergence in signature which encounters infrequently is better known as :

- (A) Spurious signature
- (B) Accidental variation
- (C) Receipt signature
- (D) Natural variation

18. In case of "Dye Sublimation" printing technology, the type of ink used is :

- (A) Liquid ink
- (B) Resinous ink
- (C) Dry toner
- (D) Liquid toner

19. Two approaches utilized for latent print identification and individualization are :

- (A) Systems engineering and human problem solving techniques
- (B) Human problem solving techniques and data reduction techniques
- (C) Data processing and data reduction
- (D) Human agronomics and system engineering

20. **Assertion (A) :**

The initial identification of the latent print is made by comparing it with the inked print using 2X or 3X magnifiers

Reason (R) :

The magnification results into more clarity to the fingerprint for comparison

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

21. For developing latent print on mirror, it is most suitable to use :

- (A) Black powder
- (B) Gray powder
- (C) Manganese dioxide powder
- (D) A mixture of carbon and ferric oxide powder

22. The fingerprint pattern may be impaired permanently in case of :

- (A) Scabies
- (B) Scalds
- (C) Eczema
- (D) Leprosy

23. Average number of ridge characteristics found in a fingerprint is :
- (A) 225
 - (B) 150
 - (C) 310
 - (D) 65
24. Latent prints developed with which of the following methods may be further enhanced by staining with either Gentian Violet or Coumarin 540 laser dye or Rhodamine 6G dye ?
- (A) Ninhydrin
 - (B) Iodine fuming
 - (C) Alkyl-2-cyanoacrylate method
 - (D) Osmic acid fuming method
25. Which was the original fingerprint system adopted by Scotland Yard in 1901 that converted ridge patterns on all ten fingers into a series of letters and numbers arranged in the form of fractions ?
- (A) Bertillon system
 - (B) William Herschel system
 - (C) Galton system
 - (D) Henry system
26. The credit for developing edgeoscopy goes to :
- (A) Francis Galton
 - (B) Rene Forgeot
 - (C) Salil K. Chatterjee
 - (D) Richard Henry

27. Which of the following is *not* correct regarding diatoms ?

(A) Diatoms are aquatic unicellular plants

(B) Diatoms have an extracellular part composed of magnesium

(C) Acid digestion technique is used to extract diatom

(D) Presence of diatom in the bone marrow is an indication of antemortem aspiration of water

28. 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

29. The change from fetal haemoglobin to adult haemoglobin is helpful in assessing :

(A) Period of survival of a newborn infant after birth, particularly in the first six months

(B) Age of an adult

(C) Age of a juvenile

(D) Age of an adolescent

30. The large averted and irregular sized of wound is suggestive of :

- (A) Entry wound of gun
- (B) Exit wound of gun
- (C) Stab wound
- (D) Lacerated wound by blunt object

31. In which of the following asphyxial death, there is no pressure over the neck structure :

- (A) Hanging
- (B) Throttling
- (C) Ligature strangulation
- (D) Gagging

32. The alleged impact of lunar cycle on human criminal behaviour is :

- (A) Lunar effect
- (B) Transylvania effect
- (C) Hauling effect
- (D) Cosmo effect

33. In case of an attack by a wild animal results in which kind of wound ?

- (A) Lacerated
- (B) Bruise
- (C) Gun-shot
- (D) Blunt

34. Polygraph doesn't detect :

- (A) Blood pressure
- (B) P-300
- (C) Respiration
- (D) GSR

35. The term "document" is defined under :

- (A) Section-3 of Indian Evidence Act, 1872
- (B) Section-6 of Indian Evidence Act, 1872
- (C) Section-3 of Indian Penal Code, 1860
- (D) Section-6 of Indian Penal Code, 1860

36. Tsuchihashi's classification is associated with :

- (A) Podography
- (B) Cheiloscopy
- (C) Dactylography
- (D) Ear print

37. Inventor of MAGNA brush used for fingerprint development was :

- (A) Marcello Malphigi
- (B) Henry Faulds
- (C) James Marsh
- (D) Herbert L. McDonnell

38. Section 376 of IPC 1860 was ammended in which of the following years ?

- (A) 2010
- (B) 2011
- (C) 2012
- (D) 2013

39. **Assertion (A) :**

It is always easy to differentiate between class and individual characteristics

Reason (R) :

Class characteristics are common to a particular group

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

40. Which of the following is the *correct* sequence for examination of Forensic evidence ?

- (A) Recognition, Identification, Individualization and Reconstruction
- (B) Recognition, Individualization, Identification and Reconstruction
- (C) Identification, Recognition, Individualization and Reconstruction
- (D) Individualization, Recognition, Identification and Reconstruction

41. The first forensic science laboratory was established in India in which of the following years ?
- (A) 1931
 - (B) 1941
 - (C) 1951
 - (D) 1961
42. A non-destructive instrumental method for determining crystalline structure of chemical compound is :
- (A) X-ray diffraction
 - (B) Emission spectrography
 - (C) Pyrolysis gas chromatography
 - (D) IR-spectroscopy
43. Head space GC is used for the analysis of :
- (A) Paint
 - (B) Blood Alcohol
 - (C) Benzodizepine
 - (D) Morphine
44. Total reflection X-ray fluorescence is a relatively new technique designed for :
- (A) Surface analysis of semi-conductor
 - (B) Surface analysis of glass
 - (C) Surface analysis of plastic
 - (D) Depth analysis of glass

45. The Beer Lambert's law gives a linear correlation with positive gradient between :
- (A) Wavelength and absorbance
- (B) Molar extinction coefficient and concentration
- (C) Molar extinction coefficient and absorbance
- (D) Absorbance and concentration
46. FID, ECD and NPD are detectors commonly used in :
- (A) GC
- (B) HPLC
- (C) HPTLC
- (D) CE
47. Stereomicroscope can be best described as :
- (A) Two comparison microscopes aligned with a comparison bridge
- (B) Two compound microscopes aligned so that each of them can see a slightly different part of an object
- (C) A compound microscope with two separate stage and one ocular
- (D) A compound microscope with two eyepiece and a camera mount

48. In SEM, secondary electrons :

(A) strike the object releasing other
electron

(B) strike the object and then reflect
from the surface

(C) are emitted when a beam of
primary electrons strike the
object

(D) are emitted by the nucleus of
the various elements when the
object is struck by a beam of
X-ray

49. Which of the following microscopes
has the highest resolution ?

(A) SEM

(B) TEM

(C) Stereomicroscope

(D) Fluorescence microscope

50. Wavelength range of vacuum UV
radiation is :

(A) 210-290 nm

(B) 250-400 nm

(C) 400-600 nm

(D) 100-200 nm

51. Flavouring and coloring agents in alcohol are collectively called as :

- (A) Kick enhancing agent
- (B) Additives
- (C) Congenerics
- (D) Fillers

52. The blue color of PDS Kerosene is due to the presence of :

- (A) Rhodamine-B
- (B) Fast Blue-B
- (C) Di-alkyl amino anthraquinone
- (D) Phenyl azo-2-naphthol

53. **Assertion (A) :**

Derivatives of phosphoric acid having insecticidal activity are safe for mammals

Reason (R) :

The replacement of one of the oxygen atoms by sulphur in the derivatives of phosphoric acid decreases the toxicity of compound related to mammals

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

54. "Crack" is abused through :

- (A) Snorting
- (B) Oral ingestion
- (C) Injection
- (D) Inhalation

55. Metallic poisons obtained after dry ashing method are analyzed using :

- (A) Gel chromatography
- (B) Ion chromatography
- (C) Gas chromatography
- (D) Micellar electrokinetic capillary chromatography

56. Which of the following is *not* classified as hallucinogen ?

- (A) Marijuana
- (B) Methadone
- (C) Psilocybin
- (D) LSD

57. Person who hide banned drugs into their body for the purpose of smuggling is known as :

- (A) Drug Tourist
- (B) Back Packers
- (C) Stuffers
- (D) Middle man

58. Which of the following is *not* an alkaloid of opium ?

- (A) Codeine
- (B) Narcotine
- (C) Morphine
- (D) Ecgonine

59. Which of the following is known as “Date Rape Drug” ?

- (A) Heroin
- (B) Cocaine
- (C) Charas
- (D) Flunitrazepam

60. Heat of conversion of explosive into gases is of the order of :

- (A) Milli-sec.
- (B) Micro-sec.
- (C) Nano-sec.
- (D) Pico-sec.

61. Which of the following is a liquid explosive ?

- (A) PETN
- (B) RDX
- (C) TATP
- (D) HMX

62. In a 7.62×39 mm cartridge, the two figures represents :

(A) Calibre of the firearm from which it is fired and the length of the cartridge

(B) Calibre of the firearm from which it is fired and length of the cartridge case

(C) Calibre of the firearm from which it is fired and length of the bullet loaded in cartridge

(D) Calibre and length of the chamber of the firearm from which it is fired

63. When alcohol is burnt, the flame is of :

(A) Red color

(B) Yellow/Orange color

(C) Blue color

(D) Pale yellow color

64. Secret writing written by which of the following can not be deciphered using heat treatment ?

(A) Lemon juice

(B) Saliva

(C) Onion juice

(D) Pineapple juice

65. "FACTS" in case of fingerprint

examination stands for :

(A) Fingerprint analysis and

criminal tracing system

(B) Fingerprint assessment and

criminal tracing system

(C) Fingerprint analysis and

criminal tracking system

(D) Fingerprint analysis and

criminal transfer system

66. The amplification curve produced by

PCR is :

(A) Linear

(B) Parabola

(C) S-shaped

(D) Inverted

67. The temperature required for

denaturation of DNA in PCR

is :

(A) 75°C

(B) 95°C

(C) 4°C

(D) 60°C

68. The negative controls in amplification contains all PCR components, *except* :

- (A) Template
- (B) Polymerase
- (C) Magnesium
- (D) dNTPs

69. The role of magnesium in PCR is :

- (A) To inhibit DNA degradation
- (B) Required by DNA polymerase
- (C) Required for annealing
- (D) Required for denaturation step

70. Which is *not* a step in Southern blotting procedure ?

- (A) Ligation of DNA into vector
- (B) Separation of DNA fragments on a gel
- (C) Transfer of DNA fragments to a nitrocellulose membrane
- (D) Hybridization of the membrane with a labelled probe

71. Didioxy DNA sequence exclusively depends on one of the following :

- (A) Termination
- (B) ATP
- (C) Plasmid vector
- (D) Vector primer

72. Polymerase chain reaction is considered revolutionary technology because of all of the following, *except* :

- (A) It enables an unlimited production of DNA fragments in-vitro
- (B) It is highly sensitive technology
- (C) Its experimental protocol is simple
- (D) It enables the direct production of synthetic gene that did not exist before

73. Which of the following is *not* a primary blood group ?

- (A) Kell
- (B) Lewis
- (C) Auberger
- (D) Lutheram

74. Which of the following components of human blood can be used to determine sex ?

- (A) Erythrocytes
- (B) Thrombocytes
- (C) Leucocytes
- (D) Haemoglobin

75. The agglutinins for M and N antigens :

- (A) Always occur in human blood
- (B) Seldom occur in human blood
- (C) Occur in human saliva only
- (D) Occur in human bile only

AUG - 39315/III

ROUGH WORK