D 123850 (Pages : 18) Name.....

Reg. No.....

CALICUT UNIVERSITY CENTRALIZED ENTRANCE TEST (CU-CET)
APRIL 2025

M.Sc. FORENSIC SCIENCE

Time : Two Hours Maximum : 400 Marks

Each question carries 4 marks.

One mark will be deducted for each wrong answer.

1. A cube has a side of 1.2 cm. The volume of the cube up to appropriate significant figures is :

   (a) 1.7 cm^3. (b) 17.3 cm^3.

   (c) 1.73 cm^3. (d) 1.728 cm^3.

2. A projectile has a maximum range of 200 m. What is the maximum height attained by it ?

   (a) 50 m. (b) 25 m.

   (c) 75 m. (d) 100 m.

3. A bullet, incident normally on a wooden plank, loses one-tenth of its speed in passing through the plank. The least number of such planks required to stop the bullet is :

   (a) 5. (b) 6.

   (c) 7. (d) 8.

4. Which of the following electromagnetic waves has the highest frequency ?

   (a) Radio waves. (b) Visible light.

   (c) Microwaves. (d) Ultraviolet rays.

5. Water flows through a horizontal pipe of diameter 2 cm at a speed of 3 cms^{-1}. The pipe has a nozzle of diameter 5 mm. at its end. The speed of water emerging from the nozzle is :

   (a) 24 cm^{-1}. (b) 12 cms^{-1}.

   (c) 6 cms^{-1}. (d) 3 cms^{-1}.

6. When a solid metallic sphere is heated, the largest percentage increase occurs in its :

(a) Surface area. (b) Density.

(c) Diameter. (d) Volume.

7. An electric dipole placed in a non-uniform electric filed experiences :

(a) A force but no torque. (b) A force as well as a torque.

(c) A torque but no force. (d) Neither a force nor a torque.

8. Which of the following cannot be used as a dielectric in a capacitor ?

(a) Copper. (b) Paper.

(c) Glass. (d) Oil.

9. A hollow thin convex lens made of glass is placed in air. It will behave like a :

(a) Glass plate. (b) Prism.

(c) Convex lens. (d) Concave lens.

10. When a ray of light enters a glass slab from air ?

(a) Its wavelength increases.

(b) Its wavelength decreases.

(c) Its frequency increases.

(d) Neither wavelength nor frequency changes.

11. The radius of a nucleus is :

(a) Proportional to its mass number.

(b) Proportional to the cube root of its mass number.

(c) Inversely proportional to its mass number.

(d) Not related to its mass number.

12. The half-life of a radioactive substance is 30 days. The time taken for 3/4 of its original mass to disintegrate is :

(a) 90 days. (b) 75 days.

(c) 60 days. (d) 45 days.

13. At critical point :

(a) Latent heat becomes infinite.

(b) Liquid state is not possible.

(c) Latent heat becomes zero.

(d) Gaseous state is not possible.

14. The intensity of gravitational filed inside a hollow spherical shell is :

(a) Zero. (b) Variable.

(c) Minimum. (d) Maximum.

15. The absoiptive power of a perfectly black body is :

(a) Zero. (b) 1.

(c) Infinite. (d) None of the above.

16. Bernoulli's theorem is a consequence of law of conservation of :

(a) Angular momentum. (b) Momentum.

(c) Energy. (d) Mass.

17. The standard scale of temperature is:

(a) Gas scale. (b) Celsius scale.

(c) Kelvin scale. (d) Mercury scale.

18. The focal length of a convex lens is maximum for :

(a) Red. (b) Blue.

(c) Yellow. (d) Green.

19. The blue colour of sky is explained by :

(a) Scattering. (b) Reflection.

(c) Refraction. (d) Polarization.

20. A stationary police car sounds a siren with a frequency of 990 Hz. If the speed of sound is 330 m/s, an observer, driving towards the car with a speed of 33.m/s, will hear a frequency of :

(a) 1100 Hz. (b) 891 Hz.

(c) 900 Hz. (d) 1089 Hz.

21. A particle executes a simple harmonic motion of time period 'T' Find the time taken by the particle to go directly from its mean position to half the amplitude.

(a) T/ 12. (b) T/4.

(c) T/2. (d) T/8.

22. A 2kg. mass starts from rest on an inclined smooth surface with inclination 30° and length 2 m. How much will it travel before coming to rest on a frictional surface with frictional coefficient 0.25 ?

(a) 2 m. (b) 8 m.

(c) 6 m. (d) 4 m.

23. A cricketer can throw a ball to a maximum horizontal distance of 100 m. With the same effort, he throws the ball vertically upwards. The maximum height attained by the ball is :

(a) 50 m. (b) 60 m.

(c) 100 m. (d) 150 m.

24. Which law of motion explains the recoil of a firearm ?

(a) Newton's First Law.

(b) Newton's Second Law.

(c) Newton's Third Law.

(d) Law of Conservation of Energy

25. Which of the following factors influences the trajectory of a projectile ?

(a) Gravity. (b) Air resistance.

(c) Initial velocity. (d) All of the above.

26. Match the following from column A and B and select the correct option :

A		B	
1	Unicellular glands	a	Goblet cells.
2	Specialised connective tissue	b	Fibroblasts, Mast cells and macrophages.
3	Dense regular tissue	c	Skin.
4	Dense irregular tissue	d	Cartilage, Bone and Blood.
5	Loose connective tissue	e	Tendon and Ligament

(a) 1-b, 2-a, 3-e, 4-c, 5-d. (b) 1-a, 2-d, 3-e, 4-c, 5-b.

(c) 1-a, 2-d, 3-e, 4-b, 5-c. (d) 1-c, 2-e, 3-d, 4-a, 5-b.

27. Which of the following is the correct sequence of different layers of the wall of alimentary canal from outside to inside :

(a) Mucosa → Muscularis → Submucosa → Serosa.

(b) Mucosa → Submucosa → Muscularis → Serosa.

(c) Serosa → Muscularis → Submucosa → Mucosa.

(d) Mucosa → Submucosa → Serosa→ Muscularis.

28. Smallest salivary gland found below tongue is :

(a) Parotid. (b) Sublingual.

(c) Sub mandibular. (d) Submaxillary.

29. Which of the following are the contents of gastric juice ?

(a) Mucous, Pepsinogen, HCL, Ptyalin and CIF.

(b) Mucous, HCL, Pepsinogen, Prorennin and CIF.

(c) Mucous, Histamin, HCL, Serotonin and Lysozyme.

(d) Mucous, Pepsinogen, HCL, Histamin and Trypsin.

30. The partial pressure of oxygen in the alveolar air :

(a) 45mmHg. (b) 95mmHg.

(c) 104mmHg. (d) 110mmHg.

31. The haemoglobin of a human foetus:

(a) Has only two protein subunits instead of four.

(b) Has higher affinity for O_2 than that of an adult.

(c) Has lower affinity for O_2 than that of an adult.

(d) Its affinity for O_2 is the same as that of an adult.

32. All the following are anticoagulants except :

(a) EDTA. (b) Anti-thrombin.

(c) Heparin. (d) Histamine.

33. The glomerular filtrate contains :

(a) Blood minus cells and proteins.

(b) Blood minus cells.

(c) Blood minus proteins.

(d) Plasma minus cells and proteins.

34. Arrange the events in muscle contraction in correct sequence :

(a) Cross bridge formation due to energy from ATP hydrolysis.

(b) Sliding of actin filaments.

(c) Release of acetylcholine at the motor end plate due to signals from CNS.

(d) Binding of calcium with troponin.

(a) (a), (b), (c), (d). (b) (c), (d), (a), (b).

(c) (c), (b), (d), (a). (d) (c), (d), (b), (a).

35. Which is incorrect regarding each joint and its two examples ?

(a)	Pivot joint	1. between atlas and axes.
		2. between radius and ulna.
(b)	Hinge joint	1. Elbow joint, knee joint.
		2. Inter phalangial joint.
(c)	Gliding/Sliding joint	1. Between carpals in the wrist.
		2. Between tarsals in the ankle.
(d)	Saddle joint	1. Metacarpophalangeal joints.
		2. Carpometacarpal joint of thumb.

36. Which of the following statement is not true ?

(a) Na+–K+ pumps are active in a resting neuron.

(b) Na+–K+ pumps expel 2Na+ for 3K+ into the cell.

(c) Resting potential is –70 mV and action potential is +30mV.

(d) Resting potential is maintained by K+ and action potential is developed by Na+.

37. Brain stem consists of :

(a) Cerebrum, Thalamus and Hypothalamus.

(b) Midbrain and Hindbrain except Cerebellum.

(c) Cerebellum, Pons varoli and Medulla oblongata.

(d) Amygdala, Hippocampus, Basal ganglia etc.

38. Which hormone is incorrectly paired with its action ?

(a) Thyroxine-stimulates metabolic processes.

(b) Insulin-stimulates glycogen breakdown in the liver.

(c) ACTH-stimulates the release of glucocorticoids by the adrenal cortex.

(d) Melatonin-affects biological rhythms.

39. The male germ cells undergo division to produce sperms by the process of spermatogenesis. Choose the correct one with reference to the above.

(a) Primary spermatocytes divide by mitotic cell division.

(b) Spermatozoa are transformed into spermatids.

(c) Spermatogonia have 46 chromosomes and always undergo meiotic cell division.

(d) Secondary spermatocytes have 23 chromosomes and undergo second meiotic division.

40. Identical twins are also known as :

(a) Dizygotic twins.

(b) Fraternal twins.

(c) Monozygotic twins.

(d) Both (a) and (b).

41. LSD is derived from :

(a) *Claviceps purpurea*.

(b) *Pseudomonas putida*.

(c) *Cannabis sativa*.

(d) *Cannabis indica*.

42. A sexually transmitted bacterial disease :

(a) AIDS.

(b) Syphilis.

(c) Herpes.

(d) Hepatitis.

43. Rejection of tissue or graft transplants is brought about mainly by :

(a) Cytotoxic T cells.

(b) Suppersser T cells.

(c) B cells.

(d) Monocytes.

44. One of the synthetic auxin is :

(a) NAA.

(b) IAA.

(c) GA.

(d) ABA.

45. In mitochondria, protons accumulate in the :

(a) Outer membrane.

(b) Inner membrane.

(c) Intermembrane space.

(d) Matrix.

46. An analysis of chromosomal DNA using the southern hybridization technique does not use :

(a) Electrophoresis. (b) Blotting.

(c) Autoradiography. (d) PCR.

47. Which of the following is a restriction endo-nucleus :

(a) Hind II. (b) Protease

(c) DNase I. (d) RNase.

48. Cryopreservation of gametes of threatened species in viable and fertile condition can be referred to as :

(a) In situ conservation of biodiversity.

(b) Advanced ex situ conservation of biodiversity.

(c) In situ conservation by sacred groves.

(d) In situ cryo-conservation of biodiversity.

49. The organization which publishes the red list species is :

(a) ICFRE. (b) IUCN.

(c) UNEF. (d) WWF.

50. The Air prevention and control of pollution Act came in to force in :

(a) 1975. (b) 1981.

(c) 1985. (d) 1990.

51. Which of the following is a metalloid ?

(a) Silicon. (b) Sodium.

(c) Calcium. (d) Chlorine.

52. If the following solutions are equimolar, then which one will record the highest pH ?

(a) $BaCl_2$. (b) LiCl.

(c) $AlCl_3$. (d) $BeCl_2$.

53. Find out the amphoteric oxide among these oxides.

(a) BaO. (b) MgO.

(c) BeO. (d) CaO.

54. The structure of graphite is similar to :

(a) B. (b) BN.

(c) B_4C. (d) B_2H_6.

55. In the ozonolysis reaction, acetylene forms :

(a) Formaldehyde. (b) Glycol.

(c) Glyoxal, formic acid. (d) None of the above.

56. Which of the following factor affects the heat of reaction based on Kirchhoff equation ?

(a) Molecularity. (b) Temperature.

(c) Pressure. (d) Volume.

57. The alcohol which does not react with Lucas reagent is :

(a) Isobutyl alcohol. (b) *n*-butanol.

(c) Tert-butyl alcohol. (d) Sec-butyl alcohol.

58. The number of atoms present in 0.1 moles of a triatomic gas is :

(a) 1.806 × 1023. (b) 1.806 × 1022.

(c) 3.600 × 1023. (d) 6.026 × 1022.

59. Pressure has the same dimension as ————.

(a) Energy per unit volume. (b) Energy.

(c) Force per unit volume. (d) Force.

60. Find the secondary pollutant among these :

(a) PAN. (b) N_2O.

(c) SO_2. (d) CO_2.

61. The gram equivalent weight of H_2O_2 as a reductant is :

(a) 34. (b) 68.

(c) 18. (d) 17.

62. Which of the following contains peroxide linkage ?

(a) SO_2. (b) MnO_2.

(c) NO_2. (d) BaO_2.

63. Choose the process by which liquid hydrocarbons can be converted to gaseous hydrocarbons :

(a) Hydrolysis.

(b) Oxidation.

(c) Cracking.

(d) Distillation under reduced pressure.

64. Nylon threads are made of :

(a) Polyester polymer. (b) Polyamide polymer.

(c) Polyethylene polymer. (d) Polyvinyl polymer.

65. Which one of the following is an example of adsorption ?

(a) Ammonia in contact with water.

(b) Anhydrous $CaCl_2$ with water.

(c) Silica gel in contact with water vapours.

(d) All of the above.

66. An emulsifier is a substance which ?

(a) Stabilizes the emulsion.

(b) Coagulates the emulsion.

(c) Retards the dispersion of liquid in liquid.

(d) Causes homogenesis of emulsion.

67. All compounds are in equilibrium in a reversible reaction. If reactants are doubled in concentration the equilibrium constant would be :

(a) Reduced to half its original value.

(b) Reduced to one-fourth of its original value.

(c) Doubled.

(d) Constant.

68. In 1984, the Bhopal gas tragedy took place because methyl isocyanate :

(a) Reacted with ammonia.

(b) Reacted with water.

(c) Reacted with DDT.

(d) Reacted with CO2.

69. C_6H_5CHO is formed when C_6H_6 is treated with CO and HCl in the presence of anhydrous $AlCl_3$. Name of the reaction is :

(a) Friedel crafts reaction.

(b) Gattermann Koch reaction.

(c) Rosenmund reaction.

(d) Stephen reaction.

70. Molecules are held together in a crystal by :

(a) Hydrogen bond.

(b) Electrostatic attraction.

(c) Van der Waal's attraction.

(d) Dipole-dipole attraction.

71. Which one has a pyramidal shape ?

(a) SO_3.

(b) PCl_3.

(c) $CO3^{2-}$.

(d) NO_3-.

72. Which of the following is not a valid example of a non-Newtonian fluid ?

(a) Ketchup.

(b) Toothpaste.

(c) Honey.

(d) Water.

73. Which of the following is an example of a structural protein ?

(a) Insulin.

(b) Hemoglobin.

(c) Collagen.

(d) Albumin.

74. Which of the following is a common ingredient in sunscreen that absorbs UV radiation ?

(a) Zinc oxide.
(b) Titanium dioxide.
(c) Octinoxate.
(d) Benzophenone-3.

75. Which of the following is the oxygen binding site of the hemoglobin ?

(a) N-terminal of the beta subunit.
(b) Carboxyterminal of both alpha and beta subunits.
(c) Ferric ion (Fe^{+3}) of the heme molecule.
(d) Ferrous ion (Fe^{+2}) of the heme molecule.

76. Match the exhibits with the analytical division :

A	B
(1) Firearm	(a) Biology.
(2) Hair	b) Ballistics.
(3) Disputed signature	c) Documents.
(4) Poison	d) Toxicology.

(a) 1-b, 2-a, 3-c, 4-d
(b) 1-a, 2-b, 3-c, 4-d
(c) 1-c, 2-d, 3-a, 4-b
(d) 1-d, 2-c, 3-b, 4-a

77. Who discovered blood grouping can be used for individual identification ?

(a) Carl Lattes.
(b) Leone Lattes.
(c) Gregor Lattes.
(d) Antonie Van Lattes.

78. Which of the following statement define the term "CSI effect" ?

(a) Nausea and dizziness by crime scene investigators on their first visit.
(b) Unrealistic expectations of forensic science for solving a case.
(c) Why crime happens in a certain condition.
(d) Crime scene investigators influences in solving the case.

79. Which of the following defines physical evidence ?

(a) Any object that can establish that a crime has been committed or can link a crime and its victim.

(b) Any object that can establish that a crime has or has been committed or can link a crime and its victim.

(c) Any object that can establish that a crime has been committed or can link a crime and victim or its perpetrator.

(d) Any object that can establish that a crime has or has not been committed or can link a crime and its victim or its perpetrator.

80. A serial killer targets young women and always uses a specific type of rope to bind their hands, leaves a small, silver ring on the victim's finger and writes a message on the wall using the victim's blood. In forensic terms, the manner of killing is called be :

(a) Modus operandi. (b) Corpus delicti.

(c) Signature Delicti. (d) Both (a) and (c).

81. Oath is administered to a witness before recording his statement. What purpose does it serve ?

(a) It puts the witness under fear of God, so that he speaks the truth.

(b) It is merely a relic of the past that serves no useful purpose today.

(c) It is done mainly to satisfy the lawyer of the opposite party.

(d) It makes a witness liable for perjury if he does not speak the truth.

82. Which drug is used in carrying out 'Narco nalysis' ?

(a) Sodium narcol. (b) Sodium amylate.

(c) Sodium pentothal. (d) Amphetamine.

83. For comparison of bullets, following microscope is used for identification ?

(a) Fluorescent microscope. (b) Polarizing microscope.

(c) Neuron microscope. (d) Comparison microscope.

84. The visible spectrum in EMR has the following range :

(a) 3700 – 7800 A°. (b) 8000 – 12000 A°.

(c) 12000 – 18000 A°. (d) 18000 – 25000 A°.

85. Which of the following laws governs gas-liquid chromatography ?

(a) Henry's Law. (b) Piobert's Law.

(c) Lebuc's Law. (d) Beer's Law

86. Bloodstained clothes collected from the scene of the crime should be sent for examination :

(a) As such without drying after vacuum sealing in a plastic bag.

(b) After drying in the sun.

(c) After drying in sun and seal it in a plastic bag.

(d) After drying in shade at room temperature.

87. The incidence of blood groups in the Indian population is in the following sequence :

(a) A, O, B, AB. (b) O, A, B, AB.

(c) O, B, A, AB. (d) AB, O, B, A.

88. Structure of DNA, carrier of the genetic blueprint of all biological organisms has been reported by :

(a) Alec Jeffreys. (b) Muller.

(c) Crick and Watson. (d) E.M. Southern.

89. 'Proof' in alcoholic drinks is :

(a) Equals to the percentage of alcohol contents.

(b) 12/13 parts of alcohol percentage.

(c) Twice of the percentage of alcohol contents.

(d) 8 % of the alcoholic percentage.

90. ACE-V in fingerprints terminology stands for :

(a) Association, Comparison, Evaluation, Verification.

(b) Analysis, Comparison, Expertise, Verification.

(c) Analysis, Correlation Evaluation, Verification.

(d) Analysis, Comparison, Evaluation, Verification.

91. National Forensic Infrastructure Enhancement Scheme (NFIES) was announced in which year ?

(a) 2024. (b) 2023.

(c) 2022. (d) 2021.

92. IMEI in mobile device forensic stands for :

(a) International Mobile Equipment Identity.

(b) International Mobile Evidence Identity.

(c) Integrated Mobile Evidence Identification.

(d) International Machine Equipment Identifier.

93. Key loggers are a form of :

(a) Spyware. (b) Shoulder surfing.

(c) Trojan. (d) Social engineering.

94. In network protocol TCP/IP stands for :

(a) Transaction Control Protocol.

(b) Transmission Control Protocol.

(c) Transmission Contribution Protocol.

(d) None of the above.

95. Following is the correct order of volatility of data collection :

(a) CPU registers and cache.

(b) RAM.

(c) Network connection.

(d) Temporary file system.

(e) Storage disk.

Choose the correct option from the list :

(a) (a), (b), (c), (d), (e).

(b) (a), (c), (d), (b), (e).

(c) (a), (c), (b), (d), (e).

(d) (a), (d), (c), (b), (e).

96. Which of the following have the capability of spreading itself ? It doesn't require the host and human support to spread :

(a) Virus.

(b) Trojan.

(c) Worm.

(d) Bug.

97. Which attack allows the attacker to execute the scripts on the victim's browser ?

(a) SSL attack.

(b) Cookie attack.

(c) Banner grabbing.

(d) XSS attack.

98. In an asymmetric key cipher, the sender uses the key.

(a) Private.

(b) Public.

(c) Either (a) or (b).

(d) Neither (a) nor (b).

99. Which number is commonly printed on the SIM cards ?

(a) IMSI number.

(b) ICCID Number.

(c) Both (a) and (b).

(d) None of the above

100. The word 4 in "4G LTE" signifies :

(a) Fastest Generation of Evolution.

(b) Fourth Generation of Speed.

(c) Fourth Generation of Mobile Development.

(d) Fourth Generation of Coverage of Networks.