D 144464 (Pages : 15) Name.....

Reg. No.....

CALICUT UNIVERSITY COMMON ENTRANCE TEST (CU-CET), APRIL 2026

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

A	B
1 Muscidae	a Division.
2 Diptera	b Family.
3 Angiospermae	c Class.
4 Dicotyledonae	d Order.

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

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

2. Which of the following is the correct sequence of cell stage in spermatogenesis ?

(A) Spermatocytes → Spermatids → Spermatogonia → Spermatozoa.

(B) Spermatogonia → Spermatids → Spermatocytes → Spermatozoa.

(C) Spermatocytes → Spermatogonia → Spermatids → Spermatozoa.

(D) Spermatogonia → Spermatocytes → Spermatids → Spermatozoa.

3. Which ion is necessary for the contraction of a muscle and nerve impulse transmission ?

(A) N +. (B) K +.

(C) Ca ++. (D) None of the above.

4. Bipolar neurons are found in :

(A) Brain. (B) Spinal cord.

(C) Embryonic stages. (D) Olfactory epithelium.

5. On an average, how much urea is excreted out per day by an adult human :

(A) 45-50 g. (B) 95-100 g.

(C) 25-30 g. (D) 10-15 g.

6. A microorganism that is eliminated in canned foods :

(A) Clostridium botulinum.

(B) Lactobacillus.

(C) Mycobacterium tuberculosis.

(D) Coxiella burnetti.

7. If a double stranded DNA has 20 % cytosine, what will be the percentage of adenine in it ?

(A) 20 %. (B) 40 %.

(C) 30 %. (D) 60 %.

8. The clavicle is articulated with the following :

(A) Xiphoid process of the sternum.

(B) Acromion of the scapula.

(C) The glenoid cavity of the scapula.

(D) Head of the humerus.

9. Arrange the various steps in the DNA fingerprinting technique in the correct order.

a Separation of DNA fragments by electrophoresis.

b Digestion of DNA fragments by restriction endonuclease.

c Hybridization using labeled VNTR probe.

d Isolation of DNA.

e Detection of hybridized DNA fragments by autoradiography.

f Transferring the separated DNA fragments to nitrocellulose membrane.

(A) b, a, e, c, d, f. (B) d, a, b, c, f, e.

(C) d, b, a, f, c, e. (D) c, e ,d, b, a, f.

10. Which is correct regarding the types of amino acids and its examples ?

(A) Acidic Amino acid	Lycine
(B) Basic Amino acid	Tyrosine
(C) Neutral Amino acid	Valine
(D) Aromatic amino acid	Glutamic acid

11. Which of the following statement is not true in the context of muscle contraction ?

(A) Z discs are drawn toward each other.

(B) Acetylcholinesterase is released from the synaptic end bulbs of a neuron.

(C) Movement is caused by the power stroe of myosin cross bridges.

(D) Ca++ ions and ATP are required for the muscle to contract.

12. The percentage of crossing over is more when ?

(A) Genes are located in a different cell.

(B) Genes are not linked.

(C) Linked genes are located close to each other.

(D) Linked genes are located far apart from each other.

13. The only connective tissue without fibro blasts is :

(A) Areolar connective tissue.

(B) Bone.

(C) Cartilage.

(D) Blood.

14. Which of these statements is not true regarding amino acids ?

(A) The amino group is ionizable.

(B) The acidic group is ionizable.

(C) Structure remains same at different pH.

(D) Glycine is the simplest amino acid.

15. How many carbon atoms do five molecules of pyruvic acid contain ?

(A) 25. (B) 5.

(C) 15. (D) 20.

16. How is pleiotropy different from polygenic inheritance ?

(A) A single gene can exhibit multiple expressions.

(B) A single gene exhibits only a single expression.

(C) Two genes exhibit a single character.

(D) Multiple genes control a single character.

17. The small peaks achieved by the repetitive DNA during the density gradient centrifugation process of DNA fingerprinting known as :

(A) Non repetitive DNA. (B) Trough.

(C) Satellite DNA. (D) Histone DNA.

18. Which of the following immunoglobulins is also called secretory immunoglobulin ?

(A) IgG. (B) IgA.

(C) IgM. (D) IgE.

19. Restriction enzymes belong to a larger class of enzymes called ————.

(A) Proteins. (B) Proenzymes

(C) Nucleases. (D) Isozymes.

20. Emphysema is marked by ————.

(A) Inflammation of nasal passage. (B) Twisting of trachea.

(C) Filling of mucous in lungs. (D) Damage of alveolar walls.

21. Which of these is not a part of hind brain ?

(A) Hippocampus. (B) Pons.

(C) Medulla oblongata. (D) Cerebellum.

22. What is the average number of leucocytes per cubic mm of blood :

(A) 10000-20000. (B) 5-5.5 million.

(C) 6000-8000. (D) 300-1000.

23. Probiotics are ————.

(A) New kind of food allergens.

(B) Live microbial food supplement.

(C) Cancer inducing microbes.

(D) Safe antibiotics.

24. Alexander von Humbolt described for the first time :

(A) Population growth equation. (B) Ecological biodiversity.

(C) Law of limiting factor. (D) Species area relationships.

25. When is a codon said to be unambiguous ?

(A) When it codes for 2 amino acids. (B) When it codes for 1 amino acid.

(C) When it codes for 3 amino acids. (D) When it codes for 4 amino acids.

26. Match the correct terminology with its description :

1	PCR assays	a	Minute amounts of DNA can be amplified in to multiple copies.
2	HLA-DQA1	b	Targeted with sequence-specific primers and amplified using PCR.
3	STR loci	c	A small size VNTR marker amplifiable by PCR.
4	D1S80 locus	d	A locus where the first PCR-based assay using SNPs was applied.

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

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

27. Which of the following is not a man-made fiber ?

(A) Nylon. (B) Vicuna.

(C) Acrylic. (D) Polyester.

28. Who invented DNA fingerprinting ?

(A) Alec Jeffrey. (B) Karl Mullis

(C) Karl Landsteiner (D) Edmond Locard.

29. Ninhydrin reacts with what type of fingerprint residue ?

(A) Salts. (B) Water.

(C) Lipids and Fats. (D) Amino acids.

30. A Comparison microscope consist of :

(A) 2 simple microscope.

(B) 1 simple microscope and 1 compound microscope.

(C) 2 compound microscope.

(D) 2 Electron Microscope.

31. Summon is a document of the court :

(A) Compelling the attendance of a witness.

(B) Guarantee money for the victim.

(C) Providing legal service to a witness.

(D) Providing rehabilitation to the criminal.

32. After reaching the scene of crime, the first thing the investigating officer should do :

(A) Collection of biological samples. (B) Secure the crime scene.

(C) Lifting of fingerprints. (D) Documentation of scene.

33. Which is not derived from Opium ?

(A) Morphine. (B) Marijuana.

(C) Heroin. (D) Codeine.

34. Which metal flakes are added to automotive paint to impart a metallic look to the paint's finish

(A) Aluminium. (B) Nickel.

(C) Cobalt. (D) Iron.

35. Questioned documents include which of the following ?

(A) Contracts and passports. (B) Petitions and lottery tickets.

(C) Letters and cheque. (D) All the above.

36. Carbon monoxide is toxic because :

(A) Activates killer white blood cells.

(B) Destroys red blood cells.

(C) Causes platelets to clump.

(D) Combines with hemoglobin to form carboxyhemoglobin.

37. Which chemical reaction is associated with fire ?

(A) Reduction.

(B) Oxidation.

(C) Precipitation.

(D) None of the above.

38. Forensic palynology is a term that includes the collection and examination of :

(A) Pollen.

(B) Spore.

(C) Fruit.

(D) Both (A) and (B).

39. Which is the last organ to putrefy in a human body ?

(A) Heart.

(B) Brain.

(C) Liver.

(D) Prostate.

40. Which of the following is the most frequent type of fingerprint pattern ?

(A) Arch.

(B) Loop.

(C) Whorl.

(D) Accidental.

41. What is digital forensic investigation primarily concerned with ?

(A) Recovering lost data.

(B) Investigating crimes involving digital devices.

(C) Enhancing computer performance.

(D) Protecting digital assets.

42. Hard disk are organized as :

(A) Cylinders only.

(B) Tracks only.

(C) Cylinders and Tracks.

(D) Master Boot Record.

43. In Digital forensics, Hash/ Hashing algorithms are used to :

(A) Search malicious data.

(B) Verify integrity of copied data.

(C) Detect viruses.

(D) None of the above.

44. What is the name of the IT law that India has in the Indian legislature ?

(A) India's Technology (IT) Act 2000.

(B) India's Digital Information technology (DIT) Act, 2000.

(C) India's Information Technology (IT) Act 2000.

(D) The Technology Act 2008.

45. What is the term used to describe the process of analyzing digital evidence to reconstruct events ?

(A) Data recovery.

(B) Timeline analysis.

(C) Hashing.

(D) Data obfuscation.

46. What is the term used to describe the process of converting ciphertext in to plain text ?

(A) Decryption.

(B) Encryption.

(C) Compression.

(D) Hashing.

47. Which device stores information about destinations in a network ?

(A) Hub.

(B) Modem.

(C) Firewall.

(D) Router.

48. PEM stands for _____

(A) Public Encryption Mail.

(B) Privacy Enhanced Mail.

(C) Privacy Enhanced Message.

(D) Public Encryption Message.

49. _____ has smallest storage capacity.

(A) Floppy Disk.

(B) Zip Disk.

(C) Hard Disk.

(D) CD.

50. USB stands for :

(A) Universal Serial Bus.

(B) Universal Sequential Bus.

(C) Uniform serial bus.

(D) United serial bus.

51. Which of the following is a scalar quantity ?

(A) Velocity.

(B) Acceleration.

(C) Force.

(D) Energy.

52. The SI unit of pressure is :

(A) Pascal.

(B) Newton.

(C) Joule.

(D) Watt.

53. The acceleration due to gravity on the surface of the Earth is approximately :

(A) 4.9 m/s^2.

(B) 6.67 m/s^2.

(C) 9.8 m/s^2.

(D) 10.8 m/s^2.

54. The resistance of a conductor depends on :

(A) Length.

(B) Cross-sectional area.

(C) Temperature.

(D) All of the above.

55. Which law explains the phenomenon of electromagnetic induction ?

(A) Ohm's Law.

(B) Faraday's Law.

(C) Newton's Law.

(D) Ampere's Law.

56. The speed of light in vacuum is :

(A) 3×10^6 m/s.

(B) 3×10^8 m/s.

(C) 3×10^4 m/s.

(D) 3×10^5 m/s.

57. The work done in moving a charge of 2 C through a potential difference of 12 V is :

(A) 6 J.

(B) 12 J.

(C) 24 J.

(D) 48 J.

58. The value of universal gravitational constant (G) is :

(A) 6.67×10^{-11} N m^2/kg^2. (B) 9.8 m/s^2.

(C) 3×10^8 m/s. (D) 1.6×10^{-19} C.

59. Which of the following is not a unit of energy ?

(A) Joule. (B) Calorie.

(C) Watt. (D) Electron volt.

60. The time period of a simple pendulum increases if :

(A) Its length is increased. (B) Its mass is increased.

(C) It is taken to the moon. (D) Both A and C.

61. When white light passes through a prism, the color that bends the most is ?

(A) Red. (B) Green.

(C) Blue. (D) Violet.

62. The property of a material to return to its original shape after deformation is :

(A) Plasticity. (B) Elasticity.

(C) Viscosity. (D) Malleability.

63. The SI unit of electric charge is :

(A) Ampere. (B) Coulomb.

(C) Volt. (D) Ohm.

64. The main constituent of the sun is :

(A) Oxygen. (B) Nitrogen.

(C) Hydrogen. (D) Helium.

65. The frequency of AC supplied to households in India is :

(A) 110 Hz. (B) 220 Hz.

(C) 50 Hz. (D) 60 Hz.

66. The force between two parallel current-carrying wires is :

(A) Always attractive.

(B) Always repulsive.

(C) Attractive if currents are in the same direction.

(D) Zero.

67. The instrument used to measure atmospheric pressure is :

(A) Barometer.

(B) Hygrometer.

(C) Manometer.

(D) Thermometer.

68. Which phenomenon is responsible for the twinkling of stars ?

(A) Reflection.

(B) Refraction.

(C) Diffraction.

(D) Dispersion.

69. The energy possessed by a body due to its motion is called :

(A) Potential energy.

(B) Kinetic energy.

(C) Chemical energy.

(D) Nuclear energy.

70. The process of changing a solid directly into gas is called :

(A) Melting.

(B) Sublimation.

(C) Condensation.

(D) Evaporation.

71. The SI unit of power is :

(A) Joule.

(B) Watt.

(C) Newton.

(D) Pascal.

72. The device used to convert solar energy into electrical energy is :

(A) Dynamo.

(B) Solar cell.

(C) Battery.

(D) Transformer.

73. Which of the following is a non-renewable source of energy ?

(A) Solar. (B) Wind.

(C) Coal. (D) Hydro.

74. The phenomenon of splitting of white light into its constituent colors is called :

(A) Reflection. (B) Refraction.

(C) Dispersion. (D) Scattering.

75. The law of conservation of mass was given by :

(A) Newton. (B) Einstein.

(C) Lavoisier. (D) Dalton.

76. The atomic number of an element is equal to the number of :

(A) Protons. (B) Neutrons.

(C) Electrons. (D) Both (A) and (C).

77. Which of the following is a noble gas ?

(A) Nitrogen. (B) Argon.

(C) Oxygen. (D) Hydrogen.

78. The pH of a neutral solution at 25°C is :

(A) 0. (B) 7.

(C) 14. (D) 1.

79. Which of the following elements has the highest electronegativity ?

(A) Oxygen. (B) Fluorine.

(C) Chlorine. (D) Nitrogen.

80. The molar mass of water (H_2O) is approximately :

(A) 16 g/mol. (B) 18 g/mol.

(C) 20 g/mol. (D) 22 g/mol.

81. Which type of bond is formed when electrons are shared between atoms ?

(A) Ionic bond. (B) Covalent bond.

(C) Metallic bond. (D) Hydrogen bond.

82. The process of converting a solid directly into a gas is called :

(A) Melting. (B) Sublimation.

(C) Condensation. (D) Evaporation.

83. Which of the following is an example of an acid ?

(A) NaOH. (B) HCl.

(C) NaCl. (D) NH_3.

84. The gas evolved when a metal reacts with acid is usually :

(A) Oxygen. (B) Hydrogen.

(C) Nitrogen. (D) Carbon dioxide.

85. Which of the following is a reducing agent ?

(A) $KMnO_4$. (B) $NaBH_4$.

(C) H_2SO_4. (D) O_2.

86. The catalyst used in the Haber process for ammonia synthesis is :

(A) Iron. (B) Platinum.

(C) Nickel. (D) Copper.

87. The oxidation state of sulfur in H_2SO_4 is :

(A) + 2. (B) + 4.

(C) + 6. (D) 0.

88. Which of the following compounds is an example of a polymer ?

(A) Glucose. (B) Polyethylene.

(C) Methane. (D) Benzene.

89. The empirical formula of glucose ($C_6H_{12}O_6$) is :

(A) $C_6H_{12}O_6$. (B) CH_2O.

(C) $C_3H_6O_3$. (D) $C_2H_4O_2$.

90. Which gas is responsible for the greenhouse effect ?

(A) Oxygen. (B) Nitrogen.

(C) Carbon dioxide. (D) Argon.

91. The reaction between an acid and a base produces :

(A) Salt and water. (B) Salt and hydrogen.

(C) Water and oxygen. (D) Salt and oxygen.

92. Which of the following is an example of a strong acid ?

(A) Acetic acid. (B) Hydrochloric acid.

(C) Carbonic acid. (D) Citric acid.

93. The boiling point of water is :

(A) 90°C. (B) 100°C.

(C) 110°C. (D) 120°C.

94. Which element is liquid at room temperature ?

(A) Mercury. (B) Sodium.

(C) Bromine. (D) Both (A) and (C).

95. The SI unit of amount of substance is :

(A) Mole. (B) Gram.

(C) Liter. (D) Molecule.

96. Which of the following is a halogen ?

(A) Oxygen.

(B) Chlorine.

(C) Nitrogen.

(D) Neon.

97. Which of the following is used as a fuel in nuclear reactors ?

(A) Uranium-235.

(B) Plutonium-239.

(C) Thorium-232.

(D) All of the above.

98. The process of electrolysis involves :

(A) Chemical reaction without electricity.

(B) Chemical reaction with electricity.

(C) Physical change.

(D) Nuclear reaction.

99. Which of the following is a characteristic of an exothermic reaction ?

(A) Absorbs heat.

(B) Releases heat.

(C) No heat change.

(D) Requires continuous heat supply.

100. Which of the following is NOT a transition metal ?

(A) Iron.

(B) Copper.

(C) Zinc.

(D) Sodium.

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 t 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) Pro tease

(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.

C 41694 (Pages : 16) Name.....

Reg. No.....

P.G./INTEGRATED PG ENTRANCE EXAMINATION, APRIL 2023

FORENSIC SCIENCE

Time : Two Hours Maximum : 400 Marks

Each question carries 4 marks.
1 mark will be deducted for each wrong answer.

1. Evidence that is transferred from a source to a location with no intermediaries is said to have undergone :

   (a) Indirect Transfer. (b) Direct Transfer.

   (c) Intermediate Transfer. (d) Both (a) and (b).

2. Principle of comparison refers to :

   (a) Only the likes can be compared.

   (b) Only the dislikes can be compared.

   (c) Both likes and dislikes can be compared.

   (d) None of the above.

3. The word 'Forensic' mean :

   (a) For the Forum. (b) Before the Forum.

   (c) Beside the Forum. (d) After the Forum.

4. Mitochondrial DNA can be used for understanding :

   (a) Maternal lineage. (b) Gender identification.

   (c) Individual identification. (d) None of the above.

5. ———— is used for packing dried blood stains.

   (a) Plastic Zip Lock Bags. (b) Paper Bags.

   (c) Glass Bottle. (d) Aluminum can.

6. ———— can be identified from the variations in the width of the strokes.

   (a) Pen Pressure. (b) Pen Lift.

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

7. Section 45 in The Indian Evidence Act, 1872 deals with :

(a) Opinions of Experts. (b) Investigation by Experts.

(c) Summons to Expert. (d) Examination by Expert.

8. The pattern of the fingerprint in which ridge lines flow inward and return out the same side i

(a) Whorl.

(b) Loop.

(c) Arch.

(d) Composite.

9. ———— method can develop fingerprint from cloth.

(a) Black Powder (b) White Powder.

(c) Iodine Fuming. (d) Nitrite Fuming.

1 10. Security of data is ensured by ———— the data.

(a) Outsourcing. (b) Decryping.

(c) Encrypting. (d) Compressing.

11. ———— is a type of malware that downloads onto a computer disguised as a legitim program.

(a) Trojan Horse Virus. (b) Worm.

(c) Rootkit. (d) RAT.

12. Computers store information as :

(a) Binary Format. (b) Digital Format.

(c) Secondary Format. (d) None of the above.

13. USB stand for :

(a) Universal Serial Bus. (b) Universal Series Bus.

(c) United Serial Bus. (d) Universal Serial Bit.

14. ———— is the practice of hiding one message inside of another.

(a) Steganography. (b) Cryptography.

(c) Calligraphy. (d) Pomography.

15. The settling of blood due to gravity after the heart no longer circulates it through the body is known as :

(a) Algor Mortis. (b) Livor Mortis.

(c) Cadaveric Spasm. (d) None of the above.

16. _____ are small amounts of blood that detach from the parent stain and splash onto a surface.

(a) Satellite Droplets. (b) Skeletonized Droplets.

(c) Back Spatter. (d) Voids.

17. Most useful diagnostic tool for identifying animal hairs are :

(a) Cuticle. (b) Medulla.

(c) Cortex. (d) Scale Patterns.

18. Popular derivative from opium.

(a) Morphine. (b) Codeine.

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

19. MDMA stands for :

(a) 3,4-Methylenedioxy-Methamphetamine.

(b) 2,3-Methylenedioxy-Methamphetamine.

(c) 4,3-Methylenedioxy-Methamphetamine.

(d) None of the above.

20. _____ cracks will form on the side of the glass opposite to the side of the impact.

(a) Concentric. (b) Radial.

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

21. Fuels that are easily vaporized and support combustion, and are highly exothermic are known as :

(a) Engine Oils. (b) Accelerants.

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

22. The diameter of the shotgun barrel is called :

(a) Gauge.

(b) Bore.

(c) Rifling.

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

23. The part of the modern tire that is in contact with the road is called :

(a) Tread.

(b) Groove.

(c) Lands.

(d) Friction.

24. FIR is :

(a) First Information Report as per Cr.P.C.

(b) First Investigation Report as per Cr. P.C.

(c) First Information Report as per IPC.

(d) First Investigation Report as per IPC.

25. Section 293 Cr.P.C deals with :

(a) Reports of certain Government scientific experts.

(b) Power to examine the accused.

(c) Expert opinion.

(d) Exhumation.

26. Which one of the following is not a unit of time ?

(a) Lunar month.

(b) Microsecond.

(c) Leap year.

(d) Light year.

27. The product of *two* vectors is a :

(a) Scalar.

(b) Vector.

(c) May be a vector or a scalar.

(d) None of the above.

28. Velocity-time curve for a body projected vertically upward is :

(a) Straight Line.

(b) Parabola.

(c) Ellipse.

(d) Hyperbola.

29. A mass of 12 kg at rest explodes into two pieces of masses 4 kg and 8 kg which move in opposite direction. If the velocity of 8 kg piece is 6m/s, then the kinetic energy of the other piece is :

(a) 1.88 *Joules*. (b) 2.88 *Joules*.

(c) 3.88 *Joules*. (d) 4.88 *Joules*.

30. A particle revolves round a circular path. The acceleration of the particle

(a) Along the Radius.

(b) Along the Tangent.

(c) Along the circumference of the circle

(d) Zero.

31. Cream gets separated out of milk when it is chumed. This is due to :

(a) Gravitational force. (b) Frictional force.

(c) Centrifugal force. (d) Centripetal force.

32. The law which governs the working of a spring balance is :

(a) Robert Hooke's law. (b) Kepler's law.

(c) Newton's law. (d) Thomas Young's law.

33. A gun recoils soon after firing is due to :

(a) First law of motion. (b) Second law of motion.

(c) Third law of motion. (d) Both (a) and (b).

34. Sound is having maximum velocity in :

(a) Iron. (b) Air.

(c) Vacuum. (d) Water.

35. In Bernoulli's principle ———— conserved.

(a) Momentum. (b) Volume.

(c) Mass. (d) Energy.

36. ———— is used to measure the water vapour in atmosphere.

(a) Thermometer. (b) Hydrometer.

(c) Hygrometer. (d) Rain gauge.

37. The first law of thermodynamics is a special case of :

(a) Charle's Law. (b) Newton's Law.

(c) Law of heat exchange. (d) None of the above.

38. A virtual image larger than the object can be produced by :

(a) Concave lens. (b) Concave mirror.

(c) Convex mirror. (d) Plane mirror.

39. In the electromagnetic spectrum UV rays comes in between :

(a) X-rays and visible light. (b) Visible light and IR.

(c) IR and radio waves. (d) Gamma rays and X-rays.

40. Primary colours are :

(a) Blue, green, yellow. (b) Red, green, blue.

(c) Red, yellow, blue. (d) None of the above.

41. An operator has ten 0.1 ohm resistors. What is the maximum resistance the person can make ou of them ?

(a) 1 Ohm. (b) 10 Ohms.

(c) 5 Ohms. (d) 2 Ohms.

42. What is the density of a cubic block of wood weighing 250 g and 10 cm on each side ?

(a) 25 g/cm^3. (b) 250 g/cm^3.

(c) 0.25 g/cm^3. (d) 2500 g/cm^3.

43. Measure of the bending of a ray of light when passing from one medium into another :

(a) Refractive index. (b) Diffraction.

(c) Reflection. (d) Reflective index

44. _____ can be used to characterize the structure and elemental composition of pai layers.

(a) SEM/EDS. (b) FTIR.

(c) GCMS. (d) TLC.

45. _____ of the microscope selects one particular wavelength to be exposed to the samp

(a) Monochromator. (b) Mirror.

(c) Lens. (d) Prism.

46. Frequency is measured in :

(a) Meter per second. (b) Cycles per second.

(c) Waves per second. (d) Rotation per second.

47. Molecular bonds polarizability is measured by :

(a) FTIR spectroscopy. (b) Raman spectroscopy.

(c) Gas chromatography. (d) UV-Vis spectroscopy.

48. Internal structure of the specimen is given by :

(a) SEM. (b) TEM.

(c) FTIR. (d) GC-MS.

49. In the objective lens following marking denotes :

10 × /0.25na

170mm/0.17

(a) 10 × numerical aperture, 0.25 magnification, 170 mm tube length and 0,17mm cover slip to use.

(b) 10 × tube length, 0.25 cover slip to use, 170 mm numerical aperture and 0.17mm magnification.

(c) 10 × cover slip to use, 0.25 magnification, 170 mm tube length and 0.17mm numerical aperture.

(d) 10 × magnification, 0.25 numerical aperture, 170 mm tube length and 0.17mm cover slip to use.

50. Juxta position of images are seen through :

(a) Hand lens. (b) Fluorescence microscope.

(c) Comparison microscope. (d) Electron microscope.

51. Emetine is the major alkaloid found in the roots of the plant :

(a) *Cephaelis Ipecacuanha.* (b) *Derris Elliptica.*

(c) *Solanum Khasianum.* (d) *Azadirachta Indica.*

52. Match the following :

(A) Cocaine	1 Cinchona Tree.
(B) Quinine	2 *Erythroxylum Coca.*
(C) Reserpine	3 *Ephedra Equisetina.*
(D) Ephedrine	4 *Rauwolfia Serpentine.*

	A	B	C	D
a.	1	2	3	4
b.	1	4	2	3
c.	2	1	4	3
d.	2	4	1	3

53. Wayanad Wildlife Sanctuary is a part of the _____ biosphere reserve.

(a) Wayanad. (b) Bandipur.

(c) Mudumalai. (d) Nilgiri.

54. The green fluorescent protein (GFP) is isolated from :

(a) *Aequorea Victoria.* (b) *Haematoxylum Campechianum.*

(c) *Lampyris Noctiluca.* (d) *Photuris Lucicrescens.*

55. Which one of the following is an example of living fossil ?

(a) Adiantum. (b) Psilotum.

(c) Ferns. (d) Selaginella.

56. The Chi-Square test is a statistical hypothesis test commonly used for :

(a) Testing an association between categorical variables.

(b) Measuring how a model compares to actual observed data.

(c) Determine whether there is a statistically significant difference between the expect frequencies and the observed frequencies in one or more categories.

(d) All the above.

57. The gradient of ecosystem is called :

(a) Ecotone. (b) Ecological amplitude.

(c) Ecocline. (d) Stratification.

58. The biological interaction in which one organism always harmed, but the other is neither harmed nor benefited is called :

(a) Parasitism. (b) Amensalism.

(c) Mutualism. (d) Commensalism.

59. National Forest Policy was enacted in :

(a) 1988. (b) 1927.

(c) 1972. (d) 1980.

60. Shannon diversity index accounts for both :

(a) Species diversity and number.

(b) Species richness and evenness.

(c) Species abundance and geographical area.

(d) Species diversity and climate.

61. An estimation of the total amount of greenhouse gases, mainly carbon dioxide, released into the atmosphere by an individual is called :

(a) Carbon Trading. (b) Ecotaxes.

(c) Carbon Footprint. (d) Carbon Credit.

62. The article in the Indian Constitution which states Environmental protection in India is a fundamental duty of the citizen of India.

(a) Article 51-A (g). (b) Article 21-A.

(c) Article 49. (d) Article 50.

63. In vertebrates, antigen presenting cells contains ———————— class of MHCs.

(a) Class I. (b) Class II.

(c) Class III. (d) None.

64. The small, non-immunogenic molecules that elicit an immune response only when attached to a large carrier protein is called :

(a) Antigens. (b) Epitopes.

(c) Adjuvants. (d) Haptens.

65. The strength of multiple interactions with which a multivalent antibody binds to a complex antigen describes :

(a) Antibody Affinity.
(b) Antibody Avidity.
(c) Cross Reaction.
(d) Immunization.

66. A tentative statement about the solution of a problem is called :

(a) Unit.
(b) Conclusion.
(c) Abstract.
(d) Hypothesis.

67. In a homogenous population, a commonly used sampling method is :

(a) Random Sampling.
(b) Stratified Sampling.
(c) Cluster Sampling.
(d) Systematic Sampling.

68. Examples of parametric tests in statistics are :

(a) Chi-square test, t-test, ANOVA, and linear regression.
(b) Kruskal Willis test, Chi-square test, regression, and Pearson correlation.
(c) t-test, ANOVA, linear regression, and Pearson correlation.
(d) Mann Whitney test, Kruskal Willis test, and Chi-square test.

69. In ethology, the concept of imprinting, a rapid learning process that takes place early in the life of a social animal and establishes a behavior pattern, was introduced by :

(a) B.F. Skinner.
(b) Konrad Lorenz.
(c) Pavlov.
(d) Edward L. Thorndike.

70. Theory of chemical evolution was proposed by :

(a) Francesco Redi.
(b) Julian Huxley.
(c) Darwin.
(d) Alexander Oparin.

71. Random genetic drift is caused by :

(A) Small population sizes.
(B) Bottleneck effect.
(C) Founder effect.
(D) Sudden immigration or emigration of individuals.

(a) A,B and C only.
(b) A and D only.
(c) A, B, C and D.
(d) B and C only.

72. Match the following :

(A)	Insects	1.	Tube feet.
(B)	Spiders	2.	Book lungs.
(C)	Mollusca	3.	Ctenidia.
(D)	Asterias	4.	Trachea.

	A	B	C	D
(a)	4	2	1	3
(b)	1	3	2	4
(c)	4	2	3	1
(d)	2	4	3	1

73. Podocytes are the cells found in the :

(a) Endothelium of Glomerular Capillaries.

(b) Inner wall of Bowman's Capsule.

(c) Outer Cortex.

(d) Loop of Henle.

74. Excessive production of dopamine in the prefrontal cortex is a characteristic feature of :

(a) Parkinson's disease. (b) Alzheimer's disease.

(c) Schizophrenia. (d) Dementia.

75. Signaling molecules secreted into the extracellular medium that affect the neighbouring cells different types are called :

(a) Autocrine.

(b) Paracrine.

(c) Endocrine.

(d) Juxtacrine.

76. The buffering agent in the blood that protect from pH change is :

(a) Iron in Haemoglobin. (b) Serum Proteins.

(c) Plasma Fluid. (d) None.

77. A chemical reaction is said to be at equilibrium if :

(a) Equal amounts of reactants and products are present.

(b) Rate of forward reaction is equal to backward reaction.

(c) The product formed is less.

(d) The reactants are completely transformed into products.

78. Which of the following compound showing a planar configuration ?

(a) SO_3^{-2}.

(b) SO^{3-}.

(c) SO_2Cl_2.

(d) $SOCl_2$.

79. Number of atoms per body catered cubic unit cell is :

(a) 4.

(b) 8.

(c) 9.

(d) 12.

80. Electric conductivity of selenium :

(a) Increases on exposure to light.

(b) Decreases on exposure to light.

(c) Remains the same in light.

(d) First decreases, then increases on exposure to light.

81. Which of the following compound have least dissociation energy ?

(a) F_2

(b) Cl_2

(c) Br_2

(d) H_2

82. Bleaching mixture is :

(a) $SO_2 + Cl_2$

(b) Bleaching powder + Cobalt.

(c) NaCl + NaOCl.

(d) $Cl_2 + ClO_2$

83. Which of the following compounds are isoelectronic ?

(A) C_6H_6

(B) $B_3N_3H_6$.

(C) $H_3B_3O_3$.

(a) A and B. (b) A and C.

(c) B and C. (d) All the above.

84. The role of arsenic in gun powder made of lead is to increase :

(a) Range.

(b) Power.

(c) Strength.

(d) Brittleness.

85. Which of the following elements form $p\prod - d\prod$ bonding in oxides ?

(a) Li.

(b) P.

(c) B.

(d) N.

86. Sulphur is extracted from the underground sulphur bearing rocks by :

(a) Bosch Process.

(b) Springs Process.

(c) Frasch Process.

(d) Contact Process.

87. The reaction of NaCI and $K_2Cr_2O_7$ with concentrated H_2SO_4 will form :

(a) CrO_2Cl.

(b) CrO_2Cl_2.

(c) $CrOCl_3$.

(d) $CrOCl_2$.

88. Super halogen is :

(a) Cl_2

(b) F_2

(c) Br_2

(d) I_2.

89. Semi water gas is :

(a) $CO + H_2$

(b) $CO + N_2$

(c) $CO + H_2 + N_2$

(d) CO + H.

90. Which of the following metal can be obtained by leaching its ore with dilute cyanide solution

(a) Vanadium.

(b) Zinc.

(c) Titanium.

(d) Silver.

91. Galvanising of iron sheets is done by :

(a) Zn plating.

(b) Cu plating.

(c) Ag plating.

(d) Tin plating.

92. $Zn(OH)_2$ is :

(a) Amphoteric.

(b) Dibasic.

(c) Monobasic.

(d) Neutral.

93. Bordeaux mixture is a mixture of lime and

(a) $FeSO_4$.

(b) $CuSO_4$.

(c) $AgNO_3$.

(d) $CuCO_3$.

94. Oxidation state of iron in haemoglobin is :

(a) + 3.

(b) + 4

(c) 0.

(d) + 2.

95. The shape of $\left[Cu(H_2O)_6\right]^{2+}$ is :

(a) Octahedral.

(b) Distorted Tetrahedral.

(c) Distorted Octahedron.

(d) Pentagonal.

96. The insecticide paris green is made of :

(a) Arsenious Oxide + Copper sulphate + Acetic Acid.

(b) Arsenious Oxide + Acetic Acid + Copper Acetate.

(c) Stannous Chloride + Copper sulphate + Acetic Acid.

(d) Stannous Chloride + Copper Acetate + Acetic acid.

97. The compound $K_4[Fe(CN)_6]$ is called :

(a) Potassium hexacyanoferrate (II).

(b) Potassium Ferricyanide.

(c) Potassium Hexacyanoferrate (III).

(d) Prussian Blue.

98. AgCl precipitate dissolves in NH_3 due to the formation of :

(a) $[Ag(NH_4)_2]OH$.

(b) $[Ag(NH_4)_2]Cl$.

(c) $[Ag(NH_3)_2]OH$.

(d) $[Ag(NH_3)_2]Cl$.

99. Manganese exhibits maximum oxidation in :

(a) K_2MnO_4.

(b) $KMnO_4$.

(c) Mn_3O_4.

(d) MnO_2.

100. Colour in transition metal compounds is due to :

(a) Small size of Atoms.

(b) Absorption of UV light.

(c) Incomplete (n-1)d subshell.

(d) Complete ns shell.