SECTION – 1 (BIOLOGY)

01. A fertilized ovule develops into a _____ in an angiosperm plant
(A) seed (B) fruit (C) flower (D) cotyledon

02. How many molecules of pyruvic acid are formed from one glucose molecule, by glycolysis?
(A) 1 (B) 2 (C) 3 (D) 4

03. The most important chlorophyll present in plants reaction center is _____
(A) Chlorphyll a (B) Chlorophyll c (C) Chlorophyll b (D) Chlorophyll d

04. Select an example of natural vegetative propagation
(A) Cutting (B) Stem tuber (C) Tissue culture (D) Cryopreservation

05. Which among the following are correctly matched purine pairs?
(A) Adenine-Cytosine (B) Cytosine-Uracil
(C) Guanine-Thymine (D) Guanine-Adenine

06. Which of the following is the correct sequence of layers in typical monocot root (from outer surface to inside)?
(A) Pericycle, cortex, endodermis, epiblema (B) Epiblema, endodermis, cortex, pericycle
(C) Epiblema, cortex, endodermis, pericycle (D) Epiblema, pericycle, cortex, endodermis

07. Alleles are
(A) homologous chromosome (B) chromosome that have crossed over
(C) alternate forms of same gene (D) linked genes

08. Which of the following absorb UV rays?
(A) DNA only (B) Proteins only
(C) DNA and protein both (D) Denatured DNA only

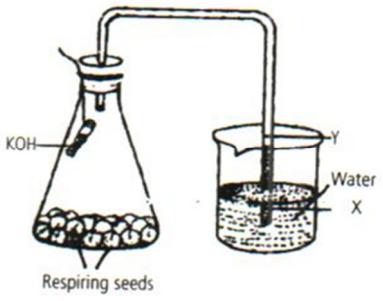
09. Lack of oxygen in muscles often leads to cramps among cricketers. This results due to
(A) conversion of pyruvate to ethanol (B) conversion of pyruvate to glucose
(C) non conversion of glucose to pyruvate (D) conversion of pyruvate to lactic acid

10. Pollination with the help of wind is called
(A) Hydrophily (B) Anemophily (C) Entomophily (D) Ornithophily

11. Accumulation of non- biodegradable pesticides in different tropic levels is called
(A) Bio- degradation (B) Bio-magnification (C) Bio-concentration (D) Bio-deposition

12. Acid rain is caused due to
(A) Chemical pollution (B) Soil pollution
(C) Air pollution (D) Water pollution

13. Rise in the water level from X to Y in the given experimental set – up demonstrates
(A) aerobic respiration
(B) anaerobic respiration
(C) photosynthesis
(D) chemosynthesis



14. _____ acts as oxygen carrier and it does not allow free oxygen to accumulate inside the nodule of leguminous plant
(A) Haemoglobin (B) Iron (C) Leghemoglobin (D) α-globin

15. Select the INCORRECT option with respect to conservation and management of forest?
(A) Protection of forests from pests and pathogens
(B) Encouraging agro-forestry
(C) Encouraging deforestration
(D) Educating people about hazards of deforestation

16. The highest number of species in the world is represented by
(A) Mosses (B) Algae (C) Lichens (D) Fungi

17. In mitosis the centromere divides at
(A) Prophase (B) Metaphase (C) Anaphase (D) Telophase

18. According to five kingdom system of classification, unicellular eukaryotic organisms are included in Kingdom _____.
(A) Monera (B) Protista (C) Fungi (D) Both (A) and (B)

19. _____ is the core component of chlorophyll.
(A) Potassium (B) Magnesium (C) Calcium (D) Phosphorus

20. Organisms like lichens are very sensitive to_____ pollution.
(A) CO_2 (B) SO_2 (C) CH_4 (D) O_2

21. Which of the following tissues has dead cells?
(A) Parenchyma (B) Sclerenchyma (C) Collenchyma (D) Meristematic

22. The products of double fertilization are
(A) zygote and antipodals (B) zygote and primary endosperm nucleus
(C) antipodals and synergids (D) primary endosperm nucleus and ovule

23. The storage product of most algae is _____.
(A) fat (B) starch (C) glycogen (D) cellulose

24. The 'Dark Reaction' in photosynthesis is called so because it
(A) can take place in absence of light (B) needs only darkness
(C) cannot take place in presence of light (D) occurs more rapidly in night

25. The niche of the population is the
(A) place where it lives (B) geographical area that it covers
(C) set of conditions that interacts (D) geographical area and its functional role

26. Leucopenia is
(A) uncontrolled increase in WBC count (B) uncontrolled increase in RBC count
(C) excess platelets count (D) less production of WBC

27. Salivary amylase converts starch into
(A) Glucose (B) Maltose (C) Fructose (D) Sucrose

28. Blood cells are destroyed in
(A) spleen and pancreas (B) spleen and kidney
(C) liver and spleen (D) Intestine and muscles

29. Striated muscles are found in
(A) Arms (B) Legs
(C) Upper part of pharynx (D) All of these

30. Intercalated discs are characteristically found in
(A) Smooth muscles (B) Striated muscles (C) Cardiac muscles (D) All of these

31. The primary sexual organs of males are the
(A) penis (B) ovaries (C) testis (D) vasa deferens

32. Main tissue that provides structural framework to our body is
(A) cartilage (B) bone (C) blood (D) tendon

33. Trypsin is the proteolytic enzyme which acts in
(A) Acidic pH (B) Alkaline pH (C) Neutral pH (D) Any of these

34. If small pieces of sugarcane is immersed in boiling water and water is cooled, then the solution becomes sweet as
(A) Disaccharides are converted into monosaccharides
(B) Enzymes are inactivated in boiling water
(C) Sucrose is broken to produce 2 molecules of glucose
(D) Both (A) and (C)

35. What are the by products formed during aerobic respiration?
(A) Water and carbon dioxide are the end products
(B) Carbon dioxide and ethyl alcohol are the end products
(C) Carbon dioxide and pyruvic acid are the end products
(D) Oxygen and water are the end products

36. Each heart beat includes _____.
(A) one systole and one diastole (B) one systole and two diastole
(C) two systole and one diastole (D) two systole and two diastole

37. What is the characteristic feature of a child suffering from kwashiorkor?
(A) Loss of complete body fat (B) Extreme thinning of limbs
(C) Dryness of skin (D) Oedema and swelling of body parts.

38. Injury localized to hypothalamus will disrupt _____.
(A) regulation of body temperature (B) sensation of pain
(C) sense of hearing (D) voluntary actions

39. Pulmonary veins _____.
(A) carry oxygenated blood from heart to lungs (B) carry impure blood from lungs to heart
(C) carry oxygenated blood from lungs to heart (D) carry deoxygenated blood to lungs

40. Given diagram represents which type of blood cell?

(A) WBC (B) RBC (C) Platelets (D) Plasma cells

41. The value of diastolic pressure in normal human adult is about _____.
(A) 120 mm Hg (B) 50 mm Hg (C) 150 mm Hg (D) 80 mmHg

42. Hormone testosterone is secreted by _____.
(A) sertoli cells (B) follicular cells
(C) interstitial cells or Leydig cells (D) germ cells

43. Which one of the nitrogenous waste substance is excreted by human body?
(A) Ammonia (B) Urea (C) Uric acid (D) Creatinine

44. Which one of the following is mismatched w.r.t its function?
(A) Iodopsin – Sensitive to green light (B) Cyanopsin – Sensitive to blue light
(C) Erythropsin – Sensitive to red light (D) Rhodopsin – Sensitive to violet light

45. Respiration is regarded as:
(A) Catabolic process (B) Reduction process (C) Anabolic process (D) Synthetic process

46. Secondary sexual characters in female are controlled by
(A) oxytocin (B) estrogen (C) testosterone (D) progesterone

47. In mammals, the ovary is concerned with
(A) production of ovum (B) production of hormones
(C) development of secondary sexual characters (D) all of these

48. Main muscle of inspiration is associated with
(A) Diaphragm (B) Intercostal muscle (C) Lungs (D) Ribs

49. Respiratory control centre is present in
(A) Medulla (B) Pons (C) Cerebrum (D) Cerebellum

50. Main metabolic hormone of the body is
(A) Thyroid hormone (B) Corticoids (C) Growth hormone (D) Insulin

SECTION – 2 (CHEMISTRY)

51. Bleaching powder is represented as
(A) CaO (B) $CaCO_3$ (C) $Ca(OH)_2$ (D) $CaOCl_2$

52. Which of the following is an acidic salt?
(A) Na_2CO_3 (B) $NaHCO_3$ (C) $CaCO_3$ (D) $CuSO_4$

53. The one which is metalloid among the following is
(A) Na (B) Si (C) Mg (D) Cs

54. M-shell can have 18 electrons. No. of elements in third period is
(A) 2 (B) 8 (C) 18 (D) 32

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55. Which one of the following is used in soda acid fire extinguisher?
(A) $NaHCO_3$ (B) $NaCl$ (C) $NaOH$ (D) Na_2SO_4

56. In the Chlor-alkali process
(A) Sodium hydroxide is produce exactly between the cathode and anode
(B) Sodium hydroxide is produced near the anode
(C) Sodium hydroxide is produced near the cathode
(D) Sodium hydroxide is not produced.

57. The number of C-H bonds present in propanol is
(A) 7 (B) 8 (C) 9 (D) 10

58. On thermal decomposition of $CaCO_3$, a gas 'x' is obtained. The aqueous solution of X.
(A) Turns red litmus blue
(B) Does not change the colour of phenolphthalein
(C) Gives red colour with turmeric
(D) Gives blue colour with methyl orange

59. Which of the following pairs of elements have same number of valence electrons?
(A) Carbon and nitrogen (B) Oxygen and sulphur
(C) Potassium and calcium (D) Sodium and magnesium

60. Which of the following metal is used in storage battery?
(A) Iron (B) Lead (C) Tin (D) Zinc

61. Which of the following metal forms amalgam with other metals?
(A) Hg (B) Cu (C) Pb (D) Sn

62. The product obtained when baking powder is heated during cooking is
(A) Na_2CO_3 (B) Na_2O (C) $NaOH$ (D) NaH

63. Which of the following is an electrovalent compound?
(A) CO_2 (B) CH_4 (C) $NaCl$ (D) H_2O

64. During thermal decomposition of lead nitrate, the gas obtained is
(A) NO (B) NO_2 (C) N_2O (D) N_2O_3

65. The corrosion of Fe due to the formation of
(A) FeO (B) Fe_3O_4 (C) $Fe_2O_3 \cdot xH_2O$ (D) $Fe(OH)_3$

66. The number of structural isomers possible for pentane is
(A) 3 (B) 5 (C) 6 (D) 7

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67. An ester $CH_3COOC_2H_5$ on treating with NaOH gives the compound A and B. 'A' on further treatment with hot concentrated H_2SO_4 gives compound 'C', 'B' is constituent of vinegar. The compounds 'A', 'B' and 'C' are
(A) CH_3OH, CH_3COOH, $CH_2 = CH_2$ (B) C_2H_5OH, CH_3COOH, $CH_2 = CH_2$
(C) CH_3COOH, CH_3OH, HCOOH (D) CH_3OH, $CH_2 = CH_2$, CH_3COOH

68. The following reaction is an example of $CH_4 + Cl_2 \xrightarrow{\text{sunlight}} CH_3Cl + HCl$
(A) substitution reaction (B) Addition reaction
(C) dehydration reaction (D) oxidation reaction

69. The element with a smallest atomic radius is
(A) Be (B) C (C) B (D) O

70. The hydride of the carbon is CH_4 and the oxide is CO_2. The element which can form similar hydride and oxide as of carbon is
(A) Cu (B) Mn (C) Si (D) Ru

71. Detergents are
(A) Potassium salt of long chain carboxylic acid
(B) Ammonium salt of long chain carboxylic acid
(C) Magnesium salt of long chain carboxylic acid
(D) Calcium salt of long chain carboxylic acid

72. Which of the following oxide is acidic?
(A) Al_2O_3 (B) ZnO (C) MgO (D) CO_2

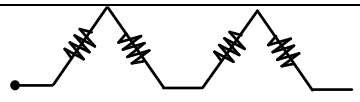
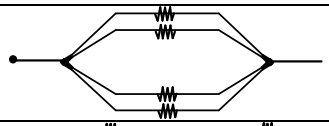
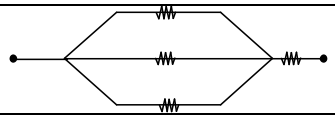
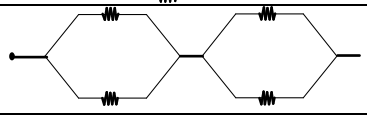
73. Which of the following metal(s) melts by keeping them on palm?
(A) Hg (B) Ga (C) Cs (D) both (B) and (C)

74. Which of the following is hardest natural substance?
(A) Boron (B) Graphite (C) Diamond (D) Fullerene

75. The difference between the water of crystallization of gypsum and plaster of paris is
(A) $\frac{1}{2}H_2O$ (B) $\frac{3}{2}H_2O$ (C) $\frac{5}{2}H_2O$ (D) $2H_2O$

SECTION – 3 (PHYSICS)

76. Which arrangement of four identical resistances should be used to draw maximum energy from a cell of voltage V.

(A)		(B)	
(C)		(D)	

77. What kind of mirror is best suited for use in a solar cooker
(A) Concave mirror (B) Convex mirror (C) Plane mirror (D) None of these

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78. The velocity of sound in vacuum is
(A) 420m s^{-1} (B) 330 m s^{-1} (C) 288m s^{-1} (D) 0 m s^{-1}

79. When a ray of light enters a transparent medium, it undergoes change in :
(A) Frequency only (B) Wavelength only
(C) Wavelength and velocity both (D) Velocity and frequency both

80. The value of internal resistance of an ideal battery is
(A) zero (B) 0.5Ω (C) 1Ω (D) ∞

81. Kg-m^2/sec^3 is an unit of
(A) Energy (B) Resistance (C) Power (D) None of these

82. Which of the following can lead to demagnetisation of a magnet?
(A) Hammering (B) Strong heating (C) Aging (D) All are correct

83. If the critical angle of a material to air is 30^0, the refractive index of the material will be
(A) 1 (B) 2 (C) 1.56 (D) 2.3

84. If the object is placed 30 cm away from a convex lens of focal length 15 cm. Find the distance of the image from the lens.
(A) 20 cm (B) 30 cm (C) 15 cm (D) 10 cm

85. The distance between a compression and the next rarefaction of a longitudinal wave is _____.
(A) λ/8 (B) 2λ (C) λ/4 (D) λ/2

86. The longitudinal waves travel in a coiled spring at a rate of 4m/s. The distance between two consecutive compressions is 20 cm. What is the frequency of the wave?
(A) 200 Hz (B) 20 Hz (C) 2 Hz (D) 2000 Hz

87. A wheel completes 2000 revolutions to cover 9.5 km distance, then the diameter of the wheel is
(A) 1.5 m (B) 1.5 cm (C) 7.5 m (D) 7.5 cm

88. Electron volt is a measure of:
(A) Charge (B) Current (C) Electric potential (D) Energy

89. Two bodies of masses 1 kg and 4 kg have equal kinetic energies. The ratio of their momentum is:
(A) 4 :1 (B) 1 : 4 (C) 2 : 1 (D) 1 : 2

90. When 1 g of ice melts at 0 ^oC, then
(A) 80 cal heat is liberated (B) 80 cal heat is absorbed
(C) No heat is required (D) none of heat

91. In a nuclear power plant, uranium atoms
(A) combine and give off heat energy (B) split and give off heat energy
(C) burn and give off heat energy (D) split and give off electrons

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92. A circular disk of copper has a symmetrical hole at its centre. The disc is uniformly heated. The diameter of the hole will
(A) increase (B) decrease (C) remain the same (D) N.O.T

93. If the speed of an object is doubled the its kinetic energy is
(A) Doubled (B) Quadrupled (C) Halved (D) Tripled

94. A person standing near the cliff fires the gun and hears its echo after 1.5 sec. If the speed of sound in air is 340 m/s, how far is person from the cliff?
(A) 510 m (B) 255 m (C) 450 m (D) 225 m

95. The speed of a car (mass 2000 kg) increases from 54 km/hr to 72 km/hr.What is the change in momentum?
(A) 5000Kg m/s (B) 10000kg m/s (C) 1500kg m/s (D) 36000kg m/s

96. 2 kg and 3 kg stone are dropped, from height h. Which one will hit the ground first?
(A) 2 kg (B) 3 kg
(C) both will hit the ground on same time (D) none of these

97. Find work done by the boy, if he carried a luggage of 4 kg on his head and climbed 10m upwards at a constant speed of 5m/s.
(A) 40 J (B) 400 J (C) 0 J (D) none of these

98. Specific resistance of a wire depends on the -
(A) length of the wire (B) area of cross-section of the wire
(C) resistance of the wire (D) nature of material of the wire

99. A father has mass 60 kg and the mass of his son is 30kg. The ratio of inertia of father to that of his child is
(A) 1 : 1 (B) 1 : 2 (C) 2 : 1 (D) 1 : 3

100. An aeroplane flying at height of 20,000 m at a speed of 300km h^{-1} has
(A) only potential energy (B) only kinetic energy
(C) both, potential and kinetic energy (D) none of the above

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