28/09/2022

RM-G4
CODE-D

Aakash BYJU'S

Corporate Office : Aakash Tower, 8, Pusa Road, New Delhi-110005, Phone : 011-47623456

MM : 720

FORTNIGHTLY TEST SERIES

Time : 3 hrs. 20 min

(for NEET-2023)

Test - 1

Topics covered :

Physics : Physical World, Units & Measurements, Motion in a Straight Line
Chemistry : Some Basic Concepts of Chemistry
Botany : Cell: The Unit of Life
Zoology : Structural Organisation in Animals–Animal Tissues

Instructions :

(i) There are two sections in each subject, i.e. Section-A & Section-B. You have to attempt all 35 questions from Section-A & only 10 questions from Section-B out of 15.
(ii) Each question carries 4 marks. For every wrong response 1 mark shall be deducted from the total score. Unanswered / unattempted questions will be given no marks.
(iii) Use blue/black ballpoint pen only to darken the appropriate circle.
(iv) Mark should be dark and completely fill the circle.
(v) Dark only one circle for each entry.
(vi) Dark the circle in the space provided only.
(vii) Rough work must not be done on the Answer sheet and do not use white-fluid or any other rubbing material on the Answer sheet.

PHYSICS

Choose the correct answer :

SECTION - A

1. If 24.37 is rounded off upto three significant figures then it should be written as
   (1) 24.4 (2) 25.0
   (3) 24.3 (4) 24.7
2. If an object is released from rest from a height then ratio of distance travelled by it in 1 second, 2 second and 3 second of motion will be
   (1) 1 : 2 : 3 (2) $1^2 : 2^2 : 3^2$
   (3) 1 : 3 : 5 (4) 1 : 1 : 1
3. The scientific principle involved in refrigerator is
   (1) Super conductivity
   (2) Bernoulli's theorem
   (3) Laws of thermodynamics
   (4) Digital logic
4. Choose the correct statement.
   (1) Gravitational force is strongest fundamental force in nature
   (2) Strong nuclear forces are charge independent
   (3) Working of laser is based on population inversion
   (4) Both (2) and (3)
5. S.I. unit for the measurement of solid angle is
   (1) Degree
   (2) Minute
   (3) Radian
   (4) Steradian

6. Order of magnitude of the distance of the sun from the earth (in S.I. unit) is
(1) 11 (2) 5
(3) 3 (4) 19

7 The percentage error in the measurement of the radius of a disc is 2%. Maximum percentage error in the surface area of the disc will be
(1) 2% (2) 3%
(3) 4% (4) 6%

8. If $x = \frac{A^2B^3}{\sqrt{C}}$ and the percentage error in the measurement of A, B and C are 1%, 2% and 2% respectively, then maximum percentage error in calculation of x would be
(1) 9% (2) 6%
(3) 7% (4) 14%

9. Number of significant zeroes in the value 0.0023400 are
(1) 3 (2) 5
(3) 6 (4) 2

10. Zero error in an instrument introduces
(1) Systematic error (2) Random error
(3) Personal error (4) Least count error

11. Which of the following pairs of physical quantities have different dimensional formula?
(1) Force and pressure
(2) Angular momentum and acceleration
(3) Work and torque
(4) Both (1) and (2)

12. Displacement x of a particle varies with time (t) as $x = \alpha t^2 - \beta t^3$ where α and β are constants. Dimensional formula of $\frac{\alpha}{\beta}$, will be
(1) $[M^0L^1T^{-3}]$ (2) $[M^0L^1T^{-2}]$
(3) $[M^1L^2T^{-1}]$ (4) $[M^0L^0T^1]$

13. Dimensional formula for universal gravitational constant is
(1) $[ML^{-1}T^{-2}]$ (2) $[M^{-1}L^3T^{-2}]$
(3) $[ML^{-1}T^{-3}]$ (4) $[M^1L^1T^{-4}]$

14. Which of the following has no dimensions?
(1) Universal gas constant
(2) Gravitational constant
(3) Boltzmann constant
(4) Relative density

15. In equation $y = A\cos^2(\omega t - kx)$, where t is time and x is distance, dimensional formula of ω/k should be
(1) $[LT^{-1}]$ (2) $[L^{-1}T]$
(3) $[L^1T^1]$ (4) $[L^0T^0]$

16. Dimensional formula for angular momentum is
(1) $[ML^2T^{-3}]$ (2) $[M^{-1}L^2T^3]$
(3) $[M^{-1}L^3T^3]$ (4) $[ML^2T^{-1}]$

17. Which of the following is the least precise measurement?
(1) 0.04 m (2) 0.124 m
(3) 0.3 m (4) 0.3256 m

18. If force (F), work (W) and velocity (v) are taken as fundamental quantities, then the dimensional formula of time (T) is
(1) [WFv] (2) $[WF^{-1}v^{-1}]$
(3) $[W^{-1}Fv^{-2}]$ (4) $[WF^2v^{-1}]$

19. S.I. unit of acceleration is
(1) $m\ s^{-1}$ (2) $m\ s^{-2}$
(3) $m^{-1}\ s^{-1}$ (4) $s\ m^{-1}$

20. Which of the following physical quantities is/are having units but no dimensions?
(1) Stress (2) Plane angle
(3) Solid angle (4) Both (2) and (3)

21. The least count of a stop watch is 0.1 s. The time of 20 oscillations of the pendulum is found to be 20 s. The percentage error in the time period of the pendulum is
(1) 0.5% (2) 1.25%
(3) 0.25% (4) 2%

22. 1 cm of the main scale of Vernier calliper is divided into ten equal parts. If 10 divisions of the main scale coincide with 8 small division of the main scale, then least count of the calliper is
(1) 0.01 cm (2) 0.02 cm
(3) 0.001 cm (4) 0.005 cm

23. If the distance covered by an object is non zero, then its displacement
(1) Must be zero
(2) May or may not be zero
(3) Cannot be zero
(4) Depends on the mass of object

24. A point object moves in a straight line so that its position x at any instant t is given by $x = 3t^3 + 2t^2 - 7$. Acceleration of the object at $t = 0$ s is

(1) 1 m/s^2 (2) 2 m/s^2

(3) 3 m/s^2 (4) 4 m/s^2

25. An object travels 40 m in 5 s and then another 40 m in 10 s. Average speed of the object for complete journey is

(1) 11.44 m/s (2) 5.33 m/s

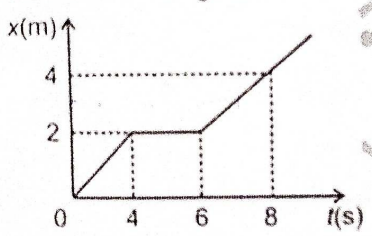
(3) 7 m/s (4) 2.45 m/s

26. Position of a particle moving along x-axis is given by $x = 3t^2 + 4t - 3$ where x is in m. Velocity of the particle at $t = 2$ s is

(1) 6 m/s (2) 12 m/s

(3) 17 m/s (4) 16 m/s

27. x–t graph of an object moving along a straight line is as shown in the figure.



Speed of the object at $t = 5$ s is

(1) $\frac{1}{3}$ m/s^2 (2) $\frac{1}{2}$ m/s^2

(3) 2 m/s^2 (4) Zero

28. A toy car starts from origin moves along x-axis to the point (8, 0, 0) and then returns along the same line to the point (–24, 0, 0), then total distance travelled by the toy car will be

(1) 30 unit (2) –6 unit

(3) 40 unit (4) 24 unit

29. If $I = \int \sin(6-4x)dx$, then I is

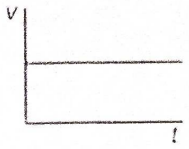
(1) $-\cos(6-4x)4 + c$

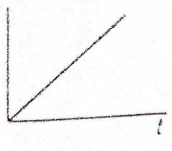
(2) $\frac{\cos(6-4x)}{4} + c$

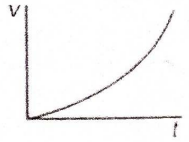
(3) $\frac{\cos(6-4x)}{6} + c$

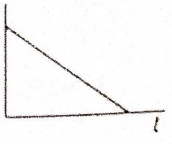
(4) $\frac{-\cos(6-4x)}{6} + c$

30. For which of the following velocity-time graph, the body is under zero acceleration?

(1) 

(2) 

(3) 

(4) 

31. Velocity v and position x of a body are related as $v^2 = Kx$, where K is a constant. Velocity of the body after 1 s is (given that at $t = 0$, $x = 0$)

(1) K (2) $K/2$

(3) $2K$ (4) $\sqrt{K}$

32. An insect moves 5 m towards north and then 7 m towards east. Total displacement of the insect will be

(1) 24 m (2) $\sqrt{74}$ m

(3) 20 m (4) $\sqrt{464}$ m

33. Acceleration of a particle varies with time t as $a = 4t$ m/s^2. If particle starts from rest, then velocity of the particle at $t = 2$ s is

(1) 8 m/s

(2) 12 m/s

(3) 3 m/s

(4) 6 m/s

34. If radius of a sphere at any instant is increasing at the rate of 1 cm/s, then rate of increase in surface area of sphere when its radius is $\frac{4}{\pi}$ cm will be

(1) 16 cm^2/s

(2) 32π cm^2/s

(3) 16π cm^2/s

(4) 32 cm^2/s

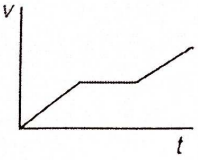
35. The velocity of an object moving in a straight line changes from 20 m/s to 144 km/h in 10 s. Average acceleration of the object in this time interval is

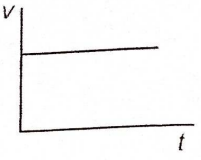
(1) 4 m/s^2 (2) 6 m/s^2

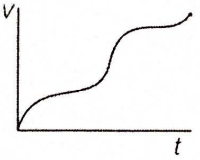
(3) 2 m/s^2 (4) 10 m/s^2

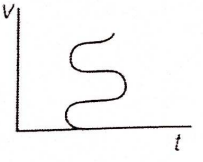
SECTION - B

36. Which of the following speed-time (v–t) graph is practically not possible?

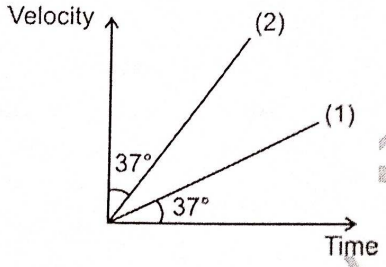
(1) 

(2) 

(3) 

(4) 

37. Velocity–time graph of two objects moving in same direction is given in the figure below, Ratio of acceleration of object (2) to that of object (1) is



(1) 1 (2) 16/9

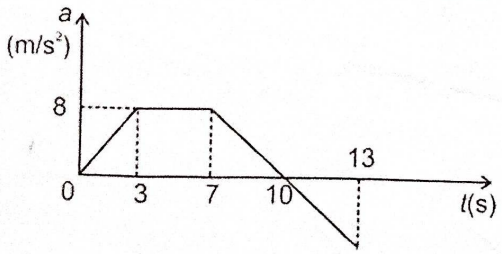
(3) 3/5 (4) 4/5

38. Two cars A and B are moving opposite to each other with speed 15 m/s and 35 m/s respectively. Magnitude of velocity of car A w.r.t. car B will be

(1) 20 m/s (2) 15 m/s

(3) 5 m/s (4) 50 m/s

39. Acceleration (a)-time (t) graph of a body moving along a straight line is as shown in the figure. The change in velocity of body in first 7 seconds is



(1) 56 m/s (2) 44 m/s

(3) 28 m/s (4) Zero

40. Slope of velocity-time graph of an object represents

(1) Speed of the object

(2) Change in velocity of the object

(3) Acceleration of the object

(4) Change in acceleration of the object

41. Two objects are thrown with equal speed of 50 m/s, one vertically upwards while other vertically downwards from same point. Acceleration of these two objects are respectively (g = 10 m/s² & upward direction taken as positive)

(1) –10 m/s², 10 m/s² (2) 10 m/s², –10 m/s²

(3) –10 m/s², –10 m/s² (4) 10 m/s², 10 m/s²

42. A body is thrown vertically upward such that it returns to the point of projection after 6 s. Maximum height reached by the body above point of projection will be (g = 10 m/s²)

(1) 40 m (2) 80 m

(3) 45 m (4) 100 m

43. A particle starts moving with constant acceleration 5 m/s². Distance travelled by the particle in 3rd second of its journey is

(1) 24 m (2) 37.5 m

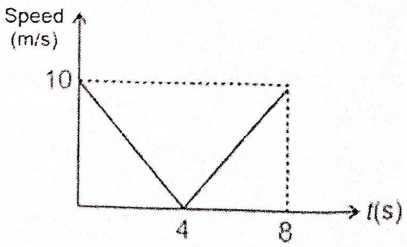
(3) 10.5 m (4) 12.5 m

44. A parrot is flying parallel to a railway track at speed 18 km/h. A train is also moving on the track opposite to bird with speed 15 m/s. If length of train is 200 m then time taken by the parrot to cross the train is

(1) 40 s (2) 20 s

(3) 25 s (4) 10 s

45. The speed-time graph for a body moving along a straight line is shown in figure



The average acceleration of the body may be

(1) 2.5 m/s² (2) –2.5 m/s²

(3) Both (1) & (2) (4) 5 m/s²

46. 1 micron is equal to

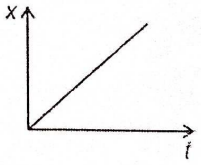
(1) 10^{-6} kg (2) 10^{-10} s

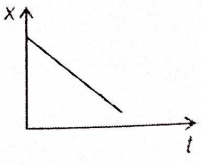
(3) 10^{-6} m (4) 10^{-12} A

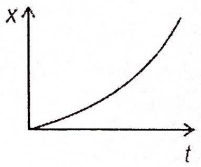
47. Among the following which one has maximum significant figures?
(1) 2.34 (2) 0.00240
(3) 0.002 (4) 0.0203400

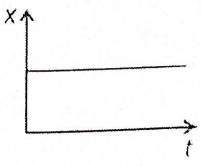
48. Which of the following error can be minimized by increasing the number of observations in any experiment?
(1) Systematic error
(2) Zero error
(3) Random error
(4) Both (1) and (2)

49. For which of the following position (x) – time (t) graph, the body may be moving with variable acceleration?

(1) 

(2) 

(3) 

(4) 

50. An object is moving in a straight line whose velocity v varies with time t as $v = 4 - 3t$. Object will come to rest at
(1) $t = 4$ (2) $t = 3$
(3) $t = \frac{4}{3}$ (4) $t = \frac{3}{4}$

CHEMISTRY

SECTION - A

51. The SI unit of mass is
(1) kilogram (2) gram
(3) milligram (4) microgram

52. Correct scientific notation is
(1) 0.000473 (2) 0.473×10^{-3}
(3) 4.73×10^{-4} (4) 473×10^{-6}

53. If true value of a result is 4.75 m and experimental values are 4.74 m and 4.76 m then these values are
(1) Accurate only
(2) Precise only
(3) Accurate and precise both
(4) Neither accurate nor precise

54. How many significant figures are in 0.050 cm?
(1) 1 (2) 2
(3) 3 (4) 4

55. If mass of three wooden blocks are 7.497 g, 6.29 g and 4.6 g, then the total combined mass of all the three blocks in appropriate significant figures is
(1) 18.387 g (2) 18.39 g
(3) 18.4 g (4) 18 g

56. Law of conservation of mass is not applicable for
(1) Decomposition reaction
(2) Combustion reaction
(3) Neutralisation reaction
(4) Nuclear fission

57. Natural sample and synthetic cupric carbonate both contains 51.35% of copper. This data is in accordance with @iarthraj
(1) Law of conservation of mass
(2) Law of constant proportion
(3) Law of multiple proportion
(4) Gay-Lussac's law

58. Law of multiple proportion is not applicable for the pair:
(1) CO & CO_2 (2) H_2O & H_2O_2
(3) CH_4 & C_2H_6 (4) O_2 & H_2O

59. At same temperature and pressure 1 L of N_2 and 1 L of H_2 will form

$$N_2 + 3H_2 \rightarrow 2NH_3$$

(1) $\frac{1}{3}$ L of NH_3 (2) $\frac{4}{3}$ L of NH_3
(3) $\frac{3}{2}$ L of NH_3 (4) $\frac{2}{3}$ L of NH_3

60. Which of the following is not correct regarding Dalton's atomic theory?
(1) Matter is made up of molecules.
(2) Atoms of same elements possess same mass.
(3) Chemical reactions involve reorganisation of atom.
(4) Atoms of different elements may combine in fixed ratio to form compounds.

61. Mass of one C – 12 atom is
(1) 12 g
(2) 6.022×10^{-23} g
(3) 1.66×10^{-24} g
(4) 1.99×10^{-23} g

62. Element X has two isotopes A and B. If % abundance of A and B are 50% each, then average atomic mass of element X is
(At. mass of A = 14 u and B = 16 u)
(1) 14.5 u (2) 15 u
(3) 15.5 u (4) 14.75 u

63. Formula mass is applicable in the case of
(1) H_2O (2) NaCl
(3) NH_3 (4) CH_4

64. 6.022×10^{23} atoms of oxygen are present in
(1) 1 mole of O (2) 1 mole of O_2
(3) 1 mole of O_3 (4) 1 mole of H_2O_2

65. Mass of one NH_3 molecule in gram is
(1) 17 (2) 17 N_A
(3) $\frac{17}{N_A}$ (4) $\frac{N_A}{17}$

66. 10 ml of CO at NTP contains _____ molecules
(1) $\frac{N_A}{224}$ (2) $\frac{N_A}{2240}$
(3) $N_A \times 224$ (4) $N_A \times 2240$

67. If an enzyme contain 2.4% of Mg, then number of magnesium atoms in 10 g enzyme is
(1) 6.02×10^{23} (2) 6.02×10^{22}
(3) 6.02×10^{21} (4) 6.02×10^{20}

68. % composition of carbon in CH_3COOH is
(1) 20% (2) 40%
(3) 12% (4) 24%

69. Molecule having same molecular and empirical formula is
(1) $H_2C_2O_4$ (2) $H_2S_2O_8$
(3) H_3PO_3 (4) CH_3COOH

70. A hydrocarbon contains 75% carbon, its empirical formula is
(1) CH (2) CH_2
(3) CH_3 (4) CH_4

71. Volume of CO_2 at NTP formed by burning 16 g of CH_4 with 64 g of O_2 is
(1) 11.2 L (2) 22.4 L
(3) 44.8 L (4) 5.6 L

72. For the reaction
$A + 2B \rightarrow 3C + D$
If 10 moles of A, 15 moles of B reacted, then
(1) A is the limiting reagent
(2) 10 moles of D are formed
(3) 22.5 moles of C are formed
(4) 10 moles of B are consumed

73. 6 moles of $BaCl_2$ reacted with 2 moles of H_3PO_4. The number of mole of $Ba_3(PO_4)_2$ formed is
(1) 0.5 mol (2) 1 mol
(3) 1.5 mol (4) 2 mol

74. Mass of $CaCO_3$ required for the preparation of 22.4 L of CO_2 at NTP is
(1) 50 g (2) 100 g
(3) 200 g (4) 25 g

75. If 3 moles of NaOH is dissolved in 380 g of water, then the mass % of NaOH in the solution is (Na = 23 u)
(1) 24% (2) 12%
(3) 16% (4) 48%

76. A gaseous mixture contains equal masses of O_2 and SO_2. The mole fraction of O_2 gas in the mixture is @iarthraj
(1) $\frac{1}{2}$ (2) $\frac{1}{3}$
(3) $\frac{2}{3}$ (4) $\frac{1}{4}$

77. 29.25 g NaCl is added in 250 g of H_2O. The molality of the solution is (Molecular mass of NaCl = 58.5 u)
(1) 0.1 molal (2) 0.5 molal
(3) 1 molal (4) 2 molal

78. 4.9 g of H_2SO_4 is present in 500 ml of solution. The molarity of the solution is (Molecular mass of H_2SO_4 = 98 u)
(1) 0.1 M (2) 0.2 M
(3) 0.4 M (4) 4.9 M

79. The molality of 14% (w/w) aqueous solution of KOH is (Molecular mass of KOH = 56 u)

(1) $\frac{125}{129}$ m (2) $\frac{125}{43}$ m

(3) $\frac{72}{69}$ m (4) $\frac{165}{76}$ m

80. 200 ml, 0.2 M HCl is mixed with 300 ml of H_2O. The molarity of resultant solution is

(1) 0.01 M (2) 0.08 M

(3) 0.1 M (4) 0.25 M

81. Mass of oxygen in 3.01×10^{23} molecules of H_2SO_4 will be

(1) 32 g (2) 16 g

(3) 64 g (4) 8 g

82. The mole fraction of the solute in a 4.5 m aqueous solution is

(1) $\frac{7}{48}$ (2) $\frac{3}{40}$

(3) $\frac{6}{29}$ (4) $\frac{4}{58}$

83. 5.6 L of O_2 gas at STP contains as many molecules as present in

(1) 300 g of C_2H_6 (2) 45 g of $H_2C_2O_4$

(3) 4.5 g of H_2O (4) 98 g of H_2SO_4

84. One avogram is equal to

(1) 10 N_A g (2) $\frac{1}{N_A}$ g

(3) N_A g (4) $\frac{10}{N_A}$ g

85. The molarity of 8% (w/v) NaOH solution is

(1) 1 M (2) 2 M

(3) 3 M (4) 4 M

SECTION - B

86. If vapour density of a gas is 50 then number of molecules present in 100 g of gas is

(1) 6.022×10^{23} (2) 1.2×10^{24}

(3) 2.4×10^{24} (4) 3.01×10^{23}

87. 104° F is equal to

(1) 80°C (2) 40°C

(3) –169°C (4) 318°C

88. A biomolecule contains 0.4% Fe by mass. The minimum molecular mass possible for the biomolecule is (At. Mass of Fe = 56 u)

(1) 14000 u (2) 28000 u

(3) 5600 u (4) 2800 u

89. By burning 10 g of hydrogen with 90 g of oxygen, the mass of water formed is

(1) 40 g (2) 80 g

3) 90 g (4) 100 g

90. Volume of 0.1 M H_2SO_4 required to react completely with 5.6 g of CaO is

(1) 1 L (2) 0.2 L

(3) 2 L (4) 5 L

91. From 26 g of C_2H_2, 3.011×10^{23} molecules are removed, then number of moles of C_2H_2 remaining is

(1) 0.1 mol (2) 0.5 mol

(3) 0.25 mol (4) 0.75 mol

92. 60 ml, 0.4 M NaOH is mixed with 40 ml, 0.8 M NaOH solution. The molarity of resultant mixture is

(1) 0.2 M (2) 0.4 M

(3) 0.56 M (4) 0.64 M

93. Which of the following has the maximum mass?

(1) 2 g molecule of CO_2

(2) 44.8 L of O_3 at NTP

(3) 6.02×10^{24} molecules of H_2O

(4) 2 moles of CH_4

94. 11.2 L gas at STP weighs 10 g. The molecular mass of the gas is

(1) 20 mg (2) 20 u

(3) 20 kg (4) 22.4 g

95. Which among the following is not a fundamental quantity?

(1) Pressure

(2) Amount of substance

(3) Mass

(4) Electric current

96. Mass of 0.1 N_A SO_3 molecule will be

(1) 80 g (2) 8 g

(3) 1.28×10^{-23} g (4) 6.4 g

97. If 2 L N_2 is mixed with 3 L H_2 then volume of final gas mixture will be
(1) 4 L (2) 5 L
(3) 2 L (4) 3 L

98. 1 L of a gas has same mass as 1 L N_2 at same temperature and pressure, then molar mass of gas will be
(1) 14 u (2) 28 u
(3) 42 u (4) 56 u

99. Mass of 1 gram sulphur atom is
(1) 32 amu (2) 32 g
(3) 1 g (4) 1 amu

100. Prefix used for 10^6 is
(1) Giga
(2) Mega
(3) Kilo
(4) Micro

BOTANY

SECTION - A

101. Uphill movement of materials
(1) Does not require energy
(2) Takes place from higher to lower concentration
(3) Is called passive transport
(4) Can be exemplified by Na^+/K^+ pump in animal cells.

102. The smallest cell
(1) Lacks nuclear membrane
(2) Has mitochondria but no chloroplast
(3) Lacks cell membrane
(4) Lacks genetic material

103. The infoldings of cell membrane in bacterial cells are called
(1) Cristae (2) Cisternae
(3) Mesosomes (4) Pili

104. Who was the first one to explain that cells divide and new cells are formed from pre-existing cells?
(1) Schwann
(2) Robert Brown
(3) Rudolf Virchow
(4) Anton Von Leeuwenhoek

105. Ribosomes are composed of
(1) mRNA and proteins
(2) rRNA and tRNA
(3) mRNA and rRNA
(4) rRNA and proteins

106. In maize protein storing leucoplasts are called
(1) Aleuroplasts (2) Amyloplasts
(3) Chromoplasts (4) Elaioplasts

107. 'Dictyosomes' is the term used for
(1) ER of plants
(2) Golgi bodies of plants
(3) Golgi bodies of animal cells
(4) ER of animal cells

108. Which of the following statements is **correct** w.r.t cytoskeleton?
(1) Helps the cell to store fats
(2) Maintains the pH of cell
(3) Provides mechanical support to the cell
(4) Is helpful in production of ATP

109. Microtubules @iarthraj
(1) Occurs only in prokaryotic cells
(2) Are made up of flagellin proteins
(3) Can not help in cell division
(4) Help in cilia formation

110. Select the **incorrect** match.
(1) Centrioles - Non-membrane bound
(2) Linear DNA - Plastids
(3) Thylakoids - Chloroplasts
(4) Hydrolases - Lysosomes

111. Arrangement of microtubules in centriole is
(1) 9 + 3 (2) 9 + 0
(3) 9 + 2 (4) 9 + 9

112. Cell organelle with single membrane is
(1) Lysosome
(2) Chloroplast
(3) Centrosome
(4) Ribosomes

113. Presence of which of the following structures is common in animal and higher plant cells?
(1) Mitochondria
(2) Plastids
(3) Centrioles
(4) Large central vacuole

114. The site of protein synthesis is
(1) Thylakoids
(2) Cisternae of golgi
(3) Lumen of chloroplast
(4) Palade particles

115. With the help of which of the following structures cytoplasm of one cell is in contact with other?
(1) Plasmodesmata
(2) Cell membrane
(3) Cell wall
(4) Middle lamella

116. All of the following pairs of cell organelles have dsDNA, **except**
(1) Mitochondria and nucleus
(2) Chloroplast and ribosomes
(3) Chloroplast and mitochondria
(4) Nucleus and chloroplast

117. The plasma membrane consists mainly of
(1) Phospholipids embedded in protein bilayer.
(2) Proteins embedded in phospholipids bilayer.
(3) Proteins and carbohydrates only.
(4) Sugar embedded in glycolipids only.

118. Major site of formation of glycoproteins and glycolipids is
(1) Vacuole (2) Golgi apparatus
(3) Plastids (4) Lysosomes

119. Primary lysosomes
(1) Are also called phagosomes
(2) Contain undigested left out materials
(3) Are newly formed lysosomes
(4) Are formed by union of many primary lysosomes.

120. Ribosomal RNAs are synthesised in
(1) Lysosomes (2) Nucleolus
(3) Cytoplasm (4) Ribosomes

121. Which of the following is **correctly** matched?
(1) Plasmid - Genomic DNA
(2) Lysosome - Contains enzymes which are optimally active at the basic pH
(3) Plant vacuole - Membrane bound
(4) Animal cells - Only 80S type of ribosomes are present

122. Which of the following is **not** true about SER?
(1) Helps in lipid synthesis
(2) Is a part of endomembrane system
(3) Helps in drug detoxification
(4) Involved in synthesis of proteins

123. The term glycocalyx is used for @iarthraj
(1) A layer surrounding plant cell.
(2) Cell wall of bacteria.
(3) A layer surrounding bacterial cell wall.
(4) Outermost layer of mesophyll cell

124. 70S ribosomes are present in all of the following, **except**
(1) Viruses
(2) Animal cell
(3) Plant cell
(4) Plastids

125. Total number of microtubules subfibres present in a centriole is
(1) 9 (2) 27
(3) 11 (4) 18

126. Select the **wrong** statement about chromatin
(1) They are nucleoprotein fibres
(2) Named by Flemming
(3) Composed of DNA and histone proteins
(4) Does not contain RNA

127. Matrix of mitochondria does **not** contain
(1) Enzymes for TCA cycle
(2) Few RNA molecules
(3) 80S ribosomes
(4) DNA molecule

128. Select the **correct** option w.r.t functions of chloroplast
(1) Synthesis and storage of carbohydrates
(2) Oxidation of proteins
(3) β oxidation of fats
(4) Oxidation of carbohydrates

129. The centromere is present very close to one end of the chromosome in
(1) Metacentric chromosome
(2) Telocentric chromosome
(3) Acrocentric chromosome
(4) Sub-metacentric chromosome

130. Diplotene bivalent chromosomes present in primary oocyte nuclei of vertebrates are called
(1) Lampbrush chromosomes
(2) Polytene chromosomes
(3) Salivary gland chromosomes
(4) SAT chromosome

131. Sphaerosomes
(1) Are present in animal cells only
(2) Have enzymes for peroxide metabolism
(3) Are believed to be plant lysosomes
(4) Are not unit membrane bound

132. Which of the following organisms are exception of cell theory?
(1) All prokaryotes
(2) All viruses
(3) All animal cells
(4) All plant cells

133. In human cells, how many SAT chromosomes are present?
(1) 10 pairs (2) 5 chromosomes
(3) 30 chromosomes (4) 5 pairs

134. The term suicidal bags is used for
(1) Golgian vacuole
(2) Autophagic vacuoles
(3) Residual bodies
(4) Digestive vacuole

135. Which of the following structure is absent in prokaryotes?
(1) Flagella (2) Gas vacuoles
(3) Lysosomes (4) Ribosomes

SECTION - B

136. Many ribosomes may associate with a single mRNA. Such strings of ribosomes are called
(1) Polysome (2) Nucleosome
(3) Chromosome (4) Glyoxysome

137. Prokaryotic cells are represented by
(1) RBCs (2) Mesophyll cell
(3) Mycoplasma (4) Animal cell

138. Carotenoids containing coloured plastids are
(1) Leucoplast (2) Chromoplasts
(3) Aleuroplasts (4) Amyloplasts

139. Which of the following organelles is absent in animal cells?
(1) Nucleus (2) Lysosomes
(3) Plastids (4) Mitochondria

140. Which of the following statements is **not** correct for glyoxysomes?
(1) These originate from ER.
(2) These are single membrane bound organelles
(3) They contain enzymes of glyoxylate cycle in animals.
(4) These are abundant in germinating seeds.

141. Site of ATP synthesis in animal cells is
(1) Cytoplasmic ribosomes only
(2) Mitochondria and RER
(3) RER only
(4) Mitochondria

142. For which of the following functions mesosome does not help in bacteria? @iarthraj
(1) DNA replication (2) Secretion process
(3) Motility (4) Respiration

143. Select the **incorrect** match

	(Organisms)		**(Major Component of cell wall)**
(1)	Bacteria	-	Peptidoglycan
(2)	Algae	-	Cellulose
(3)	Higher plants	-	Glycogen
(4)	Fungi	-	Chitin

144. Basis of gram staining of bacteria was
(1) Difference in composition of cell membrane of bacteria.
(2) Difference in composition of nuclear membrane.
(3) Difference in cell wall composition of different bacteria.
(4) Presence and absence of plasmid.

145. Select the **odd** one w.r.t number of membranes present around the following organelles.
(1) Mitochondria (2) Chloroplast
(3) Nucleolus (4) Nucleus

146. Select **incorrect** statement w.r.t. plasma membrane of bacterial cell
(1) It is selectively permeable in nature
(2) Is responsible for the relationship of the cell with the outside world
(3) It is structurally similar to eukaryotes
(4) It prevents bacterium from bursting or collapsing

147. Primary cell wall in plants
(1) Is incapable of growth
(2) Gradually diminishes as the cell matures
(3) Formed on the inner side of secondary cell wall
(4) Mainly made up of calcium pectate

148. Select **incorrectly** matched pair.
(1) Contractile vacuole – Osmoregulation
(2) Food vacuole – Excretion
(3) Sap vacuole – Plant cell
(4) Gas vacuole – Green photosynthetic bacteria

149. Select the **incorrect** statement w.r.t. structure having cartwheel like organisation.
(1) It is cylindrical in structure
(2) It forms the basal body of prokaryotic flagella
(3) It forms spindle fibres that give rise to spindle apparatus during cell division
(4) It is made up of tubulin proteins

150. Choose **odd** one out w.r.t. mitochondria
(1) They are called power house of the cell
(2) They divide by binary fission
(3) They are easily visible under the light microscope only
(4) Mitochondrial matrix contains few RNA molecules

ZOOLOGY

SECTION - A

151. Intercalated discs are characteristic feature of
(1) All striated muscles
(2) Smooth muscles
(3) Biceps
(4) Cardiac muscles

152. Sarcolemma is the plasma membrane of
(1) Neurons
(2) Muscle fibres
(3) Epithelial cells
(4) Chondrocytes

153. Select the **correct** feature of muscle fibres present in heart.
(1) Many nuclei are present in a single cell
(2) Fusiform shape
(3) Involuntary in nature
(4) Completely unstriated appearance

154. Which of the following is **not** true regarding smooth muscle fibres? @iarthraj
(1) They are bundled together in a connective tissue sheath
(2) Show faint striations
(3) Found in wall of urinary bladder
(4) Centrally placed nucleus

155. The connective tissue which is most widely distributed in the body of complex animals is
(1) Cartilage
(2) Areolar tissue
(3) Adipose tissue
(4) Dense regular tissue

156. Strong, cord-like, inelastic structures that join muscles to bones are
(1) Tendons
(2) Ligaments
(3) Cartilage
(4) Fascia

157. Match the column I with column II.

	Column I		Column II
a.	Dense regular connective tissue	(i)	Lymph
b.	Skeletal connective tissue	(ii)	Ligament
c.	Fluid connective tissue	(iii)	Bone
d.	Loose connective tissue	(iv)	Adipose tissue

Choose the **correct** option
(1) a(iii), b(ii), c(i), d(iv)
(2) a(ii), b(iii), c(i), d(iv)
(3) a(ii), b(iii), c(iv), d(i)
(4) a(iii), b(i), c(ii), d(iv)

158. Areolar tissue does **not** show the presence of
(1) Fibroblasts (2) Mast cells
(3) Macrophages (4) Chondrocytes

159. Specialised connective tissue does **not** include
(1) Bone (2) Cartilage
(3) Blood (4) Tendon

160. Site of production of blood cells is associated with
(1) Ligament (2) Bones
(3) Tendon (4) Areolar tissue

161. Fibre secreting cells of areolar tissue are called
(1) Fibroblasts (2) Macrophages
(3) Plasma cells (4) Mast cells

162. Which of the following cells ingest cellular debris, bacteria and foreign matter with the help of pseudopodia?
(1) Plasma cells (2) Chondrocytes
(3) Osteoblasts (4) Macrophages

163. Select the structure which is **not** internally lined by squamous epithelium in man?
(1) Blood vessels
(2) Alveoli of lungs
(3) Hairpin bend in loop of Henle
(4) Trachea

164. Fallopian tubes are lined by
(1) Ciliated epithelium
(2) Brush bordered cuboidal epithelium
(3) Squamous epithelium
(4) Cuboidal epithelium

165. All of the following have ducts **except**
(1) Sudorific glands (2) Intestinal glands
(3) Oil glands (4) Adrenal glands

166. Function of microvilli of epithelial cells is to
(1) Protect the cell
(2) Increase the surface area for absorption
(3) Move particles or mucus in a specific direction
(4) Engulf the foreign matter

167. Simple epithelial tissue serves mainly all of the functions given below **except**
(1) Filtration (2) Absorption
(3) Protection (4) Gaseous exchange

168. Select the **incorrect** w.r.t neuroglia.
(1) Protect neurons
(2) Support neurons
(3) Carry nerve impulse towards cyton
(4) Insulate adjacent neurons

169. A delicate non-cellular layer over which the basal surface of epithelial tissue lies is
(1) Microvilli
(2) Basement membrane
(3) Tight junction
(4) Desmosome

170. Property shown by neurons is
(1) Excitability
(2) Elasticity
(3) Extensibility
(4) Contractility

171. In which of the following connective tissue, the cells cannot secrete modified polysaccharide and structural proteins.
(1) Bone (2) Blood
(3) Cartilage (4) Ligament

172. Nissl's granules are present in
a. Soma
b. Dendrite
c. Axon
Choose the correct option.
(1) c only (2) a only
(3) a, b and c (4) a and b only

173. Bone differs from cartilage in all of the following aspects, except the presence of
(1) Osteocyte
(2) Calcium salt and collagen fibre rich matrix
(3) Lacuna
(4) Bone marrow

174. Read the following statements carefully.
Statement-A: Neural tissue exerts the greatest control over the body's responsiveness to changing conditions.
Statement-B: Neurons are excitable cells.
Choose the correct option.
(1) Both statements (A) and (B) are correct
(2) Both statements (A) and (B) are incorrect
(3) Only statement (A) is correct
(4) Only statement (B) is correct

175. Skeletal muscle fibres differ from neurons in all of the following aspects, except
(1) Size (2) Appearance
(3) Shape (4) Excitibility

176. Match the column I with column II

	Column I		Column II
a.	Brush border cuboidal epithelium	(i)	Lining of intestine
b.	Brush border columnar epithelium	(ii)	Lining of bronchioles
c.	Ciliated epithelium	(iii)	Lining of PCT

Choose the **correct** option.
(1) a(i), b(ii), c(iii) (2) a(iii), b(ii), c(i)
(3) a(iii), b(i), c(ii) (4) a(i), b(iii), c(ii)

177. Gap junction is present in all, except
(1) Between smooth muscle fibres
(2) Between cardiac muscle fibres
(3) Between skeletal muscle fibres
(4) Between epithelial cells

178. Ligaments connect
(1) Tongue to hyoid bone
(2) Biceps to humerus
(3) Femur to tibia
(4) Tongue to floor of buccal cavity

179. The unit of neural system is
(1) Muscle fibre (2) Neuron
(3) Neuroglia (4) Macrophage

180. Choose the option to complete the analogy
Cartilage : Chondrocyte : : Blood :
(1) Fibroblast (2) Leucocyte
(3) Macrophage (4) Adipocyte

181. Which of the following tissue is surrounded by simple squamous epithelium in humans?
(1) Bone (2) Cartilage
(3) Blood (4) Adipose tissue

182. All striated muscle fibres are
(1) Branched
(2) Multinucleated
(3) Under control of CNS
(4) Composed of myofibrils

183. The epithelium made up of a single layer of flattened cells with irregular boundaries is mainly not used for
(1) Filtration (2) Diffusion
(3) Secretion (4) Protection

184. All of the following are secretions of endocrine glands, except
(1) Milk (2) Insulin
(3) Glucagon (4) Cortisol

185. In which of the following tissues, cells are compactly packed with little intercellular matrix?
(1) Epithelial tissue (2) Muscular tissue
(3) Neural tissue (4) Connective tissue

SECTION - B

186. Muscle fibres which taper at both ends are _____ in appearance.
Choose the option which fills the blank **correctly**
(1) Tubular
(2) Cylindrical
(3) Fusiform
(4) Multinucleated

187. Choose the **correct** statement.
(1) Skeletal muscles are closely attached to bones.
(2) Stomach wall contains striated muscles.
(3) Smooth muscles are voluntary in nature.
(4) Skeletal muscles are fusiform in appearance.

188. All of the following are true for cartilage **except** that
(1) Its matrix is solid and pliable
(2) It is dense irregular connective tissue
(3) It is considered as skeletal connective tissue
(4) Its matrix is generally devoid of inorganic salts

189. Select the **odd one** w.r.t multicellular exocrine glands.
(1) Salivary glands
(2) Pituitary glands
(3) Sweat glands
(4) Sebaceous glands

190. Myelin sheath in PNS is secreted by
(1) Adipocytes
(2) Schwann cells
(3) Macrophages
(4) Oligodendrocytes

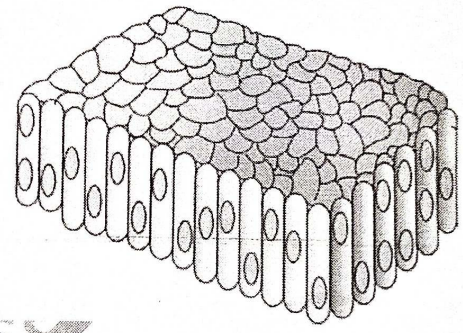
191. Nissl's granules are made up of
(1) Mitochondria
(2) Ribosomes + RER
(3) Centrioles
(4) Vacuoles

192. Neurons which possess only axon but no dendrites are said to be
(1) Unipolar neurons (2) Bipolar neurons
(3) Multipolar neurons (4) Apolar neurons

193. Which of the following salts are present in maximum quantities in matrix of bones?
(1) Calcium phosphate and Calcium carbonate
(2) Magnesium phosphate and Calcium carbonate
(3) Sodium phosphate and Calcium carbonate
(4) Magnesium phosphate and Magnesium chloride

194. Efferent nerve fibres of neurons are
(1) Perikaryon
(2) Dendrites
(3) Axons
(4) Nodes of Ranvier

195. Observe the figure given below, select the option which **correctly** identifies the type of tissue depicted.



(1) Squamous epithelium
(2) Cuboidal epithelium
(3) Columnar epithelium
(4) Compound squamous epithelium

196. Which of the following cell junctions prevent substances from leaking across a tissue.
(1) Tight junctions
(2) Adhering junctions
(3) Gap junctions
(4) Communication junctions

197. Compound epithelium is present in all the following regions, except @iarthraj
(1) Moist surface of buccal cavity
(2) Moist surface of pharynx
(3) Lining of pancreatic ducts
(4) Lining of tubular part of nephrons

198. **Assertion (A):** Adipose tissues are specialised to store fats.

Reason (R): Adipocytes are specialised cells for storage of fats present in adipose tissue.

In the light of above statements choose the correct option.

(1) Both (A) and (R) are true and (R) is the correct explanation of (A)

(2) Both (A) and (R) are true but (R) is not the correct explanation of (A)

(3) (A) is true but (R) is false

(4) (A) is false but (R) is true

199. Choose the incorrect statement w.r.t. cartilage.

(1) Most of the cartilages in vertebrate embryos are replaced by bones in adults

(2) It is present in tip of nose

(3) Intracellular matrix is solid and pliable

(4) Its matrix resists compression

200. Choose the odd one w.r.t. location of unbranched, involuntary muscle fibres.

(1) Wall of blood vessels

(2) Stomach

(3) Intestine

(4) Biceps

❑ ❑ ❑