Date : 29-10-2023

Code-E

Aakash + BYJU'S

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All India Aakash Test Series for NEET-2024

Time : 3 Hrs. 20 Min.

Practice Test – I (Online)

MM : 720

TOPICS COVERED

PHYSICS : Physical World, Units & Measurements, Motion in a Straight Line, Motion in a Plane

CHEMISTRY : Some basic concepts of chemistry, Structure of Atom

BOTANY : Cell: The Unit of Life, Cell Cycle and Cell Division, The Living World

ZOOLOGY : Structural Organisation in Animals–Animal Tissues, Biomolecules

[PHYSICS]

Choose the correct answer :

SECTION - A

1. If A, B and C are physical quantities such that A and B have same dimensions while C has different dimensions, then choose the meaningful expression.

   (1) $\frac{A+C}{B}$ (2) $\frac{C-2B}{A}$

   (3) $\frac{A}{B+C}$ (4) $\frac{2A-3B}{C}$

2. A quantity 'x' is given as $x=\frac{\alpha^2\beta^3}{\sqrt{\rho}\gamma^{3/2}}$. If percentage error in measurements of α, β, ρ and γ, are $\frac{1}{2}\%$, $\frac{1}{3}\%$, 2% and $\frac{1}{3}\%$ respectively, then maximum percentage error in 'x' is

   (1) 1.5% (2) 2.5%

   (3) 3.5% (4) 4%

3. Power of a force varies with displacement x and time t as $P=\frac{ax^2}{b-2t}$, where a and b are dimensional constants, the dimensional formula of [ab] is

   (1) $[ML^0T^{-1}]$ (2) $[ML^2T^{-3}]$

   (3) $[ML^0T^{-3}]$ (4) $[ML^0T^{-2}]$

4. A particle moving on a straight line has initial velocity 2.03 m/s accelerating uniformly with 1.0 m/s^2 after 0.3 s will have a velocity (in m/s) of (upto correct significant figures)

   (1) 2.3 (2) 2.0

   (3) 2.06 (4) 2.1

5. If each division on the main scale is 1 mm, then which of the following vernier scales gives vernier constant equal to 0.05 mm?

   (1) 9 mm divided into 10 divisions

   (2) 19 mm divided into 20 divisions

   (3) 80 mm divided into 100 divisions

   (4) 99 mm divided into 100 divisions

6. If dimensional formula of a physical quantity is $[M^aL^bT^c]$, then the physical quantity can be

   (1) Torque if $a = 1$, $b = 2$ and $c = -1$

   (2) Surface tension if $a = 1$, $b = 1$, and $c = -2$

   (3) Impulse if $a = 1$, $b = 1$ and $c = -1$

   (4) Acceleration if $a = 1$, $b = 0$, $c = -2$

7. A particle starts from rest, moves with constant acceleration for 10 s. If it covers s_1 distance in first 5 s then distance s_2 in next 5 s, then the correct relation between s_1 and s_2 is

(1) $s_1 = 3s_2$ (2) $s_2 = 3s_1$

(3) $s_1 = \frac{2}{3}s_2$ (4) $s_2 = \frac{2}{3}s_1$

8. Number of significant figures in 0.004900 is

(1) 7 (2) 4

(3) 6 (4) 2

9. If velocity (V), mass (M) and time (T) are taken as fundamental quantities, then dimensional formula of Young's Modulus is (Young's modulus has same dimensions as pressure)

(1) $[MV^2T^{-3}]$ (2) $[MVT^{-2}]$

(3) $[MV^{-1}T^{-3}]$ (4) $[MV^{-2}T^{-3}]$

10. Choose the correct statement.

(1) Dimensionless quantities can have a unit

(2) A dimensionally correct equation must be correct

(3) Change in system of unit will surely change the numerical value of physical quantity

(4) Dimension of a physical quantity can never be a fraction

11. Time period of a simple pendulum is recorded in three experiments as 1.9, 2.0 and 2.1, then

(1) Mean absolute error is 0.01

(2) Relative error is 0.03

(3) Relative error is 0.5

(4) Percentage error is 0.05

12. A ball is thrown at angle θ and another ball is thrown at an angle $(90°-\theta)$ with horizontal direction from the same point each with speed 30 m/s. The ratio of maximum height attained by them will be.

(1) $\tan^2\theta$ (2) $\sin^2\theta$

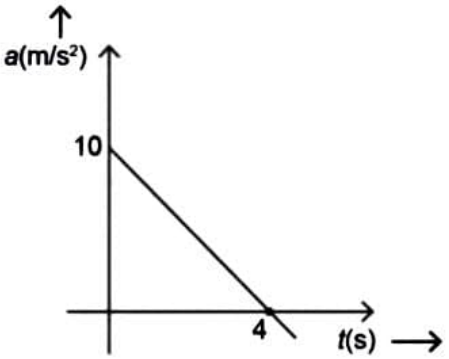
(3) $\cos^2\theta$ (4) $\sec^2\theta$

13. A stone dropped from the top of a tower is found to travel 7/16 of the height of tower during the last second of its fall. The total time of fall is

(1) 2 s (2) 3 s

(3) 4 s (4) 5 s

14. The acceleration-time graph of a particle moving in straight line is shown. If initial velocity of the particle is 6 m/s, then velocity at the end of 4 second will be



(1) 20 m/s (2) 46 m/s

(3) 26 m/s (4) 40 m/s

15. A particle is moving along x-axis such that its position (x) varies with time (t) as $x = t\sin t$. The average acceleration of the particle from $t = 0$ s to $t = \frac{\pi}{2}$ s is

(1) $\frac{\pi}{2}$ m/s² (2) $\frac{2}{\pi}$ m/s²

(3) $\frac{\pi}{4}$ m/s² (4) $\frac{4}{\pi}$ m/s²

16. A particle starts from rest and moves at an acceleration of 4 m/s² for 10 second and then decelerates uniformly for another 5 second to come to rest. Distance covered by particle in this journey is

(1) 300 m (2) 600 m

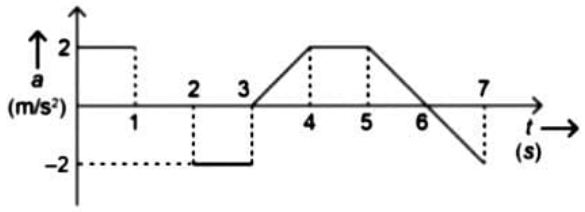
(3) 400 m (4) 900 m

17. A police jeep chasing a thief's car which is moving at 40 m/s on a straight track. If separation between the jeep and car is 400 m, then minimum speed (assuming uniform) of jeep required to catch the car in 20 s is

(1) 40 m/s (2) 60 m/s

(3) 80 m/s (4) 120 m/s

18. The acceleration-time (a-t) graph of a particle moving along a straight line is as shown in figure. If initial velocity of particle is 5 m/s, then velocity at the end of 7 second is



(1) 5 m/s (2) 6 m/s

(3) 8 m/s (4) 10 m/s

19. A vehicle covers one fourth of total distance with speed v_1 and remaining part with speed v_2 then its average speed is

(1) $\frac{3v_1+v_2}{2}$

(2) $\frac{3v_1+v_2}{v_1+v_2}$

(3) $\frac{4v_1v_2}{3v_1+v_2}$

(4) $\frac{4v_1v_2}{v_1+v_2}$

20. A lift starts moving up with an acceleration of 2 m/s². After one second a bolt drops from the ceiling. The time after which it will strike the floor of 1.2 m high lift is (Take g = 10 m/s²)

(1) $\frac{1}{\sqrt{5}}$ second

(2) $\frac{\sqrt{6}}{5}$ second

(3) 5 second

(4) $\frac{1}{\sqrt{2}}$ second

21. Velocity of an insect crawling on a surface rectilinearly varies as $v = 3t^2 - 2$. The equation that holds good for analysing its motion is (symbols have usual meaning)

(1) Displacement $s = \int_{t_1}^{t_2} v dt$

(2) Displacement $s = ut + \frac{1}{2}at^2$

(3) Displacement $s = \frac{v^2 - u^2}{2a}$

(4) All of these

22. Slope of a position-time graph determines

(1) Displacement

(2) Instantaneous velocity

(3) Change in velocity

(4) Acceleration

23. If a particle moves in a circle describing equal angles in equal intervals of time, then its velocity vector

(1) Remains constant

(2) Changes in magnitude only

(3) Changes in direction only

(4) Changes in both magnitude and direction

24. A particle moving along North is subjected to a constant force resulting in an acceleration along North-east. The trajectory of the particle

(1) May be straight line

(2) Must be parabolic

(3) Must be circular

(4) Must be straight line

25. Position of a particle varies with time (t) as $x = \frac{1}{\sqrt{t}}$. The acceleration of the particle is proportional to

(1) $t^{2/3}$

(2) $t^{-2/3}$

(3) $t^{5/2}$

(4) $t^{-5/2}$

26. A ball is dropped from a high tower at t = 0. After 10 s another ball is thrown in downwards direction from the same point with speed 'v'. If these two balls meet at t = 15 s, then the value of 'v' is [Take g = 10 m/s²]

(1) 50 m/s

(2) 100 m/s

(3) 200 m/s

(4) 225 m/s

27. A particle starts from origin at t = 0 with velocity $6\hat{j}$ m/s in xy plane with constant acceleration of $\vec{a} = \left(2\hat{i} - 2\hat{j}\right)$ m/s². Position coordinates of the particle (in m) when velocity becomes parallel to x-axis is

(1) (9, 9) (2) (3, 9)

(3) (6, 9) (4) (6, 0)

28. Speed of a particle at the point of projection is $\sqrt{2}$ times the speed at its maximum height. The angle of projection of projectile is

(1) 30° (2) 45°

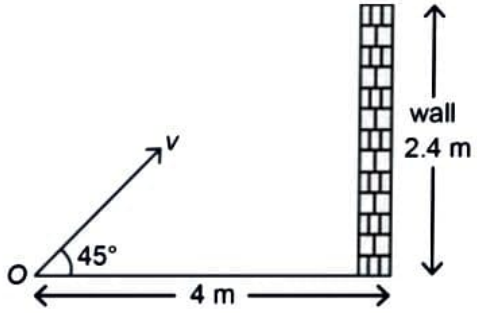
(3) 60° (4) $\tan^{-1}\left(\sqrt{2}\right)$

29. The angle of projection of a projectile for which range is double the maximum height, will be

(1) $\theta = \tan^{-1}(2)$ (2) $\theta = \tan^{-1}(4)$

(3) θ = 45° (4) $\theta = \tan^{-1}(1/2)$

30. Bullets from a gun fixed on ground at a point O have speed v directed at 45° from horizontal (as shown). The speed v such that it can just graze the top of a 2.4 m wall at a distance of 4 m from gun will be [Take $g = 10\ m/s^2$]



(1) 10 m/s (2) $10\sqrt{2}$ m/s

(3) $\frac{10}{\sqrt{2}}$ m/s (4) 100 m/s

31. A stone is projected at an angle of 45° above the horizontal with speed $10\sqrt{2}$ m/s from the top of a building of height 200 m. Taking the point of projection as origin, the position of particle after 3 s of projection will be ($g = 10\ m/s^2$)

(1) $\left(30\sqrt{2}\hat{i} - 30\hat{j}\right)$m (2) $\left(30\hat{i} - 30\hat{j}\right)$m

(3) $\left(30\hat{i} + 15\sqrt{2}\hat{j}\right)$m (4) $\left(30\hat{i} - 15\hat{j}\right)$m

32. Position vector of a particle moving in x-y plane is given by $\vec{r} = 2t\hat{i} + \left(3t - 6t^2\right)\hat{j}$. The equation of trajectory of the particle is

(1) $y = \frac{3}{2}x(x+1)$ (2) $y = \frac{3}{2}x(1-x)$

(3) $y = x\left(\frac{3-x}{2}\right)$ (4) $y = 3x - 6x^2$

33. Which of the following set of magnitude of vectors cannot give zero resultant?

(1) 1, 2, 3 (2) 25, 5, 15

(3) 10, 5, 8 (4) 15, 8, 20

34. In a uniform circular motion

(1) Velocity is uniform (2) Speed is uniform

(3) Acceleration is zero (4) Both (1) and (3)

35. A particle moves in a circular path of radius 4 m with a uniform speed of 6 m/s. Its acceleration is

(1) 18 m/s² (2) 9 m/s²

(3) 36 m/s² (4) $\frac{9}{2}$ m/s²

SECTION - B

36. A swimmer crosses a river of width 500 m flowing at 4 km/h in minimum time. If his velocity in still water is 5 km/h then displacement along the river covered by him when he reaches opposite bank is

(1) 500 m (2) $8\sqrt{41}$ m

(3) 400 m (4) $10\sqrt{41}$ m

37. Position of a particle is varying with time as $\vec{r} = a(t-1)^2\hat{i} + bt^2\hat{j}$ where 'a' and 'b' are constants. The time after which acceleration becomes normal to the velocity is

(1) $\frac{a}{a+b}$ (2) $\frac{a^2}{(a+b)^2}$

(3) $\frac{a^2}{a+b}$ (4) $\frac{a^2}{a^2+b^2}$

38. A system of units has 10 kg, 10 cm and 10 s as the units of mass, length and time respectively. The value of 10 N in this system will be

(1) 1000 units (2) 1 unit

(3) 10 units (4) 100 units

39. A car moving along a straight line with speed 72 km/h is brought to rest travelling a distance of 20 m. If retardation is uniform, then time taken (in s) to stop this car will be

(1) 1 (2) 2

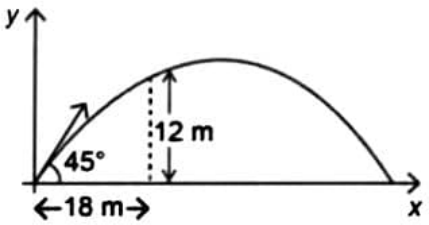
(3) 3 (4) 4

40. A particle is moving on a circular track of radius 2 m. Its speed varies as $v = \alpha t^2$ where α is a constant. The ratio of radial and tangential acceleration of particle at $t = 2$ s is

(1) α (2) 2α

(3) 8α (4) 4α

41. For a projectile thrown according to the situation given below; maximum height acquired by the projectile will be



(1) 13.5 m (2) 15.5 m

(3) 18 m (4) 9 m

42. Two quantities are measured as $A = 1.0\ m \pm 0.2\ m$ and $B = 2.0\ m \pm 0.2\ m$. The correct value of $\sqrt{AB}$ should be reported as

(1) $1.4\ m \pm 0.2\ m$ (2) $1.4\ m \pm 0.1\ m$

(3) $1.41\ m \pm 0.15\ m$ (4) $1.4\ m \pm 0.4\ m$

43. Linear mass density has dimensional formula as

(1) $[M^0L^0T^0]$ (2) $[M^0LT^0]$

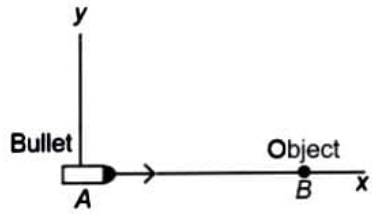
(3) $[M^0L^{-1}T^0]$ (4) $[ML^{-1}T^0]$

44. A particle starts from rest on a circle of radius $\frac{25}{\pi}$ m with uniformly increasing speed. If it completes 5 revolutions in 5 seconds, then its tangential acceleration is

(1) $5\ m/s^2$ (2) $10\ m/s^2$

(3) $15\ m/s^2$ (4) $20\ m/s^2$

45. A bullet is fired horizontally aiming at an object which starts falling at the instant when the bullet is fired (as shown). Position 'A' is taken as origin and speed of bullet is 10 m/s. If the bullet hits the object after 1 second, then coordinates of the point where it hits the object will be [Take $g = 10\ m/s^2$]



(1) (0, 10) m (2) (10, – 5) m

(3) (10, –10) m (4) (5, –5) m

46. With regards to significant figures 4.000×10^3 m can be written as

(1) 4000.0 m (2) 4 km

(3) 4×10^3 m (4) 4.000 km

47. Angular speed of a particle varies with time (in s) as $\omega = 4t^2$ (rad/s). If the particle moves on a circular path of radius 1 m, then its tangential acceleration after 1 second will be

(1) $8\ m/s^2$ (2) $16\ m/s^2$

(3) $24\ m/s^2$ (4) $8\sqrt{5}\ m/s^2$

48. A particle moving along a straight line such that its velocity varies as $v = 4t + 2$. Distance covered by this particle in 6th second is [where v is in m/s and t is in s]

(1) 18 m (2) 24 m

(3) 20 m (4) 22 m

49. Two particles are projected at speed 3 m/s and 6 m/s horizontally in the same direction from the top of a tower. If both of them strike the ground at points 12 m apart, then the height of tower will be [Use $g = 10\ m/s^2$]

(1) 20 m (2) 40 m

(3) 60 m (4) 80 m

50. SI unit of luminous intensity is

(1) lux

(2) watt/m²

(3) joule

(4) candela

[CHEMISTRY]

SECTION - A

51. Volume of 0.02 M solution that contains 0.1 mol solute is

(1) 1 L

(2) 4 L

(3) 0.5 mL

(4) 5 L

52. Mass of 80% pure $CaCO_3$ required to produce 22.4 L CO_2 at STP will be

(1) 100 g (2) 125 g

(3) 150 g (4) 110 g

53. Number of atoms in 16 g ozone is

(1) N_A (2) $2N_A$

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

54. Volume of 1 mol H_2O at NTP will be (density of water = 1 g mL^{-1})

(1) 22.4 L (2) 24.7 L

(3) 18 mL (4) 22.4 mL

55. Molecular formula of hydrocarbon that contains 80% carbon by mass is

(1) C_2H_6 (2) C_2H_4

(3) CH_4 (4) C_6H_6

56. An organic compound contains 0.1% Fe by mass, minimum molecular mass of compound will be (molar mass of Fe = 56 g mol^{-1})

(1) 56000 amu (2) 560 amu

(3) 28000 amu (4) 280 amu

57. Which among the following will have maximum number of atoms?

(1) 1 g H_2O (2) 1 g He

(3) 1 g O_2 (4) 1 g H_2

58. A mixture of He and SO_2 is 1 : 16 by mass. What is the molar ratio of two gases in mixture?

(1) 2 : 5 (2) 1 : 4

(3) 1 : 8 (4) 1 : 1

59. 1 g Ca is burnt with 1 g O_2 in a closed vessel. Which reactant is left in excess and how much? (Given; atomic weight: Ca = 40 ; O = 16)

(1) 0.4 g Ca (2) 0.2 g O_2

(3) 0.6 g O_2 (4) 0.2 g Ca

60. If mass percentage $\left(\frac{w}{w}\right)$ of glucose in aqueous solution is 18% then molality of glucose in the solution will be

(1) 3.5 m (2) 1.2 m

(3) 0.5 m (4) 4.1 m

61. If 2 mol A and 3 mol B are mixed then mole fraction of B will be

(1) 0.4 (2) 0.6

(3) 0.2 (4) 0.8

62. Mole of oxygen atom present in 31 mg calcium phosphate is

(1) 0.1 (2) 0.8

(3) 10^{-4} (4) 8×10^{-4}

63. The amount of zinc required to produce 56 mL of H_2 at STP on treatment with dilute HCl will be (molar mass of Zn = 65 g mol^{-1})

(1) 0.162 g (2) 16.2 g

(3) 162 g (4) 1.62 g

64. An element Y has following isotopic composition, ^{100}Y : 80%, ^{98}Y : 15%, ^{101}Y : 5%. The weighted average atomic mass of naturally occurring element Y is

(1) 100.25 (2) 99.75

(3) 98.27 (4) 100

65. Empirical formula of an organic compound containing 40% C, 46.66% N and 13.34% H will be

(1) CH_4N (2) CH_5N

(3) $C_2H_5N_2$ (4) $C_3H_4N_2$

66. Correct statement regarding photoelectric effect is

(1) Energy of emitted electron depends on intensity of incident photon

(2) If photoelectron is getting emitted by blue light then same metal will show photoelectric effect with violet light too

(3) Number of photoelectron emitted depends on frequency of light

(4) Work function of sodium is greater than lithium

67. The *d*-orbital whose lobes are oriented towards axis is

(1) d_{xy} (2) d_{yz}

(3) d_{z^2} (4) d_{xz}

68. Ratio of radius of 2nd Bohr orbit of Li^{2+} to radius of 3rd Bohr orbit of Be^{3+} is

(1) 16 : 27 (2) 4 : 9

(3) 8 : 3 (4) 9 : 16

69. Match List-I with List-II

	List-I (orbital)		**List-II (Number of angular node)**
(a)	3*d*	(i)	0
(b)	4*p*	(ii)	2
(c)	5*f*	(iii)	1
(d)	2*s*	(iv)	3

Choose the **correct** option.

(1) (a)(iv), (b)(iii), (c)(ii), (d)(i)

(2) (a)(ii), (b)(iii), (c)(i), (d)(iv)

(3) (a)(ii), (b)(iii), (c)(iv), (d)(i)

(4) (a)(iii), (b)(ii), (c)(iv), (d)(i)

70. An electron absorbs photon of λ wavelength and emits two photons of wavelength 300 nm and 500 nm, wavelength λ is

(1) 750 nm

(2) 187.5 nm

(3) 375 nm

(4) 400 nm

71. Number of proton, electron and neutron in $^{261}_{104}Rf$, respectively are

(1) 104, 104, 157 (2) 157, 104, 104

(3) 104, 157, 104 (4) 104, 104, 104

72. A radio station broadcasts on a frequency of 6000 kHz. The wave number of the electromagnetic radiation emitted by transmitter is,

(1) 2 m^{-1} (2) 2×10^{-5} m^{-1}

(3) 0.02 m^{-1} (4) 0.2 m^{-1}

73. The de-Broglie wavelength of electron in 2nd excited state of H-atom is

(1) 52.9 π pm (2) 317.4 π pm

(3) 105.8 π pm (4) 157.7 π pm

74. Which among the following elements will have maximum energy for 2*s* orbital?

(1) Na (2) Li

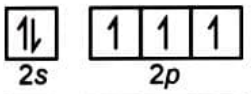
(3) K (4) H

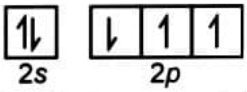
75. Which of the following series of transition in the spectrum of hydrogen atom fall in ultraviolet region?

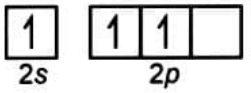
(1) Balmer series (2) Brackett series

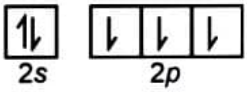
(3) Lyman series (4) Paschen series

76. Which among the following is not according to Hund's rule?

(1) 

(2) 

(3) 

(4) 

77. If uncertainty of position and velocity are equal for an electron then uncertainty in momentum of electron will be

(1) $\frac{1}{2}\sqrt{\frac{h}{\pi m}}$ (2) $\frac{1}{2}\sqrt{\frac{h}{\pi}}$

(3) $\frac{1}{2}\sqrt{\frac{\pi}{hm}}$ (4) $\frac{1}{2}\sqrt{\frac{hm}{\pi}}$

78. Number of electron(s) in a 3*d* orbital of Cr atom is

(1) 2 (2) 1

(3) 4 (4) 5

79. Three-dimensional shape of orbital is defined by

(1) Principal quantum number

(2) Azimuthal quantum number

(3) Magnetic quantum number

(4) Spin quantum number

80. The orbital angular momentum of electron in '*p*' orbital is equal to

(1) 0 (2) $\sqrt{6}\,\hbar$

(3) $\sqrt{12}\,\hbar$ (4) $\sqrt{2}\,\hbar$

81. Maximum number of orbital(s) that can be identified by (n = 4, l = 2) are

(1) 3 (2) 1

(3) 7 (4) 5

82. Energy of a photon with 4×10^{15} Hz frequency is (h = 6.6×10^{-34} Js)

(1) 8.25 eV (2) 16.5 eV

(3) 26.4 eV (4) 165 eV

83. Given below are two statements:

Statement I: Na^+ and F^- are isoelectronic species.

Statement II: $^{14}_{7}N$ and $^{13}_{6}C$ are isotones.

In the light of above statements choose the most appropriate answer from options given below.

(1) Statement I is true but statement II is false

(2) Statement I is false but statement II is true

(3) Both statement I and statement II are true

(4) Both statement I and statement II are false

84. Which among the following transitions for H atom will emit maximum energy?

(1) $4 \rightarrow 2$ (2) $2 \rightarrow 1$

(3) $3 \rightarrow 1$ (4) $5 \rightarrow 2$

85. The correct set of four quantum numbers for the valence electron of K atom is

(1) n = 4, l = 0, m = 0, s = +1/2

(2) n = 4, l = 1, m = 0, s = +1/2

(3) n = 5, l = 0, m = 0, s = +1/2

(4) n = 3, l = 1, m = 0, s = +1/2

SECTION - B

86. Incorrect set of quantum number among the following is

	n	l	m	s
(1)	3	1	0	+1/2
(2)	2	2	1	–1/2
(3)	3	2	–2	+1/2
(4)	4	3	0	–1/2

87. Number of degenerate orbitals in 3rd excited state of hydrogen atom is

(1) 9 (2) 4

(3) 3 (4) 16

88. If ionisation energy of He is E eV/atom then the energy required to remove both electrons from He atom is

(1) 2E eV (2) (E + 54.4) eV

(3) (E + 13.6) eV (4) E eV

89. For n = 5, the correct sequence for filling of electrons for multielectronic species will be

(1) $ns \rightarrow (n-1)d \rightarrow np$ (2) $ns \rightarrow np \rightarrow (n-1)d$

(3) $np \rightarrow (n-1)d \rightarrow ns$ (4) $(n-1)d \rightarrow np \rightarrow ns$

90. Which among the following has minimum electrons in *s* subshell?

(1) Sc (2) Ti

(3) Cu (4) Zn

91. Given below are two statements. One is labelled as Assertion (A) and other is labelled as Reason (R).

Assertion (A): Cr has maximum spin only magnetic moment value in 3*d* series.

Reason (R): Cr has maximum number of unpaired electrons in 3*d* series.

In the light of above statements choose the most appropriate answer from options given below.

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

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

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

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

92. Ratio of energy required to remove electron in first three Bohr's orbit of Li^{2+} ion is

(1) 1 : 4 : 9 (2) 1 : 2 : 3

(3) 2 : 9 : 16 (4) 36 : 9 : 4

93. If a hydrogen like species has ionisation energy of 960 eV per atom then energy of electron in fourth Bohr orbit of atom will be

(1) – 240 eV (2) – 60 eV

(3) – 480 eV (4) – 120 eV

94. Volume of O_2 required at STP to react completely with 1.4 kg of ethene to give CO_2 and H_2O is

(1) 2750 L (2) 1725 L

(3) 3360 L (4) 4570 L

95. Charge of 0.1 mol electron will be approximately

(1) 96500 C (2) 965 C

(3) 96.5 C (4) 9650 C

96. Given below are two statements:

Statement I: Molarity is number of moles of solute present in 1 kg of solvent.

Statement II: Molality is number of moles of solute present in 1 L of solution.

In the light of above statements choose the most appropriate answer from options given below.

(1) Statement I is true but statement II is false

(2) Statement I is false but statement II is true

(3) Both statement I and statement II are true

(4) Both statement I and statement II are false

97. Match **List-I** with **List-II.**

	List-I (Fundamental quantity)		**List-II (SI units)**
(a)	Electric current	(i)	Kelvin
(b)	Time	(ii)	Candela
(c)	Luminous intensity	(iii)	Ampere
(d)	Temperature	(iv)	Second

Identify the correct match from options given below

(1) (a)(ii), (b)(iii), (c)(iv), (d)(i)

(2) (a)(iii), (b)(iv), (c)(ii), (d)(i)

(3) (a)(iii), (b)(iv), (c)(i), (d)(ii)

(4) (a)(iv), (b)(ii), (c)(iii), (d)(i)

98. Mole of Aluminium (III) oxide formed on reaction of 10 g oxygen and 9 g Al will be

(1) $\frac{1}{2}$ mol

(2) $\frac{1}{6}$ mol

(3) 1 mol

(4) $\frac{1}{3}$ mol

99. Vapour density of methane gas is

(1) 16 (2) 4

(3) 8 (4) 2

100. Given below are two statements.

Statement I: 1 mol H_2 and 1 mol O_2 will have equal volume at 27°C and 1 atm pressure.

Statement II: Equal volume of gas contains equal number of mole at same temperature and pressure.

In the light of above statements choose the most appropriate answer from options given below

(1) Both statement I and statement II are correct

(2) Both statement I and statement II are incorrect

(3) Statement I is correct but statement II is incorrect

(4) Statement I is incorrect but statement II is correct

[BOTANY]

SECTION - A

101. Which among the following is found only in eukaryotes?

(1) Pili (2) Flagella

(3) Centrosome (4) Fimbriae

102. Which layer of cell envelope in prokaryotic cell is tough and gives it gummy and sticky character?

(1) Cell wall (2) Capsule

(3) Slime layer (4) Plasma membrane

103. Match the column I with column II.

	Column I		Column II
a.	Golgi apparatus	(i)	It is rich in almost all type of hydrolytic enzyme
b.	Lysosomes	(ii)	It is bound by single membrane called tonoplast
c.	Endoplasmic reticulum	(iii)	Site of formation of glycoproteins and glycolipids
d.	Vacuole	(iv)	Observed in cells actively involve in protein synthesis

Choose the correct answer from the options given below.

(1) a(iv), b(i), c(iii), d(ii) (2) a(ii), b(iv), c(iii), d(i)

(3) a(ii), b(i), c(iv), d(iii) (4) a(i), b(ii), c(iv), d(iii)

104. Inclusion body

(1) In green photosynthetic bacteria is gas vacuole

(2) Is bound by single membrane system

(3) Stores reserve material only in eukaryotes

(4) Is extension of plasma membrane

105. In eukaryotic cells, there is extensive compartmentalization of cytoplasm through

(1) Presence of variety of complex locomotory structures.

(2) Coordinated functions of endomembrane system organelles

(3) The presence of membrane bound organelle

(4) The presence of organelle within the organelle

106. Choose the size of typical eukaryotic cell.

(1) 1-2 μm (2) 10-20 μm

(3) 0.1 μm (4) 0.02 – 0.2 μm

107. Which among the following features (structures) is present in prokaryotic cell but absent in eukaryotes?

(1) Protein synthesis (2) Ribosomes

(3) Genetic material (4) Mesosomes

108. Choose the **correct** sequence of layer of cell envelope from outer side to inner side in a bacteria.

(1) Glycocalyx – Plasma membrane – Cell wall

(2) Cell wall – Glycocalyx – Plasma membrane

(3) Glycocalyx – Cell wall – Plasma membrane

(4) Plasma membrane – Glycocalyx – Cell wall

109. Select the feature which is **not** true for ribosomes.

(1) In prokaryotes, ribosome are associated with plasma membrane of the cell

(2) In cytosol of eukaryotes 50S and 30S subunits of ribosome are present

(3) It is the site of protein synthesis

(4) They are about 15 nm by 20 nm in size

110. Choose the statement which is **true** for Nucleolus.

(1) It is a membrane bound structure

(2) A spherical structure found in cytoplasm

(3) It is larger and more numerous in cells that are actively involve in protein synthesis

(4) It is the site of protein synthesis

111. Choose the correct set of organelles which have microtubules.
(1) Centrosome, Nucleosome, Cilia
(2) Peroxisomes, Flagella, Centrioles
(3) Cilia, Centriole, Mitotic Apparatus
(4) Spindle fibres, Centrioles, Chromatin

112. Select the **incorrect** feature w.r.t. plasmid.
(1) It is the circular DNA outside the genomic DNA.
(2) It confers unique phenotypic character to bacteria.
(3) It provide resistance against antibiotic to bacteria.
(4) It is always larger than the genomic DNA

113. The Golgi apparatus remains in close association with the endoplasmic reticulum because
(1) It is formed by vesicular structure formed by packaging in nucleus.
(2) Materials to be packaged in the form of vesicles from the ER, fuses with cis face of the Golgi apparatus and move towards maturing face.
(3) The Golgi apparatus principally perform the functions of packaging material
(4) Rough endoplasmic reticulum is frequently observed in the cells actively involved in protein synthesis and secretion

114. Choose the **correct** statement(s) w.r.t. plasma membrane and mark the option accordingly.
A. Lipids are arranged within the membrane with the head towards the inner part and the hydrophobic tails towards outer side.
B. Cell membrane along with phospholipid also contains cholesterol.
C. The ratio of proteins and lipids remain constant in all types of cells.
D. The membrane of erythrocyte approximately contain 40% of proteins and 52% of lipids
(1) Only B and D (2) Only B
(3) Only A and C (4) All except C

115. Select the **incorrect** match w.r.t. different shape of the cells.
(1) Tracheids – Elongated
(2) White blood cell – Amoeboid
(3) Mesophyll cell – Branched and long
(4) Red Blood cells – Round and biconcave

116. The rough granular appearance of endoplasmic reticulum under electron microscope is due to the presence of
(1) Ribosomes
(2) Vesicle
(3) Mesosome
(4) Cristae

117. Centrosome is an organelle usually containing ____ cylindrical structures called centrioles.
Select the **correct** option to fill in blank.
(1) Nine (2) Four
(3) Two (4) Three

118. Which among the following is disc shaped structure present on the side of centromere?
(1) Telomere (2) Satellite
(3) Kinetochore (4) Primary constriction

119. Ribosomal subunits remain united with each other due to specific concentration of which of the given ions?
(1) Mn^{2+} (2) Mo^{2+}
(3) Ni^{2+} (4) Mg^{2+}

120. The cell organelle responsible for extracting energy from carbohydrates to form ATP is
(1) Ribosome (2) Mitochondrion
(3) Lysosome (4) Golgi apparatus

121. Select the **incorrect** match w.r.t. taxonomic category of wheat.
(1) Order – Polymoniales
(2) Class - Monocotyledonae
(3) Family – Poaceae
(4) Kingdom – Plantae

122. Choose the **incorrect** statement for taxonomical aid.
(1) Herbarium is the storehouse of collected plant specimen that are dried, pressed and preserved on sheet.
(2) Botanical garden is an in-situ conservation strategies of plants.
(3) Museums have collection of preserved plants and animals which are used for study and reference.
(4) There are separate keys for each taxonomic categories.

123. The **correct** hierarchial arrangement in ascending order of taxonomic categories is
(1) Species → Genus → Family → Class → Order → Division → Kingdom.
(2) Species → Order → Family → Class → Genus → Division → Kingdom.
(3) Genus → Species → Class → Order → Family → Phylum → Kingdom
(4) Species → Genus → Family → Order → Class → Phylum → Kingdom

124. Which among the following events does not take place in prophase of mitosis?
(1) Condensation of chromosomal material
(2) Attachment of spindle fibres to kinetochores of chromosomes
(3) Movement of centrosome towards opposite pole
(4) Formation of mitotic apparatus

125. What will happen to cells that enter G_0 phase of the cell cycle?
(1) They will proliferate faster
(2) They divide their nucleus only
(3) They remain metabolically inactive
(4) They do not proliferate unless they are called on to do so

126. If a meiocyte has 40 chromosome and 40 pg of DNA in G_1 phase then what will be the number of chromosome and amount of DNA in the gamete?

	Chromosomes	**DNA**
(1)	10	10 pg
(2)	20	40 pg
(3)	40	20 pg
(4)	20	20 pg

127. Read the following statements.
A. Meiosis I initiates after the parental chromosome have replicated to produce identical sister chromatids.
B. Meiosis involves pairing of non-homologous chromosomes and recombination between sister chromatids of a chromosome.
C. Meiosis involves four sequential cycle of nuclear divisions and only single cycle of DNA replication.
D. Meiosis reduces the chromosome number by half.

State the above statements as **True** (T) or **False** (F) and choose the correct option.

	A	**B**	**C**	**D**
(1)	T	T	F	T
(2)	T	F	F	T
(3)	F	T	T	F
(4)	T	F	T	F

128. During which stage chromosomes start pairing up together in prophase I?
(1) Pachytene
(2) Diplotene
(3) Diakinesis
(4) Zygotene

129. Interkinesis
(1) Is generally long lived
(2) Is followed by prophase I
(3) Does not involve replication of DNA
(4) Occur between two mitotic stage

130. Identify the **correct** sequence of events occur during meiosis.
A. Dissolution of synaptonemal complex.
B. Exchange of genetic material between two homologous chromosome.
C. Formation of complex by a pair of synapsed homologous chromosomes.
D. Splitting of centromere of each chromosome
E. Separation of homologous chromosomes.
(1) C → D → A → E → B
(2) C → A → B → E → D
(3) C → B → A → D → E
(4) C → B → A → E → D

131. All of the following are significance of mitosis, **except**
(1) It produces genetic variations during sexual reproduction.
(2) It is essential for growth and development of an organism.
(3) It helps in healing of wounds
(4) It helps to restore the nucleo-cytoplasmic ratio

132. In which among the following phase(s) splitting of centromere occur?

A. Anaphase I B. Anaphase

C. Anaphase II

(1) A, B and C (2) Only B

(3) A and C only (4) B and C only

133. Interphase lasts about ___ of the total duration of cell cycle.

Choose the **correct** option to fill in the blank.

(1) Less than 10% (2) More than 95%

(3) 40% to 50% (4) Less than 50%

134. During which phase of mitosis, ER and nucleolus reappear?

(1) Prophase (2) Anaphase

(3) Metaphase (4) Telophase

135. The centromere of bivalents arranged in two rows at the equator during

(1) Metaphase of mitosis

(2) Prophase I

(3) Metaphase I

(4) Metaphase II

SECTION - B

136. Select the set of organelles involved in the endomembrane system.

(1) Endoplasmic reticulum, Mitochondria, lysosomes, microbodies

(2) Ribosome, Vacuole, Chloroplast, Golgi complex

(3) Vacuole, Lysosome, Golgi body, Endoplasmic reticulum

(4) Chloroplast, Golgi apparatus, Lysosomes, Vacuole

137. Choose the statement which is **false** for mitochondria.

(1) It is the site of aerobic respiration in eukaryotes

(2) The cisternae is formed by the inner membrane and increases the surface area

(3) The enzyme for Electron Transport Chain is located on its inner membrane

(4) Its matrix contains double stranded DNA with 70S ribosomes

138. The space limited by the inner membrane of the chloroplast is called

(1) Thylakoid (2) Grana

(3) Stroma lamella (4) Stroma

139. Who proposed the hypothesis that the bodies of animal and plant are composed of cells and products of cells?

(1) Theodore Schwann

(2) Matthias Schleiden

(3) Rudolf Virchow

(4) Anton Von Leeuwenhoek

140. Eukaryotic cell differs from prokaryotic cell as the former

(1) Consists of genetic material

(2) Contains an organelle within the organelle

(3) Contains a semi-fluid matrix called cytoplasm

(4) Lacks membrane bound cell organelle

141. Neutral solutes across plasma membrane do not

(1) Diffuse along concentration gradient

(2) Move from their higher concentration to lower concentration

(3) Show passive transport

(4) Require energy for their movement from their higher to lower concentration

142. **Assertion (A):** Sub-metacentric chromosome appears L-shaped while moving towards opposite poles in anaphase.

Reason (R): Sub-metacentric chromosomes have centromere present slightly away from the centre of the chromosome.

In the light of above statements choose the **correct** option.

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

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

(3) Only A is true but R is false

(4) Both A and R are false

143. During pachytene, a bivalent consists of

(1) Two non-homologous chromosomes

(2) Two centromeres and four chromatids

(3) Two chromatids and two centromeres

(4) Four homologous chromosomes

144. Select the enzyme which is involved during crossing over and exchange of genetic material between homologous chromosomes?

(1) Transferase (2) Polymerase

(3) Phosphorylase (4) Recombinase

145. The final stage of meiotic prophase I
(1) Is recognised by dissolution of synaptonemal complex
(2) Can last for months or years in oocytes of some vertebrates
(3) Is marked by terminalisation of chiasmata
(4) Involves nucleolus and nuclear membrane to reappear

146. During which stage of mitosis, morphology of chromosomes is easy to study?
(1) Metaphase (2) Prophase
(3) Anaphase (4) Telophase

147. Select the **correct** sequence of the phases of the cell cycle.
(1) $G_1 \rightarrow G_0 \rightarrow S \rightarrow M$
(2) $G_2 \rightarrow S \rightarrow G_1 \rightarrow M$
(3) $M \rightarrow S \rightarrow G_2 \rightarrow G_1$
(4) $G_1 \rightarrow S \rightarrow G_2 \rightarrow M$

148. During interphase of the cell cycle, what will be the number of chromosomes just after S-phase in a human diploid cell?
(1) 23 (2) 46
(3) 16 (4) 20

149. The correct full form of ICBN is
(1) Indian Code for Botanical Nomenclature
(2) International Criteria for Botanical Nomenclature
(3) International Code for Botanical nomenclature
(4) Indian Conduct of Biological Names

150. All of the given institutions or taxonomical aids are located in India, **except**
(1) Royal Botanical Garden
(2) Llyod Botanical Garden
(3) Central National Herbarium
(4) National Botanical Garden

[ZOOLOGY]

SECTION - A

151. Select the **incorrect** option w.r.t. gap junction.
(1) Facilitates the cells to communicate with each other
(2) Connects the cytoplasm of adjoining cells
(3) Facilitates the rapid transfer of ions, small molecules, sometimes big molecules
(4) Perform cementing to keep the neighbouring cells together

152. Which of the following is **not** correctly matched?

	Tissue	Location	Function
(1)	Cardiac muscle	Heart	Heart contraction
(2)	Skeletal muscles	Arm	Movement
(3)	Blood	Blood vessels	Transport of various substances
(4)	Smooth muscles	Internal organs	Lift up sternum and ribs

153. "Cell junctions hold the unbranched muscle fibres together and they are bundled together in a connective tissue sheath".
For which of the following muscles, the above given statement is true?
(1) Smooth muscle
(2) Cardiac muscle
(3) Skeletal muscle
(4) Voluntary muscle

154. Read the following statements carefully and select the correct option.
Statement A: Muscle fibres are composed of numerous fine fibrils called myofibrils.
Statement B: Actions of skeletal muscles moves the body to adjust to the changes in the environment.
(1) Only statement A is correct
(2) Only statement B is correct
(3) Both statements A and B are correct
(4) Both statements A and B are incorrect

155. Which of the following is esterified with the sugar of a nucleoside to form a nucleotide?
(1) Hydrogen ion
(2) Phosphate group
(3) Amine group
(4) Carboxyl group

156. Read the following given statements carefully.

A. Cilia helps in transportation of particles in a specific direction

B. Microvilli helps in absorption of nutrients in intestine.

C. The bone marrow in some bones is the site of production of blood cells.

D. Bones cannot serve weight bearing functions.

Choose the option which represents true **(T)** or false **(F)** statements correctly.

	A	B	C	D
(1)	T	T	T	T
(2)	F	F	T	F
(3)	T	T	T	F
(4)	T	F	T	F

157. Choose the odd one w.r.t. aromatic amino acids.

(1) Tryptophan (2) Tyrosine

(3) Phenylalanine (4) Alanine

158. The epithelial tissue that covers the moist surface of buccal cavity and pharynx is also found in the

(1) Inner lining of blood vessels

(2) Pancreatic ducts

(3) Lining of stomach

(4) Lining of intestine

159. The chemical nature of carbonic anhydrase is

(1) Protein

(2) Lipid

(3) Carbohydrate

(4) Nucleic acid

160. Read the following statements (A - D) carefully w.r.t connective tissue.

A. Fibres and fibroblasts are compactly packed in the dense connective tissues.

B. Fibroblasts, macrophages and mast cells are found in loose connective tissue.

C. It is so named because of its special function of linking and supporting other tissues/organs of body.

D. It ranges from soft connective tissues to specialised types, which include cartilage, bone and blood.

How many of the above statements are **correct**?

(1) Four (2) One

(3) Two (4) Three

161. Different types of amino acids are classified on the basis of nature of

(1) Hydrogen (2) Carboxyl group

(3) Amino group (4) R group

162. Adult human haemoglobin consists of 4 subunits. These subunits are

(1) Two α and two γ chains

(2) Three α and one β chain

(3) Two α and two β chains

(4) One α and three β chains

163. In which of the following options, biomolecules are arranged in decreasing order w.r.t. their percentage in the total cellular mass.

(1) Proteins, lipids, nucleic acids, carbohydrates

(2) Proteins, nucleic acids, lipids, carbohydrates

(3) Proteins, nucleic acids, carbohydrates, lipids

(4) Proteins, carbohydrates, lipids, nucleic acids

164. Select the name of a compound that is present in both DNA and RNA.

(1) Thymine (2) Uracil

(3) Ribose (4) Cytosine

165. Select the **incorrect** statement from the following.

(1) Oxygen is the most abundant element in Earth's crust.

(2) Percentage of calcium is more in Earth's crust than in human body.

(3) Nitrogen is 3.3% in human body.

(4) Carbon is the third most abundant element present in human body.

166. Which of the following elements constitutes second highest % weight of Earth's crust?

(1) Silicon (2) Oxygen

(3) Magnesium (4) Carbon

167. Choose the **correct** option w.r.t. bonds that may be present in tertiary structure of a protein.

(1) Peptide and ester bond only

(2) Peptide, hydrogen and glycosidic bond

(3) Peptide, hydrogen and disulphide bond

(4) Peptide, hydrogen, ester and glycosidic bond

168. Which of the following bonds is broken down on the hydrolysis of a disaccharide?
(1) Hydrogen bond
(2) Ester bond
(3) Glycosidic bond
(4) Phosphodiester bond

169. Read the following given statements carefully and choose the correct option.
Statement A: One of the secondary structures exhibited by DNA is the famous Watson-Crick model.
Statement B: Three hydrogen bonds are present between adenine and thymine.
(1) Only statement A is correct
(2) Only statement B is correct
(3) Both statements A and B are correct
(4) Both statements A and B are incorrect

170. In a nucleic acid, a _____ moiety links the 3′ – carbon of one sugar of one nucleotide to the 5′ – carbon of the sugar of succeeding nucleotide. Select the option that correctly fills the blank.
(1) Carboxyl (2) Hydrogen
(3) Phosphate (4) Amine

171. The blood concentration of glucose in a normal healthy individual is
(1) 4 - 5 mmol/L (2) 4.2 - 6.1 mmol/L
(3) 6 - 7 mmol/L (4) 2 - 3.5 mmol/L

172. The walls of internal organs such as the blood vessels, stomach and intestine possess muscle fibres which are
(1) Involuntary, fusiform, non-striated
(2) Voluntary, multi-nucleated, cylindrical
(3) Involuntary, cylindrical, striated
(4) Voluntary, spindle-shaped, uninucleated

173. Consider the following statements and select the **incorrect** one.
(1) Organic compounds that are tightly bound to the apoenzyme are called prosthetic group.
(2) Protein part of the holoenzyme is called apoenzyme.
(3) Hydrolysis of starch into glucose is an anabolic process.
(4) Rates of physical and chemical processes are influenced by temperature.

174. Vinblastin and curcumin belong to which of the following categories?
(1) Toxins
(2) Drugs
(3) Lectins
(4) Pigments

175. Choose the **correct** statement.
(1) pH does not affect enzymatic activity.
(2) Enzymatic activity gets affected at higher pH only.
(3) Enzyme activity declines at optimum pH.
(4) Enzymes show highest activity at optimum pH.

176. Select the **incorrect** statement w.r.t. co-factors.
(1) Prosthetic groups are organic compounds.
(2) Association of co-enzyme with apoenzyme is transient.
(3) NAD contains vitamin B_3.
(4) Metal ions cannot act as co-factor.

177. **Assertion (A):** Starch gives colour with iodine but cellulose cannot be stained by iodine.
Reason (R): Cellulose does not contain complex helices so cannot hold iodine molecules.
In the light of above statements, select 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 and (R) is not the correct explanation of (A).
(3) (A) is true but (R) is false.
(4) Both (A) and (R) are false.

178. Read the given statements and choose the **correct** option.
Statement A: Saturated and unsaturated fatty acids are esterified with glycerol molecule.
Statement B: Substrate binds with an enzyme at its active site.
(1) Only statement A is correct
(2) Only statement B is correct
(3) Both statements A and B are correct
(4) Both statements A and B are incorrect

179. Select the incorrect statement w.r.t. lipids.
(1) Some lipids have phosphorous and phosphorylated organic compound in them.
(2) Phospholipids are present in the cell membrane.
(3) Neural tissue have lipids with more complex structure.
(4) Glycerol also known as trihydroxy propane is a complex lipid.

180. Chitinous exoskeleton of arthropods that is responsible for their evolutionary success is made up of
(1) Lipoglycans (2) Modified sugar
(3) Fructose (4) Phospholipids

181. Choose the supportive and protective cells of neural tissue.
(1) Neurons (2) Mast cells
(3) Neuroglial cells (4) Fibroblasts

182. Solid and pliable matrix which can resist compression is found in
(1) Bones of forearm
(2) Compound epithelium
(3) Cartilage present between adjacent bones of vertebral column
(4) Between articulating surface of limb bones

183. A single layer of flattened cells with irregular boundaries is found in the
(1) Walls of blood vessels
(2) Lining of bronchioles
(3) Epithelium of proximal convoluted tubule
(4) Inner surface of stomach

184. Cells involved in the secretion and absorption are usually found in
(1) Air sacs of lungs
(2) Lining of intestine
(3) Bronchioles and fallopian tube
(4) Ducts of salivary glands

185. Intercellular material of bone is
(1) Solid without connective tissue fibres
(2) Non-pliable matrix with chondrocytes present in lacunae
(3) Hard and non-pliable
(4) Solid and flexible due to lack of minerals

SECTION-B

186. Which of the following tissues exerts the greatest control over the body's responsiveness to changing conditions?
(1) Epithelial tissue (2) Muscular tissue
(3) Connective tissue (4) Neural tissue

187. The types of cell junctions that stop substances from leaking across a tissue are called
(1) Tight junctions
(2) Gap junctions
(3) Adhering junctions
(4) Synaptic junctions

188. How many of the following given below in the box are secretions of exocrine glands?

Tears, Mucus, Saliva, Bile juice, Enzymes, Hormones, Milk, Oil, Sweat, Ear wax

Choose the **correct** option.
(1) Ten (2) Nine
(3) Six (4) Five

189. Match the tissues given in the column I with their functions in column II.

	Column I		**Column II**
a.	Muscular tissue	(i)	Support framework for epithelium
b.	Areolar tissue	(ii)	Contracts in response to stimulation
c.	Fibroblasts	(iii)	Store fats
d.	Adipose tissue	(iv)	Secrete collagen fibres

Choose the **correct** match from the options given below.
(1) a(iv), b(i), c(ii), d(iii)
(2) a(ii), b(i), c(iv), d(iii)
(3) a(ii), b(iii), c(iv), d(i)
(4) a(iv), b(ii), c(i), d(iii)

190. Select the correct pair of metabolites that help in normal physiological processes in human body.
(1) Flavonoids, antibiotics
(2) Cellulose, starch
(3) Starch, glycogen
(4) Concanavalin A, protein

191. Paper made from A and B is cellulosic.

Select the **correct** option to fill the blanks.

	A	B
(1)	Collagen fibres	Polysaccharides
(2)	Plant pulp	Cotton fibres
(3)	Rubber	Proteins
(4)	Glucosamine	Cotton fibres

192. Fructose polymerises to form

(1) Cellulose (2) Glycogen

(3) Inulin (4) Insulin

193. Select the **correct** combination of nucleoside and nucleotide respectively.

(1) Cytidine, thymidine

(2) Uridine, cytidylic acid

(3) Thymidylic acid, cytidine

(4) Adenylic acid, guanosine

194. How many carbon atoms are present in one molecule of arachidonic acid?

(1) 19 (2) 20

(3) 22 (4) 18

195. What happens to the K_m and V_{max} in the presence of a competitive inhibitor?

(1) K_m increases and V_{max} remains constant

(2) K_m decreases and V_{max} increases

(3) K_m decreases and V_{max} remains constant

(4) K_m remains constant and V_{max} decreases

196. Back bone of B-DNA is formed by

(1) Phosphate-sugar chain

(2) Nitrogenous bases and sugar chain

(3) Nitrogenous bases only

(4) Sugar chain linked by glycosidic bond

197. 'X' are enclosed in small cavities within the matrix secreted by them.

Identify 'X' and the location where they are present respectively.

(1) Cartilage, Bones in adults

(2) Chondrocytes, Lacunae of cartilage

(3) Chondrocytes, Lacunae of bone

(4) Osteocytes, Tip of nose

198. Choose the correct option to complete the analogy w.r.t. amino acids.

Acidic : Glutamic acid :: Neutral _____.

(1) Lysine (2) Valine

(3) Arginine (4) Tryptophan

199. Peptide bond is formed when

(1) The carboxyl group of one amino acid reacts with the amino group of the next amino acid by dehydration.

(2) The carboxyl group of one amino acid reacts with amino group of same amino acid by dehydration.

(3) The carboxyl group of one amino acid reacts with the hydroxyl group of the next amino acid by dehydration.

(4) The carboxyl group of one amino acid reacts with the amino group of next amino acid by addition of one water molecule.

200. Match the column-I with column-II

	Column-I		**Column-II**
a.	Cellulose	(i)	Nitrogenous base + Pentose sugar
b.	Nucleotide	(ii)	Structural polysaccharide
c.	Nucleoside	(iii)	Lecithin
d.	Phospholipid	(iv)	Monomer of nucleic acid

Choose the **correct** option.

(1) a(ii), b(iii), c(i), d(iv)

(2) a(iv), b(iii), c(ii), d(i)

(3) a(ii), b(iv), c(i), d(iii)

(4) a(ii), b(iii), c(iv), d(i)

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