PART - I

IQ (MENTAL ABILITY)

This section contains **20 multiple choice questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

1. In a certain code, MENTION is written as LNEITNO. How will be PATTERN written in that code

(1) ATAETNR (2) OTAETNR

(3) OTAESNR (4) STAETNR

2. At what angle the hands of a clock are inclined at 15 minutes past 5 ?

(1) $58\frac{1}{2}^\circ$ (2) 64°

(3) $67\frac{1}{2}^\circ$ (4) $72\frac{1}{2}^\circ$

3. **Statements :** Some ants are parrots. All the parrots are apple.

Conclusions :

(A) All the apples are parrots

(B) Some ants are apple

(1) Only (A) conclusion follows

(2) Only (B) conclusion follows

(3) Either (A) or (B) follows

(4) Neither (A) nor (B) follows

4. A clock is started at noon. By 10 min past 5, the hour hand has turned through :

(1) 145° (2) 150°

(3) 155° (4) 160°

5. Look at this series

14, 28, 20, 40, 32, 64 ..... what number should come next ?

(1) 52 (2) 56

(3) 96 (4) 128

6. If

3 + 4 = 21

7 + 6 = 24

4 + 7 = 82, then 9 + 5 is

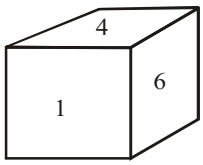
(1) 54 (2) 14 (3) 26 (4) 55

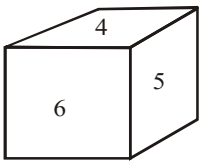
7. Some boys are sitting in a row. P is sitting fourteenth from the left and Q is seventh from the right. If there are four boys between P and Q. How many boys are there in a row ?

(1) 19 (2) 21

(3) 23 (4) 25

8. Two positions of a dice are shown below when number 1 is on top. What number will be at the bottom.





(1) 3 (2) 5

(3) 2 (4) 6

9. **Statements :** Some papers are pens. All the pencils are pens.

Conclusion :

(A) Some pens are pencils

(B) Some pens are papers

(1) Only (A) conclusion follows

(2) Only (B) conclusion follows

(3) Neither (A) nor (B) follows

(4) Both (A) and (B) follows

10. Two different colour dices are thrown simultaneously then total number of outcome which have even number on both of the dices

(1) 8 (2) 9

(3) 10 (4) 12

11. On 8th Dec., 2007 Saturday falls, what day of the week was it on 8th Dec 2006.

(1) Sunday (2) Thursday

(3) Tuesday (4) Friday

12. Choose the alternative which closely resembles the mirror image of the given combination :

MALAYALAM

(1) MALAYALAM (2) MALAYALAM

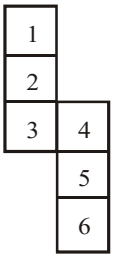
(3) MALAYALAM (4) MALAYALAM

13. In a certain code, TRIPPLE is written as SQHOOKD. How is DISPOSE written in that code –

(1) EJTQPTF (2) EJTQPTG

(3) CHRPNRD (4) CHRONRD

14.



When folded to form a cube what face lies opposite to 4.

(1) 2 (2) 5

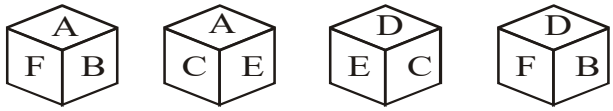
(3) 6 (4) 3

15. Pointing to a photograph Lata says, "He is the Son of the only Son of my Grandfather." How is the man in the photograph related to Lata ?

(1) Brother (2) Uncle

(3) Cousin (4) Data is inadequate

16. From the position of a cubes are shown below, which letter will be on the face opposite to face with 'A'.



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

17. If P + Q means P is the brother of Q, P × Q means P is the father of Q and P – Q means P is the sister of Q, which of the following relation shows that I is the niece of K.

(1) K + Y + Z – I (2) K + Y × I – Z

(3) Z – I × Y + K (4) K × Y + I – Z

18. On what date of April, 2001 did Wednesday fall ?

(1) 1st, 8th, 15th, 22nd, 29th

(2) 2nd, 9th, 16th, 23rd, 30th

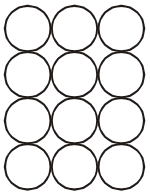
(3) 3rd, 10th, 17th, 24th

(4) 4th, 11th, 18th, 25th

19. One morning Aman and Vinit were talking to each other face to face at a crossing. If Vinit shadow was exactly to the left of Aman, which direction was Aman facing :

(1) East (2) West (3) North (4) South

20. In the adjoining figure, if the centre of all the circles are joined by horizontal and vertical lines, then find the number of squares that can be formed



(1) 6 (2) 7 (3) 8 (4) 1

PART-II

SECTION-A : PHYSICS

This section contains **20 Multiple Choice Questions.** Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

21. A particle moves in a circular path of radius 1 m. Its speed varies with time t as v = 2t m/s where t is in seconds. The angular acceleration is :

(1) 4 rad/s^2 (2) 2 rad/s^2 (3) 1 rad/s^2 (4) zero

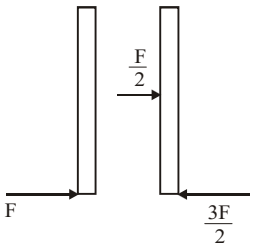
22. A chain of mass m and length l is lying on a floor. If it is lifted to half of its length such that half part is on floor then work done to lift it is :

(1) $mg\frac{l}{2}$ (2) $3mg\frac{l}{4}$ (3) $mg\frac{l}{4}$ (4) $\frac{2}{3}mgl$

23. A block is given some velocity on a horizontal floor. It looses half of its velocity after travelling a distance 3 m. Assuming friction to be constant the distance it further travels is :

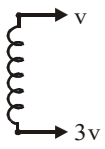
(1) 1 m (2) 2 m (3) 3 m (4) 6 m

24. Two identical rods are kept on a frictionless surface as shown. Find the ratio of acceleration of centre of mass in both cases.



(1) 3 (2) $\frac{1}{3}$ (3) 1 (4) Can't be determined

25. Two particles of equal mass m are attached to a spring of natural length l_0. When spring is in natural length particles are given velocities as shown in the figure. The maximum elongation in the spring is also l_0. Then spring constant k is :



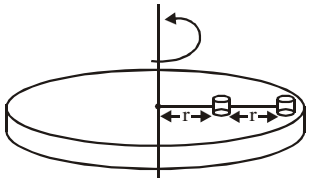
(1) $\frac{3mv^2}{l_0^2}$

(2) $\frac{3mv^2}{2l_0^2}$

(3) $\frac{mv^2}{l_0^2}$

(4) $\frac{mv^2}{2l_0^2}$

26. Two small blocks of same mass m are placed at a distance r and 2r from centre of a horizontal rotating disc as shown in the diagram. Disc is revolving with constant angular velocity ω. The coefficient of friction is μ between blocks and disc. One thread join the blocks along the radius of disc and the other joins one block to axis of rotation.



For what maximum value of ω the thread between block and axis having zero tension ?

(1) $\sqrt{\frac{2\mu g}{3r}}$ (2) $\sqrt{\frac{2\mu g}{r}}$ (3) $\sqrt{\frac{\mu g}{r}}$ (4) $\sqrt{\frac{3\mu g}{2r}}$

27. Velocity of a particle to escape the attraction of a planet is $v = \sqrt{KGR^2\rho}$, where K is a dimensionless constant, G is universal gravitational constant, R is radius of the planet and ρ is density of the planet. The dimension of G is :

(1) $M^{-1}L^3T^{-2}$

(2) $M^{-1}L^2T^{-3}$

(3) $M^{-1}L^3T^2$

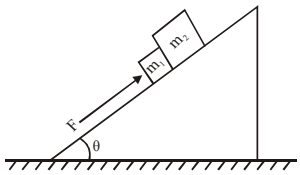
(4) $M^{-1}L^{-3}T^{-2}$

28. Two blocks of mass 1 kg with a spring of spring constant k = 100 N/m is placed between two vertical parallel surfaces as shown. The spring is compressed by 10 cm, and the coefficient of friction between the blocks and surface is 0.5. The displacement of the blocks in 2 seconds is

(1) 5 m (2) 10 m

(3) 20 m (4) zero

29. In the figure shown block m_1 and m_2 have coefficient of friction μ_1 and μ_2 with inclined plane of inclination angle θ. A force F is applied parallel to incline plane. The minimum value of F to avoid slipping is ($\mu_2 > \tan\theta$, $\mu_1 < \tan\theta$)



(1) $(m_1 + m_2)g\sin\theta - (\mu_1 m_1 + \mu_2 m_2)g\cos\theta$

(2) $m_1 g\sin\theta - \mu_1 m_1 g\cos\theta$

(3) $(m_1 + m_2)g\sin\theta - (\mu_1 + \mu_2)(m_1 + m_2)g\cos\theta$

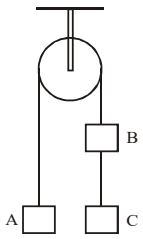
(4) $(m_1 + m_2)g\sin\theta - \mu_1 m_1 g\cos\theta$

30. In the arrangement shown blocks A of mass 2 m and B and C are of mass m. The string between B and C is cut at t = 0. The separation between A and C in vertical direction at any small time t is :

(1) $\frac{1}{2}gt^2$

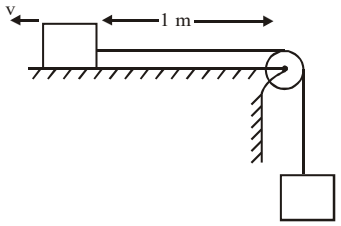
(2) $\frac{1}{3}gt^2$

(3) $\frac{1}{6}gt^2$



(4) zero

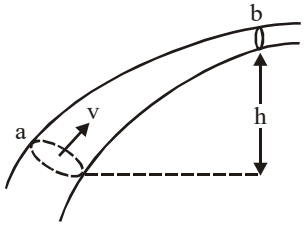
31. In the arrangement the blocks are identical and the surface is frictionless. The block on table is given a velocity such that it stops at a distance of 2 m from the pulley. The velocity is :



(1) $v = \sqrt{2g}$ (2) $v = \sqrt{\frac{g}{2}}$

(3) $v = 2\sqrt{g}$ (4) $v = \sqrt{g}$

32. In the figure shown there is a pipe of variable cross section in the vertical plane. Velocity of fluid of density ρ at section 'a' is v and at section 'b' is 2v. Section 'b' is at elevation of h above section 'a'. If pressure of fluid at section 'b' is P_0, pressure at section 'a' will be



(1) $P_0 + \frac{1}{2}\rho v^2 + \rho gh$ (2) $P_0 + \frac{1}{2}\rho v^2 - \rho gh$

(3) $P_0 + \frac{3}{2}\rho v^2 - \rho gh$ (4) $P_0 + \frac{3}{2}\rho v^2 + \rho gh$

33. A cyclist is riding a cycle down an inclined plane of inclination θ such that $\sin\theta = 0.2$. The combined mass of cycle and the cyclist is 100 kg. The friction on the front wheel is backwards and 50 N where as the friction on the back wheel is forward and 100 N. The acceleration of the centre of mass of the system of cyclist and the cycle is :

(1) $2.5\ m/s^2$ (2) $11\ m/s^2$

(3) $1.5\ m/s^2$ (4) zero

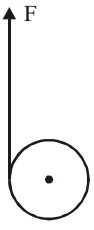
34. A string is wrapped around a solid cylinder as shown in figure. The string is pulled upwards with a force such that the acceleration of centre of mass of cylinder is zero, with the cylinder suspended in air. The acceleration of point of string where the force is applied is :

(1) g

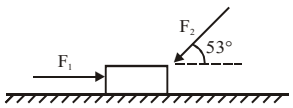
(2) $\frac{4g}{3}$

(3) 2g

(4) zero



35. A block of mass 2 kg is placed on a smooth horizontal surface. Two forces $F_1 = 10$ N and $F_2 = 10$ N are applied as shown in the diagram. The work done by F_2 in a 2s interval is :



(1) −60 J (2) −24 J

(3) −48 J (4) − 40 J

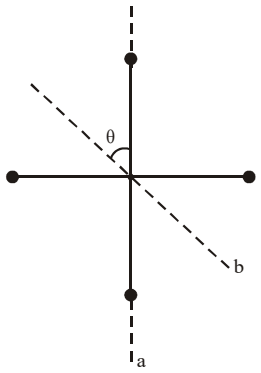
36. Four small balls of mass 10 gm each are joined with help of light rods to form a structure shown in figure. The rod are perpendicular and bisecting each other. They are rotated about axis 'a' and 'b' in separate events at same angular velocity. The ratio of kinetic energies of the structure in the two events is ($\theta = 45°$)

(1) 1

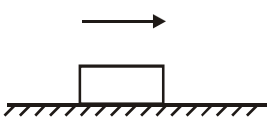
(2) $\frac{1}{2}$

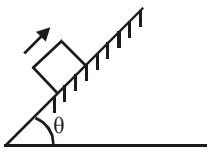
(3) $\frac{1}{4}$

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



37. A block is given some velocity, first on a rough horizontal surface and second on a frictionless incline surface in upward direction. If the retardation in both cases is the same, the coefficient of friction on the horizontal surface is



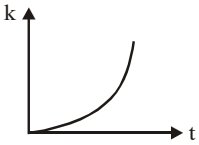


(1) $\sin\theta$ (2) $\cos\theta$

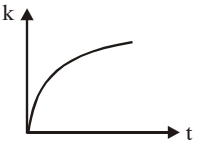
(3) $\tan\theta$ (4) $\tan^2\theta$

38. A block is delivered constant power by all the forces acting on it. The graph of kinetic energy and time will be :

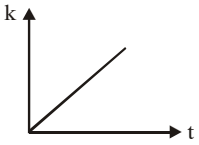
(1)



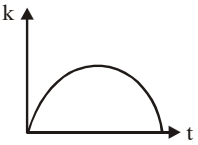
(2)



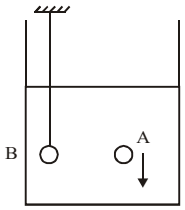
(3)



(4)



39. In a bucket filled with water a ball A is dropped with it sinking down towards the floor. Another identical ball B is hung from a thread and immersed in the water completely



(1) upthrust on A is more than on B

(2) upthrust on A is equal to that on B

(3) upthrust on A is less than on B

(4) upthrust on B is zero

40. Displacement of a particle S is given as $S = ut + \frac{1}{2}at^3$, where t is time. The dimensions of 'ua' is same as

(1) square of velocity

(2) square of acceleration

(3) acceleration per unit time

(4) acceleration per unit velocity

SECTION-B : CHEMISTRY

This section contains **20 Multiple Choice Questions.** Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

41. At 500 K, equilibrium constant K_c, for the following reaction is 5.

$$\frac{1}{2}H_2(g)+\frac{1}{2}I_2(g)\rightleftharpoons HI(g)$$

What would be the equilibrium constant K_c for the reaction $2HI(g)\rightleftharpoons H_2(g)+I_2(g)$

(1) 0.04 (2) 0.4

(3) 2.5 (4) 1.5

42. Among halogens, the correct order of electron gain enthalpy is -

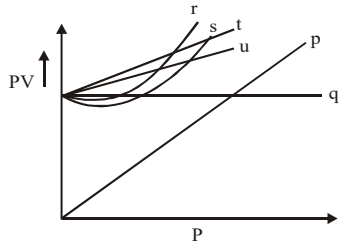
(1) F > Cl > Br > I

(2) F < Cl < Br < I

(3) F < Cl > Br > I

(4) F < Cl < Br < I

43. Which curve represent ideal gas ?



(1) q only (2) u & t only

(3) r & s only (4) p only

44. Which of the following options does not represent in the ground state electronic configuration of an atom ?

(1) $1s^2 2s^2 2p^6 3s^2 3d^6 4s^2$

(2) $1s^2 2s^2 2p^6 3s^2 3d^9 4s^2$

(3) $1s^2 2s^2 2p^6 3s^2 3d^{10} 4s^1$

(4) $1s^2 2s^2 2p^6 3s^2 3p^6 3d^5 4s^1$

45. Mass of 112 mL of O_2 at NTP on liquification will be

(1) 0.32 g (2) 0.96 g

(3) 0.64 g (4) 0.16 g

46. In which of the following reactions, the equilibrium remain unaffected on addition of small amount of He gas at constant volume ?

(1) $H_2(g) + I_2(g) \rightleftharpoons 2HI(g)$

(2) $PCl_5(g) \rightleftharpoons PCl_3(g) + Cl_2(g)$

(3) $N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$

(4) The equilibrium will remain unaffected in all the three cases

47. Which one of the following molecule is trigonal bipyramidal ?

(1) BF_3 (2) CH_4

(3) PCl_5 (4) SF_6

48. Which is true statements ?

(1) Larger is the value of ionisation enthalpy, easier is the formation of cation

(2) Larger is the value of electron gain enthalpy gain enthalpy, easier is the formation of anion

(3) Larger is the ionisation energy as well as electron affinity, smaller is the Mulliken electronegativity of atom

(4) Larger is the Zeff, the larger is the size of atom

49. A covalent molecule AB_3 has pyramidal structure. The number of lone pair and bond pair in the molecule are respectively.

(1) 0 and 4 (2) 3 and 1

(3) 1 and 3 (4) 2 and $\sqrt{2}$

50. Find the ratio of ionisation energy H and He^+.

(1) 1 : 2 (2) 2 : 1

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

51. Dead burnt plaster is

(1) $CaSO_4$ (2) $CaSO_4 \cdot \frac{1}{2}H_2O$

(3) $CaSO_4 \cdot H_2O$ (4) $CaSO_4 \cdot 2H_2O$

52. Which of the carbonates given below is unstable in air and is kept in CO_2 atmosphere to avoid decomposition ?

(1) $BeCO_3$ (2) Ag_2CO_3

(3) $CaCO_3$ (4) $BaCO_3$

53. The empirical formula of a compound is CH_2. 1 mole of this compound has a mass of 42 g. Its molecular formula is :

(1) C_3H_6 (2) C_3H_8

(3) CH_2 (4) C_2H_2

54. A solution of Na_2CO_3 is added drop by drop to one litre of a solution containing 10^{-4} mole of Ba^{2+} and 10^{-5} mole of Ag^+. If K_{sp} for $BaCO_3$ is 8.1×10^{-9} and K_{sp} for Ag_2CO_3 is 6.9×10^{-12}, then which is not true :

(1) No precipitate of $BaCO_3$ will appear until $[CO_3^{2-}]$ reaches 8.1×10^{-5} mol per litre

(2) A precipitate of Ag_2CO_3 will appear when $[CO_3^{2-}]$ reaches 6.9×10^{-5} mol litre^{-1}

(3) No precipitate of Ag_2CO_3 will appear until $[CO_3^{2-}]$ reaches 6.9×10^{-2} mol per litre

(4) $BaCO_3$ will be precipitated first

55. The rates of diffusion of SO_3, CO_2, PCl_3 and SO_2 are in following order :

(1) $PCl_3 > SO_3 > SO_2 > CO_2$

(2) $CO_2 > SO_2 > PCl_3 > SO_3$

(3) $SO_2 > SO_3 > PCl_3 > CO_2$

(4) $CO_2 > SO_2 > SO_3 > PCl_3$

56. If 240 g of carbon is taken in a container to convert it completely to CO_2 but in industry it has been found that 280 g of CO was formed along with CO_2. Find the mole percentage of CO_2. The reactions occuring are –

$C + O_2 \longrightarrow CO_2$; $C + \frac{1}{2}O_2 \longrightarrow CO$

(1) 25% (2) 50% (3) 75% (4) 100%

57. Equilibrium constant for the reactions :

$2NO + O_2 \rightleftharpoons 2NO$ is K_1 ; $NO_2 + SO_2 \rightleftharpoons SO_3 + NO$ is K_2 and $2SO_3 \rightleftharpoons 2SO_2 + O_2$ is K_3, then correct relation is

(1) $K_3 = K_1 \times K_2$ (2) $K_3 \times K_1 \times K^2_2 = 1$

(3) $K_3 \times K_1 \times K_2 = 1$ (4) $K_3 \times K^2_1 \times K_2 = 1$

58. On analysis, a certain compound was found to contain iodine and oxygen in the wt. ratio of 254 : 80. The formula of the compound is

[At mass : I = 127, O = 16]

(1) IO (2) I_2O (3) I_5O_2 (4) I_2O_5

59. The molar solubility in (mol litre^{-1}) of a sparingly soluble salt MX_4 is S. The corresponding solubility product K_{sp} is given by the relation :

(1) $S = (K_{sp}/128)^{1/4}$ (2) $S = (218K_{sp})^{1/4}$

(3) $S = (256\ K_{sp})^{1/5}$ (4) $S = (K_{sp}/256)^{1/5}$

60. The solubility of metal halide depends on their nature, lattice enthalpy and hydration enthalpy of individual ions. Amongest fluoride of alkali metals the lowest solubility of LiF in water is due to

(1) Ionic nature of lithuim fluoride

(2) High lattice enthalpy

(3) High hydration enthalpy for lithium ion

(4) Low ionisation enthalpy for lithium ion

Attempt any one of the section C or D

SECTION-C MATHEMATICS

FOR ADMISSION IN ENGINEERING STREAM

This section contains **20 Multiple Choice Questions.** Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

61. If $x = 9^{\frac{1}{3}} \cdot 9^{\frac{1}{9}} \cdot 9^{\frac{1}{27}} \ldots\ldots\infty$

$y = 4^{\frac{1}{3}} \cdot 4^{-\frac{1}{9}} \cdot 4^{\frac{1}{27}} \ldots\ldots\infty$

$z = \sum_{r=1}^{\infty} (1+i)^{-r}$, then arg of $(x + yz)$ is

(1) 0 (2) $\pi - \tan^{-1}\left(\frac{\sqrt{2}}{3}\right)$

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

62. Number of real roots of equation $x^2 + (x-1)^2 + (x-2)^2 = 0$, are

(1) 2 (2) 1 (3) 0 (4) Infinite

63. If two vertices of a triangle are (1, –3), (2, 0) and centroid coincides with the origin, then the third vertex is

(1) (–3, 3) (2) $\left(-\frac{3}{2}, \frac{3}{2}\right)$

(3) (3, 0) (4) (0, –3)

64. If a, b, c are in A.P., then the straight line $ax + by + c = 0$ always passes through fixed point

(1) (2, –1) (2) (1, 1)

(3) (1, –2) (4) $\left(-\frac{1}{3}, \frac{2}{3}\right)$

65. If sides of a ΔABC are a = 3, b = 2 and $\angle C = \frac{\pi}{3}$, then the third side is

(1) $\sqrt{7}$ (2) 7 (3) $\frac{\sqrt{7}}{2}$ (4) 4

66. Consider a infinite geometric series with first term a & common ratio r. If the sum is 9 and second term is $\frac{5}{4}$, then

(1) $a = \frac{7}{4}, r = \frac{3}{7}$ (2) $a = 2, r = \frac{3}{8}$

(3) $a = \frac{3}{2}, r = \frac{1}{2}$ (4) $a = \frac{3}{2}, r = \frac{5}{6}$

67. The number of common real tangents that can be drawn to the circles $x^2 + y^2 - 2x - 2y = 0$ and $x^2 + y^2 - 8x - 8y + 14 = 0$ is

(1) zero (2) two (3) three (4) four

68. The argument of the complex number $\frac{2+3i}{(3+i)+(1+2i)^2}$ is

(1) $\tan^{-1}\left(-\frac{2}{3}\right)$ (2) $\tan^{-1}2$

(3) 0 (4) $\frac{\pi}{6}$

69. Sum of 100 terms of series $\frac{1}{2!} + \frac{2}{3!} + \frac{3}{4!} + \ldots\ldots$ is

(1) $1 - \frac{1}{100!}$ (2) $1 - \frac{1}{101!}$

(3) $\frac{100}{101!}$ (4) $\frac{100! - 1}{101!}$

70. The sum of the series

$\frac{5}{3^2 \cdot 7^2} + \frac{9}{7^2 \cdot 11^2} + \frac{13}{11^2 \cdot 15^2} + \ldots\ldots + \infty$ is equal to

(1) $\frac{1}{72}$ (2) $\frac{1}{66}$ (3) $\frac{5}{77}$ (4) $\frac{11}{87}$

71. $\left(\cos^4 \frac{\pi}{24} - \sin^4 \frac{\pi}{24}\right)$ equals :

(1) $\frac{1}{\sqrt{2}}$ (2) $\frac{\sqrt{6} - \sqrt{2}}{4}$

(3) $\frac{\sqrt{6} + \sqrt{2}}{4}$ (4) $\frac{\sqrt{3} + 1}{2}$

72. If α, β are the roots of equation $x^2 - 2x + 8 = 0$, then value of $\left(\frac{\alpha^2}{\beta}\right)^{\frac{1}{3}} + \left(\frac{\beta^2}{\alpha}\right)^{\frac{1}{3}}$ is equal to

(1) $-\frac{2}{3}$ (2) $\frac{1}{2}$ (3) –1 (4) 1

73. Let $f(z) = \sin^{-1}\left(\frac{i}{z+1}\right)$, then domain of definition of f is

(1) $|z| \le 1$

(2) $z \in [(-1-i), -1+i]$

(3) $Re(z) = -1$ & $|Img.(z)| \ge 1$

(4) None of these

74. If the expansion of $\left(\sqrt{x} - \frac{2}{x^{\frac{3}{2}}}\right)^n$ has a term independent of x, then n must be of the type

(1) $4k, k \in I^+$ (2) $3k, k \in I^+$

(3) $2k, k \in I^+$ (4) $k, k \in I^+$

75. If sinA, sinB, sinC of a ΔABC are in AP, then length of altitudes of triangle are in

(1) AP (2) GP (3) HP (4) None

76. If x & y are two positive numbers then $\frac{x^n y^m}{(1+x^{2n})(1+y^{2m})} \le$

(1) $\frac{1}{4}$ (2) 4 (3) 2 (4) $\frac{1}{2}$

77. The circle $x^2 + y^2 + 2ax + c = 0$ and $x^2 + y^2 + 2by + c = 0$, touch if

(1) $\frac{1}{a^2} + \frac{1}{b^2} + \frac{1}{c^2} = 0$ (2) $\frac{1}{a^2} + \frac{1}{b^2} = \frac{1}{c}$

(3) $\frac{1}{a^2} - \frac{1}{b^2} = c$ (4) None of these

78. Number of solution of $\tan 2x = \tan 6x$ in $(0, 3\pi)$ is :

(1) 4 (2) 5

(3) 3 (4) None of these

79. If the number of terms in expansion of $\left(2 - \frac{1}{x} + \frac{1}{x^2}\right)^n$ is 21, then the sum of coefficients is equal to

(1) 2^4 (2) 2^6 (3) 2^8 (4) 2^{10}

80. If the roots of $3x^2 + 2(a^2 + 1)x + (a^2 - 3a + 2) = 0$ are of opposite signs then

(1) $a \in (-\infty, 1) \cup (2, \infty)$ (2) $a \in (-\infty, 1]$

(3) $a \in [2, \infty)$ (4) $a \in (1, 2)$

SECTION-D : BIOLOGY

FOR ADMISSION IN MEDICAL STREAM

This section contains **20 Multiple Choice Questions.** Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

81. Study the following statements carefully and give the answer :-

(a) In gymnosperms and angiosperm male and female gametophyte do not have an independent free living existence

(b) In bryophytes and pteridophytes the gametophytes have an independent free living existence

(c) Viruses are non cellular organisms that are characterised by having an inert crystalline structure outside the living host cell

(1) All (a), (b) and (c) are correct

(2) Only (a) and (b) are correct

(3) Only (b) and (c) are correct

(4) Only (a) and (c) are correct

82. Notochord is a _____ derived rod like structure formed on the _____ side during embryonic development in some animals-

(1) Mesodermally, Ventral

(2) Ectodermally, Dorsal

(3) Mesodermally, Dorsal

(4) Endodermally, Ventral

83. If a specimen given to you, is characterised by triploblastic body wall , protostome with schizocoelom, bilateral symmetry, metamerically segmented with close type of circulatory system belongs to phylum -

(1) Aschelminthes

(2) Platyhelminthes

(3) Annelida

(4) Arthropoda

84. Cell wall forms on outer covering of fungi and plant cells. Cell wall :-

(i) gives shape to the cell

(ii) helps in cell to cell interaction

(iii) protects the cell from mechanical damage

(iv) not provide barrier to undesirable macromolecules

Choose the correct options from the following:-

(1) (i) and (ii)

(2) (i), (ii) and (iv)

(3) (i), (ii) and (iii)

(4) (i), (ii), (iii) and (iv)

85. Which statement is **correct** from the followings?
(1) Protonema of Moss and prothallus of Fern are sporophytic
(2) Protonema of Moss and prothallus of Fern are gametophytic
(3) Moss protonema is sporophytic and fern prothallus is gametophytic.
(4) Main plant body of both moss and fern is gametophytic.

86. _____ cementing to keep neighbouring cells together where _____ stop substances from leaking across a tissue.
(1) Desmosomes, Gap junctions
(2) Adhering junctions, Tight junction
(3) Tight junction, Adhering junction
(4) Interdigitations, Desmosomes

87. Consider the following statements about the connective tissue :-
(a) The cells of connective tissues secrete mucous and hormones
(b) It is the most abundant type of animal tissue
(c) Their special function is linking and supporting the other organ tissues of the body.
(d) Blood is specialised connective tissues which contain collagen:
Which of the statement given above are incorrect ?
(1) a and b (2) b and c
(3) a, b and c (4) a, and d

88. Few names of families are given here. In how many families superior ovary and hypogynous flower is found ?
(A) Fabaceae (B) Brassicaceae
(C) Liliaceae (D) Solanaceae
(1) Two (2) Three
(3) Four (4) One

89. Which of the following is the odd one combination of features for animals.
(1) Triploblastic, Bilateral symmetry and Deuterostome
(2) Triploblastic, Radial symmetry and Enterocoelom
(3) Protostome, Organ system level and Enterocoelom
(4) Schizocoelom, Protosome and organ-system level

90. How many of the following statements are correct:-
(A) Each chromosome has a secondary constriction on the sides of which disc shaped structures called kinetochores are present
(B) A egg of human has approximately two meter long thread of DNA distributed among its fourty six chromosomes
(C) Interphase nucleus has a loose and indistinct network of nucleoprotein fibres
(D) During different stages of cell division cells show structured chromosome in place of the nucleus
(E) Chromatin contain DNA, RNA, histone and non histone protein
(1) Four (2) Three (3) Five (4) Two

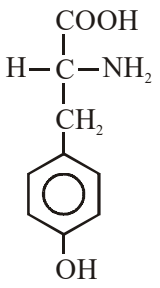
91. Which statement is correct :-
(1) Telocentric chromosome has a sub terminal centromere
(2) Non dividing cell, show chromosomes in place of the nucleus
(3) Each chromosome essentially has a primary constriction
(4) Based on position of NOR the chromosomes can be classified into four types

92. Which animal possess lateral appendages, parapodia, which help in swimming-
(1) *Ancylostoma* (2) *Nereis*
(3) *Octopus* (4) *Fasciola*

93. Which of the following is **not** a character related to **Red Algae** ?
(1) Sexual reproduction is oogamous.
(2) They occur in both well lighted areas and great depths of oceans.
(3) The food stored in them is as cyanophycean starch, very similar to amylopectin and glycogen.
(4) They reproduce asexually by non motile spores.

94. Study the following statements carefully and give the answer:-
(A) Belladonna and Ashwagandha are the medicinal plants belong to *Solanaceae* family
(B) Tulips produce very beautiful flowers and belong to Liliaceae family
(C) A flower is a modified shoot, meant for sexual reproduction
(D) After fertilisation ovary and ovule convert into fruit and seed respectively in gymnospermic plants
How many statements are **correct** from these?
(1) Two (2) Three
(3) Four (4) Five

95. Following structure represent which amino acid:-



(1) Arginine (2) Aspartic acid
(3) Tyrosine (4) Threonine

96. Protamine a type of :-

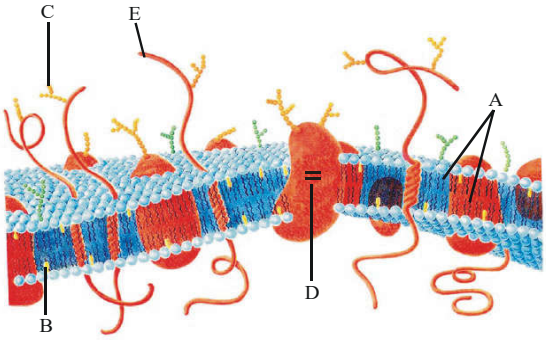
(1) Fibrous protein

(2) Derived protein

(3) Globular protein

(4) It is a phospholipid

97. Given below in the figure of cell membrane. Identify the parts labelled with respective statement.:-



	Labelled part	Statement
(1)	B-Intrisic protein	Help in cell to cell recognition
(2)	A- Lipid bilayer	absent in porokaryotic cell
(3)	C- sugar	percentage is minimum in erythrocyte membrane
(4)	D - Cholesterol	provide fluidity to cell membrane

98. Study the following statements carefully and give the answer.

A. Number and codes are given to the characters in numerical taxonomy.

B. Each character is given equal importance in numerical taxonomy.

C. Cytotaxonomy is based on chemical constituents of the plants.

D. Chromosome number, structure and behaviour are used as characters in artificial systems.

How many statements are **correct** from then :-

(1) Two (2) One

(3) Three (4) Four

99. ICBN was first revised in 1975, where and by whom?

(1) 12th international congress, Leningrad

(2) 12th international congress, Viena

(3) 10th international congress, Leningrad

(4) 10th international congress, Viena

100. Study the statements given below carefully and give the answer :-

A. Taxonomists also prepare and disseminate informations through manuals and monographs.

B. Taxonomic keys help in identification based on characters.

C. All the taxonomic categories constitute a hierarchy of nomenclature

D. Taxonomy is useful in agriculture, forestry, industry and knowing biodiversity.

How many statements are **correct** from them ?

(1) One (2) Two

(3) Three (4) Four

SPACE FOR ROUGH WORK