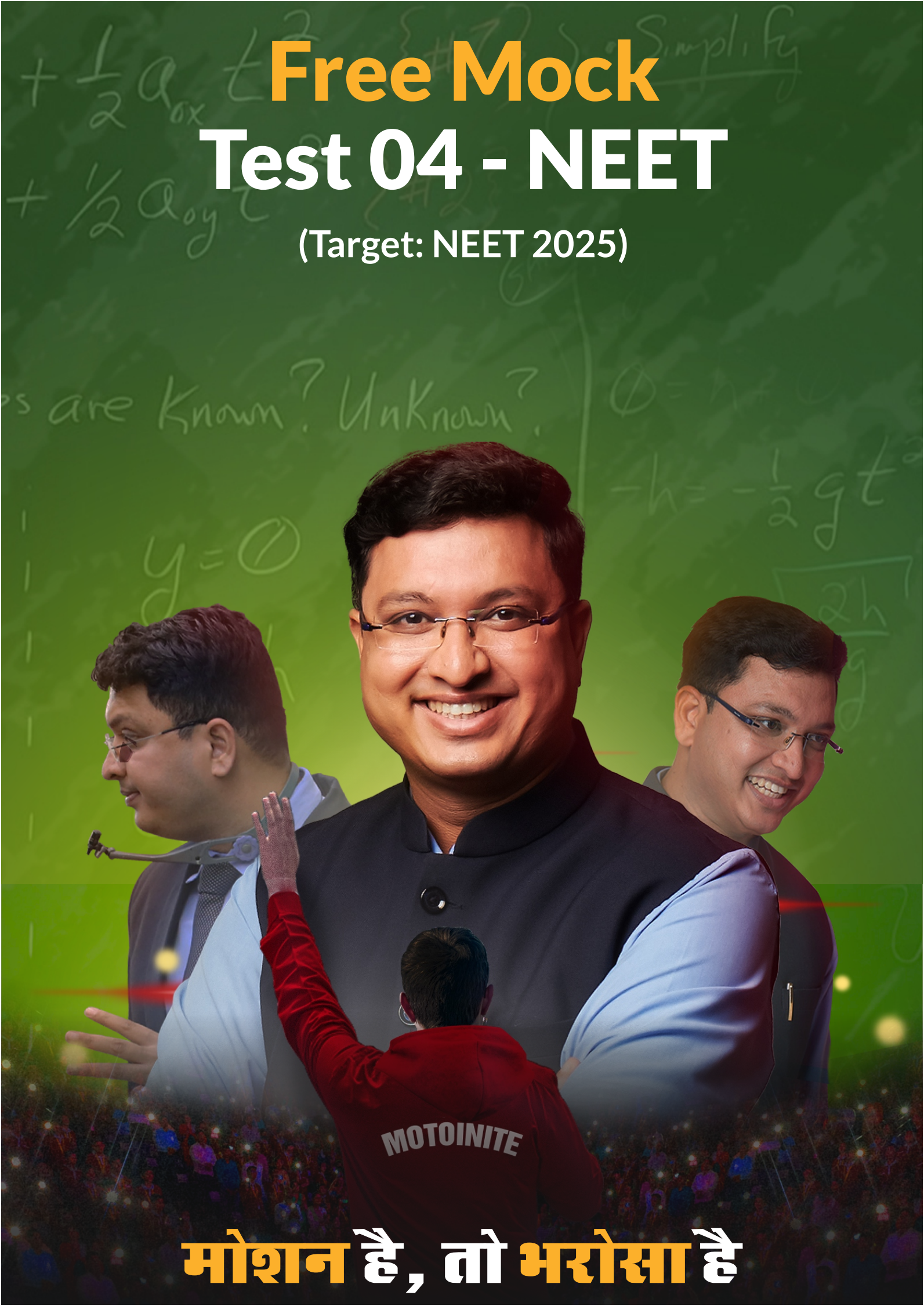
Free Mock
Test 04 - NEET

(Target: NEET 2025)



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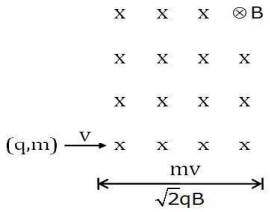
Physics - Section A

Section A Shall Consist Of 35 (Thirty-five) Questions In Each Subject .All Questions Are Compulsory.

1. A positive charge q of mass m is projected in magnetic field B of width $\frac{mv}{\sqrt{2}qB}$ with velocity v as shown in figure. Time taken by the charge particle to emerge from the magnetic field is :-



(1) $\frac{m}{\sqrt{2}qB}$ (2) $\frac{\pi m}{4qB}$

(3) $\frac{\pi m}{2qB}$ (4) $\frac{\pi m}{\sqrt{2}qB}$

2. A square brass plate of side 1.0 m and thickness 0.005 m is subjected to a force F on its smaller opposite edges, causing a displacement of 0.02 cm. If the shear modulus of brass is $0.4 \times 10^{11} N/m^2$, the value of the force F is

(1) 4×10^3 N (2) 400 N

(3) 4×10^4 N (4) 1000 N

3. The dimensional equation for electric flux is, symbols have usual meaning :

(1) $ML^3T^{-3}I^{-1}$ (2) $ML^{-3}T^3I^{-1}$

(3) $ML^3T^3I^{-1}$ (4) $ML^{-3}T^3I$

4. In a series LCR circuit, the inductive reactance (x_L) is 10Ω and the capacitive reactance (X_C) is 4 Ω. The resistance (R) in the circuit is 6Ω. The power factor will be-

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

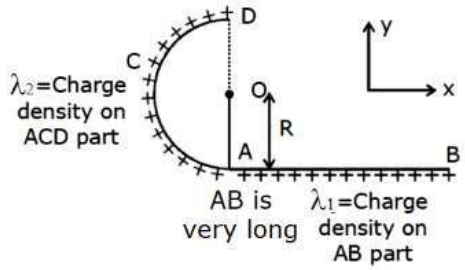
(3) $\frac{1}{2}$ (4) $\frac{1}{2\sqrt{2}}$

5. The time period of a simple pendulum of length L as measured in an elevator descending with acceleration g/3 is -

(1) $2\pi\sqrt{\frac{3L}{g}}$ (2) $\pi\sqrt{\left(\frac{3L}{g}\right)}$

(3) $2\pi\sqrt{\left(\frac{3L}{2g}\right)}$ (4) $2\pi\sqrt{\left(\frac{2L}{3g}\right)}$

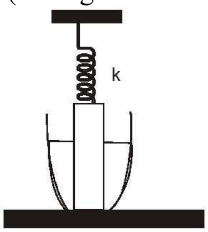
6. The ratio of the linear charge densities λ_1 and λ_2 (that is, λ_1/λ_2) so that the electric field at O will be in y direction, will be vertical, is :



(1) 1 : 2 (2) 1 : $\sqrt{2}$

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

7. A block of mass 2kg and specific gravity 5/2 is attached with a spring of force constant K = 100 N/m and is half dipped in the water. If extension in the spring is 1 cm, the force exerted by the bottom of the tank on block is– (Take g = 10 m/s^2)



(1) 20 N (2) 19 N

(3) 15 N (4) 16 N

8. A body is dropped from a height of 100 m. At what height from the ground the velocity of the body will be equal to one half of velocity when it hits the ground ?

(1) 45 m (2) 55 m

(3) 65 m (4) 75 m

9. A coil has L = 0.04 H and R = 12Ω. When it is connected to 220V, 50Hz supply the current flowing through the coil, in amperes is :-

(1) 10.7 (2) 11.7

(3) 14.7 (4) 12.7

10. A string of length 2 m is fixed at both ends. If this string vibrates in its fourth normal mode with a frequency of 500 Hz then the waves would travel on it is with a velocity of

(1) 125 m/s (2) 250 m/s
(3) 500 m/s (4) 1000 m/s

11. The electric field at a distance of 20 cm from the centre of a dielectric sphere of radius 10 cm is 100 V/m. Electric field at a distance 3cm from the centre of sphere is :-

(1) 100 V/m (2) 125 V/m
(3) 120 V/m (4) Zero

12. An elastic material of Young's modulus Y is subjected to a stress S. The elastic energy stored per unit volume of the material is

(1) $\frac{2Y}{S^2}$ (2) $\frac{S^2}{2Y}$
(3) $\frac{S}{2Y}$ (4) $\frac{S^2}{Y}$

13. For traffic moving at 60 km/h, if the radius of the curve is 0.1 km, what is the correct banking angle of the road ? $(g = 10\ m/s^2)$

(1) $\theta = \tan^{-1}\left(\frac{5}{18}\right)$ (2) $\theta = \tan^{-1}\left(\frac{18}{5}\right)$
(3) $\theta = \tan^{-1}\left(\frac{2}{9}\right)$ (4) $\theta = \tan^{-1}\left(\frac{9}{2}\right)$

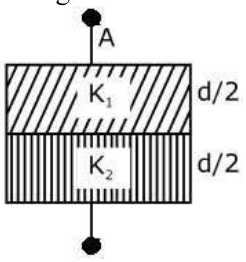
14. A charged capacitor discharges through a resistance R with time constant τ. The two are now placed in series across an AC source of angular frequency $\omega = \frac{1}{\tau}$. The impedance of the circuit will be -

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

15. Two rotating bodies A and B of masses m and 2 m with moments of inertial I_A and $I_B (I_B > I_A)$ have equal kinetic energy of rotation. If L_A and L_B be their angular momenta respectively, then

(1) $L_A > L_B$ (2) $L_A = \frac{L_B}{2}$
(3) $L_A = 2L_B$ (4) $L_B > L_A$

16. A parallel plate capacitor with plate area A and separation d is filled with two dielectric slabs of equal thickness as shown in figure. The dielectric constants are K_1 and K_2. The capacitance of this arrangement is -



(1) $2\epsilon_0 A(K_1 + K_2)/d$ (2) $2\epsilon_0 AK_1K_2/(K_1+K_2)d$
(3) $\epsilon_0 AK_1K_2/d$ (4) none of the above

17. The Young's modulus of a rope of 10 m length and having diameter of 2 cm is 20.0×10^{11} dyne / cm^2. If the elongation produced in the rope is 1 cm, the force applied on the rope is

(1) 6.28×10^5 N (2) 6.28×10^4 N
(3) 6.28×10^4 dyne (4) 6.28×10^5 dyne

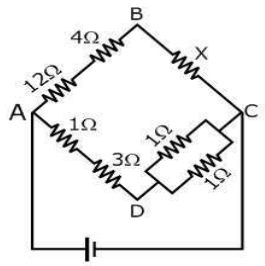
18. A choke coil is preferred to a rheostat in ac circuit as

(1) It consumes almost zero power
(2) It increases current
(3) It increases power
(4) It increases voltage

19. Two planet have the same average density but their radii are R_1 and R_2. If acceleration due to gravity on these planets be g_1 and g_2. respectively, then

(1) $\frac{g_1}{g_2} = \frac{R_1}{R_2}$ (2) $\frac{g_1}{g_2} = \frac{R_2}{R_1}$
(3) $\frac{g_1}{g_2} = \frac{R_1^2}{R_2^2}$ (4) $\frac{g_1}{g_2} = \frac{R_1^3}{R_2^3}$

20. In the circuit shown in the adjoining figure, the potential difference between B and D is zero, the unknown resistance is of :-



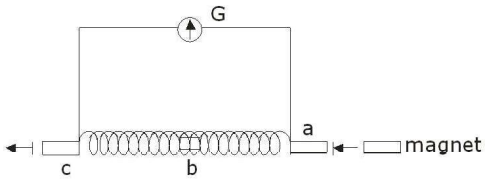
(1) 2Ω

(2) 4Ω

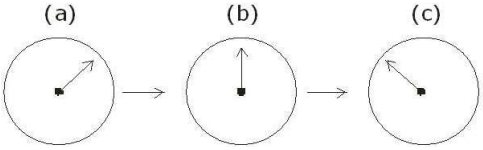
(3) 3Ω

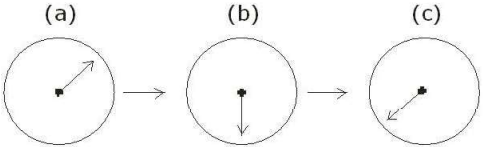
(4) e.m.f. of a cell is required to find the value of x.

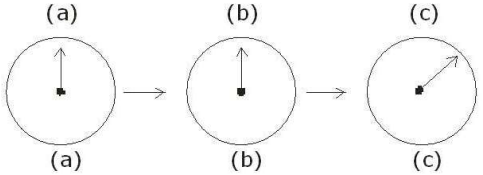
21. A small bar magnet is moved through a coil at constant speed from one end to the other. Which of the following series of observations will be seen on the galvanometer G attached across the coil?

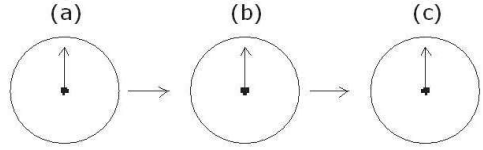


Three positions shown describe: (a) the magnet's entry (b) magnet is completely inside and (c) magnet's exit.

(1) 

(2) 

(3) 

(4) 

22. A particle starts with speed v_0 from $x = 0$ along x -axis with retardation proportional to the square of its displacement. Work done by the force acting on the particle is proportional to

(1) $x^{\frac{5}{2}}$ (2) x^3

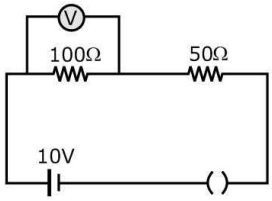
(3) e^x (4) x^2

23. Consider a rotating spherical planet. The velocity of a point on its equator is V. The effect of rotation of the planet is to make g at the equator $\frac{1}{2}$ of g at poles. The escape velocity for a point particle on the planet is

(1) V (2) 2V

(3) 3V (4) V/2

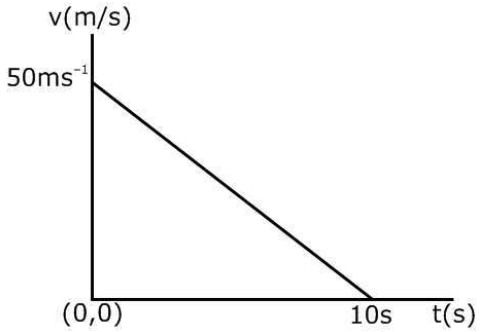
24. In the given circuit, the voltmeter records 5V. The resistance of the voltmeter in Ω is :-



(1) 200 (2) 100

(3) 10 (4) 50

25. The velocity-time graph of a particle of mass 10 kg is shown in the figure. The net work done on the particle in the first two seconds of the motion is



(1) −9300 J (2) 12000 J

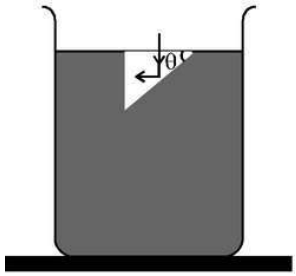
(3) −4500 J (4) −12000 J

26. A convergent beam of light is incident on a convex mirror so as to converge to a distance 12 cm from the pole of the mirror. An inverted image of the same size is formed coincident with the virtual object. What is the focal length of the mirror

(1) 24 cm (2) 12 cm

(3) 6 cm (4) 3 cm

27. The refractive index of the material of the prism and liquid are 1.56 and 1.32 respectively. what will be the value of θ for the following refraction ?



(1) $\sin\theta > \frac{13}{11}$

(2) $\sin\theta > \frac{11}{13}$

(3) $\sin\theta > \frac{\sqrt{3}}{2}$

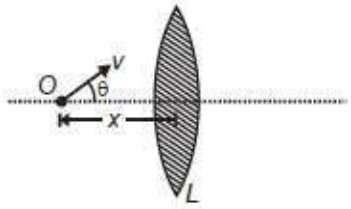
(4) $\sin\theta > \frac{1}{\sqrt{2}}$

28. An air bubble in glass sphere appears 1 cm from surface (nearest to eye) when looked along diameter. If $\mu_g = 1.5$, the distance of bubble from refracting surface is [Diameter of sphere = 4 cm]

(1) 1.2 cm (2) 3.2 cm

(3) 2.8 cm (4) 1.6 cm

29. An object is moving towards a convergent lens L as shown in figure. If the distance of object from the lens is x, and if $x = 3f$, $\theta = 60^\circ$, then speed of image is



(1) v (2) $\frac{v\sqrt{13}}{16}$

(3) $\frac{v\sqrt{13}}{4}$ (4) $\frac{v\sqrt{13}}{8}$

30. The aperture diameter of a telescope is 5 m. The separation between the moon and the earth is 4×10^5 km. With light of wavelength of 5500 Å, the minimum separation between objects on the surface of moon, so that they are just resolved, is close to :

(1) 600 m (2) 60 m

(3) 20 m (4) 200 m

31. In Young's double slit experiment, fringe width is

(1) Inversely proportional to μ

(2) Directly proportional to μ

(3) Directly proportional to $(2\mu + 1)$

(4) Inversely proportional to $(2\mu + 1)$

32. In a double slit experiment, instead of taking slits of equal widths, one slit is made twice as wide as the other. Then in the interference pattern :

(1) the intensities of both the maxima and minima increases

(2) the intensity of the maxima increases and the minima has zero intensity

(3) the intensity of the maxima decreases and that of minima increases

(4) the intensity of the maxima decreases and the minima has zero intensity

33. Visible light of wavelength 6000×10^{-8} cm falls normally on a single slit and produces a diffraction pattern. It is found that the second diffraction minimum is at 60° from the central maximum. If the first minimum is produced at θ_1, then θ_1 is close to:

(1) 30° (2) 20°

(3) 45° (4) 25°

34. In a stack of three polarizing sheets the first and third are crossed while the middle one has its axis at 45° to the axes of the other two. The fraction of the intensity of an incident unpolarized beam of light that is transmitted by the stack is

(1) 1/2 (2) 1/3

(3) 1/4 (4) 1/8

Physics - Section B

Section B Shall Consist Of 15 (Fifteen) Questions In Each Subject. Candidate Needs To Attempt Any 10 (Ten) Questions Out Of 15 (Fifteen) In Each Subject.

36. The x and y coordinates of the particle at any time are $x = 5t - 2t^2$ and $y = 10t$ respectively, where x and y are in meters and t in seconds. The acceleration of the particle at $t = 2$ s is

(1) 0 (2) $5 m/s^2$

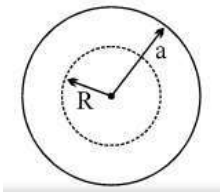
(3) $-4\ m/s^2$ (4) $-8\ m/s^2$

37. R is the radius of the earth and ω is its angular velocity and g_p is the value of 'g' at the poles. The effective value of 'g' at the latitude λ = 60° will be equal to -

(1) $g_p - \frac{1}{4}R(\omega)^2$ (2) $g_p - \frac{3}{4}R(\omega)^2$

(3) $g_p - R(\omega)^2$ (4) $g_p + \frac{1}{4}R\omega^2$

38. A long cylindrical conducting wire shown in cross section carries a conventional current out of the page. The wire has uniform current density J and radius a. What is the magnetic field inside the wire, a distance R (R < a) from the wire's center?



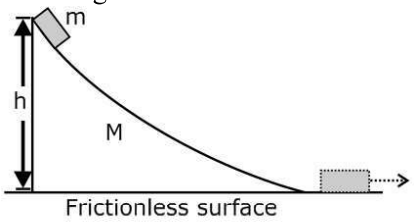
(1) $\frac{\mu_0 Ja}{2}$ clockwise

(2) $\frac{\mu_0 Ja^2}{2R}$ clockwise

(3) $\frac{1}{2}\mu_0 JR$ counter clockwise

(4) $\frac{\mu_0 Ja^2}{2R}$ counter clockwise

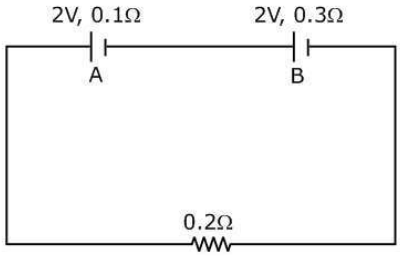
39. A movable wedge of mass M is placed on a smooth surface. A washer of mass m slides down the wedge from a height h. Neglecting friction, what is the velocity of the washer at the bottom of the wedge ?



(1) $\sqrt{2gh}$ (2) $\sqrt{\frac{2m^2}{M(M+m)}gh}$

(3) $\sqrt{\frac{2mgh}{m+M}}$ (4) $\sqrt{2\frac{m}{M}gh}$

40. The internal resistances of two cells shown are 0.1Ω and 0.3Ω. If $R = 0.2\Omega$, the potential difference across the cell



(1) B will be zero

(2) A will be zero

(3) A and B will be 2V

(4) A will be > 2V and B will be < 2V

41. A bullet of mass 5 gram leaves a rifle of mass 20 kg with a speed of 1000 m/s and strikes a wall at same level with a speed of 500 m/s at a distance of 50 m from rifle. The work done by bullet in overcoming the air resistance is

(1) 1875 J (2) 5000 J

(3) 1250 J (4) 3750 J

42. Two infinite plane parallel sheets separated by a distance d have equal and opposite uniform charge densities σ. Electric field at a point between the sheets is :-

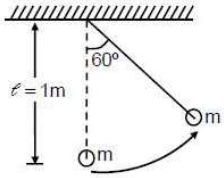
(1) Zero

(2) $\frac{\sigma}{\varepsilon_0}$

(3) $\frac{\sigma}{2\varepsilon_0}$

(4) Depends upon location of the point

43. Bob of mass 1 kg of a simple pendulum of length 1 m is pulled by a force very slowly such that the string is finally oriented at an angle 60° from the initial vertical orientation as shown in the figure. The work done by the force is $\left(g = 10\ m/s^2\right)$



(1) $5\sqrt{3}$J (2) 10J

(3) 5J (4) $\frac{5}{\sqrt{3}}$J

44. A person A of 50 kg rests on a swing of length 1m making an angle 37° with the vertical. Another person B pushes him to swing on other side at 53° with vertical. The work done by person B is : $\left[g = 10\ m/s^2\right]$

(1) 50 J (2) 9. 8 J

(3) 100 J (4) 10 J

45. An electron of mass m and magnitude of charge |e| initially at rest gets accelerated by a constant electric field E. The rate of change of de-Broglie wavelength of this electron at time t ignoring relativistic effects is :

(1) $\frac{-h}{|e|Et^2}$ (2) $-\frac{h}{|e|Et}$

(3) $-\frac{h}{|e|E\sqrt{t}}$ (4) $\frac{|e|Et}{h}$

46. Tritium $\left({}_1^3H\right)$ has a half-life of 12. 5y against beta decay. What fraction of a sample of tritium will remain undecayed after 25y?

(1) 1/4 (2) 3/4

(3) 1/2 (4) 3/8

47. de-Broglie wavelength of an electron in the nth Bohr orbit is λ_n and the angular momentum is J_n, then:

(1) $J_n \propto \lambda_n$ (2) $\lambda_n \propto \frac{1}{J_n}$

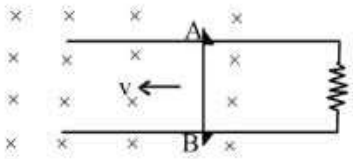
(3) $\lambda_n \propto J_n^2$ (4) none of these

48. Two isotopes P and Q of atomic weight 10 and 20 , respectively are mixed in equal amount by weight. After 20 days their weight ratio is found to be 1 : 4. Isotope P has a half-life of 10 days. The half-life of isotope Q is

(1) zero (2) 5 days

(3) 20 days (4) inifinite

49. Consider the situation shown in figure. The wire AB is slide on the fixed rails with constant velocity v. If the wire AB is replaced by a semicircular wire, the magnitude of the induced current will-



(1) increase

(2) remain the same

(3) decrease

(4) increase or decrease depending on whether the semicircle bulges towards the resistance or away from it

50. Which of the following logic gate is an universal gate

(1) OR (2) NOT

(3) AND (4) NOR

Chemistry - Section A

Section A Shall Consist Of 35 (Thirty-five) Questions In Each Subject .All Questions Are Compulsory.

51. Two liquid A and B form an ideal solution. At equilibrium, the mass ratio of A and B in liquid and vapour form is 1 : 2 and 1 : 3, respectively. The value of $P_A^o : P_B^o$ is -

(1) 1 : 1 (2) 2 : 3

(3) 3 : 2 (4) 1 : 6

52. Match List – I [polymers] with List – II [monomers] and choose the correct answer from the codes given below the list-

List–I [Polymer]		List–II [Monomer]	
(A)	P.A.N.	(a)	Chloroethene
(B)	Natural rubber	(b)	Caprolactam
(C)	Nylon–6	(c)	Isoprene
(D)	P.V.C.	(d)	Acrylonitrile

Code is -

(1) (A) - d; (B) - c; (C) - b; (D) - a

(2) (A) - a; (B) - b; (C) - b; (D) - a

(3) (A) - a; (B) - b; (C) - d; (D) - c

(4) (A) - a; (B) - c; (C) - d; (D) - d

53. Which of the following 3d-series transition metal exhibits the largest number of oxidation states?

(1) Fe (2) Mn

(3) Co (4) V

54. Henry's law constants for aqueous solution of CO, O_2, CO_2 and C_2H_2 gases are respectively at 25°C as 58×10^3, 43×10^3, 1.61×10^3 and 1.34×10^3. The solubility of these gases decreases in the order-

(1) $CO > O_2 > CO_2 > C_2H_2$

(2) $O_2 > CO_2 > CO > C_2H_2$

(3) $C_2H_2 > CO_2 > O_2 > CO$

(4) $O_2 > CO_2 > C_2H_2 > CO$

55. The correct match between item (I) and item (II) is-

	Item - I		Item - II
(A)	Norethindrone	(P)	Anti - biotic
(B)	Ofloxacin	(Q)	Anti-fertility
(C)	Equanil	(R)	Hypertension
		(S)	Analgesics

(1) (A)-(Q) ; (B)-(P); (C)-(R) (2) (A)-(R) ; (B)-(P); (C)-(S)

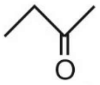
(3) (A)-(Q) ; (B)-(R); (C)-(S) (4) (A)-(R) ; (B)-(P); (C)-(R)

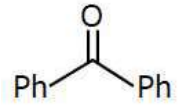
56. Which of them is an amphoteric oxides?

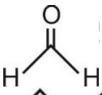
(1) CaO (2) CO_2

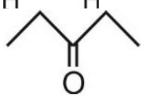
(3) SiO_2 (4) SnO_2

57. Racemic mixture is formed by reaction of HCN/KCN with-

(1) 

(2) 

(3) 

(4) 

58. If pH of a saturated solution of $Ba(OH)_2$ is 12, the value of its $K_{(sp)}$ is -

(1) $5.00 \times 10^{-7} M^3$

(2) $4.00 \times 10^{-6} M^3$

(3) $4.00 \times 10^{-7} M^3$

(4) $5.00 \times 10^{-6} M^3$

59. The number of sp^3 hybridised centre atom in BF_3. NH_3 is/are-

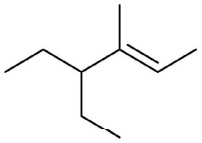
(1) 1 (2) 2

(3) 3 (4) 4

60. If $E^{\circ}_{Fe^{2+}/Fe} = x_1 V, E^{\circ}_{Fe^{+3}/Fe^{2+}} = x_2 V$
What is the $E^{\circ}_{Fe^{+3}/Fe}$?

(1) $\frac{2x_1 + x_2}{4}$ (2) $\frac{2x_1 + x_2}{3}$
(3) $\frac{2x_1 + x_2}{2}$ (4) $2x_1 + x_2$

61. The IUPAC name of the following compound is -



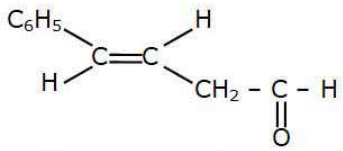
(1) 4–methyl–3–ethylhex–4–ene
(2) 4,4–diethyl–3–methylbut–2–ene
(3) 3–ethyl–4–methylhex–4–ene
(4) 4–ethyl–3–methylhex–2–ene

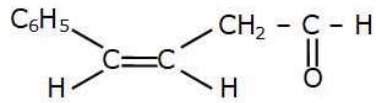
62. The dipole of CCl_4, $CHCl_3$ and CH_4 are in the order -

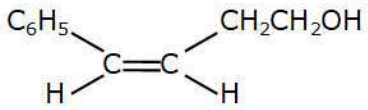
(1) $CH_4 < CCl_4 < CHCl_3$ (2) $CHCl_3 < CH_4 = CCl_4$
(3) $CCl_4 < CH_4 < CHCl_3$ (4) $CH_4 = CCl_4 < CHCl_3$

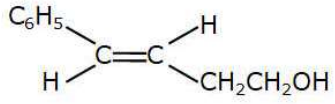
63. $C_6H_5-C\equiv C-CH_2-\underset{\underset{O}{\|}}{C}-Cl \xrightarrow[\text{Lindar's catalyst}]{H_2(2eq.)} X,$

the product X is/are -

(1) 

(2) 

(3) 

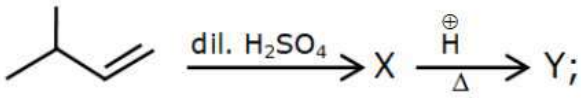
(4) 

64. Half life period of a first-order reaction is 1386 seconds the specific rate constant of the reaction is-

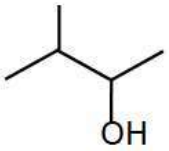
(1) $5.0 \times 10^{-2} s^{-1}$
(2) $5.0 \times 10^{-3} s^{-1}$
(3) $0.5 \times 10^{-2} s^{-1}$
(4) $0.5 \times 10^{-3} s^{-1}$

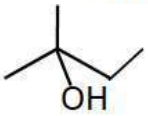
65. The number of possible optical isomers for the complexes MA_2B_2 with sp^3 and dsp^2 hydridized metal atom respectively, is -
Note : A and B are unidentate netural and unidentate monoanionic ligands, respectively-

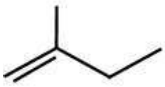
(1) 0 and 0 (2) 2 and 2
(3) 0 and 1 (4) 0 and 2

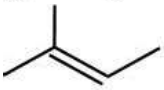
66. 

Y is -

(1) 

(2) 

(3) 

(4) 

67. Hexagonal close packing is found in crystal lattice of-

(1) Na (2) Mg
(3) Al (4) None of these

68. The correct combination is -

(1) $[Ni(CN)_4]^{2-}$ – tetrahedral; $[Ni(CO)_4]$ – paramagnetic

(2) $[Ni(Cl)_4]^{2-}$ – paramagnetic; $[Ni(CO)_4]$ – tetrahedral

(3) $[Ni(Cl)_4]^{2-}$ – diamagnetic; $[Ni(CO)_4]$ – square-planar

(4) $[NiCl_4]^{2-}$ – square-planar; $[Ni(CN)_4]^{2-}$ – paramagnetic

69. What size of particles does a colloidal system has?

(1) 10^{-4}m to 10^{-10}m

(2) 10^{-5}m to 10^{-7}m

(3) 10^{-9}m to 10^{-12}m

(4) 10^{-6}m to 10^{-9}m

70. On pyrolysis n-butane gives -

(1) Butene-1 (2) Butene-2

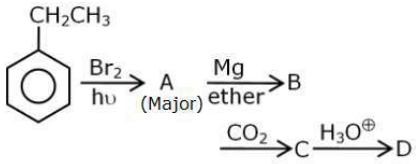
(3) Ethene & Ethane (4) All

71. Which of the following compounds is used for water softening ?

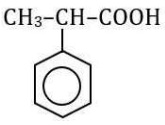
(1) $Ca_3(PO_4)_2$ (2) Na_3PO_4

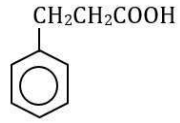
(3) $Na_6P_6O_{18}$ (4) Na_2HPO_4

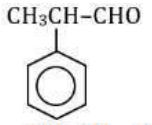
72.

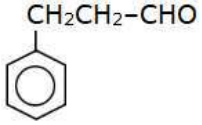


D is –

(1) 

(2) 

(3) 

(4) 

73. Property of colloidal particle is -

(1) Attraction of medium (2) Tyndall effect

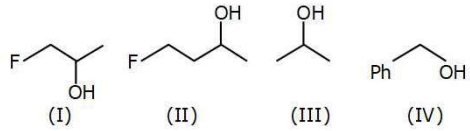
(3) Emulsion (4) Dialysis

74. Ionic mobility of which of the following alkali metal ions is lowest when aqueous solution of their salts are put under an electric fields?

(1) K (2) Na

(3) Li (4) Rb

75. What will be the order of reactivity of the following alcohol towards concentrated HCl ?



(1) I > II > III > IV (2) I > III > II > IV

(3) IV > III > II >I (4) IV > III > I > II

76. The ratio of masses of oxygen and nitrogen in a particular gaseous mixture is 1 : 4. The ratio of number of their molecule is-

(1) 1 : 4 (2) 7 : 32

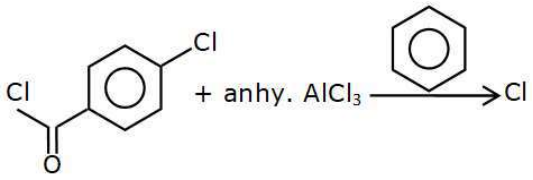
(3) 1 : 8 (4) 3 : 16

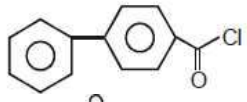
77. In the solid state phosphorus pentachloride exists as :

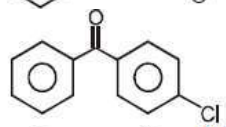
(1) PCl_5 (2) $PCl_4^+ Cl^-$

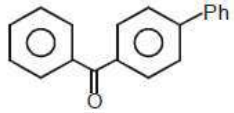
(3) $PCl_4^+ PCl_6^-$ (4) $PCl_5 Cl_2$

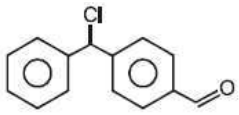
78. The major product obtained in the following reaction is-



(1) 

(2) 

(3) 

(4) 

79. A 3d-electron having s $= +\frac{1}{2}$ can have a magnetic quantum number-

(1) +2 (2) +3

(3) –3 (4) +4

80. ClO_3 is the mixed anhydride of :

(1) $HClO_2$ and $HClO_3$

(2) $HClO_3$ and $HClO_4$

(3) $HClO_2$ and $HClO_4$

(4) $HClO_2$ and $HClO_3$

81. The rates of diffusion of gases A and B of molecular weight 36 and 64 are in the ratio-

(1) 9 : 16 (2) 4 : 3

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

82. The effect of lanthanoid contraction in the lanthanoid series of elements by the large means-

(1) increase in atomic radii and decrease in ionic radii

(2) increase in both atomic and ionic radii

(3) decrease in both atomic and ionic radii

(4) decrease in atomic radii and increase in ionic radii

83. For the following reaction $SO_2Cl_2(g) \rightleftharpoons SO_2(g) + Cl_2(g)$ at equilibrium if volume of container is increase then at new equilibrium-

(1) Quantity of $SO_2(g)$ decreases

(2) Quantity of SO_2Cl_2 increases

(3) Quantity of $Cl_2(g)$ increases

(4) Quantity of $Cl_2(g)$ unchanged

84. Under isothermal condition a gas at 300 K expands from 0.1 L to 0.25 L against a constant external pressure of 2 bar. The work done by the gas is : [Given that 1 L bar = 100J]

(1) 25 J (2) 30 J

(3) – 30 J (4) 5 KJ

85. When $KMnO_4$ reacts with H_2O_2 in acidic medium then which of following is formed?

(1) Mn^{+2} (2) Mn^{+7}

(3) MnO_2 (4) Mn_2O_3

Chemistry - Section B

Section B Shall Consist Of 15 (Fifteen) Questions In Each Subject. Candidate Needs To Attempt Any 10 (Ten) Questions Out Of 15 (Fifteen) In Each Subject.

86. $CH_3-CH_2-CHO \xrightarrow{\text{Tollen's reagent}} A \xrightarrow[2.\ SOCl_2]{1.\ H^{\oplus}} B \xrightarrow{CH_3OH} C$

Choose the incorrect option regarding A, B and C-

(1) A can be obtained from the iodoform reaction of butan-2-one

(2) B is $CH_3-CH_2-\overset{O}{\overset{\|}{C}}-Cl$

(3) $CH_3-\overset{O}{\overset{\|}{C}}-CH_2-OCH_3$ is one of the functional isomers of compound C

(4) $\overset{Cl}{\underset{|}{CH_2}}-CH_2-\overset{O}{\overset{\|}{C}}-H$, is one of the positional isomers of B

87. Which of the following does not show tautomerism ?

(1) $C_6H_5COCH_3$ (2) CH_3CHO

(3) CH_3COCH_3 (4) $C_6H_5COC(CH_3)_3$

88. Transition elements are usually characterised by variable oxidation states but Zn does not show this property because of-

(1) completion of np-orbitals

(2) completion of (n–1)d orbitals

(3) completion of ns-orbitals

(4) inert pair effect

89. The concentration of H_2O_2 Solution, which act as antibiotic-

(1) 10% (2) 20%

(3) 30% (4) 40%

90. Which of the following is best CO_2 absorber as well as source of O_2 in space capsule?

(1) KO_2 (2) K_2O

(3) KOH (4) LiOH

91. Ionisation energy of a hydrogen like species is 54.4 eV. Calculate radius of second bohr orbit of this species-

(1) 0.529 Å (2) 1.058 Å

(3) 2.116Å (4) None

92. Which of the following orders of ionic radii are correct ?

(a) Li < Be < Na (b) Ni < Cu < Zn

(c) Ti > V > Cr (d) Ti >Zr >Hf

Correct answer is :

(1) All (2) a, b

(3) b, c (4) b, d

93. A homogeneous solution was prepared by dissolving 2 g of benzoinc acid in 50 g of carbon disulphide. If 84% of benzoic acid undergoes dimerisation in the solution, calculate the boiling point of the solution. (Boiling point and K_b values for CS_2 respectively are 46.2ºC and 2.3ºC/molal)-

(1) 46.30ºC (2) 46.50ºC

(3) 46.82ºC (4) 46.64ºC

94. Find out the percentage dissociation of an acid having conc. of 10 M and dissociation constant 1.0×10^{-3} -

(1) 0.1 (2) 0.5

(3) 1.0 (4) 2.0

95. Reduction potentials of four elements P, Q, R, S is –2.90V, 0.34V, 1.2V and –0.76V. The decreasing order of reducing power is-

(1) P > Q > R > S (2) S > R > Q > P

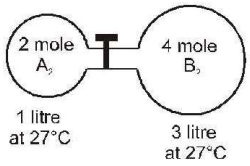
(3) P > S > Q > R (4) Q > S > R > P

96. In a binary compound, atoms of element A form a hcp structure and those of element M occupy 2/3 of the tetrahedral voids of the hcp structure. The formula of the binary compound is-

(1) M_2A_3 (2) MA_3

(3) M_4A (4) M_4A_3

97.



The gas A_2 in the left flask allowed to react with gas B_2 present in right flask as
$A_2(g) + B_2(g) \rightleftharpoons 2AB(g)$; $K_c = 4$ at 27°C.
What is the concentration of AB when equilibrium is established?

(1) 1.33 M (2) 2.66 M
(3) 0.66 M (4) 0.33 M

98. Heat of combustion of CH_4, C_2H_4, C_2H_6, –890, –1411 and –1560 kJ/mol respectively. Which has the lowest calorific fuel value ?

(1) CH_4 (2) C_2H_4
(3) C_2H_6 (4) Same for all

99. Reaction A + B → C + D follow's following rate law : $\text{Rate} = k = K[A]^{\frac{1}{2}}[B]^{\frac{1}{2}}$
Starting with initial conc. of one mole of A and B each, what is the time taken for amount of A of become 0.25 mole.
Given $k = 2.31 \times 10^{-3}$ sec^{-1}
(Divide your answer by 10)

100. The value of 'n' in the reaction
$Cr_2O_7^{2-} + 14H^+ + nFe^{2+} \rightarrow 2Cr^{3+} + nFe^{3+} + 7H_2O$

will be-

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

Botany - Section A

Section A Shall Consist Of 35 (Thirty-five) Questions In Each Subject .All Questions Are Compulsory.

101. The scientific naming system of two words was first used by -

(1) Aristotle (2) C. Linnaeus
(3) Benthem and Hooker (4) Theophrastus

102. Which types phyllotaxy found in guava, mustard, Alstonia respectively.

(1) Alternate, opposite, whorled
(2) Whorled, opposite, alternate
(3) Opposite, alternate, whorled
(4) Whorled, alternate, opposite

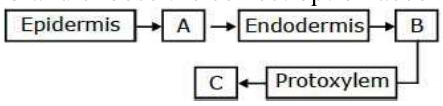
103. The seeds of which plant cannot germinate and establish without the presence of mycorrhizae

(1) Cycas (2) Selaginella
(3) Pinus (4) All of these

104. Test cross in plants or in Drosophila involves crossing

(1) Between two genotypes with recessive trait
(2) Between two genotypes with dominant trait
(3) Between two F_1 hybrids
(4) The F_1 hybrid with a double recessive genotype.

105. In the given schematic diagram, pathway of water movement inside the root is shown from soil to xylem. Identify the tissue involved in the steps A-C and choose the correct option accordingly ?



(1) A-Hypodermis, B-Medullary rays, C-metaxylem
(2) A-Cortex, B-Pericycle, C-Metaxylem
(3) A-Pericycle, B-Cortex, C-Metaxylem
(4) A-Hypodermis, B-Cortex, C-Vascular tissues

106. Taxonomy includes all, except :

(1) Identification (2) Nomenclature
(3) Classification (4) Phylogeny

107. Find out true statement:

(1) orchid-non-endospermic-dicot
(2) orchid-endospermic-dicot
(3) orchid-non-endospermic-monocot
(4) orchid-endospermic-monocot

108. A child of O blood group, has B-blood group father, the genotype of father would be :-

(1) I^oI^o (2) I^BI^B (3) I^AI^B (4) I^BI^o

109. Which of the following represents choice made between two opposite options -

(1) Lead (2) Couplet
(3) Flora (4) Both (1) & (2)

110. Ornamentals Plant, petunia, lupin, tulip present in:

(1) Liliaceae family
(2) Solanacae family
(3) Fabacae family

(1) Petunia—1, Lupin—2, Tulip—3
(2) Petunia—2, Lupin—1, Tulip—3
(3) Petunia—3, Lupin—2, Tulip—1
(4) Petunia—2, Lupin—3, Tulip—1

111. In hydroponics the nutrient solution :-

(1) Is constantly recycled using a pump
(2) Flows back into the loam soil in which the plant grows
(3) Is collected into a bucket for disposal
(4) None of the above

112. The frequency of crossing over between any two linked genes is-

(1) Higher if they are recessive
(2) Difficult to predict
(3) Determined by their relative dominance
(4) Proportional to the distance between them

113. Taxonomists use to prepare and disseminate taxonomic informations

(1) Manuals and monographs
(2) Museum and herbarium
(3) Zoological park and herbarium
(4) Keys and herbarium

114. Fascicular vascular cambium, inter fascicular cambium and cork-cambium are examples of :

(1) Secondary meristem
(2) Lateral meristem
(3) Inter calary meristem
(4) Both A and B

115. In light reaction, plastoquinone facilitates the transfer of electrons from:

(1) PS-I to NADP+ (2) PS-I to ATP synthase
(3) PS-II to $Cytb_6f$ complex (4) $Cytb_6$complex to PS-I

116. Taylor conducted the experiment to prove semiconservative mode of chromosome replication on:

(1) Vicia faba
(2) Drosophila melanogaster
(3) E. coli
(4) Vinca rosea

117. Contagium vivum fluidum was proposed by

(1) D. J. Ivanowsky
(2) M. W. Beijerinck
(3) Stanley
(4) Robert Hooke

118. In which one of the following processes CO_2 is not released?

(1) Aerobic respiration in plants
(2) Aerobic respiration in animals
(3) Alcoholic fermentation
(4) Lactate fermentation

119. Select the correct statement regarding post transcriptional modification.

(1) In capping, methyl guanosine triphosphate is added at the 3' end.
(2) In tailing, adenylate residuces $(200 - 300)$ are added at 3'-end in a template dependent manner.
(3) It is a process of conversion of mRNA to hnRNA
(4) It involves removal of introns and joining of exons.

120. Which of the following shows coiled RNA strand and capsomeres?

(1) Polio virus
(2) Tobacco mosaic virus
(3) Measles virus
(4) Retrovirus

121. Refer the given reaction.

$$\text{RuBP} + O_2 \xrightarrow[\text{oxygenase}]{\text{RuBP}}$$

$$\underset{\text{acid}}{\text{phosphoglyceric}} + \underset{\text{acid}}{\text{phosphoglycolic}}$$

It is the first reaction of :-

(1) C_3 pathway
(2) C_4 pathway
(3) C_2 pathway
(4) Glycolysis

122. Select the two correct statements out of the four (a to d) given below aboutlac–operon :-

a) Allolactose may bind with repressor and inactivate it.
b) In the absence of lactose, the repressor binds with the operator regions.
c) The z-gene codes for permease.
d) The i-gene codes for activator protein.

The correct statements are:-

(1) a and d
(2) a and b
(3) a and c
(4) b and c

123. The classification system proposed Linnaeus was a_____ kingdom system of classificaiton.

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

124. Mobile electron carrier in ETS in mitochondrial membrane is

(1) Complex I
(2) Cyt c
(3) Cyt a -a_3
(4) Cyt bc_1

125. _____ is the purposeful manipulation of plant species in order to create plant types that are better suited for cultivation give better yield and are disease resistant. Fill up the blanks.

(1) Aquaculture
(2) Plant breeding
(3) Animal husbandry
(4) Apiculture

126. Flower in which only one set of essential organ is present is said to be :

(1) Monoecious
(2) Unisexual
(3) Polygamous
(4) Bisexual

127. Select the pair that consists of plant growth promoters only :-

(1) Auxins and cytokinins
(2) Gibberellins and ABA
(3) Ethylene and ABA
(4) All of these

128. The inner wall of pollen grain

(1) Is thin, continuous and pecto cellulosic and is called intine
(2) Contain two or three cells
(3) Is thick and consists of sporopollenin
(4) Both (1) and (2)

129. Thick cuticle. sunken and scotoactive stomata, CAM photosynthesis and conversion of leaves into spines are some of the important characters of -

(1) Desert plants

(2) Hydrophytes

(3) Xerophytes

(4) More than one option is correct

130. Which of the interactions has negative effects ?

(i) Predation

(ii) Mutualism

(iii) Commensalism

(iv) Parasitism

(1) i, iii (2) i, iv (3) ii, iii (4) i only

131. Choose the incorrect statement regarding Eltonian pyramids -

(1) Pyramid of energy is always upright

(2) Pyramid of number in grassland ecosystem is inverted

(3) Pyramid of biomass in lake ecosystem is inverted

(4) Pyramid of biomass in tree ecosystem is upright

132. Which of the following biogeochemical cycle posses it's major reservoir in oceans :

(1) Nitrogen (2) Carbon

(3) Phosphorus (4) Sulphur

133. World Ozone Day is celebrated on :

(1) 5^{th} June (2) 21^{st} April

(3) 16^{th} September (4) 22^{nd} April

134. Euro-II is emission norms for reducing

(1) O_3 and CO

(2) NO_2 and N_2O

(3) Sulphur and aromatic hydrocarbons

(4) CO_2 and particulate matter

135. The process which makes major difference between C_3 and C_4 plants is :-

(1) Photorespiration (2) Respiration

(3) Glycolysis (4) Calvin cycle

Botany - Section B

Section B Shall Consist Of 15 (Fifteen) Questions In Each Subject. Candidate Needs To Attempt Any 10 (Ten) Questions Out Of 15 (Fifteen) In Each Subject.

136. Find True for Xylem:

(1) Vessels present in Gymnosperm xylem

(2) Xylem fibres cells are living

(3) Tracheids have protoplasm

(4) Xylem Parenchyma thin walled, walls made up of celulose.

137. Find correct for **Dicot:**

(1) Innermost layer of the cortex is —Pericycle — in Root

(2) Vascular bundle — Conjoint, open, with endarch Protoxylem—in stem (Dicot)

(3) Vascular bundles are **not** surrounded by bundle —sheath cell— in leaf (Dicot)

(4) B and C

138. If gene frequency for PTC non-taster is 0.4 then what will be the number of heterozygotes taster in a population of 3000 ?

(1) 2520 (2) 480

(3) 1440 (4) 1080

139. If a hemophilic man marries a carrier woman then which of the following holds true for their progenies?

(1) 50% daughters are carrier and 50% are hemophilic

(2) All the daughters are hemophilic.

(3) All sons are hemophilic and all daughters are normal.

(4) All sons normal, all daughters carriers.

140. In plants meiosis occurs in

(1) Anther (2) Root tip

(3) Cambium (4) Pollen grain

141. Consider the following four statement (a-d) and select the option which includes all the correct ones only :-

(a) The codon is read in m – RNA in a continuous fashion

(b) UAG codon has dual function in protein synthesis

(c) In actual structure, the t – RNA is a compact molecule which looks like inverted 'L'

(d) 28 's' r – RNA in bacteria also behave as ribozyme

(1) b, c and d (2) a, b and d

(3) a, c and d (4) a and c

142. For production of 100 seeds, the number of ovules, pollen tetrads, meiosis and male gametes are respectively

(1) 100, 25, 125, 200 (2) 100, 25, 100, 200

(3) 100, 25, 25, 100 (4) 100, 25, 25, 200

143. An amino acyl tRNA synthetase is responsible for :

(1) Formation of a peptide bond

(2) Binding of mRNA to ribosomes

(3) Attaching an amino group to an organic acid

(4) Joining an amino acid to tRNA

144. "Syngamy" is :

(1) Fusion of male gamete with primary endosperm nucleus

(2) Fusion of male gamete with the egg cell

(3) Fusion of male gamete with the synergids

(4) Fusion of male gamete with the antipodals

145. Deficiency of Boron in the soil may lead to deficiency of _____ in the plant.

(1) Na^{+} (2) Ca^{2+}

(3) Cu^{+2} (4) Mn^{2+}

146. During the aerobic respiration O_2 acts of:

(1) Oxidation agent of respiration substrate

(2) Last e^{-} and H^{+} acceptor

(3) Activation agent of respiratory substrate

(4) All the above

147. Intermediate common to fatty acid andcarbohydrate oxidation is :-

(1) Pyruvate (2) Acetyl Co-A

(3) Fructose–1 – 6– Diphosphate (4) DHAP

148. Which of the following is not a favourable factor for increasing the rate of decomposition ?

(1) Oxygen richness of soil (2) Detritus rich in lignin

(3) Warm environment (4) High soil moisture

149. Greater biological diversity of tropics than temperate regions is due to the -

(1) Presence of more seasonal environment

(2) Frequent glaciations in the past

(3) Highly variable climate and availability of less solar energy in the past

(4) Availability of more solar energy which contributes to higher productivity

150. A renewable exhaustible natural resource is -

(1) Coal (2) Petroleum

(3) Minerals (4) Forest

Zoology -Section A

Section A Shall Consist Of 35 (Thirty-five) Questions In Each Subject .All Questions Are Compulsory.

151. Hormone receptors are made up of :-

(1) Protein (2) Steroid

(3) Amino acid (4) All of the above

152. From his experiments, S.L. Miller produced amino acids by mixing the following in a closed flask:

(1) CH_4,H_2, NH_3 and water vapor at 600°C

(2) CH_3,H_2, NH_3 and water vapor at 600°C

(3) CH_4,H_2, NH_3 and water vapor at 800°C

(4) CH_3,H_2, NH_4 and water vapor at 800°C

153. Hypersecretion of growth hormone in adult causes-

(1) Grave's disease

(2) Gigantism

(3) Acromegaly

(4) Cretinism

154. Select the incorrect statement :

(1) Lichens can be used as industrial pollution indicators

(2) Mutations are preadaptive and natural selection fixes them in population

(3) When bacteria's are transferred to a new medium then they develop an adaptive mutation

(4) Rate of appearance of new life forms can be linked to their life span

155. Which of the following hormone is **correctly** matched with it's source & function?

(1) **Vasopressin** – Anterior pituitary gland – Induces reabsorption of water in nephron.

(2) **Oxytocin** – Anterior pituitary gland – Contraction in uterine muscles during birth (parturition).

(3) **Thymocin** – Thymus – Helps in differentiation of T-Lymphocyte.

(4) **Glucagon** – Pancreatic α-cells – Induces the uptake & utilization of glucose inside cells.

156. The founder effect signifies the role of which phenomenon in evolution :-

(1) Natural selection (2) Genetic drift

(3) Gene migration (4) Gene recombination

157. Mature Graafian follicle is generally present in the ovary of a healthy human female around

(1) 5^{th} – 8^{th} day of menstrual cycle

(2) 11^{th} – 17^{th} day of menstrual cycle

(3) 18^{th} – 23^{th} day of menstrual cycle

(4) 24^{th} – 28^{th} day of menstrual cycle.

158. Given below is a small paragraph related to **evolution of man** with **some blanks**. You have to select only one option out of four which fills correctly ? The fossils discovered in ..... in 1891 revealed the next stage, i.e. ..... about **1.5 mya**. He had a large brain around ..... and **probably** ate meat.

(1) Africa, Homo erectus, 650 cc

(2) Java, Homo erectus, 900 cc

(3) Neanderthal valley, Neanderthal, 1450 cc

(4) Africa, Australopithecus, 650 cc

159. The Graafian follicle ruptures to release ____ from the ovary by the process called ovulation

(1) Primary oocyte

(2) Secondary oocyte after completing meiosis-II

(3) Secondary oocyte after completing meiosis-I and with the release of Ist polar body

(4) Mature ovum

160. What will you conclude, when a cow is crossed to a bull and the female progeny is yielding more milk than its mother?

(1) More number of genes for high yielding milk are inherited only from the female parent.

(2) More number of genes for high yielding milk are inherited only from the male parent.

(3) More number of genes for high yielding milk are inherited from both the parents.

(4) The progeny through mutation achieved more number of genes for high yielding milk.

161. Which of the following bone is not a part of **Appendicular skeleton**?

(1) Humerus (2) Tibia

(3) Scaphoid (4) Sternum

162. Cardiac muscles are different from skeletal muscles as they are

(1) Smooth

(2) Voluntary

(3) Non-striated

(4) Striated and have intercalated discs

163. The enzyme enterokinase helps in conversion of :

(1) Caseinogen into casein
(2) Pepsinogen into pepsin
(3) Protein into polypeptides
(4) Trypsinogen into trypsin

164. The relationship between Turnover number and k_m is

(1) Direct
(2) Inverse
(3) Linear
(4) Absent

165. Which structure does not increase surface area of small intestine :-

(1) Plicae circularis
(2) Taeniae
(3) Villi
(4) Microvilli

166. Which of the following does not produce any digestive enzyme :

(1) Pancreas
(2) Colon
(3) Stomach
(4) Duodenum

167. Select the favourable conditions required for the formation of oxyhaemoglobin at the alveoli.

(1) Low pO_2, low pCO_2, more H^+, higher temperature
(2) High pO_2, low pCO_2, less H^+, lower temperature
(3) Low pO_2, high pCO_2, more H^+, higher temperature
(4) High pO_2, high pCO_2, less H^+, higher temperature

168. Glisson's capsule is present in-

(1) Liver
(2) Lung
(3) Kidney
(4) Stomach

169. Which of the following contraceptive methods do involve a role of hormone ?

(1) CuT, Pills, Emergency contraceptives
(2) Pills, Emergency contraceptives, Barrier methods
(3) Lactational amenorrhea, Pills, Emergency contraceptives
(4) Barrier method, Lactational amenorrhea, Pills

170. If symptoms of a disease include oedema, stunted growth, protuded belly in a child of 4 years, it is most likely a case of :

(1) Marasmus
(2) Kwashiorkar
(3) Beri-beri
(4) Scurvy

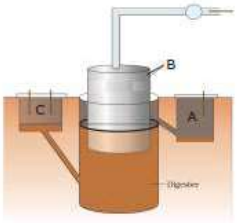
171. Medical Termination of pregnancy (**MTP**) is considered safe upto how many weeks of pregnancy :

(1) Eight weeks
(2) Twelve weeks
(3) Eighteen weeks
(4) Six weeks

172. What is the volume of blood drained by heart in one ventricular stroke

(1) 1 l
(2) 800 ml
(3) 500 ml
(4) 80 ml

173. The diagram below represents a typical biogas plant. Select the correct option for A, B and C respectively.



(1) A-Sludge, B-Dung + water, C-CH_4
(2) A-Dung + water, B-Sludge, C- CH_4 + CO_2
(3) A-Sludge, B- CH_4 and CO_2, C-Dung + water
(4) A-CH_4 and CO_2, B-Dung + water, C-Sludge

174. Calcium is important in skeletal muscle contraction because it-

(1) Detaches the myosin head from the actin filament.
(2) Activates the myosin ATPase by binding to it.
(3) Binds to troponin to remove the masking of active sites on actin for myosin
(4) Prevents the formation of bonds between the myosin cross bridges and the actin filament

175. How much amount of blood passes through the kidney per minute?

(1) 125 ml (2) 650 – 700 ml
(3) 180 litres (4) 1100 – 1200 ml

176. Which of the following enzyme is/are not used in the formation of C-DNA :

(1) Reverse transcriptase
(2) DNA depenedent RNA polymerase
(3) RNA depenedent DNA polymerase
(4) Both A and C

177. After 5 cycles of PCR how many DNA fragments are formed from a given DNA :

(1) 32 (2) 5
(3) 10 (4) 16

178. Method in which recombinant DNA is directly injected into the nucleus of animal cell by using microneedles is called -

(1) Gene Gun method (2) Biolistic method
(3) Microinjection method (4) All of the above

179. Transgenic plants are the ones -

(1) Grown in artificial medium after hybridization in the field
(2) Produced after protoplast fusion in artificial medium
(3) Generated by introducing foreign DNA into a cell and regenerating a plant from that cell
(4) Produced by a somatic embryo in artificial medium

180. Which of the following is not applicable to Agrobacterium tumificiens?

(1) Pathogen of several dicot plants
(2) Has ability to transform cells
(3) Delivers gene of our interest
(4) Ti plasmid of it is always pathogenic to plants without any exception

181. The factors, which influence membrane fluidity are

I. Cholesterol
II. Carbohydrates
III. Percentage of unsaturated fatty acids
IV. Receptors

(1) II and IV (2) III and IV
(3) Only I (4) I and III

182. function of Endoplasmic reticulum

I. They are extensive and continuous with the outer membrane of the nucleus.
II. is involved in secretion, storage and packaging of materials.
III. The smooth endoplasmic reticulum is the major sites for synthesis of lipid in animal cells.
IV. Lipid-like steroidal hormones are synthesised in SER.

(1) I, II and III (2) Only III
(3) I and IV (4) I, III and IV

183. Flattened membranous sacs present in the stroma of chloroplast are?

(1) Thylakoids (2) Cristae
(3) Mesophyll (4) Chromatophore

184. Which of the following is most important point in the regulation of cell cycle during which it must decide whether the cell will start a new cycle or will become arrested in G_0 phase ?

(1) S-phase (2) G_1-phase
(3) G_2-phase (4) Interphase

Zoology -Section B

Section B Shall Consist Of 15 (Fifteen) Questions In Each Subject. Candidate Needs To Attempt Any 10 (Ten) Questions Out Of 15 (Fifteen) In Each Subject.

186. Lymphocytes -

(1) are part of the body's defence against cancer

(2) are unaffected by hormones

(3) convert to monocytes in response to antigens

(4) Interact with eosinophils to produce platelets

187. An artificial pace-maker is implanted subcutaneously and connected to the heart in patients

(1) Having 90% blockage of the three main coronary arteries

(2) Having a very high blood pressure

(3) With irregularity in the heart rhythm

(4) Suffering from arteriosclerosis

188. Conditional reabsorption of Na^+ and water takes place in :

(1) PCT (2) DCT

(3) Henle's loop (4) Bowman's capsule

189. Scala vestibuli is connected with -

(1) Scala media (2) Scala tympani

(3) Fenestra ovalis (4) Foramen ovalis

190. Bioluminescense property is well marked in :

(1) Porifera (2) Cnidarians

(3) Ctenophores (4) Flatworm

191. Stimulation of a muscle fiber by o motor neuron occurs at:

(1) the transverse tubules (2) the myofibril

(3) the sarcoplasmic reticulum (4) the neuromuscular junction

192. Which of the following pair of animals is **not** viviparous?

(1) Platypus, Scoliodon (2) Felis, Macropus

(3) Macropus, Exocoetus (4) Platypus, Exocoetus

193. Infective stage of Plasmodium for human and mosquito are respectively

(1) Sporozoites and gametocytes

(2) Gametocytes and sporozoites

(3) Gametocytes and trophozoite

(4) Sporozoite and merozoite

194. Which of the following statements is **wrong** ?

(1) Body of reptiles is covered by dry and cornified epidermal scutes.

(2) All fishes have covered gills.

(3) Birds are homeothermic with sound producing organ as syrinx.

(4) Bat differs from bird by containing diaphragm and ear pinna.

195. Which of the following drug is extracted from the latex of poppy plant Papaver somniferum, generally taken by snorting and injection is a depress and slows down body functions?

(1) Cocaine (2) Hashish

(3) Barbiturate (4) Heroin

196. Choose the option which comprises of all oviparous animals :

(1) Neophron, Bufo, Calotes and Canis

(2) Scoliodon, Exocoetus, Neophron and Pteropus

(3) Chelone, Salamandra, Columba and Macropus

(4) Hippocampus, Chelone, Corvus and Struthio

197. Find the correct match

(a)	Anaphase I	(i)	Splitting of centromere
(b)	Anaphase II	(ii)	Recombinase
(c)	Pachytene	(iii)	Separation of homologous chromosome
(d)	Diakinesis	(iv)	Chromosomes aligned on equatorial plate
		(v)	Nucleus disappears

(1) (a)-(iii), (b)-(i), (c)-(ii), (d)-(v)
(2) (a)-(iii), (b)-(v), (c)-(ii),(d)-(iv)
(3) (a)-(ii), (b)-(iii), (c)-(v),(d)-(iv)
(4) (a)-(i), (b)-(iii), (c)-(iv),(d)-(ii)

198. Part of chromosome after secondary constriction is called -

(1) Chromomere (2) Telomere
(3) Satellite (4) Primary constriction

199. Which vector can clone only a small fragment of DNA?

(1) Yeast artificial chromosome
(2) Plasmid
(3) Cosmid
(4) Bacterial artificial chromosome

200. Some of the steps involved in the production of humulin are given below. Choose the correct sequence :
(i) Synthesis of gene (DNA) for human insulin artificially
(ii) Culturing recombinant E. coil in bioreactors
(iii) Purification of humulin
(iv) Insertion of human insulin gene into plasmid
(v) Introduction of recombinant plasmid into E. coil
(vi) Extraction of recombinant gene product from E. coli

(1) (ii), (i), (iii), (v), (vi), (iv)
(2) (i), (iii), (v), (vi), (ii), (iv)
(3) (i), (iv), (v), (ii), (vi), (iii)
(4) (iii), (v), (ii), (i), (vi), (iv)

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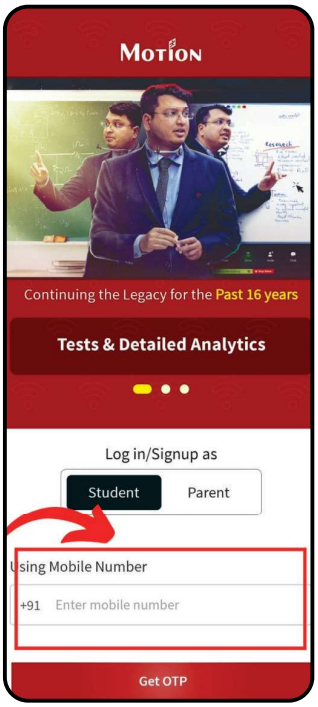

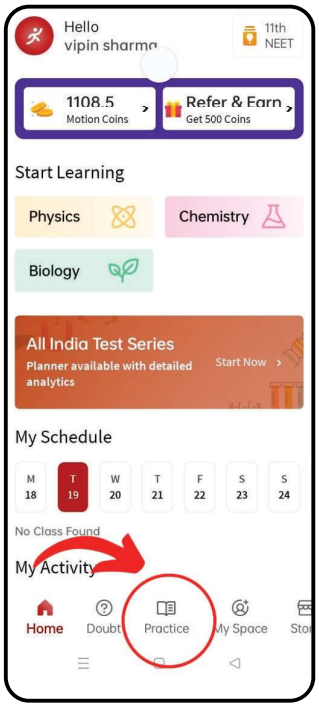

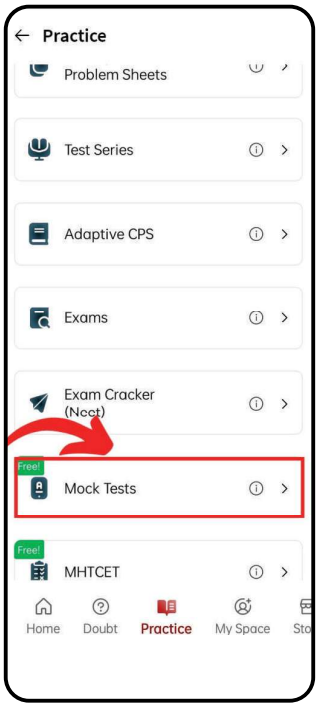

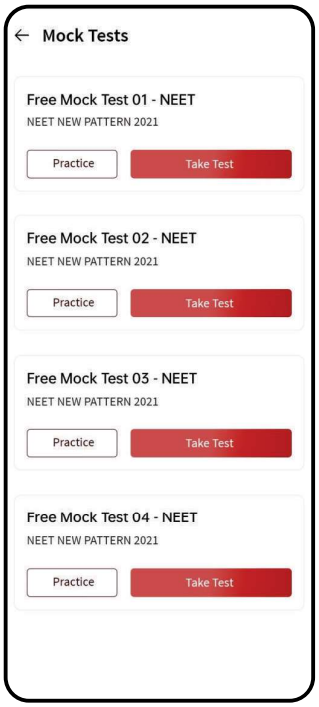

मोशन है, तो भरोसा है।