

Free Mock Test 10 - NEET

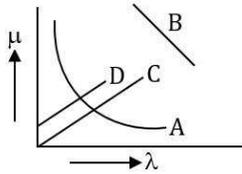
(Target: NEET 2025)



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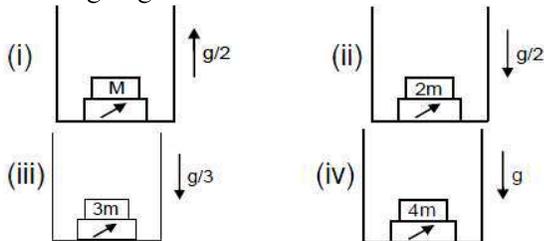


10. Which of the following curve gives correct graphical representation between refractive index μ of glass and wavelength λ of light -



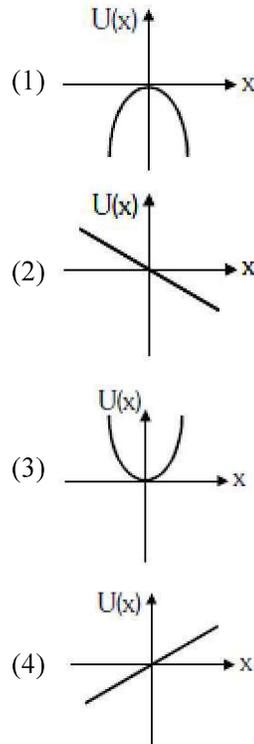
- (1) A (2) D
(3) B (4) C

11. For the given four situations in which case, reading of the weighing machine is maximum ?



- (1) i (2) ii
(3) iii (4) iv

12. A particle is placed at the origin and a force $F = kx$ is acting on it (where k is positive constant). If $U(0) = 0$, the graph of $U(x)$ versus x will be (where U is the potential energy function):-



13. The moment of inertia of a ring about an axis passing through its centre and normal to its face is 200 g-cm^2 . Then its moment of inertia about diametric axis is-

- (1) 100 g-cm^2 (2) 200 g-cm^2
(3) 400 g-cm^2 (4) 300 g-cm^2

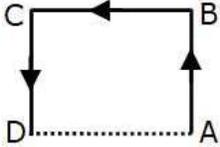
14. A satellite of mass m moves around the earth along a circular path of radius r . Let m_e is the mass of the earth and R_e is its radius. The linear speed of the satellite depends upon-

- (1) m_e and r (2) m_e only
(3) r only (4) m, R_e and r

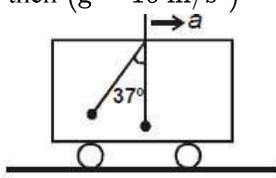
15. A particle falls on earth : (i) from infinity (ii) from a height 10 times the radius of earth. The ratio of the velocities gained on reaching at the earth's surface is

- (1) $\sqrt{11} : \sqrt{10}$ (2) $\sqrt{10} : \sqrt{11}$
(3) $10 : 11$ (4) $11 : 10$



16. A particle A of charge q is placed near a uniformly charged infinite plane sheet with surface charge density σ , then it experiences a force F_1 while when this particle is placed near a finite metal plate with surface charge density σ , then it experiences a force F_2 . Then $\frac{|F_1|}{|F_2|}$ is equal to
- (1) 1 (2) 2
(3) $\frac{1}{2}$ (4) 3
17. A particle moves along the sides AB, BC, CD of a square of side 25 m with a velocity of 15 ms^{-1} . Its average velocity is
- 
- (1) 15 ms^{-1} (2) 10 ms^{-1}
(3) 7.5 ms^{-1} (4) 5 ms^{-1}
18. A charge ' q ' moves in a region where electric field and magnetic field both exist, then force on it:-
- (1) $q \left(\vec{v} \times \vec{B} \right)$
(2) $q \vec{E} + q \left(\vec{v} \times \vec{B} \right)$
(3) $q \vec{E} - q \left(\vec{B} \times \vec{v} \right)$
(4) $q \vec{B} - q \left(\vec{E} \times \vec{v} \right)$
19. How many times is the adiabatic modulus of elasticity of gas as compared to its isothermal modulus of elasticity-
- (1) two times (2) three times
(3) γ times (4) $1/\gamma$ times
20. According to Maxwell's law of distribution of velocities of molecules, the most probable velocity is :-
- (1) greater than the mean velocity
(2) equal to the mean velocity
(3) equal to the root mean square velocity
(4) less than the root mean square velocity
21. A silver wire of length 10 metre and cross-sectional area 10^{-8} m^2 is suspended vertically and a weight of 10N is attached to it. Young's modulus of silver and its resistivity are $7 \times 10^{10} \text{ N/m}^2$ and $1.59 \times 10^{-8} \Omega - \text{m}$ respectively. The increase in its resistance is equal to (keeping volume constant)
- (1) 0.0455Ω (2) 0.455Ω
(3) 0.91Ω (4) 0.091Ω
22. In a container neon gas has two isotopes Ne^{20} and Ne^{22} . The ratio of rms velocities of Ne^{20} and Ne^{22} is:
- (1) $\sqrt{11} : \sqrt{10}$ (2) $\sqrt{10} : \sqrt{11}$
(3) 10 : 11 (4) 11 : 10
23. The value of $C_p - C_v = 1.00R$ for a gas in state A and $C_p - C_v = 1.06R$ in another state B. If P_A and P_B denote the pressure and T_A and T_B denotes the temperature in the two states, then :
- (1) $P_A = P_B : T_A > T_B$ (2) $P_A > P_B : T_A = T_B$
(3) $P_A < P_B : T_A > T_B$ (4) $P_A = P_B : T_A < T_B$
24. "Heat cannot by itself flow from a body at lower temperature to a body at higher temperature" is
- (1) Clausius statement of second law of thermodynamics
(2) Kelvin-Planck statement of second law of thermodynamics
(3) First law of thermodynamics
(4) Law of conservation of heat
25. An object is 20 cm away from a concave mirror of focal length, 15 cm. If the object moves with a speed of 5 m/s along the axis, then the instantaneous speed of image will be
- (1) 30 m/s (2) 45 m/s
(3) 9 m/s (4) 18 m/s
26. Relation between critical angles of water and glass is :
- (1) $c_w > c_g$ (2) $c_w < c_g$
(3) $c_w = c_g$ (4) $c_w = c_g = 0$



27. A thin prism deviates a ray towards its base by 8° . If refractive index of the material of the prism is 1.5, and the angle of prism is 5° then the value of δ is
- (1) 0.5° (2) 1.5°
(3) 3.5° (4) 2.5°
28. In a Young's double slit experiment the intensity at a point where the path difference is $\frac{\lambda}{6}$ (λ being the wavelength of the light used) is I . If I_0 denotes the maximum intensity, I_0/I is equal to :-
- (1) $\sqrt{2}$ (2) $\frac{4}{3}$
(3) 2 (4) $\frac{2}{\sqrt{3}}$
29. The intensity of gamma radiations from a given source is I_0 . On passing through x of lead it is reduced to $\frac{I_0}{8}$. The thickness of lead which will reduce it to $\frac{I_0}{2}$ is
- (1) $(x)^{1/3}$ mm (2) $(\frac{x}{5})^{1/4}$ mm
(3) $(\frac{x}{3})$ mm (4) $(\frac{x}{4})$ mm
30. A screen is placed at 50 cm from a single slit, which is illuminated with 600 nm light. If separation between the first and third minima in the diffraction pattern is 3.0 mm, then width of the slit is
- (1) 0.4 mm (2) 0.1 mm
(3) 0.3 mm (4) 0.2 mm
31. A parallel beam of fast moving electrons is incident normally on a narrow slit. A fluorescent screen is placed at a large distance from the slit. If the speed of the electrons is increased, which of the following statements is correct ?
- (1) Diffraction pattern is not observed on the screen in the case of electrons
(2) The angular width of the central maximum of the diffraction pattern will increase
(3) The angular width of the central maximum will decrease
(4) The angular width of the central maximum will be unaffected
32. A person is standing in an elevator. In which situation he finds his weight less than his true weight ?
- (1) When the elevator moves upward with constant acceleration
(2) When the elevator moves downward with constant acceleration
(3) When the elevator moves upward with uniform velocity.
(4) When the elevator moves downward with uniform velocity
33. A pendulum with a bob of mass 2 kg is hanging from the ceiling of a trolley as shown in the figure. The trolley is uniformly accelerating with an acceleration a , then ($g = 10 \text{ m/s}^2$)
- 
- (1) $a = 6 \text{ m/s}^2$ (2) $a = 7.5 \text{ m/s}^2$
(3) $a = 4 \text{ m/s}^2$ (4) $a = 2.5 \text{ m/s}^2$
34. If the momentum of a certain body is increased by 50%, its kinetic energy will be increased by:-
- (1) 25% (2) 50%
(3) 100% (4) 125%
35. At time $t = 0$ s particle starts moving along the x-axis. If its kinetic energy increases uniformly with time 't', the net force acting on it must be proportional to :-
- (1) \sqrt{t} (2) constant
(3) t (4) $\frac{1}{\sqrt{t}}$

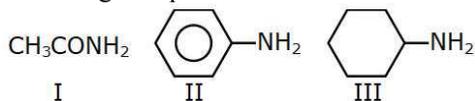


45. The KE of the electron in an orbit of radius r in hydrogen atom is (e = electronic charge)
- (1) $\frac{e^2K}{r}$ (2) $\frac{e^2K}{2r}$
 (3) $\frac{2e^2K}{r}$ (4) $\frac{e^2K}{2r^2}$
46. The truth table given below belongs to
- | X | Y | Z |
|---|---|---|
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 0 |
- (1) NAND gate (2) NOR gate
 (3) AND gate (4) XOR gate
47. A copper rod of length ℓ is rotated about mid point of rod, perpendicular to the magnetic field B with constant angular velocity ω . The induced emf between the two ends is
- (1) $\frac{1}{2} B\omega\ell^2$ (2) $B\omega\ell^2$
 (3) $2B\omega\ell^2$ (4) Zero
48. A straight conductor of length 4m moves at a speed of 10m/s. When the conductor makes an angle of 30° with the direction of magnetic field of induction of 0.1 wb. per m^2 then induced emf is :
- (1) 8V (2) 4V
 (3) 1V (4) 2V
49. A conducting rod is moved with a constant velocity v in a magnetic field. A potential difference appears across the two ends.
- (1) If $\vec{v} \parallel \vec{\ell}$
 (2) If $\vec{v} \parallel \vec{B}$
 (3) If $\vec{\ell} \parallel \vec{B}$
 (4) None of these
50. If $\phi = 0.02 \cos 100\pi t$ weber/turns and number of turns is 50 in the coil, the maximum induced emf is-
- (1) 314 volt (2) 100 volt
 (3) 31.4 volt (4) 6.28 volt

Chemistry - Section A

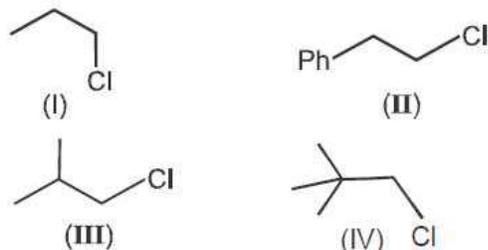
Section A Shall Consist Of 35 (Thirty-five) Questions In Each Subject .All Questions Are Compulsory.

51. Correct decreasing order of basic strength for the following compounds is-



- (1) I > II > III (2) III > II > I
 (3) III > I > II (4) II > I > III

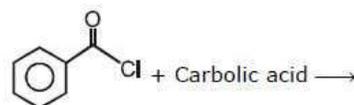
52.



Write decreasing order of reactivity for S_N^2 reaction?

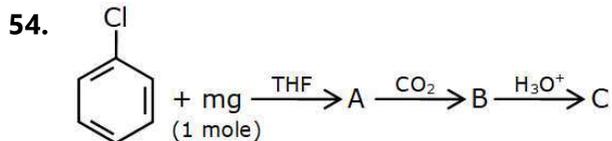
- (1) I > II > III > IV
 (2) II > I > III > IV
 (3) IV > III > II > I
 (4) IV > III > I > II

53.

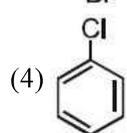
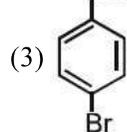
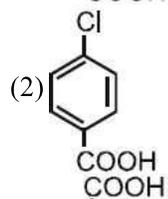
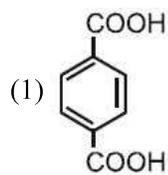


The above reaction is-

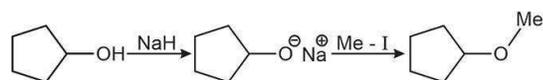
- (1) Friedel craft reaction (2) Schotten Baumann reaction
 (3) Benzoylation (4) (2) & (3) both



End product C is-



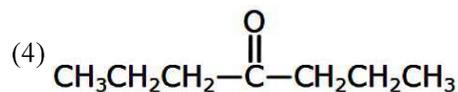
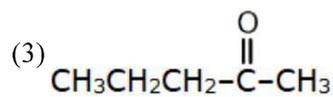
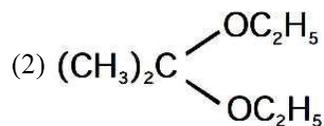
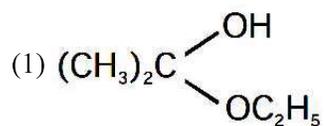
55. The reaction



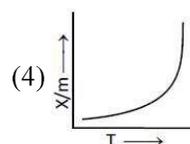
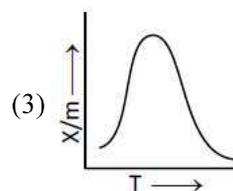
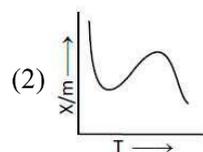
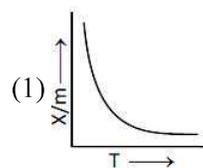
can be classified as-

- (1) Williamson ether synthesis reaction
- (2) Alcohol formation reaction
- (3) Dehydration reaction
- (4) Williamson alcohol synthesis reaction

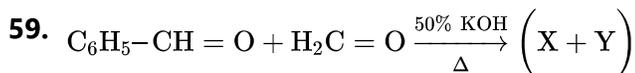
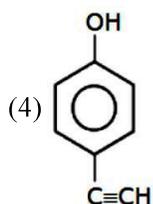
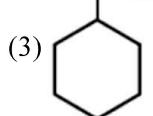
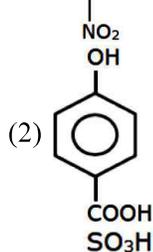
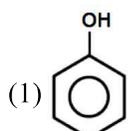
56. Acetone is treated with excess of ethanol in the presence of hydrochloric acid. The product obtained is-



57. Which of the following graph represents the variation of amount of chemisorption of a gas by a solid with temperature under constant pressure?



58. Which of the following does not react with NaHCO_3 ?



Product X & Y are-

- (1) $\text{C}_6\text{H}_5-\text{CH}_2-\text{OH} + \text{HCOOK}$
- (2) $\text{C}_6\text{H}_5-\text{OH} + \text{HCOOK}$
- (3) $\text{C}_6\text{H}_5-\text{COOK} + \text{CH}_3-\text{OH}$
- (4) $\text{C}_6\text{H}_5-\text{CH}_2-\text{COOK} + \text{CH}_3-\text{OH}$

60. Which of the following does not give yellow precipitate with $\text{NaOH} + \text{I}_2$?

- (1) Acetone
- (2) Acetaldehyde
- (3) Benzaldehyde
- (4) Acetophenone

61. Which of the following reaction is appropriate for converting benzamide to aniline?

- (1) Hoffmann bromamide reaction
- (2) Carbyl amine reaction
- (3) Stephens reaction
- (4) Gabriels phthalimide synthesis

62. Three elements X, Y and Z are in the 3rd period of the periodic table. The oxides of X, Y and Z, respectively, are basic, amphoteric and acidic. The correct order of the atomic numbers of X, Y and Z is-

- (1) $X < Y < Z$
- (2) $Y < X < Z$
- (3) $Z < Y < X$
- (4) $X < Z < Y$

63. Which one of the following is a mineral of iron?

- (1) Pyrolusite
- (2) Magnetite
- (3) Malachite
- (4) Cassiterite

64. Which of the following is/are the examples of square planar complex?

- (1) $[\text{NiCl}_4]^{-2}$
- (2) $[\text{PtCl}_4]^{-2}$
- (3) $[\text{Ni}(\text{CO})_4]$
- (4) All of these

65. In which of the following compound C–O bond length is maximum?

- (1) $\text{K}[\text{Co}(\text{CO})_4]$
- (2) $[\text{Ni}(\text{CO})_4]$
- (3) $[\text{Cr}(\text{CO})_6]$
- (4) $[\text{Mn}(\text{CO})_6]^+$

66. The stable oxidation states of Cr are-

- (1) Cr^{2+}
- (2) Cr^{3+}
- (3) Cr^{4+}
- (4) Cr^{6+}

67. Among the following which is the strongest oxidising agent?

- (1) Cl_2
- (2) F_2
- (3) Br_2
- (4) I_2

68. Correct name of H_3PO_4 -

- (1) Phosphinic acid
- (2) Phosphonic acid
- (3) Phosphoric acid
- (4) Hypophosphorus acid

69. Which of the following statement is not correct regarding the diagonal relationship between Al and Be?

- (1) BeO and Al_2O_3 are amphoteric in nature
- (2) Al_4C_3 and Be_2C give same gas on hydrolysis
- (3) Both can form compounds with same maximum co-ordination
- (4) Both form electron deficient and covalent hydride

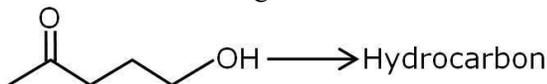


- 70.** An element whose IUPAC name is ununtrium (Uut) belongs to-
- (1) s-block element (2) p-block element
(3) d-block element (4) transition element
- 71.** Which of the following is isostructural to I_3^- ?
- (1) ICl_2^- , XeF_2 , N_3^-
(2) NO_2^- , XeF_2 , N_3^-
(3) NH_2^- , NO_2^- , ICl_2^-
(4) BH_3 , CO_2 , ICl_2^-
- 72.** Lattice energy of ionic compound is calculated by using-
- (1) Hess's law (2) Kirchoff's equation
(3) Born-Haber cycle (4) Carnot cycle
- 73.** Which of the following is most soluble in water?
- (1) $MnS(K_{SP} = 8 \times 10^{-37})$
(2) $ZnS(K_{SP} = 7 \times 10^{-16})$
(3) $Bi_2S_3(K_{SP} = 5 \times 10^{-70})$
(4) $Ag_2S(K_{SP} = 6 \times 10^{-51})$
- 74.** Mixture of acetone and ethanol-
- (1) Obeys Raoult's law (2) Is an ideal mixture
(3) Show positive deviation (4) Show negative deviation
- 75.** Which of the following has highest pH?
- (1) 0.1 M HCl (2) 0.2 M HCl
(3) 0.1 M CH_3COOH (4) 0.15 M HNO_3
- 76.** What is the product of electrolysis of $KNO_3(aq)$ using Pt electrodes?
- (1) K, NO_2 (2) H_2 , NO_2
(3) K, O_2 (4) H_2 , O_2
- 77.** The decomposition of N_2O into N_2 & O_2 in presence of gaseous argon follow second order kinetics with $k = (5.0 \times 10^{11} \text{ L mol}^{-1} \text{ s}^{-1}) e^{-\frac{41570 \text{ K}}{T}}$ (K stands for Kelvin units). The energy of activation of the reaction is-
- (1) $5 \times 10^8 \text{ kJ/mol}$
(2) 415 kJ/mol
(3) 5 kJ/mol
(4) 345 kJ/mol
- 78.** In a normal spinel types structure, the oxide ions are arranged in ccp whereas 1/8 tetrahedral holes are occupied by Zn^{2+} ions and 50% of octahedral holes are occupied by Fe^{3+} ions. The formula of the compound is-
- (1) $Zn_2Fe_2O_4$ (2) $ZnFe_2O_3$
(3) $ZnFe_2O_4$ (4) $ZnFe_2O_2$
- 79.** If the slope of graph between $\log\left(\frac{x}{m}\right)$ and $\log P$ is 1 with intercept 0.301, the extent of adsorption at a pressure of 0.2 atm is-
- (1) 0.2 (2) 0.4
(3) 0.6 (4) 0.8
- 80.** If 30 mL of H_2 and 20 mL of O_2 react to form water, what is left at the end of the reaction?
- (1) 10 mL of H_2 (2) 5 mL of H_2
(3) 10 mL of O_2 (4) 5 mL of O_2
- 81.** A light whose frequency is equal to $6 \times 10^{14} \text{ Hz}$ is incident on a metal whose work function is 2eV ($h = 6.63 \times 10^{-34} \text{ Js}$, $1 \text{ eV} = 1.6 \times 10^{-19} \text{ J}$). The maximum energy of electrons emitted will be-
- (1) 2.49 eV (2) 4.49 eV
(3) 0.48 eV (4) 5.49 eV
- 82.** For the gases H_2 , NH_3 and CH_4 , the value of 'a' bar $L^{-2} \text{ mol}^{-2}$ are 0.2453, 4.170 and 2.253 respectively. Which of the following can be inferred from the 'a' values?
- (1) NH_3 can be most easily liquified
(2) H_2 can be most easily liquified
(3) CH_4 can be most easily liquified
(4) None of these
- 83.** For reaction $2NOCl(g) \rightleftharpoons 2NO(g) + Cl_2(g)$, K_c at 427°C is $3 \times 10^{-6} \text{ mol}$. The value of K_p is nearly-
- (1) 7.50×10^{-5} (2) 2.50×10^{-5}
(3) 2.50×10^{-4} (4) 1.75×10^{-4}
- 84.** The correct thermodynamic conditions for the spontaneous reaction at all temperatures is :
- (1) $\Delta H < 0$ & $\Delta S = 0$
(2) $\Delta H > 0$ & $\Delta S < 0$
(3) $\Delta H < 0$ & $\Delta S > 0$
(4) $\Delta H < 0$ & $\Delta S < 0$

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. Which of the following can be used to convert?



- (1) (i) N_2H_4 , (ii) OH^\ominus , Δ
 (2) NaBH_4
 (3) LiAlH_4
 (4) Red P/HI

87. $\text{CH}_3 - \text{CH} = \text{CH} - \text{CH}_3 \xrightarrow{\text{O}_3/\text{H}_2\text{O}/\text{Zn}}$ Product
 In which of the following reaction, same product is formed?

- (1) $\text{CH}_3 - \text{CH}_3 + \text{O}_2 \xrightarrow{\text{Cu}}$
 (2) $\text{CH}_3 - \text{CH}_3 + \text{O}_2 \xrightarrow{\text{Mo}_2\text{O}_3}$
 (3) $\text{CH}_3 - \text{CH}_3 + \text{O}_2 \xrightarrow{(\text{CH}_3\text{COO})_2\text{Mn}}$
 (4) $\text{CH}_3 - \text{CH}_2 - \text{COOH} \xrightarrow{\text{NaOH} + \text{CaO}}$

88. Low density of ice compared to water is due to-

- (1) H-Bonding interaction (2) ionic interaction
 (3) London-forces (4) ion dipole interaction

89. The element having maximum value for its 3rd ionisation enthalpy is-

- (1) Be (2) Li
 (3) N (4) B

90. Zone refining is based on the principle that-

- (1) impurities of low boiling metals can be separated by distillation
 (2) impurities are more soluble in molten metal than in solid metal
 (3) different components of a mixture are differently absorbed on an adsorbent
 (4) Vapours of volatile compound can be decomposed in pure metal

91. Correct set of magnetic property, shape and hybridisation for $[\text{Cr}(\text{NH}_3)_6]^{3+}$ complex ion respectively are-

- (1) Diamagnetic, Octahedral, d^2sp^3
 (2) Paramagnetic, Octahedral, d^2sp^3
 (3) Diamagnetic, Octahedral, sp^3d^2
 (4) Paramagnetic, Octahedral, sp^3d^2

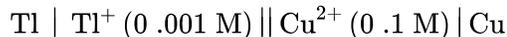
92. Which condition is not satisfied by an ideal solution?

- (1) $\Delta_{\text{mix}} V = 0$ (2) $\Delta_{\text{mix}} S = 0$
 (3) Obeys Raoult's law
 (4) $\Delta_{\text{mix}} H = 0$

93. $\text{M}(\text{OH})_x$ has a K_{sp} of 4×10^{-9} and its solubility is 10^{-3} M. The value of x is-

- (1) 4 (2) 1
 (3) 3 (4) 2

94. At 25°C a cell is formulated as-



E_{cell} is 0.83 V. E_{cell} can be increased by-

- (1) Decreasing $[\text{Cu}^{2+}]$ (2) Increasing $[\text{Cu}^{2+}]$
 (3) Increasing $[\text{Tl}^+]$ (4) None

95. NO_2 produced by the decomposition of N_2O_5 ,



The initial concentration of N_2O_5 is 3.00 mol L^{-1} and it is 2.75 mol L^{-1} after 30 minutes. The rate of formation of NO_2 is-

- (1) $4.167 \times 10^{-3} \text{ mol L}^{-1} \text{ min}^{-1}$
 (2) $8.333 \times 10^{-3} \text{ mol L}^{-1} \text{ min}^{-1}$
 (3) $1.667 \times 10^{-2} \text{ mol L}^{-1} \text{ min}^{-1}$
 (4) $2.083 \times 10^{-3} \text{ mol L}^{-1} \text{ min}^{-1}$

96. Which of the following has highest number of formula units per unit cell?

- (1) NaCl type structure
 (2) Na_2O type structure
 (3) CaF_2 type structure
 (4) All have same number of formula unit



97. The atom of the element having atomic number 14 should have
(1) One unpaired electron
(2) Two unpaired electron
(3) Three unpaired electrons
(4) Four unpaired electrons
98. The conversion of ozone into oxygen is exothermic. Under what conditions is ozone the most stable?
 $2\text{O}_3(\text{g}) \rightleftharpoons 3\text{O}_2(\text{g})$
(1) At low pressure and low temperature
(2) At high pressure and high temperature
(3) At high pressure and low temperature
(4) At low pressure and high temperature
99. The enthalpies of formation of N_2O and NO are 82 and 90 kJ mol^{-1} , respectively. The change in enthalpy of the reaction is:
 $2\text{N}_2\text{O}(\text{g}) + \text{O}_2(\text{g}) \rightarrow 4\text{NO}(\text{g})$ would be-
(1) 16 kJ (2) 196 kJ (3) 8 kJ (4) 88 kJ
100. What is the change in oxidation number of carbon in the following reaction?
 $\text{CH}_4(\text{g}) + 4\text{Cl}_2(\text{g}) \rightarrow \text{CCl}_4(\text{l}) + 4\text{HCl}(\text{g})$
(1) 0 to +4 (2) -4 to +4
(3) 0 to -4 (4) +4 to +4

Botany - Section A

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

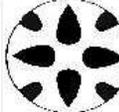
101. In Cyanobacteria, Heterocyst is concerned with:-
(1) Reproduction (2) Hormogonia
(3) Photosynthesis (4) Nitrogen fixation
102. Chemoautotroph do not require-
(1) H_2S (2) Nitrites
(3) Sunlight (4) Ammonium compounds
103. Site of respiration in bacteria is -
(1) Episome (2) Mitochondria
(3) Ribosome (4) Mesosome
104. Which of the following is called "Jokers of Plant Kingdom"
(1) Bacteria (2) Mycoplasma
(3) Nostoc (4) None of these
105. What is absent in euglenoids :
(1) Cell wall (2) Flagella
(3) Pigments (4) All of the above
106. The rules of scientific naming of E. coli are given in
(1) ICNB (2) ICBN
(3) ICNCP (4) ICTV
107. The international size of the herbarium sheet is :
(1) $42 \times 29 \text{ cm}^2$ (2) $40 \times 29 \text{ cm}^2$
(3) $14 \times 29 \text{ cm}^2$ (4) $29 \times 19 \text{ cm}^2$
108. Modern day (Advanced) plants are -
(1) Monocots (2) Dicots
(3) Gnetales (4) Ferns
109. Ubisch bodies are associated with the development of-
(1) Embryo (2) Pollen grains
(3) Endosperm (4) Embryo sac
110. Vascular system include ...A... bundles, which can be seen in the veins and the ...B.... The size of vascular bundles are dependent on the size of ...C.... The veins vary in thickness in the reticulate venation of the ...D...leaves.
(1) A-phloem, B-midrib, C-veins, D-Dicot
(2) A-Xylem, B-midrib, C-veins, D-Dicot
(3) A-Vascular, B-midrib, C-veins, D-Dicot
(4) A-Vascular, B-midrib, C-veins, D-monocot



111. Choose the correct pair:

- (1) Isobilateral leaf - Stomata is present on both surface
- (2) Bulliform cells - Modified adaxial epidermal cells
- (3) Both (A) and (B)
- (4) None of the above

112. Match the columns I, II and III, and choose the correct combination from the options given.

Column I	Column II	Column III
a 	1 Radial	K Monocot stem
b 	2 Conjoint Open	L Dicot stem
c 	3 Conjoint closed	M Dicot Root

- (1) a-3-M, b-2-L, c-1-K
- (2) a-2-M, b-3-L, c-1-K
- (3) a-3-K, b-2-L, c-1-M
- (4) a-2-K, b-3-M, c-1-L

113. Lateral meristem are :

- (1) Phellogen and procambium
- (2) Procambium and dermatogens
- (3) Fascicular cambium and procambium
- (4) Fascicular cambium and cork cambium

114. Which statement is true—

- (1) Characters segregate during formation of gametes
- (2) All characters show true dominance
- (3) The characters always blend in heterozygous condition
- (4) Mendelian disorder are determined by absence or excess of one or more chromosome

115. The chromosomal theory of heredity means that

- (1) chromosomes are composed of genes
- (2) chromosomes are made up of DNA and protein
- (3) genes are located on the chromosomes
- (4) all of the above.

116. Which of the following genotypes does not add any terminal sugar on the surface of the RBC

- (1) $I^A I^A$
- (2) $I^B i$
- (3) $I^A I^B$
- (4) $i i$

117. Which of the following is a correct match between crop, variety and resistance to diseases?

- (1) **Crop**—Wheat, **Variety**—Himgiri, **Resistance of diseases** —White rust
- (2) **Crop**—Brassica, **Variety**—Pusa sadabahar, **Resistance of diseases** —Black rot
- (3) **Crop**—Cowpea, **Variety**—Pusa komal, **Resistance of diseases** —Bacterial blight
- (4) **Crop**—Chilli, **Variety**—Pusa swarnim, **Resistance of diseases** —Chilli mosaic virus

118. The carbon atoms of the pentose sugar involved in phosphodiester bond formation in DNA and RNA-

- (1) C_1 and C_5
- (2) C_2 and C_3
- (3) C_3 and C_5
- (4) C_4 and C_5

119. Consider the following

1. Structural gene
2. Messenger RNA
3. Ribosomes
4. Transcription
5. Translation

Which of the following is the correct sequence for protein synthesis

- (1) 1, 4, 3, 2, 5
- (2) 1, 4, 5, 2, 3
- (3) 1, 4, 2, 3, 5
- (4) 3, 5, 4, 2, 1

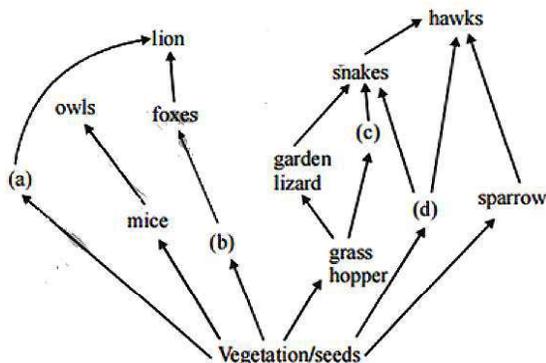
120. An environmental agent that triggers transcription from an Operon is a

- (1) Derepressor
- (2) Inducer
- (3) Regulator
- (4) Controlling element

Botany - Section B

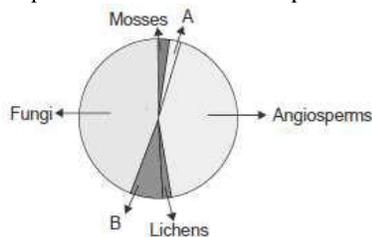
Section B Shall Consist Of 15 (Fifteen) Questions In Each Subject. Candidate Needs To Attempt Any 10 (Ten) Questions Out Of 15 (Fifteen) In Each Subject.

- 136.** Identify the likely organisms (a), (b) (c) and (d) in the food web shown below



- (1) (a) - squirrel, (b) - cat, (c) - rat, (d) - pigeon
- (2) (a) - deer, (b) - rabbit, (c) - frog, (d) - rat
- (3) (a) - dog, (b) squirrel, (c) - bat, (d) - deer
- (4) (a) - rat, (b) - dog, (c) tortoise, (d) - crow

- 137.** Name the unlabelled areas 'A' and 'B' of the pie chart representing the biodiversity showing their proportionate number of species of major taxa.



- (1) A = Bryophytes B = Gymnosperms
- (2) A = Ferns B = Algae
- (3) A = Pteridophytes B = Ferns
- (4) A = Ferns B = Bryophytes

- 138.** 'Callase' enzyme which dissolve callose of tetrad of microspores to separate 4 microspores is provided by-

- (1) Pollen grains
- (2) Middle layer
- (3) Tapetum
- (4) Endothecium

- 139.** Filiform apparatus is the feature of :

- (1) Egg
- (2) Synergids
- (3) Antipodal
- (4) Ovule

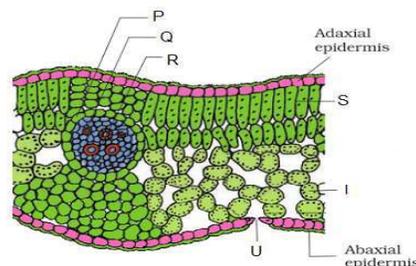
- 140.** The coconut water from tender coconut that you are familiar with is

- (1) Nuclear endosperm
- (2) Cellular endosperm
- (3) Helobial endosperm
- (4) All of the above

- 141.** Vascular bundles in monocotyledons are considered closed because :

- (1) Cambium is absent
- (2) There are no vessels with perforations
- (3) Xylem is surrounded all around by phloem
- (4) A bundle sheath surrounds each bundles

- 142.** Section of a dicot leaf is given. Select the option with **correct** identification of three of the given labeled parts :



- (1) Q = Xylem, S = Spongy mesophyll, U = Stoma
- (2) R = Phloem, T = Spongy mesophyll, U = Stoma
- (3) P = Bundle sheath, Q = Xylem, U = Phloem
- (4) Q = Phloem, R = Xylem, U = Spongy mesophyll

- 143.** Non-sense codon takes part in -

- (1) Terminating message of gene controlled protein synthesis
- (2) Formation of unspecified amino acids
- (3) Conversion of sense DNA into non-sense one
- (4) Releasing t-RNA from polypeptide chain.

- 144.** The separated bands of DNA are cut from the agarose gel and extracted from the gel piece. This process is known as :

- (1) Elution
- (2) Transduction
- (3) Down streaming
- (4) Transformation



145. A human female with Turner's syndrome-

- (1) has 45 chromosomes with XO
- (2) Has one additional X-chromosome
- (3) exhibits male characters
- (4) Is able to produce children with normal husband

146. What percent of gametes of a dihybrid plant (RrYy) will not have atleast one dominant allele is F₁ generation ?

- (1) 12.5%
- (2) 25%
- (3) 75%
- (4) 50%

147. Present level of atmospheric CO₂ is limiting factor for the process of photosynthesis in C₃ plants as they show

- (1) Kranz anatomy
- (2) Oxygenation of RuBP
- (3) Final CO₂ fixation in mesophyll cells
- (4) Carboxylation of RuBP

148. Choose the group of minerals helps in evolution of oxygen during the light reaction of photosynthesis:

- (1) Cu, Mn, Zn
- (2) Mn, Cl, Ca
- (3) Fe, Ca, Zn
- (4) CO, Ni, Mn

149. During conversion of succinyl Co-A to succinic acid a molecule of GTP is formed, that is known as

- (1) Oxidative phosphorylation
- (2) Substrate level phosphorylation
- (3) Photophosphorylation
- (4) Terminal oxidation

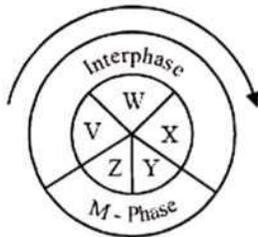
150. Population growth of a country depends upon

- (1) Birth and death rates
- (2) Death rate and emigration
- (3) Birth rate and emigration
- (4) All the above

Zoology -Section A

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

151. The diagram below shows a cell cycle.



Which of the following process occur during V ?

- (1) Replication of DNA
- (2) Replication of centrioles
- (3) Chromosomes condense and become shorter and thicker
- (4) High metabolic rate and synthesis of proteins and cellular organelles.

152. In sewage treatment plant the activated sludge is further treated in :

- (1) Aerobic sludge digester
- (2) Anaerobic sludge digester
- (3) Primary treatment
- (4) Tertiary treatment

153. Restriction endonucleases :

- (a) Are molecular scissor
 - (b) Are very useful in genetic engineering
 - (c) Cut the DNA at any sites
 - (d) Are used naturally in a bacterial cell to defend against foreign DNA
- (1) a, b, d
 - (2) b, c
 - (3) c, d
 - (4) a, b, c, d



- 154.** Pick the **incorrect** match
- (1) Biolistics - gene transfer method
 - (2) Antibiotic resistant genes - selectable markers
 - (3) EcoRI - Plasmid
 - (4) Agrobacterium - Natural genetic engineer
- 155.** The Polymerase Chain Reaction (PCR) is technique that is used for
- (1) in vivo replication of specific DNA sequence using thermostable DNA polymerase.
 - (2) in vitro synthesis of mRNA.
 - (3) in vitro replication of specific DNA sequence using thermostable DNA polymerase.
 - (4) in vivo synthesis of mRNA.
- 156.** Golden rice is a promising transgenic crop. When released for cultivation, it will help in
- (1) Alleviation of vitamin A deficiency
 - (2) Pest resistance
 - (3) Herbicide tolerance
 - (4) Producing a petrol-like fuel from rice
- 157.** RNA interference is used for which of the following purposes in the field of biotechnology?
- (1) To reduce post harvest losses
 - (2) To develop a plant tolerant to abiotic stresses
 - (3) To develop a pest resistant plant against infestation by nematode
 - (4) To enhance the mineral usage by the plant
- 158.** Which of the following statements is not true for plasma membrane?
- (1) It is present in both plant and animal cells
 - (2) Lipid is present as a bilayer in it
 - (3) Proteins are present integrated as well as loosely
 - (4) Carbohydrate is never found in it
- 159.** What is common for plasmids and mesosomes?
- (1) Both of these are made of nucleotides
 - (2) Both of these are concerned with molecular respiration
 - (3) Both of these are found in prokaryotes
 - (4) Both of these are found in yeast
- 160.** Choose the incorrect pair
- (1) Cilium or flagellum-9+2 arrangement
 - (2) Axonema- core of cilium or flagellum
 - (3) Basal body-Centriole like structure
 - (4) Radial spokes-connect two central microtubules
- 161.** Microtubules are polar structure, which polymerizes to form spindle fiber. The chromosomal spindle fiber has its different polar end:
- (1) Positive polar end at centrosome, negative end at centromere
 - (2) Both polar ends at centrosome
 - (3) Both polar ends at centromere
 - (4) Negative polar end at centrosome, positive end at centromere
- 162.** The law of conservation of energy is applicable on :-
- (1) Cell respiration
 - (2) Photosynthesis
 - (3) β -oxidation of fats
 - (4) All the above
- 163.** New species develop due to
- (1) Isolation and mutation
 - (2) Competition and mutation
 - (3) Isolation and competition
 - (4) Isolation and variation
- 164.** Role of mutation in evolution is :-
- (1) Genetic drift
 - (2) Reproductive isolation
 - (3) Genetic variation
 - (4) None of the above
- 165.** Long neck of Giraffe or camel due to:-
- (1) More number of cervical vertebra
 - (2) More length of cervical vertebra
 - (3) Presence of pads between cervical vertebra
 - (4) Presence of extra bony plates
- 166.** Superovulation and embryo transplantation techniques are being used for improving
- (1) Quality of milk breeds of cows
 - (2) Breeds of sheep
 - (3) Breeds of goats
 - (4) All of these



- 167.** Which of the following vitamin is fat soluble as well as an anti-oxidant:-
 (1) Vitamin – 'C' (2) Vitamin – 'A'
 (3) Vitamin – 'D' (4) Vitamin – 'E'
- 168.** Choose the **correct** pair :-
 (1) Physical barriers – HCl in stomach, saliva in mouth
 (2) Cellular barriers – NK cells, Monocytes
 (3) Physiological barriers – Mucosa of gut and Urinogenital tract
 (4) Cytokine barriers – Toxoids
- 169.** Which of the following is non-pathogenic bacteria of colon ?
 (1) Escherichia coli (2) Balantidium coli
 (3) Entamoeba coli (4) Enterobius vermicularis
- 170.** Open circulatory system is present in -
 I. Arthropods II. Annelida
 III. Chordates IV. Mollusca
 (1) III only (2) III and II
 (3) I and II (4) I and IV only
- 171.** The sound of lub is produced during closure of—
 (1) Bicuspid valve (2) Tricuspid valve
 (3) Semilunar valve (4) Both (A) and (B)
- 172.** Which of these has a closed type of circulatory system –
 (1) Cockroach (2) Tadpole/Fish
 (3) Mollusca (4) Scorpion
- 173.** Hormones secreted by the placenta to maintain pregnancy are :
 (1) hCG, hPL, progesterones, prolactin
 (2) hCG, hPL, estrogens, relaxin, oxytocin
 (3) hCG, hPL, progesterones, estrogens
 (4) hCG, progesterones, estrogens, glucocorticoids
- 174.** Fetal movements and appearance of hair on head occur in month of pregnancy :
 (1) Fifth (2) Sixth (3) Third (4) Second
- 175.** Read the following statements and find out the incorrect statement.
 (a) Androgens are produced by Sertoli cells
 (b) Spermatozoa get nutrition from Sertoli cells
 (c) Leydig cells are found in ovary
 (d) Leydig cells synthesise androgens
 (e) Oogenesis takes place in corpus luteum
 (f) Menstrual cycle ceases during pregnancy
 (g) Presence or absence of a hymen is not a reliable indicator of virginity or sexual experience
 (1) a, c and e (2) b, d f and g
 (3) a, b, c and e (4) a, c, e and g
- 176.** Which of the following structures are situated in the cortical region of the kidney?
 (I) Malpighian corpuscle
 (II) PCT (Proximal Convoluted Tubules)
 (III) DCT (Distal Convoluted Tubules)
 (IV) Loop of Henle
 (V) Collecting duct
 (1) II, IV and V (2) III, IV and V
 (3) II, III and IV (4) I, II and III
- 177.** Substances like amino acids and glucose in the filtrate are reabsorbeda.... in the tubular epithelial cells whereas the nitrogenous wastes are absorbed byb.... transport :
 (1) a—actively, b—passive (2) a—passively, b—active
 (3) a—actively, b—active (4) a—passively, b—passive
- 178.** ATPase enzyme needed for muscle contraction is located in -
 (1) Actin (2) Tropomyosin
 (3) Myosin (4) Troponin
- 179.** The characteristics and an example of a synovial joint in humans is :-
- | Characteristics | Examples |
|---------------------------------------------------------|-------------------------------------------|
| A. Fluid cartilage between two bones, limited movements | Knee joint |
| B. Fluid filled between two joints, provides cushion | Skull bones |
| C. Fluid filled synovial cavity between two bones | Joint between Humerus and pectoral girdle |
| D. Lymph filled between two bones, limited movement | Gliding joint between carpals |
- (1) B (2) A
 (3) D (4) C



190. Choose the correct statements:

- (1) Presence of more than one recognition site for one enzyme, within vector generate several fragments, which will complicate gene cloning.
- (2) Ligation of alien DNA is carried out at a restriction site present in 'Ori'.
- (3) In P^{BR322} one antibiotic resistance gene helps in selection of transformants, whereas the other helps in cloning.
- (4) **Rop** codes for proteins involved in ligation of foreign DNA

191. Maximum number of existing transgenic animals is-

- (1) Fish
- (2) Mice
- (3) Cow
- (4) Pig

192. In the presence of Ca^{2+} channel blockers, which of the following will be true?

- (1) Neurotransmitter is released but Na^+ channel of post-synaptic neuron will not open
- (2) Neurotransmitter is not released but Na^+ channel of post-synaptic neuron will open up
- (3) Neurotransmitter is released but K^+ channel of post-synaptic neuron open up
- (4) Neither neurotransmitter is released nor the Na^+ channel of post-synaptic neuron open up

193. The "butter fly" like structure surrounding the central of human's spinal cord is called :-

- (1) Funiculus
- (2) White matter
- (3) Horn
- (4) Gray matter

194. Which of the following options illustrates the distribution of Na^+ and K^+ ions in a section of non-myelinated axon which is at resting potential?

- (1)
- (2)
- (3)
- (4)

195. What will be the value of P_{O_2} and P_{CO_2} in the atmospheric air compared to those in the alveolar air ?

- (1) P_{O_2} lesser, P_{CO_2} higher
- (2) P_{O_2} higher, P_{CO_2} lesser
- (3) P_{O_2} higher, P_{CO_2} higher
- (4) P_{O_2} lesser, P_{CO_2} lesser

196. In the given table which animal is **correctly** matched with its taxon group and character.

- (1) **Animal**-Balanoglossus, **Taxon**-Hemichordata, **Character**-Circulatory system is absent
- (2) **Animal** - Hippocampus, **Taxon** - Chondrichthyes, **Character** - Air bladder is present
- (3) **Animal** - Chameleon, **Taxon** - Amphibia, **Character** - Epidermal scales
- (4) **Animal** - Canis, **Taxon** - Mammalia, **Character** - Possessing Hair

197. Which one of the following animals has two separate circulatory pathways?

- (1) Shark
- (2) Frog
- (3) Lizard
- (4) Whale

198. 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

199. Match the following -

a. Cnidoblasts	(i)	Help in locomotion
b. Comb plates	(ii)	Rasping organ
c. Proboscis gland	(iii)	Balancing organ
d. Radula	(iv)	anchorage, defense, capture prey
e. Statocyst	(v)	Help in excretion

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



200. The drugs, which are commonly abused are opioid, cannabinoids and coca alkaloid. Majority of these are obtained from while some are obtained from...

- (1) Fungi, non-flowering plants
- (2) Flowering plants, fungi
- (3) Fungi, flowering plants
- (4) Non flowering plants, fungi

STEPS TO APPEAR FOR THE TEST & GET RESULTS



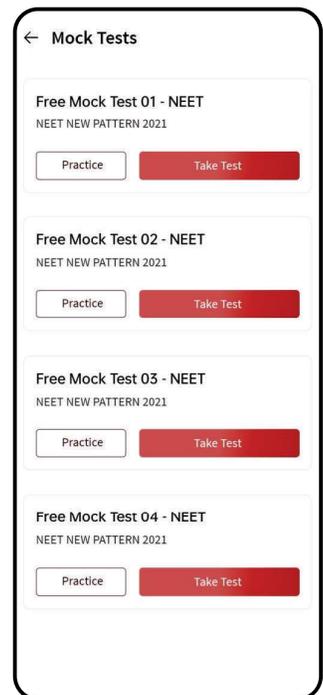
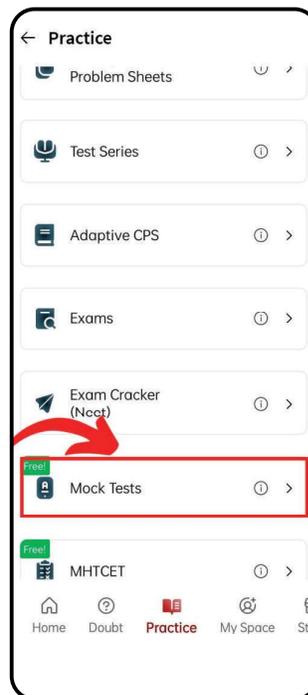
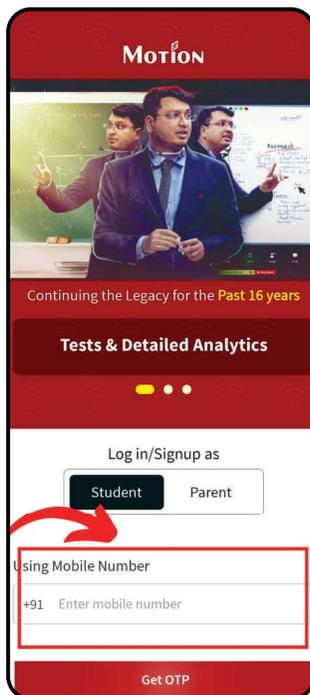
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