# SAMPLE PAPER # 05

## TARGET : PRE-MEDICAL 2022

Test Type : **SAMPLE PAPER** Test Pattern : **NEET (UG)**

## ANSWER KEY

| Q. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A. | 3 | 3 | 4 | 3 | 1 | 2 | 3 | 1 | 2 | 4 | 3 | 1 | 4 | 3 | 2 | 2 | 3 | 2 | 2 | 2 | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 1 | 1 | 4 |
| Q. | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
| A. | 2 | 4 | 3 | 2 | 1 | 2 | 2 | 3 | 2 | 1 | 3 | 4 | 1 | 4 | 4 | 2 | 3 | 3 | 3 | 1 | 1 | 3 | 3 | 2 | 2 | 3 | 1 | 2 | 1 | 2 |
| Q. | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 |
| A. | 3 | 2 | 4 | 4 | 2 | 3 | 1 | 4 | 3 | 4 | 3 | 4 | 4 | 3 | 1 | 4 | 3 | 2 | 4 | 2 | 2 | 2 | 3 | 2 | 1 | 3 | 4 | 4 | 4 | 4 |
| Q. | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 | 101 | 102 | 103 | 104 | 105 | 106 | 107 | 108 | 109 | 110 | 111 | 112 | 113 | 114 | 115 | 116 | 117 | 118 | 119 | 120 |
| A. | 1 | 3 | 3 | 3 | 2 | 2 | 4 | 1 | 4 | 3 | 3 | 3 | 3 | 4 | 4 | 3 | 3 | 2 | 1 | 2 | 2 | 4 | 2 | 1 | 2 | 3 | 1 | 4 | 2 | 1 |
| Q. | 121 | 122 | 123 | 124 | 125 | 126 | 127 | 128 | 129 | 130 | 131 | 132 | 133 | 134 | 135 | 136 | 137 | 138 | 139 | 140 | 141 | 142 | 143 | 144 | 145 | 146 | 147 | 148 | 149 | 150 |
| A. | 3 | 4 | 3 | 3 | 4 | 4 | 4 | 4 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 2 | 2 | 4 | 4 | 3 | 4 | 2 | 3 | 4 | 4 | 1 | 2 | 1 | 2 | 2 |
| Q. | 151 | 152 | 153 | 154 | 155 | 156 | 157 | 158 | 159 | 160 | 161 | 162 | 163 | 164 | 165 | 166 | 167 | 168 | 169 | 170 | 171 | 172 | 173 | 174 | 175 | 176 | 177 | 178 | 179 | 180 |
| A. | 1 | 3 | 1 | 3 | 1 | 1 | 1 | 4 | 4 | 4 | 2 | 3 | 2 | 3 | 3 | 1 | 3 | 1 | 1 | 4 | 2 | 4 | 1 | 4 | 4 | 3 | 2 | 3 | 2 | 3 |
| Q. | 181 | 182 | 183 | 184 | 185 | 186 | 187 | 188 | 189 | 190 | 191 | 192 | 193 | 194 | 195 | 196 | 197 | 198 | 199 | 200 | | | | | | | | | | |
| A. | 3 | 1 | 4 | 2 | 1 | 2 | 1 | 1 | 3 | 4 | 2 | 1 | 3 | 3 | 3 | 3 | 3 | 4 | 1 | 2 | | | | | | | | | | |

## HINT – SHEET

### SUBJECT : PHYSICS

#### SECTION - A

**1. Ans ( 3 )**

$$[k] = \left[\frac{d^4x}{dt^4}\right] = \frac{[x]}{[T^4]} = \frac{[L]}{[T^4]} = [LT^{-4}]$$

**2. Ans ( 3 )**

$$26 = u + \frac{19a}{2} \quad ...(1)$$

$$28 = u + \frac{21a}{2} \quad ...(2)$$

$\Rightarrow$ u = 7 and a = 2

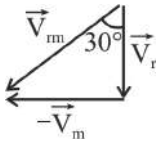
**3. Ans ( 4 )**

$V_m = 10$ km/hr $\hat{i}$

$V_r = -V$ km/hr $\hat{j}$

$\vec{V}_{rm} = \vec{V}_r - \vec{V}_m = \vec{V}_r + (-\vec{V}_m)$

Using triangle law of addition,



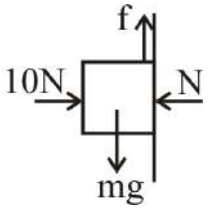

$$\tan 30° = \frac{|-\vec{V}_m|}{|\vec{V}_r|}$$

$$\Rightarrow \frac{1}{\sqrt{3}} = \frac{10}{|\vec{V}_r|} \Rightarrow |\vec{V}_r| = 10\sqrt{3} \text{ Km/hr}$$

So, $\vec{V}_{rm} = \vec{V}_r - \vec{V}_m$

$= -10\sqrt{3}\,\hat{j} - 10\hat{i}$

**4. Ans ( 3 )**




N = 10 (In horizontal direction)

$\Rightarrow$ f = mg (but f = $\mu$N)

$\Rightarrow \mu N = mg \Rightarrow (0.2)(10) = mg$

$\Rightarrow$ mg = 2N

**5. Ans ( 1 )**

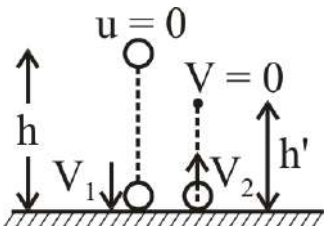
$F_C = \frac{mv^2}{r} = \frac{mr^2\omega^2}{r} = mr\omega^2$ $\quad T_{max} = 10$ N

$T_{max} = F_{cp} \Rightarrow 10 = mr\omega^2$

$\omega^2 = 400$

$\Rightarrow \omega = 20$ rad/sec.

**6. Ans ( 2 )**




Let ball hit floor by $V_1$ just before first collision.

Energy conservation :

$\frac{1}{2}mV_1^2 = mgh$

$\Rightarrow V_1 = \sqrt{2gh}$ ....(1)

$e = \frac{V_2}{V_1}$

[$V_2$ = Velocity with which ball rises after I$^{st}$ collision]

Let it attains height h' after first collision.

Energy conservation

$\frac{1}{2}mV_2^2 = mgh'$

$\Rightarrow \frac{1}{2}m(eV_1)^2 = mgh'$

$\Rightarrow \frac{1}{2}me^2(2gh) = mgh'$

$\Rightarrow h' = e^2h$ ....(2)

So, Total distance travelled before second collision = h + 2h'

$= h + 2e^2h = h(1 + 2e^2)$

**7. Ans ( 3 )**

$V = \sqrt{\frac{2gh}{1 + \frac{K^2}{R^2}}} = \sqrt{\frac{2g\ell \sin\theta}{1 + \frac{2}{5}}}$

$V = \sqrt{\frac{10}{7}g\ell \sin\theta}$

**8. Ans ( 1 )**

$\tau = 31.4 = I\alpha = I \times 4\pi$

$\therefore I = \frac{31.4}{4\pi} = 2.5$ kg-m$^2$

**9. Ans ( 2 )**

$\vec{E}_g = \frac{-dV}{dx}\hat{i} = -8x\hat{i}$

8x along –ve x-axis.

**10. Ans ( 4 )**

According to COME,

$-\frac{GMm}{R} + \frac{1}{2}mv^2 = 0+0$

$\frac{1}{2}mv^2 = \frac{GMm}{R} \Rightarrow v = \sqrt{\frac{2GM}{R}} = \sqrt{\frac{2GMR}{R^2}}$

$= \sqrt{2gR}$

**11. Ans ( 3 )**

$B = \frac{-P}{\left(\frac{\Delta V}{V}\right)} \Rightarrow \frac{-\Delta V}{V} = \frac{P}{B}$

$= \frac{10^5}{1.25 \times 10^{11}} = 8 \times 10^{-7}$

**12. Ans ( 1 )**

Rise $h = \frac{2T\cos\theta}{r\rho g}$

$g_{moon} = \frac{1}{6}g_{earth} \Rightarrow h_{moon} = 6\, h_{earth}$

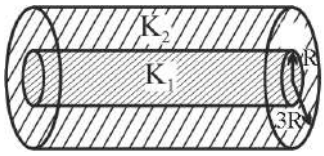
**13. Ans ( 4 )**

$\frac{x - MP}{BP - MP} = \frac{^oC}{100}$

$\Rightarrow \frac{x - 39}{239 - 39} = \frac{39}{100}$

$\Rightarrow x = 117\ ^\circ W$

**14. Ans ( 3 )**




Both are considered to be in parallel.

So, $\frac{1}{R_{eq}} = \frac{1}{R_1} + \frac{1}{R_2}$ .....(1)

$R_1 = \frac{1}{K_1}\frac{\ell}{(\pi R^2)}$

$R_2 = \frac{1}{K_2}\frac{\ell}{[\pi(3R^2) - \pi R^2]}$

$R_{eq} = \frac{1}{K_{eq}}\frac{\ell}{\pi(3R)^2}$

So, eq.(1) becomes

$\frac{K_{eq}\pi(9R^2)}{\ell} = \frac{K_1\pi R^2}{\ell} + \frac{K_2(8\pi R^2)}{\ell}$

$\Rightarrow 9K_{eq} = K_1 + 8K_2$

$K_{eq} = \frac{K_1 + 8K_2}{9}$

**15. Ans ( 2 )**

$$\frac{P}{\rho} = \frac{RT}{M_w}$$

$$\rho = \frac{PM_w}{RT}$$

$$\rho = \frac{Pm}{kT} \quad \left[\begin{array}{l} M_w = mN_A \\ \frac{R}{N_A} = k \end{array}\right]$$

$$\frac{R}{N_A} = k$$

**16. Ans ( 2 )**

$$\Delta U = -W = \frac{nR(T_1 - T_2)}{1-\gamma}$$

$$= \frac{1 \times 8.3(-8)}{1-1.4} = 166 \text{ J}$$

**17. Ans ( 3 )**

$$W = \frac{\pi}{2}(20)(20) = 200\,\pi J$$

**18. Ans ( 2 )**

$$A = A_0\, e^{-\frac{b}{2m}t}$$

$$\frac{A_0}{3} = A_0\, e^{-\frac{b}{2m}(20)}$$

$$A = A_0\, e^{-\frac{b}{2m}(40)}$$

$$= A_0\left[e^{-\frac{b}{2m}(20)}\right]^2$$

$$= A_0\left[\frac{1}{3}\right]^2 = \frac{A_0}{9}$$

**20. Ans ( 2 )**

$y_1 = a \sin(kx - \omega t)$

$y_2 = a \sin(kx + \omega t)$

According to the principle of superposition, the resultant wave is

$y = y_1 + y_2$

$= a \sin(kx - \omega t) + a \sin(kx + \omega t)$

Using trigonometric identity

$\sin(A + B) + \sin(A - B) = 2 \sin A \cos B$

we get

$y = 2a \sin kx \cos \omega t$

**21. Ans ( 4 )**

If outside charge becomes zero, then also there is electric field due to inside charge.

**22. Ans ( 4 )**

If two charged are joined by wire and then removed, then charge equally distributed on both.

So, finally, $q_1 = \frac{Q}{2}$ and $q_2 = \frac{Q}{2}$

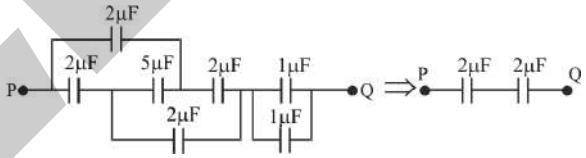
So, $F \propto q_1 q_2$

So, $F_{finally} \propto \frac{Q}{2} \times \frac{Q}{2}$

$F_{initially} \propto (Q)(2Q)$

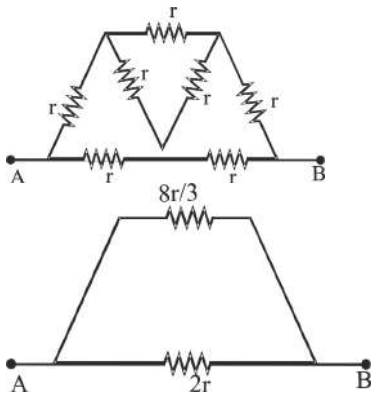
$\Rightarrow \frac{F_{finally}}{F_{initially}} = \frac{1}{8} \Rightarrow F_{finally} = \frac{F}{8}$

**23. Ans ( 2 )**




$\Rightarrow C_{PQ} = 1\mu F$

**24. Ans ( 4 )**




Given :

$R_{AB} = \frac{8}{7}r$ [r = 1 ohm]

$R_{AB} = \frac{8}{7}r$

**25. Ans ( 4 )**

Equivalent EMF of the two batteries x1 and x2 in parallel combination is given as

$$\xi = \frac{\xi_1/r_1 + \xi_2/r_2}{1/r_1 + 1/r_2}$$

$$\Rightarrow \xi = \frac{(2/2) + (4/6)}{(1/2) + (1/6)} \Rightarrow \boldsymbol{\xi} = 2.5V$$

At balancing length we have

$$V_{AN} = \boldsymbol{\xi}$$

$$\Rightarrow \quad J_{AN}\,(R_{AN}) = \boldsymbol{\xi}$$

$$\Rightarrow \quad \left(\frac{12}{4 + 4 \times 4}\right)(4)\,(l) = 2.5 \Rightarrow l = \frac{25}{24}\text{m}$$

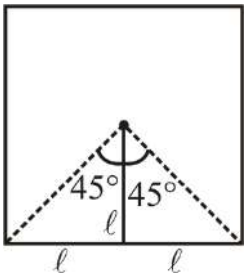
**26. Ans ( 1 )**

$V = i\,(R + S)$

$20 = (0.01)\,(20 + S)$

$S = 1980\ \Omega$

**27. Ans ( 1 )**




B at centre due to one side

$$B_1 = \frac{\mu_0 i}{4\pi\ell}(\sin 45° + \sin 45°)$$

$$= \frac{\sqrt{2}\,\mu_0 i}{4\pi\ell}$$

B at centre due to all 4 side

$$B_C = 4B_1 = \frac{\sqrt{2}\mu_0 i}{\pi\ell}$$

due to 'n' turns ; $B_C = \dfrac{\sqrt{2}\mu_0 ni}{\pi\ell}$

**28. Ans ( 1 )**

As $\vec{F} = q(\vec{V} \times \vec{B})$

$m\vec{a} = q(\vec{V} \times \vec{B})$

or $\vec{a} = \dfrac{q}{m}(\vec{V} \times \vec{B})$

So, $\vec{a} \perp \vec{B} \Rightarrow \vec{a} \cdot \vec{B} = 0$

$\Rightarrow 2x + 3 - 4 = 0$

$\Rightarrow \boxed{x = 0.5}$

**29. Ans ( 1 )**

$\cot^2\theta = \cot^2\theta_1 + \cot^2\theta_2$ .

$$\Rightarrow \cot\theta_2 = \sqrt{\cot^2\theta - \cot^2\theta_1}$$

$$\cot\theta_2 = \sqrt{\cot^2 30° - \cot^2 45°} = \sqrt{2}$$

$$\Rightarrow \theta_2 = \cot^{-1}(\sqrt{2})$$

**30. Ans ( 4 )**

All 4 rods becomes parallel and EMF across each $= \dfrac{1}{2}B\omega\ell^2$.

**31. Ans ( 2 )**

$\because Z^2 = A^2 + B^2$

$\therefore [Z] = [A] = [B]$

$\therefore [AB] = [Z]^2 = [\text{ohm}]^2$

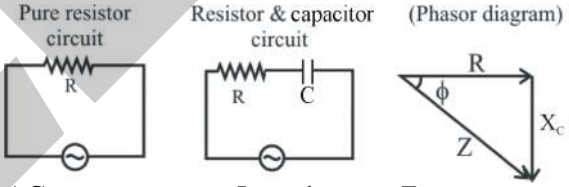
Now,

$$\text{ohm} \equiv \frac{V}{i} \equiv \frac{\text{work}}{\text{charge} \times \text{current}} \equiv \frac{ML^2T^{-2}}{(AT)\,A}$$

$$= ML^2T^{-3}A^{-2}$$

$\therefore [AB] = [M^2L^4T^{-6}A^{-4}]$

**32. Ans ( 4 )**




AC source  Impedance = Z

$P' = V \,.\, I \,.\, \cos\phi$

$$P = \frac{V^2}{R} \qquad P' = V \,.\, \left[\frac{V}{Z}\right] \,.\, \cos\phi$$

$$\Rightarrow V^2 = PR \qquad P' = \frac{V^2}{Z} \cdot \frac{R}{Z}$$

(From phasor diagram)

$$P' = \frac{(PR)R}{Z^2}$$

$$P' = \left(\frac{R}{Z}\right)^2 P$$

**33. Ans ( 3 )**

Theoritical

**34. Ans ( 2 )**

$$m_\infty = \frac{v_0}{u_0} \times \frac{D}{f_e}$$

From $\dfrac{1}{f_0} = \dfrac{1}{v_0} - \dfrac{1}{u_0}$

$$\Rightarrow \frac{1}{(+1.2)} = \frac{1}{v_0} - \frac{1}{(-1.25)} \Rightarrow v_0 = 30\text{ cm}$$

$$\therefore \quad |m_\infty| = \frac{30}{1.25} \times \frac{25}{3} = 200$$

**35. Ans ( 1 )**

$$\frac{1}{v}-\frac{3}{2(30)}=\frac{1-3/2}{20}$$

$$\frac{1}{v}-\frac{1}{20}=\frac{-1}{40}$$

$$\frac{1}{v}=\frac{-1}{40}+\frac{1}{20}=\frac{1}{40}$$

$v = 40$ cm

## SECTION - B

**37. Ans ( 2 )**

$\mu = \tan\theta_P \Rightarrow \mu = \tan 60°$

$\mu = \sqrt{3}$

**38. Ans ( 3 )**

$$\frac{a_1}{a_2}=\frac{4}{3}\Rightarrow\frac{I_1}{I_2}=\frac{a_1^2}{a_2^2}=\frac{16}{9}$$

$$\frac{I_{max}}{I_{min}}=\frac{\left(\sqrt{I_1}+\sqrt{I_2}\right)^2}{\left(\sqrt{I_1}-\sqrt{I_2}\right)^2}=\frac{49}{1}$$

**39. Ans ( 2 )**

$$R = R_0\left(\frac{1}{2}\right)^{t/T_n}$$

$$322 = R_0\left(\frac{1}{2}\right)^{4/T_n} \quad ....(1)$$

$$161 = R_0\left(\frac{1}{2}\right)^{36/T_n} \quad ....(2)$$

eq$^n$ (2) ÷ (1)

$$\left(\frac{1}{2}\right)^1=\left(\frac{1}{2}\right)^{\left(\frac{36-4}{T_n}\right)}$$

$$1=\frac{36-4}{T_n}$$

$T_n = 32$ min

**40. Ans ( 1 )**

Total energy = K.E. + Rest mass energy

= 0.511 MeV + 3.045 MeV = 3.556 MeV

**41. Ans ( 3 )**

$$2\pi r_n = n\lambda \Rightarrow r_n = \frac{n\lambda}{2\pi}$$

$$r_3 = \frac{3\lambda}{2\pi}$$

**42. Ans ( 4 )**

Photon exerts pressure

$$P = \frac{I}{C}$$ (for pure absorption)

or $P = \frac{2I}{C}$ (for pure reflection)

**43. Ans ( 1 )**

voltage drop at 1 kΩ = 20 –12 = 8V

$$\therefore \text{current through } 1k\Omega = \frac{8}{10^3} = 8mA$$

$$\text{and current through } 2k\Omega = \frac{12}{2\times 10^3} = 6mA$$

$\therefore I_z = 8 - 6 = 2$ mA

**44. Ans ( 4 )**

Total $A_v = A_{v_1} \times A_{v_2}$

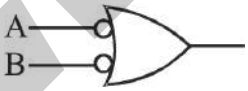
$= 10 \times 20 = 200$

$$\text{So, } \frac{\text{Output Signal}}{\text{Input Signal}} = A_v$$

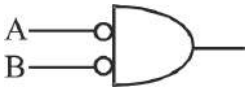
$$\Rightarrow \frac{\text{Output Signal}}{0.01} = 200$$

$\Rightarrow$ Output Signal = 2V

**45. Ans ( 4 )**




$Y = \overline{A} + \overline{B} = \overline{A \cdot B}$ [NAND]




$Y = \overline{A} \cdot \overline{B} = \overline{A + B}$ [NOR]

**46. Ans ( 2 )**

Let the angular velocity be ω, when the insect strikes the rod at C.

By the conservation of angular momentum about O

$$Mv\frac{L}{4} = I_O\omega = \left[\frac{ML^2}{12}+M\left(\frac{L}{4}\right)^2\right]\omega$$

$$= \frac{7}{48}ML^2\omega$$

$$\omega = \frac{12v}{7L}$$

**47. Ans ( 3 )**

$F = -8 \sin 2x$ for small oscillation $F = -16x$

$K = 16 \quad T = \frac{2\pi}{4} = \frac{\pi}{2}$

**48. Ans ( 3 )**

$W_{ext} = q\,[V_f - V_i]$

$= (2\mu C)\,\{(-5V) - (+10V)\}$

$= -30\mu J$

**49. Ans ( 3 )**

$$L = \frac{\mu_0 N^2 A}{\ell}$$

$$= \frac{4\pi \times 10^{-7} \times (1200)^2 \times (12 \times 10^{-4})}{48\pi \times 10^{-2}}$$

$= 1.44$ mH

**50. Ans ( 1 )**

Optical path $= \mu \times \ell$

$\Rightarrow \mu_1 \ell_1 = \mu_2 \ell_2$

$\Rightarrow \frac{4}{3} \times (6\text{ cm}) = \mu \times (4\text{ cm})$

$\Rightarrow \boxed{\mu = 2}$

## SUBJECT : CHEMISTRY

### SECTION - A

**51. Ans ( 1 )**

Atomicity = 1

$$\text{Minimum molecular mass} = \frac{\text{atomic mass}}{\%\text{ of element}} \times 100$$

**52. Ans ( 3 )**

Electronic configuration of Fe

$1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^2\ 3d^6$

$n = 3,\ \ell = 2 \Rightarrow 3d$

6 $e^-$ are present in 3d

**53. Ans ( 3 )**

$$K_1 = \frac{[NO_2]}{[NO][O_2]^{1/2}} \quad ...(1)$$

$$K_2 = \frac{[NO]^2[O_2]}{[NO_2]^2} \quad ...(2)$$

$$\therefore K_2 = \frac{1}{K_1^2}$$

**54. Ans ( 2 )**

$Q_{SP} = [Ag^+]^2\,[CrO_4^{-2}]$ for precipitation

$[Ag^+]^2\,[CrO_4^{-2}] > K_{SP}$

**55. Ans ( 2 )**

For combustion of 1 mole of benzene

$\Delta n_g = -1.5$

$\Delta H = \Delta U + \Delta n_g RT$

$$\Rightarrow -3271 = \Delta U - \frac{1.5 \times 8.314 \times 300}{1000}$$

$\Rightarrow \Delta U = -3267.25$ kJ

For 1.5 mole combustion of benzene

$\Delta U = -3267.25 \times 1.5$

$= -4900.88$ kJ

**56. Ans ( 3 )**

$$\text{Reducing power} \propto \frac{1}{\text{oxidation number of central atom}}$$

**57. Ans ( 1 )**

$$d = \frac{M_w}{22.4}$$

$$= \frac{64}{22.4}\,g/L$$

**60. Ans ( 2 )**

$R = k(A)^\circ$

$R = k$

**61. Ans ( 3 )**

In aqueous solution $Li^+$ ion has maximum effective size due to maximum solvation while $Cs^+$ ion has minimum effective size.

**62. Ans ( 2 )**

$[Pt\ (NH_3)_4Cl_4]$ Gives n moles of ions on complete ionisation i.e. a = 1

$\Delta T = K_f \times \text{molality} \times (1 - \alpha + n\alpha)$

$0.0054 = 1.80 \times 0.001 \times (n)$

$\therefore \quad n = 3$

Thus, $[Pt(NH_3)_4Cl_2]Cl_2 \rightarrow [Pt(NH_3)_4Cl_2]^{2+} + 2Cl^-$

| 1 | 0 | 0 |
|---|---|---|
| 0 | 1 | 2 |

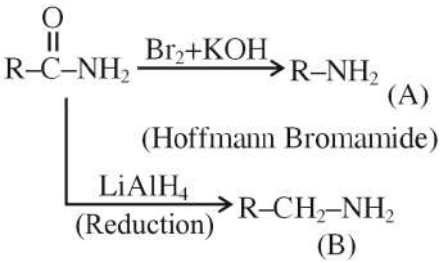
**64. Ans ( 4 )**

Phenol and benzoic acid can be distinguished by $NaHCO_3$ because phenol does not liberate $CO_2$ gas, while benzoic acid liberate $CO_2$ on reaction with $NaHCO_3$.

Phenol on reaction with neutral $FeCl_3$ give violet colours complex whereas Benzoic acid give buff coloured ppt. on reaction with neutral $FeCl_3$

Phenol give white ppt. on reaction with $Br_2$ + $H_2O$ while benzoic acid does not.

**65. Ans ( 2 )**

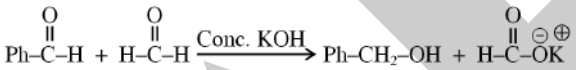



(A) and (B) are homologues.

**66. Ans ( 3 )**

Aldehyde gives Tollen's test

**67. Ans ( 1 )**



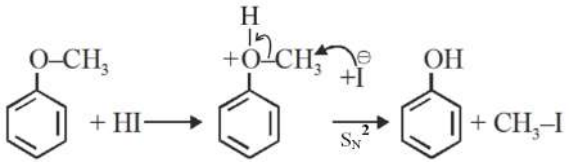

more relative towards NAR so oxidised.

Above reaction is an example of cannizaro reaction.

**68. Ans ( 4 )**

–OH is more activating than $–CH_3$ so electrophile $Br^{\oplus}$ attack according to –OH.

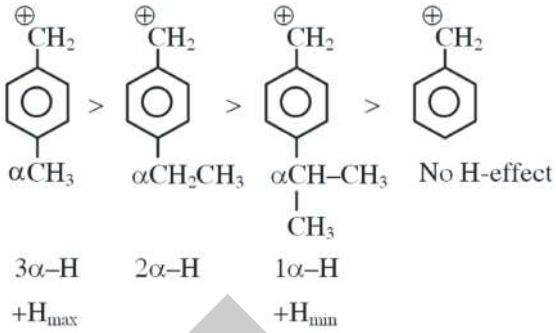
**69. Ans ( 3 )**



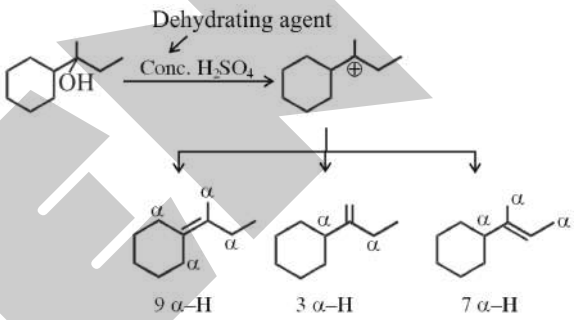

**70. Ans ( 4 )**

Reactivity towards $S_N1 \propto$ stability of carbocation.

stability of carbocation is.




**71. Ans ( 3 )**




(most stable)

(major product)

**77. Ans ( 3 )**

$$HCOOH \xrightarrow[\text{conc. } H_2SO_4]{\Delta} CO + H_2O$$

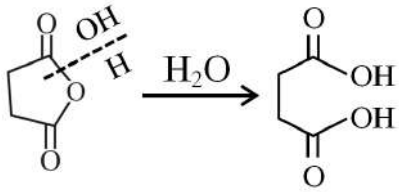
**83. Ans ( 3 )**

$e^-$ density in metal ion $\propto$ synergic bond $\propto$ C–O

BL $\propto \frac{1}{C-O}$ bond strength $\propto$ M–C Bond strength

**85. Ans ( 1 )**

Naming of anhydride is done on basis of acid obtained by hydrolysis




Butanedioic anhydride  Butanedioic acid

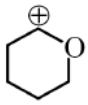
## SECTION - B

**86. Ans ( 3 )**

$$B + \frac{3}{2}O_2 \rightarrow \frac{1}{2}B_2O_3$$

$$\Delta H = (\Delta H_{comb.})^{o}_{B} = \frac{1}{2}\left(\Delta H_f^{o}\right)_{B_2O_3}$$

**92. Ans ( 3 )**

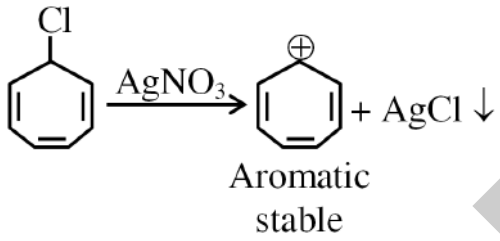
 is most stable due to complete octet resonance.

**96. Ans ( 2 )**

$KMnO_4$ is coloured due to charge-transfer.

**97. Ans ( 4 )**

A compound that can form stable carbocation like 3°, allyl, benzyl etc. can react with $AgNO_3$.




**99. Ans ( 4 )**

$$K_P = \frac{P_{CO_2}}{(P_{CH_4}) \times (P_{O_2})^2}$$

## SUBJECT : BOTANY

## SECTION - A

**113. Ans ( 2 )**

NCERT-XII, Page # 182 (10.2.2)

**118. Ans ( 4 )**

NCERT Pg. # 284(E), 310 (H) Fig. 16.9.1

**121. Ans ( 3 )**

NCERT (XII) Supplementary material
Pg # 288(E), 315(H)

**125. Ans ( 4 )**

NCERT XII, Page No. # 121

**130. Ans ( 2 )**

NCERT-XI, Page#72 (E+H)

**135. Ans ( 1 )**

NCERT XII, Page No. # 38(E), 41(H)

## SECTION - B

**137. Ans ( 2 )**

NCERT (XI) Pg. # 43

**148. Ans ( 1 )**

Module Pg.#92

**150. Ans ( 2 )**

B & C statement are correct

## SUBJECT : ZOOLOGY

## SECTION - A

**152. Ans ( 3 )**

NCERT XI, Page # 108

**156. Ans ( 1 )**

NCERT Pg. # 57

**160. Ans ( 4 )**

NCERT Pg. # 259

**172. Ans ( 4 )**

NCERT Pg # 332

**177. Ans ( 2 )**

NCERT XII Pg. # 64/71(H)Para:4.5

**180. Ans ( 3 )**

NCERT (XII) Pg. # 91, Para, 5.6.3

**182. Ans ( 1 )**

NCERT XII$^{th}$ Pg # 195

**183. Ans ( 4 )**

NCERT XII Pg.# 200

## SECTION - B

**187. Ans ( 1 )**

NCERT XI (E)Pg.# 103, para 1
NCERT XI (H)Pg.# 103, para 1

**194. Ans ( 3 )**

NCERT XI pg.# 333

**197. Ans ( 3 )**

NCERT(XII) Pg#135/146(H) Para:7.6