

# ANNTS-II 2024 (21.04.2024)

## ANSWER KEY

### PHYSICS

Q.1 (2)	Q.2 (1)	Q.3 (3)	Q.4 (1)	Q.5 (4)	Q.6 (2)	Q.7 (3)	Q.8 (3)	Q.9 (3)	Q.10 (1)
Q.11 (2)	Q.12 (1)	Q.13 (2)	Q.14 (3)	Q.15 (4)	Q.16 (3)	Q.17 (1)	Q.18 (1)	Q.19 (4)	Q.20 (3)
Q.21 (1)	Q.22 (4)	Q.23 (2)	Q.24 (3)	Q.25 (4)	Q.26 (1)	Q.27 (3)	Q.28 (4)	Q.29 (1)	Q.30 (2)
Q.31 (4)	Q.32 (2)	Q.33 (4)	Q.34 (1)	Q.35 (3)	Q.36 (2)	Q.37 (3)	Q.38 (2)	Q.39 (2)	Q.40 (1)
Q.41 (2)	Q.42 (1)	Q.43 (4)	Q.44 (1)	Q.45 (3)	Q.46 (3)	Q.47 (2)	Q.48 (2)	Q.49 (1)	Q.50 (2)

### CHEMISTRY

Q. 51 (3)	Q.52 (3)	Q. 53 (2)	Q.54 (1)	Q.55 (1)	Q.56 (4)	Q.57 (3)	Q.58 (3)	Q.59 (3)	Q. 60 (3)
Q.61 (3)	Q.62 (3)	Q. 63 (2)	Q. 64 (2)	Q.65 (2)	Q.66 (2)	Q. 67 (4)	Q.68 (1)	Q.69 (1)	Q.70 (3)
Q.71 (3)	Q.72 (3)	Q.73 (2)	Q.74 (1)	Q.75 (4)	Q.76 (4)	Q. 77 (3)	Q.78 (4)	Q.79 (1)	Q. 80 (3)
Q. 81 (4)	Q.82 (3)	Q.83 (4)	Q.84 (4)	Q.85 (1)	Q.86 (4)	Q.87 (2)	Q. 88 (3)	Q.89 (4)	Q. 90 (1)
Q.91 (2)	Q.92 (4)	Q.93 (2)	Q. 94 (1)	Q.95 (2)	Q.96 (1)	Q.97 (2)	Q.98 (2)	Q.99 (1)	Q. 100 (3)

### BIOLOGY

Q.101 (3)	Q.102 (4)	Q.103 (1)	Q.104 (1)	Q.105 (1)	Q.106 (4)	Q.107 (3)	Q.108 (2)	Q.109 (4)	Q.110 (3)
Q. 111 (1)	Q.112 (2)	Q.113 (4)	Q.114 (4)	Q.115 (1)	Q.116 (4)	Q.117 (3)	Q.118 (1)	Q.119 (3)	Q.120 (1)
Q. 121 (2)	Q.122 (4)	Q.123 (4)	Q.124 (3)	Q.125 (3)	Q.126 (3)	Q.127 (3)	Q.128 (2)	Q.129 (2)	Q.130 (2)
Q.131 (3)	Q.132 (2)	Q.133 (2)	Q. 134 (2)	Q.135 (4)	Q.136 (2)	Q.137 (1)	Q.138 (4)	Q.139 (1)	Q.140 (2)
Q.141 (4)	Q.142 (2)	Q.143 (3)	Q.144 (2)	Q.145 (1)	Q.146 (1)	Q.147 (2)	Q.148 (1)	Q.149 (1)	Q.150 (1)
Q.151 (3)	Q.152 (3)	Q. 153 (4)	Q.154 (1)	Q. 155 (4)	Q.156 (4)	Q.157 (1)	Q. 158 (3)	Q. 159 (3)	Q.160 (4)
Q.161 (4)	Q.162 (4)	Q. 163 (1)	Q.164 (4)	Q.165 (1)	Q.166 (3)	Q.167 (2)	Q.168 (2)	Q.169 (3)	Q.170 (2)
Q. 171 (3)	Q.172 (3)	Q.173 (1)	Q.174 (2)	Q.175 (2)	Q.176 (2)	Q.177 (4)	Q. 178 (4)	Q.179 (3)	Q. 180 (3)
Q. 181 (3)	Q.182 (2)	Q.183 (2)	Q.184 (1)	Q.185 (2)	Q.186 (2)	Q.187 (1)	Q.188 (3)	Q.189 (2)	Q.190 (4)
Q.191 (4)	Q. 192 (2)	Q.193 (4)	Q.194 (1)	Q.195 (4)	Q.196 (3)	Q.197 (3)	Q.198 (2)	Q.199 (4)	Q. 200 (2)

### PHYSICS Section-A

Q.1 (2)

$$\text{Torque} = F \times r_{\perp} \quad \text{Nm}$$

$$\text{Stress} = \frac{\text{Force}}{\text{Area}} \quad \text{N/m}^2$$

$$\text{Latent Heat} = \frac{\text{Energy}}{\text{Mass}} \quad \text{Jkg}^{-1}$$

$$\text{Power} = \frac{\text{Work}}{\text{Time}} \quad \text{Nms}^{-1}$$

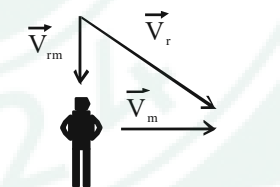
Q.2 (1)

Distance travelled = Area under the u-t graph

$$\therefore \Delta S = \frac{1}{2} \times 5 \times 8 = 20$$

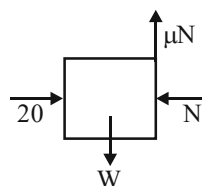
Q.3 (3)

$$\vec{V}_{\text{m}} = \vec{V}_{\text{r}} - \vec{V}_{\text{m}} \Rightarrow \vec{V}_{\text{r}} = \vec{V}_{\text{m}} + \vec{V}_{\text{m}}$$



according to triangle law rain is coming from the back

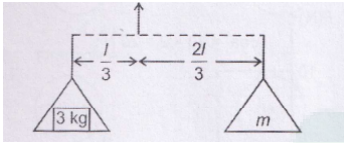
Q.4 (1)



$$\begin{aligned} \text{Here, } W &= \mu N \\ &= 0.4 \times 20 \\ &= 8\text{N} \end{aligned}$$

**Q.5** (4)  
 $x = 3t^2 + 5$   
 $\Rightarrow v = 6t \Rightarrow \Delta W = \Delta k$   
 $= \frac{1}{2}(2)(30)^2 - \frac{1}{2}2(0)^2 = 900 \text{ J}$

**Q.6** (2)  
**Hint** : Rotational equilibrium.  
**Sol.** :



$$3g\left(\frac{\ell}{3}\right) = mg\left(\frac{2\ell}{3}\right)$$

$$3 = 2m$$

$$\Rightarrow m = \frac{3}{2} = 1.5 \text{ kg}$$

**Q.7** (3)  
 Areal velocity of planet

$$\frac{dA}{dt} = \frac{L}{2m}$$

for  $L = \text{constant}$ ,

$$\frac{dA}{dt} = \text{constant}$$

**Q.8** (3)

Distance covered in 0 to  $\frac{T}{4}$  is  $A$

by symmetry, distance covered in 0 to  $\frac{5T}{4}$  is  $5A$ .

**Q.9** (3)

Here, Length,  $L = 10 \text{ m}$

Mass,  $M = 5 \text{ g} = 5 \times 10^{-3} \text{ kg}$

Tension,  $T = 80 \text{ N}$

Mass per unit length of the wire is

$$\mu = \frac{M}{L} = \frac{5 \times 10^{-3} \text{ kg}}{10 \text{ m}} = 5 \times 10^{-4} \text{ kg m}^{-1}$$

Speed of the transverse wave on the wire is

$$v = \sqrt{\frac{T}{\mu}} = \sqrt{\frac{80 \text{ N}}{5 \times 10^{-4} \text{ kg m}^{-1}}}$$

$$= 4 \times 10^2 \text{ ms}^{-1} = 400 \text{ ms}^{-1}$$

**Q.10** (1)

$$f_0 = 220 = \frac{v}{4L}$$

$$\text{Also, } f = (2n-1) \frac{v}{4\ell}$$

$\therefore$  first overtone ( $n = 2$ ) for  $\frac{3\ell}{4}$

$$f = (2 \times 2 - 1) \times \frac{v}{4 \times \frac{3\ell}{4}}$$

$$= \frac{v}{\ell} = 4 \times 220$$

$$= 880 \text{ Hz}$$

**Q.11** (2)

$$v_{\text{rms}} \propto \sqrt{T} \Rightarrow \frac{v_1^2}{v_2^2} = \frac{T_1}{T_2}$$

$$\left(\frac{v}{v/2}\right)^2 = \frac{600}{T}$$

$$T = \frac{600}{4} = 150 \text{ K} = -123^\circ \text{ C}$$

**Q.12** (1)

$$y = \frac{1}{2} \times \frac{YA}{\ell} x^2$$

$$y \propto x^2$$

**Q.13** (2)

Hydraulic lift is based on Pascal's law.

**Q.14** (3)

As ball is dropped from large height, it must have attained velocity greater than terminal velocity before striking the liquid.

**Q.15** (4)

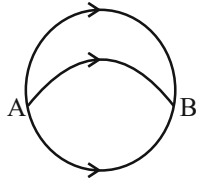
$$\begin{aligned} \tau_{\text{max}} &= pE \\ &= q \times d \times E \\ &= 10^{-6} \times 2 \times 10^{-2} \times 2 \times 10^5 \\ &= 4 \times 10^{-3} \text{ Nm.} \end{aligned}$$

**Q.16** (3)

Work done = Potential difference  $\times$  charge

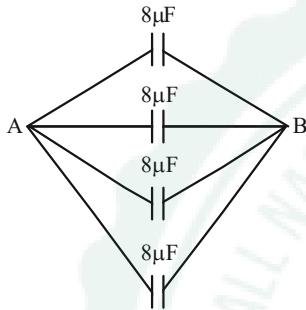
$$= (V_B - V_A) \times q,$$

$V_A$  and  $V_B$  only depend on the initial and final positions and not on the path. Electrostatic force is a conservative force.



If the loop is completed,  $V_A - V_A = 0$ .  
 No net work is done as the initial and final potentials are the same.  
 Both the statements are true but statement-2 is not the reason for statement-1.

**Q.17** (1)  
 Given circuit can be drawn as



Equivalent capacitance =  $4 \times 8 = 32 \mu\text{F}$ .

**Q.18** (1)  
 For parallel combination

$$I \propto \frac{1}{R}$$

$$\therefore I_2 = \left( \frac{4}{4+2} \right) \cdot I_{12}$$

$$I_2 = \frac{2}{3} I_{12}$$

$$\text{Now, } \frac{P_2}{P_{12}} = \frac{I_2^2 \times 2}{I_{12}^2 \times 12}$$

$$= \left( \frac{I_2}{I_{12}} \right)^2 \times \frac{1}{6}$$

$$= \left( \frac{2}{3} \right)^2 \times \frac{1}{6}$$

$$= \frac{2}{27}$$

**Q.19** (4)

$$\text{Here, } \frac{2}{6} = \frac{4}{12}$$

$\therefore V_A = V_B$  (by principle of balanced wheatstone bridge)

**Q.20** (3)  
 Temperature coefficient of resistance ( $\alpha$ ) of conductor is positive and that of semiconductor is negative so by  
 $\rho_t = \rho_0(1 + \alpha t)$

$$\rho_{\text{conductor}} \uparrow, \rho_{\text{semiconductor}} \downarrow \text{ if } t \uparrow$$

**Q.21** (1)

$$\frac{40}{60} = \frac{R}{S},$$

$$\frac{2}{3} = \frac{R}{S} \quad \dots(1)$$

$$\frac{64}{36} = \frac{R(12+S)}{12S}$$

$$\frac{16}{9} = \frac{R(12+S)}{12S} \quad \dots(2)$$

$$(1)/(2)$$

$$S = 20\Omega, R = \frac{40}{3}\Omega$$

**Q.22** (4)

Factual.

**Q.23** (2)

$$B = \frac{\mu_0 I}{4\pi R} \times \theta$$

$$\text{Here, } \theta = 2\pi - \frac{2\pi}{3} = \frac{4\pi}{3}$$

**Q.24** (3)

$$B_1 - B_2 = 40\mu\text{T}$$

$$\frac{\mu_0}{4\pi} \cdot \frac{2i_1}{d} - \frac{\mu_0}{4\pi} \times \frac{2i_2}{d} = 40\mu\text{T}$$

$$\frac{\mu_0}{4\pi} \cdot \frac{2}{d} (i_1 - i_2) = 40\mu\text{T}$$

$$\text{Also, } \frac{\mu_0}{4\pi} \cdot \frac{2}{d} (i_1 + i_2) = 60\mu\text{T}$$

$$\Rightarrow \frac{i_1 - i_2}{i_1 + i_2} = \frac{40}{60} = \frac{2}{3}$$

$$\frac{i_1}{i_2} = \frac{3+2}{3-2} = \frac{5}{1}$$

**Q.25** (4)

$$(a) V_s = \frac{I_s}{R_G}$$

If  $I_s$  &  $R_G$  both are increased in same ratio then  $V_s$  remains unchanged.

(b) To convert a moving coil galvanometer into voltmeter a high resistance is connected in series.

**Q.26** (1)  
 $N\phi = Li$

$$\phi = \frac{Li}{N} = \frac{8 \times 10^{-3} \times 5 \times 10^{-3}}{400} = 10^{-7} \text{ Wb} = \frac{\mu_0}{4\pi} \text{ Wb}$$

**Q.27** (3)  
 $\cos \phi = \frac{R}{Z} = 0.8$

**Q.28** (4)  
 $(I_0)_R = 2I_0 \cos \frac{\theta}{2}$   
 $= 2 \times 4 \times \cos \frac{\pi}{3} \left[ \theta = \frac{2\pi}{3} \right]$   
 $= 4$

**Q.29** (1)  
 $\frac{f_{\text{water}}}{f_{\text{air}}} = \frac{(a\mu_L - 1)}{(w\mu_L - 1)}$   
 $= \frac{(1.5 - 1)}{\left(\frac{1.5}{4/3} - 1\right)}$   
 $= 4$   
 $f_{\text{water}} = 4 \times 15$   
 $= 60 \text{ cm}$

**Q.30** (2)  
 Speed of light in medium (1)  
 $v_1 = \frac{a}{t_1}$   
 Speed of light in medium (2)  
 $v_2 = \frac{b}{t_2}$

Now,  $\sin C = \frac{v_2}{v_1} = \frac{bt_1}{at_2}$

**Q.31** (4)  
 $\beta_1 = \beta_2$   
 $\lambda_1 \frac{D_1}{d_1} = \lambda_2 \frac{D_2}{d_2}$   
 $\Rightarrow \frac{d_1}{d_2} = \frac{\lambda_1 D_1}{\lambda_2 D_2} = \frac{3}{5}$

**Q.32** (2)  
 R is not correct explanation of A because R is not considering when energy of incident radiation is less than work function of metal, then also kinetic energy of photoelectrons is zero.

**Q.33** (4)  
 No. of  $\alpha = \frac{200 - 168}{4} = 8$   
 No. of  $\beta = \frac{80 - (90 - 16)}{1} = 6$

**Q.34** (1)  
 $n_1^2 = n_h n_e \Rightarrow (10^{19})^2 = 10^{21} \times n_e \Rightarrow n_e = 10^{17} / \text{m}^3$ .

**Q.35** (3)  
 $f = \frac{c}{\lambda}; \lambda = \frac{c}{f} = \frac{3 \times 10^8}{40 \times 10^6} = 7.5 \text{ m}$

**SECTION-B**

**Q.36** (2)  
 If student measure 3.50 cm it means that there is an uncertainty of order 0.01 cm  
 L.C of V.C = 1 MSD – 1VSD  
 $= \frac{1}{10} \left[ 1 - \frac{9}{10} \right] = \frac{1}{100} \text{ cm}$   
 So (2) is Correct option

**Q.37** (3)  
 distance covered by first ball in 15s is -  
 $S_1 = \frac{1}{2} \times 10 \times (15)^2$   
 $= 1125 \text{ m}$   
 distance covered by second ball in 5 sec  
 $S_2 = v \times 5 + \frac{1}{2} \times 10 \times 5^2$   
 Also,  $S_1 = S_2$   
 $1125 = 5v + 125$   
 $v = 200 \text{ m/s}$ .

**Q.38** (2)  
 $I\omega = \text{constant}$   
 $\frac{MR^2}{2} \omega = \text{constant}$   
 $\omega \propto \frac{1}{R^2}$

**Q.39** (2)  
 $u = \sqrt{2} u \cos \theta$

$$\cos \theta = \frac{1}{\sqrt{2}}$$

$$\theta = 45^\circ$$

**Q.40** (1)

$$W = 3 \times \left[ -\frac{Gm^2}{d} \right]$$

$$= -\frac{3 \times 6.67 \times 10^{-11} \times (0.1)^2}{0.2}$$

$$= -1.0 \times 10^{-11} \text{ J}$$

**Q.41** (2)

Work done = Surface tension  $\times$  (Surface area)

Total surface area of soap bubble =  $40 \times 2 = 80 \text{ cm}^2$

(Two surface)

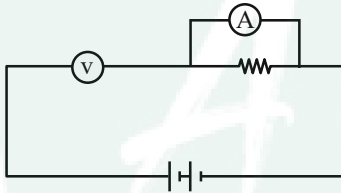
$$\begin{aligned} \text{Work done} &= 0.03 \times 80 \times 10^{-4} \text{ J} \\ &= 2.4 \times 10^{-4} \text{ J} \end{aligned}$$

**Q.42** (1)

$$W = QV$$

$$\therefore V = \frac{W}{Q} = \frac{2}{20} = 0.1 \text{ volt}$$

**Q.43** (4)



As voltmeter has very high resistance, therefore resistance of circuit will increase resulting into very small flow of current.

**Q.44** (1)

$$J = \frac{I}{A} \text{ Here current is same through cross-section A}$$

and B

area at A < area at B

$$J_A > J_B$$

We know that  $J = \sigma E$

$$E_A > E_B$$

**Q.45** (3)

$$r = \frac{mv}{qB}$$

$$= \frac{v}{\left(\frac{q}{m}\right) B}$$

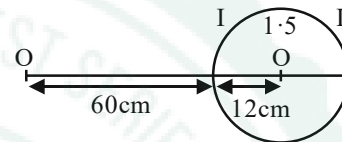
$$\begin{aligned} &= \frac{1.76 \times 10^3}{1.76 \times 10^{11} \times 10^{-2}} \\ &= 10^{-6} \text{ m} \end{aligned}$$

**Q.46** (3)

$$\omega = \frac{1}{\sqrt{LC}}$$

$$\Rightarrow L = \frac{1}{\omega^2 C} = \frac{1}{(100)^2 \times 100 \times 10^{-6}} = 1 \text{ H}$$

**Q.47** (2)



for I refracting surface

$$\frac{1.5}{v} - \frac{1}{-60} = \frac{(1.5-1)}{12}$$

solving, we get

$$v = 60 \text{ cm}$$

$\therefore$  for II refracting surface

$$v = +(60 - 24) = +36 \text{ cm}$$

$$\frac{1}{v} - \frac{1.5}{36} = \frac{(1-1.5)}{-12}$$

Solving, we get

$$v = 12 \text{ cm}$$

$\therefore$  distance from the centre is  $12 + 12 = 24 \text{ cm}$

**Q.48** (2)

$$E = \frac{-13.6 Z^2}{n^2}$$

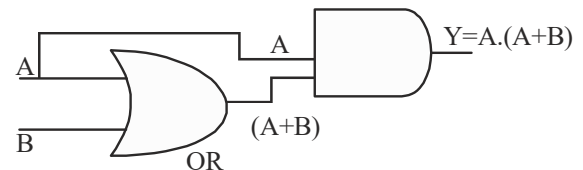
for first excited state of a  $\text{He}^+$  ion.

$$Z = 2, n = 2$$

$$\Rightarrow E = \frac{-13.6 \times 2^2}{2^2}$$

$$= -13.6 \text{ eV}$$

**Q.49** (1)



**Q.50** (2)

$$I = \frac{P}{4\pi r^2}$$

$$I = \frac{5}{4\pi}$$

$$\approx 0.4 \frac{\text{W}}{\text{m}^2}$$

**CHEMISTRY**  
**SECTION-A**

**Q. 51** (3)

22.4 L NH<sub>3</sub> gas = 1 mol gas = 17 g NH<sub>3</sub> gas

$$1 \text{ L NH}_3 \text{ gas} = \frac{1}{22.4} \text{ mole gas} = \frac{17}{22.4} \text{ g} = 0.76 \text{ g}$$

**Q. 52** (3)

**Q. 53** (2)

$$\lambda = \frac{h}{mv} = \frac{6.62 \times 10^{-34} \text{ J}\cdot\text{s}}{6.62 \times 10^{-22} \text{ kg} \times 1 \text{ m/s}} = 1 \times 10^{-12} \text{ m} = 0.01 \text{ \AA}$$

**Q. 54** (1)

**Q. 55** (1)

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

For (1) Reaction  $\Delta n_g = -2$   $\therefore$  for this reaction  $\Delta H < \Delta U$

For (2) Reaction  $\Delta n_g = 1$   $\therefore$  for this reaction  $\Delta H > \Delta U$

For (3) Reaction  $\Delta n_g = 1$   $\therefore$  for this reaction  $\Delta H > \Delta U$

For (4) Reaction  $\Delta n_g = 2$   $\therefore$  for this reaction  $\Delta H > \Delta U$

so. Ans is (1)

**Q. 56** (4)

For Reverse reaction .  $K_c = \frac{1}{x}$

& Reverse reaction is divided by 2  $\therefore K_c = \frac{1}{\sqrt{x}}$

$\therefore$  Ans.  $\frac{1}{\sqrt{x}}$

**Q. 57** (3)

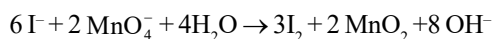
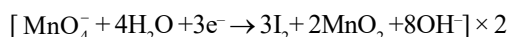
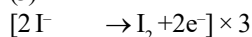
$M = 10^{-2}$  of Ca(OH)<sub>2</sub>

$$\therefore [\text{OH}^-] = 2 \times 10^{-2} \quad \text{so } [\text{H}^+] = \frac{1 \times 10^{-14}}{2 \times 10^{-2}} = 0.5 \times 10^{-12}$$

$$p^{\text{H}} = -\log [\text{H}^+] = -\log [0.5 \times 10^{-12}] = -[\log 0.5 - 12]$$

$$= -[-0.301 - 12] = 12.3$$

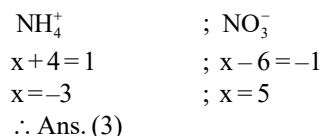
**Q. 58** (3)



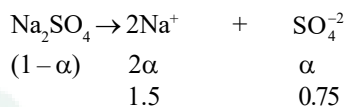
$$\therefore x = 6, y = 2, z = 8$$

Ans. (3)

**Q. 59** (3)

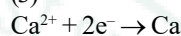


**Q. 60** (3)



$$i = \frac{1.5 + 0.75}{1} = 2.25$$

**Q. 61** (3)



so For 1 mol(40g) Ca Charge required = 2 F

$\therefore$  80 gm Ca Charge required = 2 F

**Q. 62** (3)

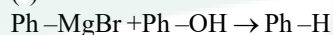
Lead storage battery is a secondary cell and (3) option reaction is of lead storage battery anode reaction.

**Q. 63** (2)

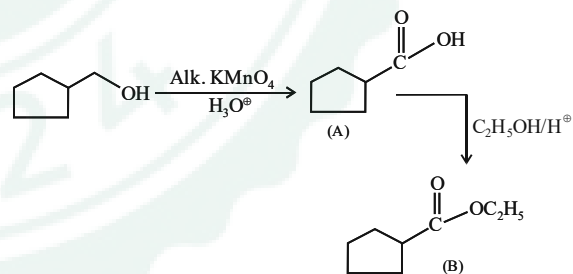
Since A is taken in excess, so reaction become independent of A will depend on reactant B .

So : orden of reaction will be  $\frac{1}{2}$  .

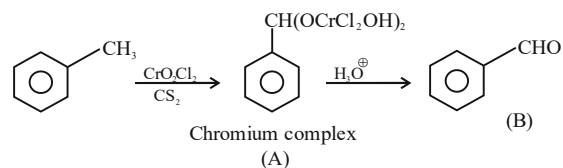
**Q. 64** (2)



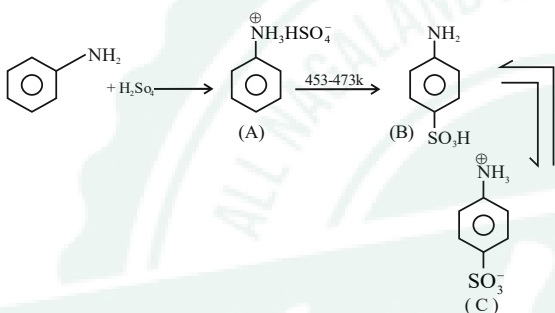
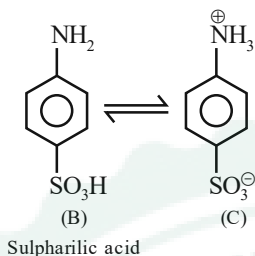
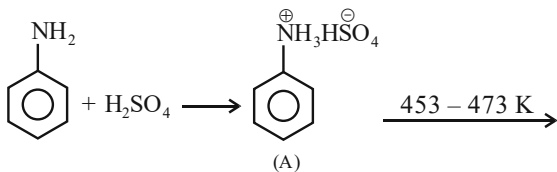
**Q. 65** (2)



**Q. 66** (2)



Q.67 (4)



C does not have -NO<sub>2</sub> group attached with Ring

Q.68 (1)

Secondary Amine is most Basic  
(CH<sub>3</sub>)<sub>2</sub>NH > CH<sub>3</sub>NH<sub>2</sub> > (CH<sub>3</sub>)<sub>3</sub>N > NH<sub>3</sub>

Q.69 (1)

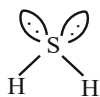
Sucrose is made up of C<sub>1</sub> of α-D glucose and C<sub>2</sub> of β-D-fructose.

Q.70 (3)

[Fe(SCN)]<sup>2+</sup> is Blood Red in colour

Q.71 (3)

H<sub>2</sub>S is Polar molecule.



Bent shape  $\mu \neq 0$

Q.72 (3)

BrF<sub>5</sub> is square bipyramidal & Sp<sup>3</sup>d<sup>2</sup> Hyb

Q.73 (2)

Bond order

O <sub>2</sub>	2
O <sub>2</sub> <sup>+</sup>	2.5
O <sub>2</sub> <sup>-</sup>	1.5
O <sub>2</sub> <sup>2-</sup>	1

Q.74 (1)

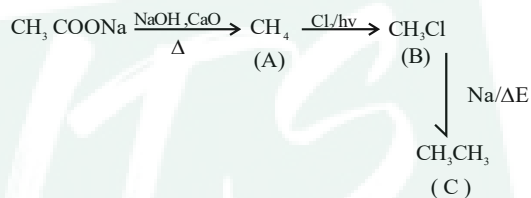
B.O

N <sub>2</sub>	3
C <sub>2</sub>	2
Li <sub>2</sub>	1
He <sub>2</sub>	0

Q.75 (4)

graphite has a higher C-C bond order than Diamond

Q.76 (4)



Q.77 (3)

Reactivity For ESR  $\propto e^-$  density in Ring

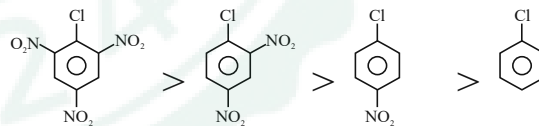
Q.78 (4)

All of these are aromatic

Q.79 (1)

CH≡CH has most acidic hydrogen.

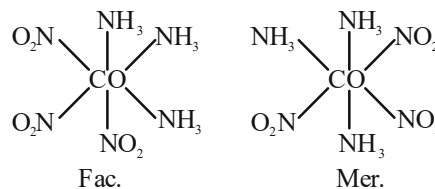
Q.80 (3)



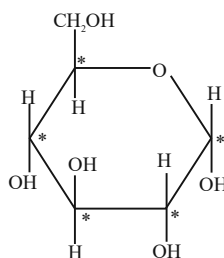
Q.81 (4)

Cl > F > O > N

Q.82 (3)



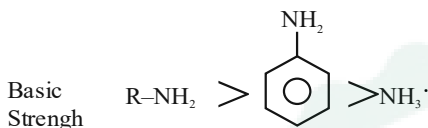
- Q.83** (4)  
 EDTA → Lead Poisoning  
 DMG → Detection of Ni<sup>2+</sup>  
 [Au(CN)<sub>2</sub>]<sup>-</sup> → Electroplating with gold  
 [Ag(S<sub>2</sub>O<sub>3</sub>)<sub>2</sub>]<sup>3-</sup> → Black and white photography



α-D-glucopyranose has 5 Chiral carbon.

- Q.84** (4)  
 enthalpy Cu > Fe > Co > Ni  
 of atomisation

- Q.85** (1)



**SECTION-B**

- Q.86** (4)

$$P_A = P_A^0 x_A \text{ and } P_B = P_B^0 x_B$$

$$P_{\text{sol}^n} = [P_A^0 x_A] + [P_B^0 x_B]$$

$$= \left(200 \times \frac{10}{30}\right) + \left(100 \times \frac{20}{30}\right) = \frac{400}{3}$$

- Q.87** (2)

Slow step is rate determining step. So order of reaction will consider for slow step  
 Rate Law (R) = k[H<sub>2</sub>O<sub>2</sub>][I<sup>-</sup>]  
 So order w.r.t H<sub>2</sub>O<sub>2</sub> = 1

- Q.88** (3)

CH<sub>3</sub>CH<sub>2</sub>OH & CH<sub>3</sub>-C(=O)-CH<sub>3</sub> Both will give iodoform test So cannot be distinguish from each other.

- Q.89** (4)

All type of carbonyl compounds give Alcohol on reaction with grignard Reagent followed by hydrolysis

- Q.90** (1)

More positive value of E<sup>0</sup> more will be oxidising power. So Ag<sup>+</sup> has highest oxidising power.

- Q.91** (2)

$$W = -2.303 n RT \log \frac{V_2}{V_1}$$

$$= -2.303 \times 1 \times 0.082 \times 300 \log 2$$

$$= -2.303 \times 1 \times 0.082 \times 300 \times 0.301$$

$$= -17.1 \text{ J}$$

- Q.92** (4)

- Q.93** (2)

- Q.94** (1)

CH<sub>4</sub> is electron precise hydride.

- Q.95** (2)

Pb is more stable in +2 oxidation state

- Q.96** (1)

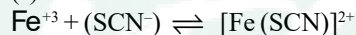
Acidic Strength :-

Para-nitrophenol > ortho nitrophenol > meta-nitrophenol > Phenol

- Q.97** (2)

Ununillium → 110

- Q.98** (2)



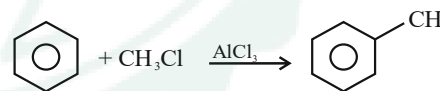
$$K_c = \frac{[\text{Fe}(\text{SCN})]^{2+}}{[\text{Fe}^{+3}][\text{SCN}^-]}$$

The Red colour will increased in the reaction by formation of [Fe(SCN)]<sup>2+</sup> So By adding KSCN red colour increased

$$K_c = \frac{[\text{Fe}(\text{SCN})]^{2+}}{[\text{Fe}^{+3}][\text{SCN}^-]}$$

The red colour will increased in the Reaction by formation of [Fe(SCN)]<sup>2+</sup> So By adding KSCN Red colour increased.

- Q.99** (1)



- Q.100** (3)

