AITS FULL TEST-01

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)

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

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

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

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

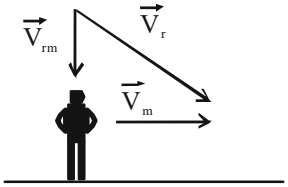
Q.2 (1)

Distance travelled = Area under the u-t graph

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

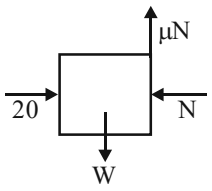
Q.3 (3)

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



according to triangle law rain is coming from the back

Q.4 (1)



Here, $W = \mu N$

$= 0.4 \times 20$

$= 8N$

Q.5 (4)

$x = 3t^2 + 5$

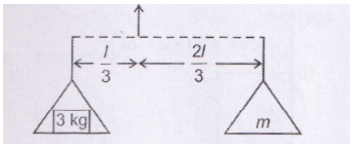
$\Rightarrow v = 6t \Rightarrow \Delta W = \Delta k$

$= \frac{1}{2}(2)(30)^2 - \frac{1}{2}2(0)^2 = 900\ J$

Q.6 **(2)**

Hint : Rotational equilibruim.

Sol. :



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

$3 = 2m$

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

Q.7 (3)

Areal velocity of planet

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

for L = constant,

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

Mass, M = 5g = 5 × 10^{-3} kg

Tension, T = 80 N

Mass per unit length of the wire is

$\mu = \frac{M}{L} = \frac{5\times10^{-3}\,kg}{10m} = 5 \times 10^{-4}\,kg\,m^{-1}$

Speed of the transverse wave on the wire is

$v = \sqrt{\frac{T}{\mu}} = \sqrt{\frac{80N}{5\times10^{-4}\,kg\,m^{-1}}}$

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

Q.10 (1)

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

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

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

$f = (2\times2-1)\times\frac{v}{4\times\frac{3\ell}{4}}$

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

$= 880\ Hz$

Q.11 (2)

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

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

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

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)

$\tau_{max} = pE$

$= q \times d \times E$

$= 10^{-6} \times 2 \times 10^{-2} \times 2 \times 10^5$

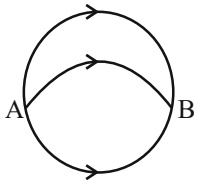
$= 4 \times 10^{-3}$ Nm.

Q.16 (3)

Work done = Potential difference × charge

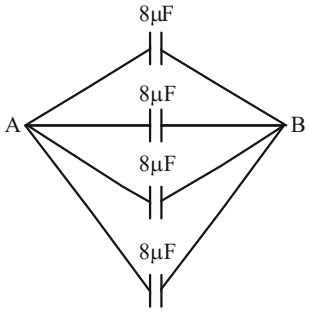
$= (V_B - V_A) \times q$,

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 = $4 \times 8 = 32\ \mu F$.

Q.18 (1)
For parallel combination

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

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

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

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)

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 (α) of conductor is positive and that of semiconductor is negative so by $\rho_t = \rho_0(1 + \alpha t)$

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

Q.21 (1)

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

$$\frac{2}{3} = \frac{R}{S} \qquad ...(1)$$

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

$$\frac{16}{9} = \frac{R(12+S)}{12S} \qquad ...(2)$$

(1)/(2)

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

Q.22 **(4)**
Factual.

Q.23 (2)

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

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

Q.24 (3)
$B_1 - B_2 = 40\mu T$

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

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

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

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

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

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)**

$N\phi = Li$

$$\phi = \frac{Li}{N} = \frac{8\times10^{-3}\times5\times10^{-3}}{400} = 10^{-7}\ \text{Wb} = \frac{\mu_0}{4\pi}\text{Wb}$$

Q.27 (3)

$$\cos\phi = \frac{R}{Z} = 0.8$$

Q.28 (4)

$$(I_0)_R = 2I_0\cos\frac{\theta}{2}$$

$$= 2\times4\times\cos\frac{\pi}{3}\quad\left[\theta = \frac{2\pi}{3}\right]$$

$$= 4$$

Q.29 (1)

$$\frac{f_{water}}{f_{air}} = \frac{\left({}_a\mu_L - 1\right)}{\left({}_w\mu_L - 1\right)}$$

$$= \frac{(1.5-1)}{\left(\frac{1.5}{4/3}-1\right)}$$

$$= 4$$

$$f_{water} = 4\times15$$

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

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)

$$\text{No. of } \alpha = \frac{200-168}{4} = 8$$

$$\text{No. of } \beta = \frac{80-(90-16)}{1} = 6$$

Q.34 (1)

$n_i^2 = n_h n_e \Rightarrow (10^{19})^2 = 10^{21}\times n_e \Rightarrow n_e = 10^{17}/\text{m}^3$.

Q.35 **(3)**

$$f = \frac{c}{\lambda};\lambda = \frac{c}{f} = \frac{3\times10^8}{40\times10^6} = 7.5\text{m}$$

SECTION-B

Q.36 (2)

If student measure 3.50 cm it means that there in 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 -

$$S_1 = \frac{1}{2}\times10\times(15)^2$$

$$= 1125\,\text{m}$$

distance covered by second ball in 5 sec

$$S_2 = v\times5 + \frac{1}{2}\times10\times5^2$$

Also, $S_1 = S_2$

$1125 = 5v + 125$

$v = 200$ m/s.

Q.38 (2)

$I\omega$ = constant

$$\frac{MR^2}{2}\omega = \text{constant}$$

$$\omega \propto \frac{1}{R^2}$$

Q.39 (2)

$$u = \sqrt{2}\,u\cos\theta$$

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

$$\theta = 45°$$

Q.40 (1)

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

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

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

Q.41 (2)

Work done = Surface tension × (Surface area)

Total surface area of soap bubble = $40 \times 2 = 80\ cm^2$ (Two surface)

Work done = $0.03 \times 80 \times 10^{-4}$ J

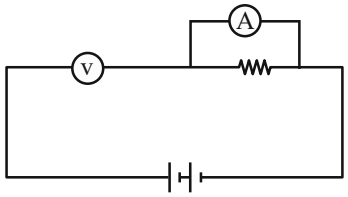
$= 2.4 \times 10^{-4}$ J

Q.42 (1)

$W = QV$

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

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)

$J = \frac{I}{A}$ 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)

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

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

$$= \frac{1.76 \times 10^3}{1.76 \times 10^{11} \times 10^{-2}}$$

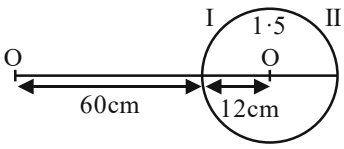
$= 10^{-6}$ m

Q.46 **(3)**

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

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

Q.47 (2)



for I refracting surface

$$\frac{1{\cdot}5}{v} - \frac{1}{-60} = \frac{(1{\cdot}5 - 1)}{12}$$

solving, we get

$v = 60$ cm

$\therefore$ for II refracting surface

$v = +(60 - 24) = +36$ cm

$$\frac{1}{v} - \frac{1.5}{36} = \frac{(1 - 1{\cdot}5)}{-12}$$

Solving, we get

$v = 12$ cm

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

Q.48 (2)

$$E = \frac{-13{\cdot}6Z^2}{n^2}$$

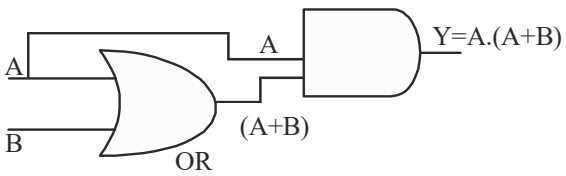
for first excited state of a He^+ ion.

$Z = 2, n = 2$

$$\Rightarrow E = \frac{-13{\cdot}6 \times 2^2}{2^2}$$

$= -13{\cdot}6$ eV

Q.49 (1)



Q.50 (2)

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

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

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

CHEMISTRY
SECTION-A

Q. 51 (3)

22.4 L NH_3 gas = 1 mol gas = 17 g NH_3 gas

$$1 \text{ L } NH_3 \text{ gas} = \frac{1}{22.4} \text{ mole gas} = \frac{17}{22.4} g = 0.76g$$

Q.52 (3)

Q. 53 (2)

$$\lambda = \frac{h}{mv} = \frac{6.62 \times 10^{-34} J.S}{6.62 \times 10^{-22} kg \times 1 m/s} = 1 \times 10^{-12} M = 0.01 Å$$

Q.54 (1)

Q.55 (1)

Sol. $\Delta H = \Delta U + \Delta ngRT$

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 $Ca(OH)_2$

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

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

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

Q.58 (3)

$[2\, I^- \rightarrow I_2 + 2e^-] \times 3$

$[MnO_4^- + 4H_2O + 3e^- \rightarrow 3I_2 + 2MnO_2 + 8OH^-] \times 2$

$6\, I^- + 2\, MnO_4^- + 4H_2O \rightarrow 3I_2 + 2\, MnO_2 + 8\, OH^-$

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

Ans. (3)

Q.59 (3)

NH_4^+	; NO_3^-
$x + 4 = 1$	; $x - 6 = -1$
$x = -3$	; $x = 5$

$\therefore$ Ans. (3)

Q. 60 (3)

$Na_2SO_4 \rightarrow 2Na^+ + SO_4^{-2}$

$(1-\alpha)$ 2α α

1.5 0.75

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

Q.61 (3)

$Ca^{2+} + 2e^- \rightarrow Ca$

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)

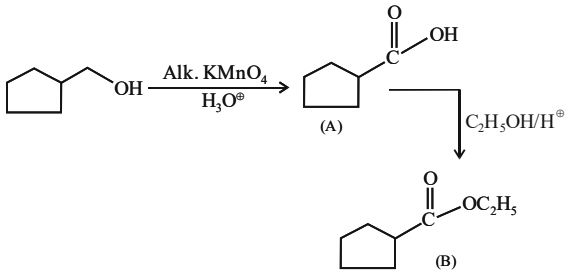
Since A is taken in excess, so reaction become independent of A will depend on reactant B .

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

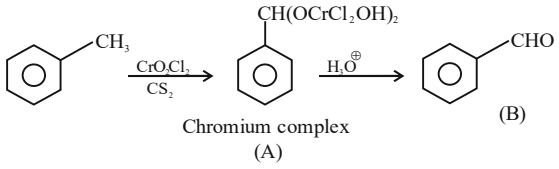
Q. 64 (2)

Ph –MgBr +Ph –OH $\rightarrow$ Ph –H

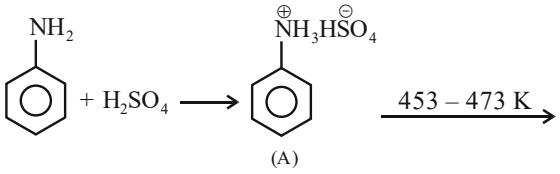
Q.65 (2)

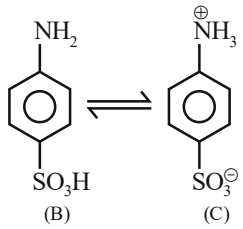


Q.66 (2)

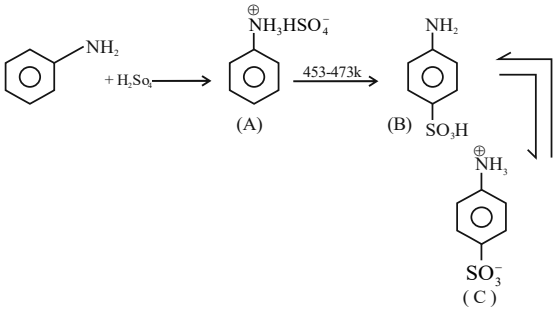


Q. 67 (4)





Sulpharilic acid



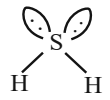
C does not have – NO_2 group attached with Ring

Q.68 (1)
Secondary Amine is most Basic
$(CH_3)_2\ NH > CH_3NH_2 > (CH_3)_3N > NH_3$

Q.69 (1)
Sucrose is made up of c_1 of α – D glucose and C_2 of β –D–fructose .

Q.70 (3)
$[Fe\ (SCN)]^{2+}$ is Blood Red in colour

Q.71 (3)
H_2S is Polar molecule .



Bent shape $\mu \neq O$

Q.72 (3)
Br F_5 is square bipyramidal & Sp^3d^2 Hyb

Q.73 (2)

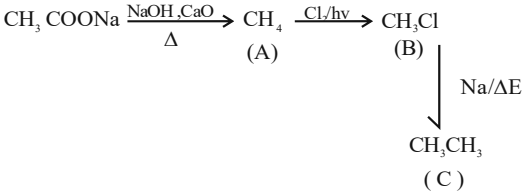
	Bond order
O_2	2
O_2^+	2.5
O_2^-	1.5
O_2^{-2}	1

Q.74 (1)

	B.O
N_2	3
C_2	2
Li_2	1
He_2	0

Q.75 (4)
graphite has a higher C–C bond order than Diamand

Q.76 (4)

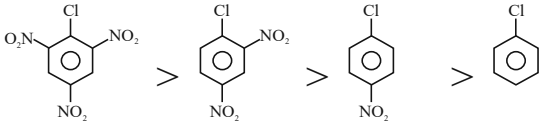


Q. 77 (3)
Reactivity For ESR α e^- density in Ring

Q.78 (4)
All of these are aromatic

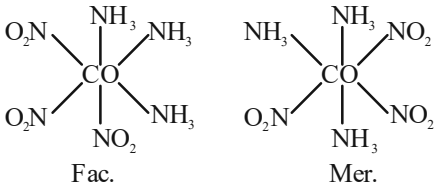
Q.79 (1)
CH ≡ CH has most acidic hydrogen .

Q. 80 (3)



Q. 81 (4)
Cl> F > O > N

Q.82 (3)



Q.83 (4)

EDTA → Lead Poisoning

DMG → Detection of Ni^{2+}

$[Au(CN)_2]^-$ → Electroplating with gold

$[Ag(S_2O_3)_2]^{3-}$ → Black and white photography

Q.84 (4)

enthalpy Cu> Fe > Co > Ni

of atomisation

Q.85 (1)

Basic Strengh $R-NH_2 > \text{C}_6\text{H}_5\text{NH}_2 > NH_3$

SECTION-B

Q.86 (4)

$P_A = P_A^0 x_A$ and $P_B = P_B^0 x_B$

$P_{Soln} = [P_A^0 x_A] + [P_B^0 x_B]$

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

Q.87 (2)

Slow step is rate determining step. So order of reaction will consider for slow step

Rate Law (R) = $k[H_2O_2][I^-]$

So order w. r .t $H_2O_2 = 1$

Q. 88 (3)

CH_3CH_2OH & $CH_3-\overset{\overset{O}{\|}}{C}-CH_3$ 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^0 more will be oxidising power. So Ag^+ has highest oxiding power.

Q.91 (2)

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

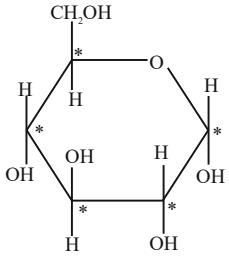
$= -2.303 \times 1 \times 0.082 \times 300 \log 2$

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

$= -17.1$ J

Q.92 (4)

Q.93 (2)



α –D–gluco Pyranose has .5 Chiral carbon .

Q. 94 (1)

CH_4 is electron precise hydride .

Q.95 (2)

Pb is more stable in +2 oxidation state

Q.96 (1)

Acidic Strength :-

Para– nitrophenal > ortho nitrophenol > meta-nitrophenol > Phenol

Q.97 (2)

Ununnillium → 110

Q.98 (2)

$Fe^{+3} + (SCN^-) \rightleftharpoons [Fe(SCN)]^{2+}$

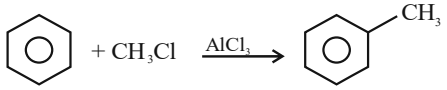
$$K_c = \frac{[Fe(SCN)]^{2+}}{[Fe^{+3}][SCN^-]}$$

The Red colour will increased in the reaction by formation of $[Fe(SCN)]^{2+}$ So By adding KSCN red colour increased

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

The red colour wil increased in the Reaction by formation of $[Fe(SCN)]^{2+}$ So By adding KSCN Red colour increased.

Q.99 **(1)**



$CH_3-Cl + AlCl_3 \rightarrow AlCl_4^- + CH_3^{\oplus}$ electrophile

Q. 100 (3)