Enthusiast, Leader & Achiever Course

PHASE : ALL PHASE

TARGET : PER-MEDICAL 2020

Test Type : **MAJOR** Test Pattern : **NEET (UG)**

TEST DATE : 06-09-2020

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.	4	1	2	3	2	4	4	3	1	1	3	4	1	1	3	3	1	1	1	3	2	1	2	2	1	4	1	3	3	1
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.	1	2	1	2	2	4	1	2	2	3	3	2	2	2	2	1	2	3	2	3	4	1	3	2	4	2	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.	4	4	3	3	4	2	2	4	3	3	4	2	1	2	1	2	2	4	2	1	3	4	2	1	3	4	1	4	3	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.	2	3	3	2	4	4	2	1	2	4	1	1	2	4	4	1	2	3	4	2	1	1	4	1	2	3	3	3	1	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.	2	4	2	3	1	2	4	4	2	4	3	3	2	4	3	2	3	1	1	3	3	1	4	4	4	3	2	1	4	1
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.	3	4	3	3	3	3	3	3	2	2	1	4	3	4	1	4	2	3	1	3	4	1	1	4	1	2	1	2	3	3

HINT – SHEET

1. Ans (4)

(1) V — $2\mu F$

$U_i = \frac{2V^2}{2} = V^2$

$q_i = 2V$

(2) $0.4V$ $2\mu F$ — $1.6V$ $8\mu F$

$U_f = \frac{1}{2}(2+8)(0.2V)^2$

$= (5)(0.04V^2)$

$U_f = 0.2\ V^2$

$\%\Delta U = \frac{U_f - U_i}{U_i} \times 100$

$= 80\%$

2. Ans (1)

$E_0 = 6\sqrt{2}\ V/m = 8.46\ V/m$

$B_0 = \frac{E_0}{C} = \frac{8.46}{3 \times 10^8} = 2.83 \times 10^{-8} T$

3. Ans (2)

Theory

4. Ans (3)

$\tan\theta = \mu$

$\mu = \sqrt{3}$

$V = \frac{C}{\mu} = \sqrt{3} \times 10^8 m/s$

5. Ans (2)

$e = (\vec{v} \times \vec{B}).\ \vec{\ell}$

$e = [\hat{i} \times (3\hat{i} + 4\hat{j} + 5\hat{k})].5\hat{j}$

$\Rightarrow$ $e = 25$ volt

6. Ans (4)

$P_i = (220)(5)$

$P_0 = (11)(90)$

$\eta = \frac{P_0}{P_i^n} \times 100$

$= \frac{11 \times 90 \times 100}{220 \times 5}$

$= 90\%$

7. **Ans (4)**

$$\cos\theta = \frac{\bar{A}.\bar{B}}{AB}$$

$$= \frac{42 + 24 - 12}{(9)(9)} = \frac{54}{81} = \frac{2}{3}$$

$$\sin\theta = \sqrt{1 - \frac{4}{9}} = \frac{\sqrt{5}}{3}$$

$$\theta = \sin^{-1}\frac{\sqrt{5}}{3}$$

8. **Ans (3)**

kg.wt is an improper unit.

9. **Ans (1)**

Difference in kinetic energy

$2mgr = 2 \times 1 \times 10 \times 1 = 20J$

10. **Ans (1)**

At constant speed, there is no acceleration, so the forces acting on the train are in equilibrium.

Therefore, $F = R = 3 \times 10^4$ N

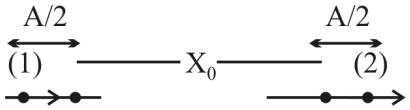
Power $P = Fv$

$= 3 \times 10^4 \times 40$

$= 1.2 \times 10^6$ W

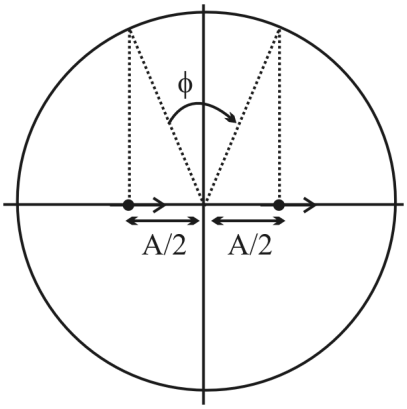
11. **Ans (3)**

Maximum separation between particles will be when velocity of both particle will be same.



It is possible when both particles are at position as shown.

$$\phi = \frac{\pi}{6} + \frac{\pi}{6} = \frac{\pi}{3}$$



12. **Ans (4)**

Here, the force applied should be such that force acting on the upper block of m should not be more than the force of friction ($=\mu_1 mg$) acting on it. Let the system moves with acceleration a. Then

$$F - \mu_2(M + m)g = (M + m)a \quad ...(1)$$

For block of mass m:

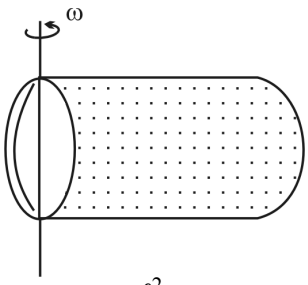
$$F_1 = ma = \mu_1 mg \quad \text{or } a = \mu_1 g \quad ...(2)$$

From eqs. (1) and (2), we get

$$F = \mu_2(M + m)g + (M + m)\mu_1 g$$

$$= (M + m)g(\mu_1 + \mu_2)$$

13. **Ans (1)**



$$\Delta P = \rho\omega^2\frac{\ell^2}{2}$$

$$= \rho \times 4 \times \frac{0.01}{2}$$

$$= 0.02\rho$$

14. **Ans (1)**

$$x_{COM} = \frac{16 \times 1.13}{16 + 12} = 0.65\text{Å}$$

16. **Ans (3)**

$$|\Delta V_{PQ}| = |\bar{E}.\overline{PQ}|$$

$$= 100\left(\frac{\hat{i}}{\sqrt{2}} + \frac{\hat{j}}{\sqrt{2}}\right).\left[2\hat{i} - 4\hat{j}\right]$$

$$= \frac{200}{\sqrt{2}} - \frac{400}{\sqrt{2}}$$

$$= \frac{200}{\sqrt{2}} = 100\sqrt{2}$$

17. Ans (1)

$$\lambda = \frac{h}{\sqrt{3mkT}}$$

$$\lambda \propto \frac{1}{\sqrt{T}}, \quad \frac{\lambda_1}{\lambda_2} = \frac{\sqrt{T_2}}{\sqrt{T_1}}$$

$$\frac{\lambda_2}{\lambda_1} = \sqrt{\frac{300}{1200}} = \frac{1}{2}$$

$$\lambda_2 = \frac{\lambda}{2}$$

18. Ans (1)

Second excited state $\Rightarrow$ n = 3

$$E_3 = \frac{13.6}{9} = 1.51eV$$

19. Ans (1)

$$\frac{1}{\lambda_\alpha} = \frac{3R}{4}(Z-1)^2$$

$$\Rightarrow (Z-1) = \sqrt{\frac{4}{3R\lambda_\alpha}}$$

$$= \sqrt{\frac{4}{3 \times 1.1 \times 10^7 \times 1.8 \times 10^{-10}}}$$

$$= \frac{200}{3}\sqrt{\frac{5}{33}} = \frac{78}{3} = 26. \Rightarrow Z = 27$$

20. Ans (3)

Theory

21. Ans (2)

$$N = N_0\left(\frac{1}{2}\right)^{\frac{t}{T_{1/2}}}$$

$$10^6 = 1.414 \times 10^6\left(\frac{1}{2}\right)^{\frac{t}{T_{1/2}}}$$

$$\left(\frac{1}{\sqrt{2}}\right) = \left(\frac{1}{2}\right)^{\frac{t}{T_{1/2}}}$$

$$\frac{t}{t_{1/2}} = \frac{1}{2}$$

$$t_{1/2} = 2t = 20 \text{ min}$$

22. Ans (1)

Speed of sound wave is medium dependent term.

23. Ans (2)

Let the frequency of first tuning fork is υ. The frequencies of other tuning forks are

$(\upsilon - 3), (\upsilon - 2 \times 3), ..., (\upsilon - 17 \times 3), ..., (\upsilon - 25 \times 3)$

As per given condition,

$\upsilon = 2(\upsilon - 25 \times 3)$ or $\upsilon = 2\upsilon - 25 \times 6$

or $\upsilon = 25 \times 6 = 150$ Hz

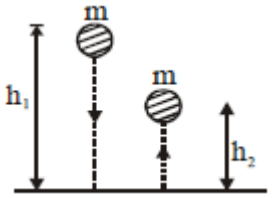
The frequency of the 18^{th} tuning fork

$= \upsilon - 17 \times 3 = 150 - 51 = 99$ Hz.

24. Ans (2)

According to energy conservation, change in potential energy of the ball appears in the form of heat which raises the temperature of the ball.

i.e. $mg(h_1 - h_2) = ms\Delta\theta$



$$\Rightarrow \Delta\theta = \frac{g(h_1 - h_2)}{s} = \frac{10(10 - 5.4)}{460}$$

$\Delta\theta = 0.1°C$

25. Ans (1)

$\lambda_m T$ = i.e., If T is very high λ_m will be very small.

The shortest wavelengths in the visible region are violet and indigo.

26. Ans (4)

$PT = \text{const.} \quad \Rightarrow PV^{1/2} = \text{const.}$

$$C = \frac{3R}{2} + \frac{R}{1 - 1/2} = \frac{7R}{2}$$

27. Ans (1)

$\Delta Q = W + \Delta U$

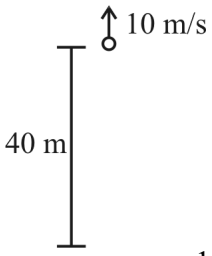
$\Delta Q = 100J$

by gas $W = (50)(4-10) = -300J$

$100 = -300\ J + \Delta U$

$\Delta U = 400\ J$

28. Ans (3)



$-40 = 10 \times t - \frac{1}{2} \times 10\, t^2$

$-8 = 2t - t^2$

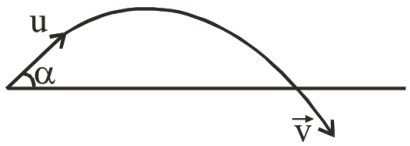
$t^2 - 2t - 8 = 0$

$t^2 - 4t + 2t - 8 = 0$

$t(t-4) + 2(t-4) = 0$

$t = 4$ sec.

29. Ans (3)



$2\alpha = 2\left(\frac{\pi}{2} - \theta\right) \Rightarrow \pi - 20$

30. Ans (1)

$\vec{V} || \vec{B}$, $\vec{V} || \vec{E}$

so $|\vec{F}_m| = 0$, $\vec{F}_E$ is along $\vec{V}$

so increasing velocity in same direction

31. Ans (1)

$\frac{\mu_0}{4\pi} \times \frac{2I_A I_B \ell}{r} = mg$

where $r = 2.5$ cm

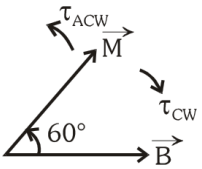
$m = (0.100\ g/cm)\ell$

Solve to get $I_B = \frac{250}{3} A$

32. Ans (2)

Work done in rotating a dipole from

$\theta_1 = 0°$ to $\theta_2 = 60°$ from the field direction :-



$W = MB(1 - \cos 60°)$

$= \frac{MB}{2}$ ..... (1)

The torque needed to maintain the needle in this position

$\tau_{ACW} = \tau_{CW}$

$= MB \sin 60°$

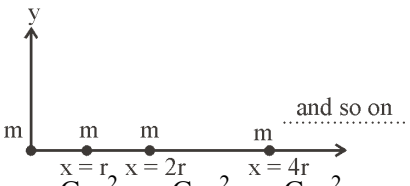
$= \frac{\sqrt{3}\,MB}{2}$ ..... (2)

from (1) & (2)

$\tau = \sqrt{3}W$

33. Ans (1)

Gravitational force acting on the point mass placed at origin.



$F = \frac{Gm^2}{r^2} + \frac{Gm^2}{4r^2} + \frac{Gm^2}{16r^2} + \ldots\ldots \infty$

$F = \frac{Gm^2}{r^2}\left[1 + \frac{1}{4} + \frac{1}{4^2} + \ldots\ldots\infty\right]$

$F = \frac{Gm^2}{r^2}\frac{1}{\left(1 - \frac{1}{4}\right)}$

$\boxed{F = \frac{4Gm^2}{3r^2}}$

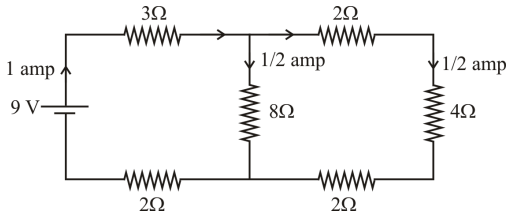
34. Ans (2)

$T = \frac{2\pi r}{v}$

and $\frac{mv^2}{r} = \frac{k}{r^n} \Rightarrow v = \frac{A}{r^{\frac{n-1}{2}}}$

$\therefore \quad T = \frac{2\pi r}{A} . r^{\frac{n-1}{2}} = \frac{2\pi}{A} r^{\frac{n+1}{2}} \Rightarrow T \propto r^{\frac{n+1}{2}}$

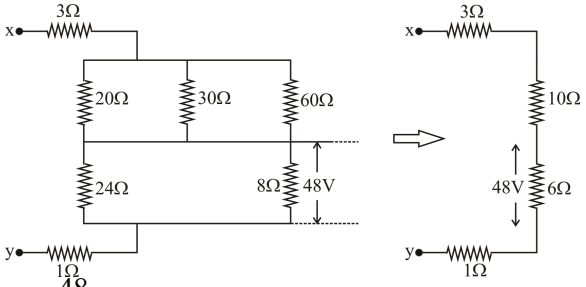
35. Ans (2)



36. Ans (4)

It is balanced Wheat Stone Bridge

37. Ans (1)



$i = \frac{48}{6} = 8A$

$DV = 8 \times 20 = 160$ V

38. Ans (2)

$I_1 = \frac{2}{5} mR_2,\ I_2 = \frac{2}{3} mR^2,\ I_3 = mR^2$

$I_3 > I_2 > I_1$

39. Ans (2)

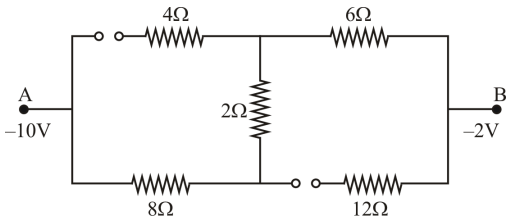
$I\omega = 2I\omega' \Rightarrow \omega' = \frac{\omega}{2}$

$K = \frac{1}{2} I\omega^2$

$K' = \frac{1}{2} \times 2I \times \omega'^2 = \frac{I\omega^2}{4} = \frac{K}{2}$

40. Ans (3)

Point A is at lower potential and B is at high potential so both diodes are in R.B., behave like open circuit.



$R_{AB} = 16\Omega$

41. Ans (3)

$\Delta V_0 = \Delta I_C \times R_{out}$

$= 5$ mA $\times 5$ kΩ

$= 25$ V

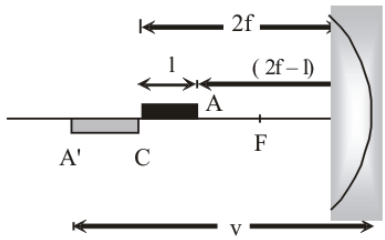
42. Ans (2)

Truth table

A	B	C
0	0	0
1	1	1
0	1	0
1	0	0
0	0	0
1	1	1
0	0	0

Here C = 1 only when A = 1, B = 1 & C = 0 for all other cases so It is C = A.B AND gate

43. Ans (2)



End A of the rod acts as an object for mirror and A' will be its image so $u = 2f - l = 20 - 5 = 15$ cm

$\because \frac{1}{f} = \frac{1}{v} + \frac{1}{u} \Rightarrow \frac{1}{-10} = \frac{1}{v} - \frac{1}{15} \Rightarrow v = -30$ cm.

Now $m = \frac{\text{Length of image}}{\text{Length of object}} = \frac{(30-20)}{5} = 2$

44. Ans (2)

$P = P_1 + P_2$

$2 = 5 + P_2$

$P_2 = -3$ D

$\frac{\omega_1}{\omega_2} = -\frac{f_1}{f_2} = -\frac{P_2}{P_1} = \frac{3}{5}$

45. Ans (2)

$P_{ex} = \frac{2T}{r}$, A is true

For aeroplane moving fast on the run way pressure is more on lower surface.

46. Ans (1)

$$\frac{r_2}{r_1} = \frac{K_2}{K_1}$$

$$\ln \frac{K_2}{K_1} = \frac{E_a}{R}\left(\frac{1}{T_1} - \frac{1}{T_2}\right)$$

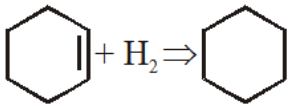
$$\ln 2 = \frac{E_a}{R}\left(\frac{1}{300} - \frac{1}{310}\right)$$

$$E_a = \frac{0.693 \times 300 \times 310 \times 8.314 \times 10^{-3}\ \text{kJ}}{10}$$

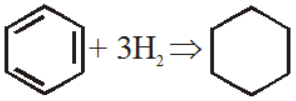
$E_a = 53.6\ \text{kJ mol}^{-1}$

47. Ans (2)

Given



$; \Delta H_{rxn} = -119\ \text{kJ mol}^{-1}$



$; \Delta H_{rxn} \Rightarrow -208\ \text{kJ mol}^{-1}$

$\Rightarrow \Delta H(C_6H_6)$ Hydrogenate

R.E. $= 3\Delta H_{Hydro}$  $- \Delta H_{Hydro}(C_6H_6)$

$\Delta H_{Hydro.}(C_6H_6) = 3\Delta H_{Hydro}$  $+ \text{R.E.}$

$\Rightarrow 3(-119) - (-208)$

$\Rightarrow -357 + 208$

$\Rightarrow -149\ \text{kJ mol}^{-1}$

48. Ans (3)

$PCl_5 \rightleftharpoons PCl_3 + Cl_2$

1 mole x x

(1 – x) (Given (x = 0.2)

(1 – 0.2) 0.2 0.2 V = 2L

$$K_C = \frac{0.2 \times 0.2}{0.8} \times \left(\frac{1}{2}\right)^1$$

$$= \frac{0.1}{4} = 0.025$$

49. Ans (2)

Higher the energy gap between shell; Lower will be wavelength of photon emitted.

50. Ans (3)

$$-\frac{1}{2}\frac{\Delta(N_2O_5)}{\Delta t} = +\frac{\Delta[O_2]}{\Delta t}$$

$$\Rightarrow -\frac{1}{2}\frac{\Delta[N_2O_5]}{\Delta E} = \frac{2 \times 10^{-3}}{100}$$

$$\Rightarrow \frac{-\Delta[N_2O_5]}{\Delta t} = 4 \times 10^{-5} \text{Ms}^{-1}$$

51. Ans (4)

Equilibrium constant depend on the expression (the coefficient of reactants & products in a given balanced equation) and temperature.

53. Ans (3)

By reaction

$E^{o}_{Cell} = SOP_{Anode} + SRP_{Cathode}$

$= E^{o}_{Zn/Zn^{2+}} + E^{o}_{Cu^{2+}/Cu} = x + y$

54. Ans (2)

Acetone

$C_3H_6O + 4O_2 \rightarrow 3CO_2 + 3H_2O$

vf = 4

vf. of $O_2 = 4$: It means for 1 mole O_2

4 mole electron are transferred so for 1 mole acetone ; 4 mole O_2 required.

Hence No. of mole of e– of transfered for 1 mole acetone = 4 × 4 = 16

55. Ans (4)

The terms which are not state functions will be the answer only (1) q is path function.

56. Ans (2)

$$\text{RLVP} = 0.025 = X_B = \frac{n}{N+n}$$

Let N + n = 1

$\Rightarrow$ n = 0.025 & N = 0.975

$\Rightarrow W_{H_2O} = 0.975 \times 18\text{g}$

$= 17.55\ \text{g}$

$$\therefore\ m = \frac{0.025}{17.55} \times 1000 = 1.42\ \text{mol/kg}$$

57. Ans (1)

$[OH^-] = C\alpha$

$= \frac{1}{10} \times 0.25 = 25 \times 10^{-3}$

$\Rightarrow$ pOH = $-\log(25 \times 10^{-3})$

$= 3 - 2\log 5$

$= 3 - 1.398 = 1.602$

$\Rightarrow$ pH = 14 – 1.602

= 12.398

$\approx$ 12.4

58. Ans (2)

$n_H = 0.35 \times 12$

$= 4.2$

$\Rightarrow$ Number of H-atoms = $4.2 \times 6.02 \times 10^{23}$

$= 2.53 \times 10^{24}$ atoms

59. Ans (1)

$d(\text{in } gL^{-1}) = \frac{M_w}{22.4}$

$\Rightarrow$ $0.714 \times 22.4g = M_w$

$\Rightarrow$ $M_w = 16$ g

From options, CH_4 has molar mass of 16 g.

61. Ans (4)

Nitrogen is a gas and diatomic in nature. Its halide NF_3 is stable whereas NCl_3 is unstable.

62. Ans (4)

$Cu^{+2} = 4s^0\ 3d^9$

During complex formation one e^- from 3d excited to 4p

so Hybridisation = dsp^2 (square planar)

63. Ans (3)

$\mu_s = 1.73$ So n = 1

To get 1 unpaired e^-, V loose 4 electrons to form V^{+4}. So, formula of chloride is VCl_4.

64. Ans (3)

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

65. Ans (4)

Common ion $\rightarrow SO_4^{-2} \rightarrow$ larger ion

Hydration energy dominant

So $BeSO_4 > MgSO_4 > CaSO_4 > SrSO_4 > BaSO_4$

66. Ans (2)

$[Co(ox)_3]^{-3} \Rightarrow [M(AA)_3]^{-3}$ type complex

All three symmetrical bidentate ligands bonded to central Co^{+3} cation.

67. Ans (2)

Be^{+2} B^{+2}

$1s^2$ $2s^1$

Mg^{+2} Al^{+2}

$2p^6$ $3s^1$

Be^{+2} = n ↓ I.P. ↑

68. Ans (4)

Calcination is heating of ore in absence of air

69. Ans (3)

Reactivity $\Rightarrow$ White > Red > Black

70. Ans (3)

Stability of complex $\propto$ No. of chelation ring.

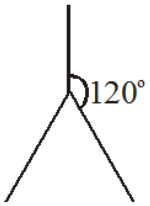
$\propto$ Strength of Ligand.

71. Ans (4)

Due to presence of inter molecule H-bond in Alcohol.

72. Ans (2)

One s + Two 'p' $\Rightarrow sp^2$



73. Ans (1)

$KO_2 \rightarrow K^+ + O_2^{\ominus}$

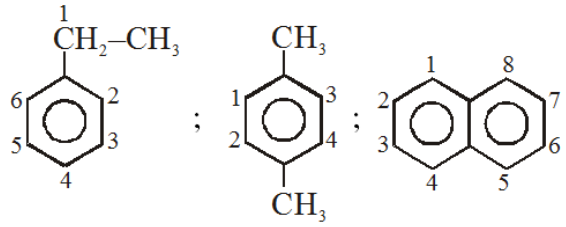
$BaO_2 \rightarrow Ba^{+2} + O_2^{-2}$

$MnO_2 \rightarrow Mn^{+4} + 2O^{2-}$

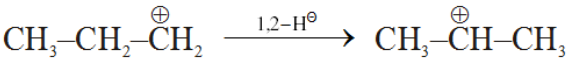
75. Ans (1)

Ca is obtained from electrolysis of molten salt of Ca.

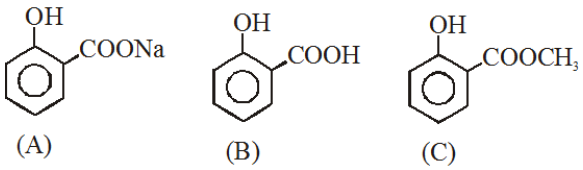
76. Ans (2)



77. Ans (2)



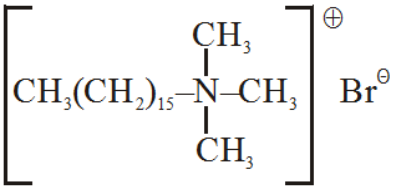
78. Ans (4)



79. Ans (2)

N,N–Dimethyl aniline is a tertiary amine. It does not react with Hinsberg reagent.

80. Ans (1)



Hydrocarbon chain is the +ve part of reagent.

81. Ans (3)

In Gabriel pthalimide reaction, Aniline cannot be prepared as aryl halide does not shows NSR.

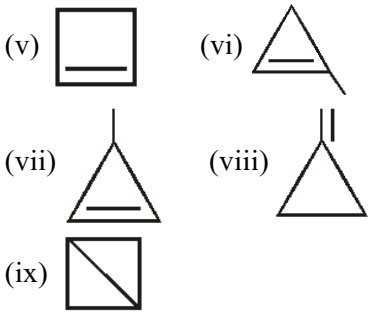
82. Ans (4)

(i) $CH_3–CH_2–C\equiv CH$

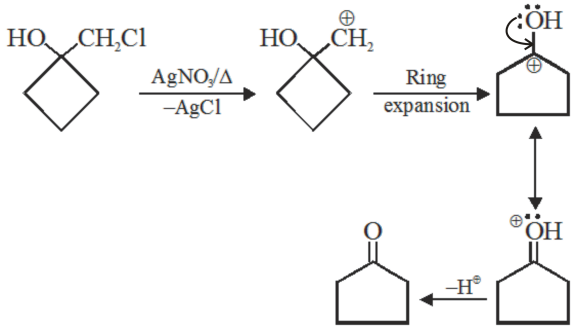
(ii) $CH_3–C\equiv C–CH_3$

(iii) $CH_2=C=CH–CH_3$

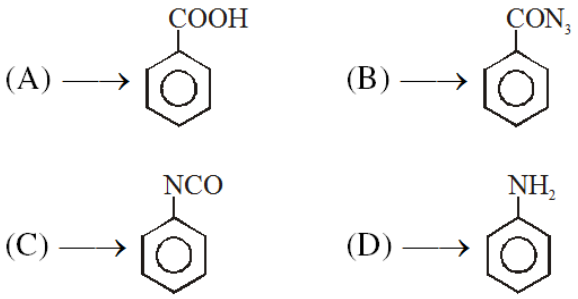
(iv) $CH_2=CH–CH=CH_2$



83. Ans (2)



84. Ans (1)

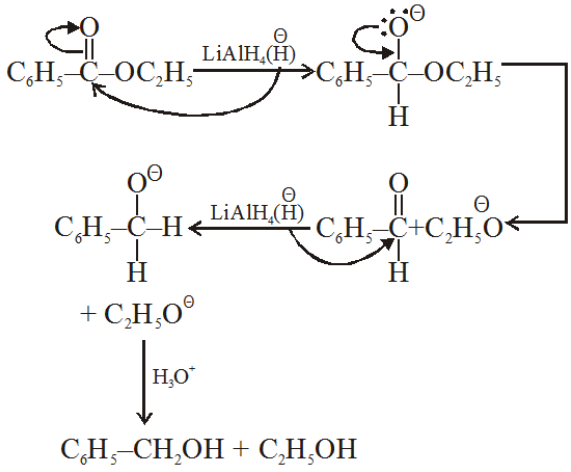


85. Ans (3)

Reactivity towards NSR $\propto$ Electrophilicity of carbonyl carbon

$$\propto \frac{EWG\,(-)}{EDG\,(+)}$$

86. Ans (4)



87. Ans (1)

$$\text{Acidic strength} \propto \frac{1}{\text{distance of -I group}}$$

Acidic strength $\propto$ No. of –I group

Acidic strength $\propto$ Strength of –I group

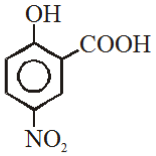
88. **Ans (4)**

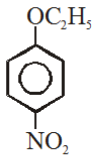
Meso contains chiral atoms but are optically inactive due to internal compensation.

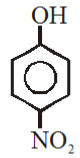
89. **Ans (3)**

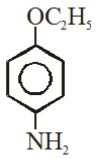
$$\underset{(4C)}{CH_3CH_2CH_2COONa} \xrightarrow{NaOH/CaO} \underset{(1C\ less)}{CH_3CH_2CH_3}$$

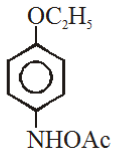
90. **Ans (4)**

(P) → 

(X) → 

(Q) → 

(Y) → 

(Z) → 

92. **Ans (3)**

NCERT Page # 87

98. **Ans (1)**

NCERT-XII Pg # 201,203,204

106. **Ans (1)**

Rennin in enzyme remaining all are hormones

112. **Ans (1)**

Vasso pressin (ADH) responsible for reabsorption of water in distal part of nephron.

115. **Ans (2)**

NCERT Pg. # 79,80,81 (E/H)

117. **Ans (3)**

NCERT Pg. # 74,79, Fig. 5.15(d)

121. **Ans (2)**

NCERT Pg. # 156, 157

124. **Ans (3)**

NCERT-XI, Pg # 319

129. **Ans (2)**

NCERT Pg # 48, para 4.15

131. **Ans (3)**

Module#5 Pg.#50

134. **Ans (4)**

NCERT (XI) Pg. # 136, 8.5.6 2nd line last para

139. **Ans (1)**

NCERT XI Pg # 145

142. **Ans (1)**

NCERT-XI ; Page # 09

143. **Ans (4)**

NCERT-XI, Pg. # 17, para-1

148. **Ans (1)**

NCERT (XI) Pg. # 35

156. **Ans (3)**

NCERT (XIIth) Pg. # 60,61

157. **Ans (3)**

NCERT Pg.# 64

160. **Ans (2)**

NCERT (XIth) Pg. # 102

162. **Ans (4)**

NCERT XI Pg. # 157 (Temperature & pH)

163. **Ans (3)**

NCERT XI Pg. # 178 (Table 11.1)

164. **Ans (4)**

Module-3 Pg.# 167,173

168. **Ans (3)**

NCERT XI Pg.# 230

169. **Ans (1)**

NCERT Pg. # 248

171. **Ans (4)**

NCERT (XII) Pg. # 271, para-16.1

174. **Ans (4)**

NCERT Pg. # 264