Enthusiast, Leader & Achiever Course

PHASE : ALL PHASE

TARGET : PRE-MEDICAL 2020

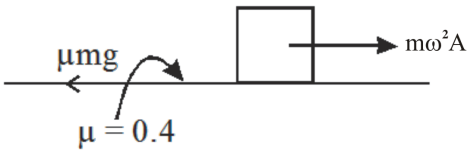
Test Type :**MAJOR** Test Pattern :**NEET (UG)**

TEST DATE : 24-07-2020

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

HINT – SHEET

1. Ans (2)



$\mu mg \geq m\omega^2 A$

$A \leq \frac{\mu g}{\omega^2}$

$\leq \frac{0.4 \times g}{(2\pi f)^2}$

$\leq \frac{0.4}{4 \times 4}$

≤ 0.025 m

≤ 2.5 cm

2. Ans (4)

$X = A \sin \omega t$ $\quad A/2 = A \sin \omega t$

$\omega t = \frac{\pi}{6} t = \frac{\pi}{(6\omega)} = \frac{\pi}{6} \times 2\pi \quad t = \frac{T}{12}$

time taken to reach from x = 0 to

$x = \frac{A}{2}$ is $\frac{T}{12}$

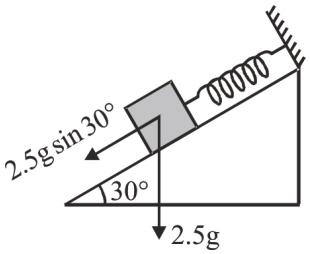
average velocity $\frac{\text{displacement}}{\text{time}} = \frac{A/2}{\frac{T}{12}}$

$= \frac{1 \times 24}{2 \times 1} = 12$ cm/s

3. Ans (2)

As x = 2.5 cm, hence, in equilibrium,

$2.5g \sin 30° = kx$



$$\therefore \quad k = \frac{2.5g \sin 30°}{2.5 \times 10^{-2}} = \frac{2.5 \times 9.8 \times (1/2)}{2.5 \times 10^{-2}}$$

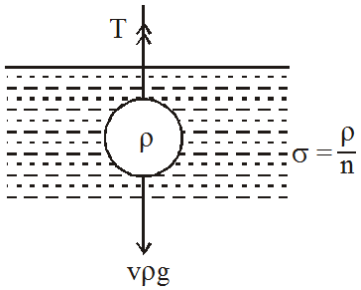
$$= 4.9 \times 10^2 \text{ N/m}$$

$$\omega = \sqrt{\frac{k}{m}} = \sqrt{\frac{4.9 \times 10^2}{2.5}} = \frac{70}{5} = 14$$

4. Ans (2)

$$t = 2\pi\sqrt{\frac{L}{g_{eff}}}$$

$$g_{eff} = \frac{\text{Tension in the string}}{\text{mass of bob}}$$



$T + v\sigma g = v\rho g$

$$T = v\rho g - v\frac{\rho}{n}g$$

$$T = v\rho g\left(1 - \frac{1}{n}\right)$$

$$\frac{T}{m} = g\left(1 - \frac{1}{n}\right)$$

$$t = 2\pi\sqrt{\frac{L}{g\left(1 - \frac{1}{n}\right)}}$$

5. Ans (4)

In damped oscillation, amplitude goes on decaying exponentially.

$a = a_0 e^{-bt}$ where b = damping coefficient.

Initially, $\frac{a_0}{3} = a_0 e^{-b \times 100T}$, T = time of one oscillation

or $\frac{1}{3} = e^{-100bT}$ ...(i)

Finally, $a = a_0 e^{-b(200T)}$ or $a = a_0 e^{(-100bT)2}$

or $a = a_0 \times \left[\frac{1}{3}\right]^2$ [From (i)]

or $a = a_0/9$,

Energy of oscillation $E \propto a^2$

$$E = \frac{E_0}{81}$$

6. Ans (4)

$$R_X = \frac{\rho a}{bc}$$

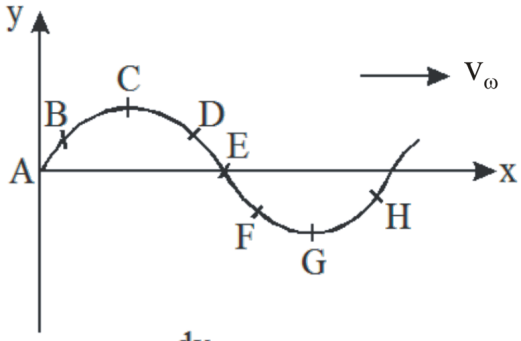
$$R_Y = \frac{\rho c}{ab}$$

$$R_Z = \frac{\rho b}{ac}$$

$$R_X : R_Y : R_Z = \frac{a}{bc} : \frac{c}{ab} : \frac{b}{ac} = a^2 : b^2 : c^2$$

(multiple each ratio by abc)

7. Ans (4)



$$V_p = \frac{-dy}{dx}(V_\omega)$$

V_w = +ve, velocity is maximum at mean position as A, E are M.p so velocity will be maximum.

	A	B	C	D	E	F	G	H
slope	+	+	0	−	−	−	0	+
V_p	−	−	0	+	+	+	0	−

8. **Ans (1)**

$$\text{Time period, } T = 2\pi\sqrt{\frac{\ell}{g}}$$

$$\frac{\Delta T}{T} = \frac{1}{2}\frac{\Delta \ell}{\ell} = \frac{1}{2}\alpha\Delta\theta$$

$$= \frac{1}{2} \times 12 \times 10^{-6} \times (40 - 20)$$

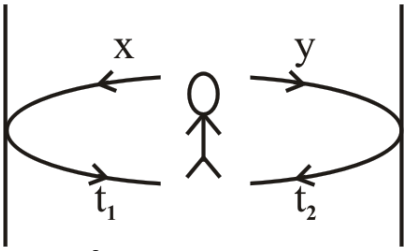
$$= 12 \times 10^{-5}$$

$$\Delta T = T \times 12 \times 10^{-5}$$

$$= 24 \times 60 \times 60 \times 12 \times 10^{-5}$$

$$= 10.3 \text{ s day}^{-1}$$

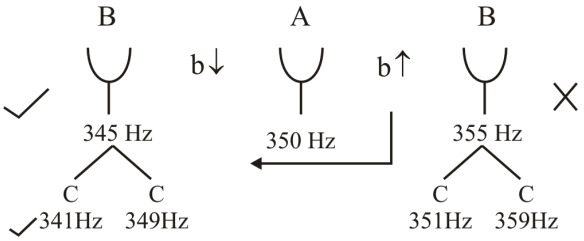
9. **Ans (4)**



$$\frac{2x}{v} + \frac{2y}{v} = 1.5 + 2.5$$

$$(x + y) = \frac{v}{2} \times 4 = 660 \text{ m}$$

10. **Ans (2)**



11. **Ans (3)**

$$f_{close} = \frac{3v}{4L} = \frac{3}{4L}\sqrt{\frac{B}{\rho_1}}$$

$$f_{open} = \frac{2v}{2L'} = \frac{1}{L'}\sqrt{\frac{B}{\rho_2}}$$

$$f_{open} = f_{close}$$

$$\frac{1}{L'}\sqrt{\frac{B}{\rho_2}} = \frac{3}{4L}\sqrt{\frac{B}{\rho_1}}$$

$$L' = \frac{4L}{3}\sqrt{\frac{\rho_1}{\rho_2}}$$

12. **Ans (4)**

$$b = \left(\frac{v + v_0}{v}\right) f - \left(\frac{v - v_0}{v}\right) f$$

$$= \frac{2v_0 f}{v}$$

$$= \frac{2 \times 2 \times 800}{320} = 10$$

13. **Ans (2)**

$$\Delta l_C = \Delta l_A + \Delta l_B$$

$$\Rightarrow 0.06 = \frac{0.075}{20 \times 100} \times \ell \times 100 + \frac{0.045}{20 \times 100}$$

$$(20 - \ell) \times 100$$

$$\Rightarrow \ell = 10 \text{ cm}$$

14. **Ans (2)**

$$Q = ms\Delta T$$

$$\Delta T = \frac{200 \times 1000 \text{ Cal}}{0.83 \times 60 \times 1000} = 4.01 \text{ °C}$$

15. **Ans (4)**

$$\text{in series } K_{eq} = \frac{L_1 + L_2}{\frac{L_1}{K_1} + \frac{L_2}{K_2}} = \frac{x + 4x}{\frac{x}{K} + \frac{4x}{2K}} = \frac{5K}{3}$$

$$\frac{dQ}{dt} = \frac{\Delta T}{R_{eq.}} = \frac{(T_2 - T_1)}{\frac{5x}{K_{eq.}A}} = \frac{5K}{3}\frac{(T_2 - T_1)A}{5x}$$

$$\text{on compairing } f = \frac{1}{3}$$

16. **Ans (3)**

Rate of heat flow,

$$\frac{dQ}{dt} = \frac{KA(\Delta T)}{\Delta \ell} = \text{Cons tan t}$$

$$\Rightarrow \Delta T \propto \frac{1}{A}$$

Therefore temperature difference across AB is less than that of across CD.

18. Ans (1)

$\Delta U_{cyclic} = 0$

$\Rightarrow \quad \Delta Q_{cyclic} = \Delta W_{cyclic}$

$\Rightarrow \quad \Delta Q_{cyclic} = \Delta W_{AB} + W_{BC} + W_{CA}$

$\Rightarrow \quad 5 = 10(2-1) + 0 + W_{CA}$

$\Rightarrow \quad W_{CA} = -5\ J$

19. Ans (3)

$Q = W + \Delta U$

$\Delta U = 0$ in cyclic process

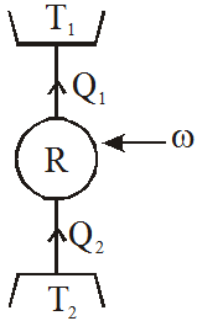
$Q = W$ = area enclosed by curve

$= \pi ab$

$= \pi \times 10 \times 10^3 \times 10 \times 10^{-3}$

$= 10^2\pi\ J$

20. Ans (3)



$\beta = \dfrac{T_2}{T_1 - T_2}$

$\Rightarrow \quad 5 = \dfrac{273 - 13}{T_1 - 260}$

$\Rightarrow \quad T_1 - 260 = \dfrac{260}{5} = 52$

$\Rightarrow \quad T_1 = 260 + 52 = 312\ K = 39°C$

21. Ans (4)

Energy density of wave is given by

$u = 2\pi^2 n^2 \rho\, a^2$

Or $u \propto a^2$ (as n and ρ are constant)

$\dfrac{u_1}{u_2} = \dfrac{a_1^2}{a_2^2} = \dfrac{5^2}{2^2} = \dfrac{25}{4}$

22. Ans (1)

at t = 0 $\qquad y = 10\sin\left(\dfrac{\pi}{3}\right) = 5\sqrt{3}m$

$v = \dfrac{dy}{dt} = 60\cos\left(6t + \dfrac{\pi}{3}\right)$

at t = 0

$v = 60 \times \dfrac{1}{2} = 30m/s$

23. Ans (1)

$K_f = \dfrac{K_e \text{ at } A/2}{K_{Total}} = \dfrac{\frac{1}{2}m\omega^2\left(A^2 - \frac{A^2}{4}\right)}{\frac{1}{2}m\omega^2 A^2}$

$\Rightarrow K_f = \dfrac{3}{4}$

24. Ans (3)

$m_1 = M,\ T_1 = T$

$m_2 = M,\ T_2 = \dfrac{5T}{3}$

$\dfrac{T_1}{T_2} = \dfrac{2\pi\sqrt{m_1/k}}{2\pi\sqrt{m_2/k}} = \sqrt{\dfrac{m_1}{m_2}} = \sqrt{\dfrac{M}{M+m}}$

or $\dfrac{M+m}{M} = \left(\dfrac{T_2}{T_1}\right)^2 = \left(\dfrac{5T/3}{T}\right)^2 = \dfrac{25}{9}$

$\therefore \quad \dfrac{m}{M} = \dfrac{16}{9}$

25. Ans (1)

$(N+1)T_S = NT\ell$ because $T \propto \sqrt{\ell}$

$\Rightarrow \quad \dfrac{N+1}{N} = \sqrt{\dfrac{\ell\ell}{\ell_S}} = \sqrt{\dfrac{2}{0.5}} = 2$

$\Rightarrow \quad \dfrac{N+1}{N} = 2 \Rightarrow N = 1 \Rightarrow N + 1 = 2$

26. Ans (1)

Let time taken "t" sec to complete

50 oscillations than time to complete

150 oscillation = 3 t

$a = a_0 e^{-\gamma t}$

$(0.8a_0) = a_0 e^{-\gamma t}$

$e^{-\gamma t} = 0.8 \qquad ....(1)$

$a = a_0 e^{-\gamma t}$

$a = a_0\left(e^{-\gamma t}\right)^3$

$a = a_0(0.8)^3$

$= 0.512\ a_0$

27. Ans (3)

$$T = 2\pi\sqrt{\frac{\ell}{g}}$$

$$T = 2\pi\sqrt{\frac{\frac{m\ell^2}{3}}{mg\frac{\ell}{2}}} = 2\pi\sqrt{\frac{2\ell}{3g}}$$

28. Ans (3)

$$\frac{v_{p\,max}}{v_\omega} = KA = \frac{2\pi}{5}a$$

29. Ans (1)

$$T = V^2\mu = \left(\frac{\omega}{k}\right)^2\mu$$

$$= \left(\frac{30}{1}\right)^2 \times 10^{-4} = 0.09\ N$$

30. Ans (1)

$$v_0 = \sqrt{\frac{7}{5}\frac{RT}{2}}$$

$$v_{mix} = \sqrt{\frac{\gamma_{mix}\,RT}{MW_{mix}}}$$

$$f_{mix} = \frac{n_1 f_1 + n_2 f_2}{n_1 + n_2} = 4$$

$$\gamma_{mix} = 1 + \frac{2}{f_{mix}} = \frac{3}{2}$$

$$MW_{mix} = \frac{2+4}{2} = 3$$

Therefore

$$v_{mix} = \sqrt{\frac{\frac{3}{2}RT}{3}} = \sqrt{\frac{5}{7}}v_0$$

31. Ans (1)

$$n' = n\left(\frac{v + v_t}{v - v_t}\right) = 1000\left(\frac{330+220}{330-220}\right)$$

$$= 1000 \times \frac{550}{110} = 5000Hz$$

32. Ans (2)

At the bottom most point , square of speed of bob

$v^2 = 2gL(1 - \cos\alpha)$

It will rise further to a height

$$h = \frac{v^2}{2g} = L(1 - \cos\alpha)$$

or $(L - \ell)(1-\cos\theta) = L(1 - \cos\alpha)$

$$\therefore\ \theta = \cos^{-1}\left[\frac{L\cos\alpha - \ell}{L - \ell}\right]$$

33. Ans (3)

$$f = \frac{1}{2\ell}\sqrt{\frac{T}{\mu}}$$

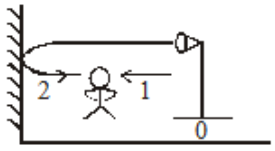
If radius is doubled and length is doubled, mass per unit length will become four times. Hence

$$f' = \frac{1}{2\times 2\ell}\sqrt{\frac{2T}{4\mu}} = \frac{f}{2\sqrt{2}}$$

34. Ans (2)

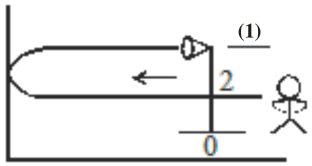
There are two position of observer

(1)



$f_1 = f_2 \qquad \Delta f = 0$

(2)



$$f_1 = \left(\frac{v}{v + v_s}\right)f$$

$$f_2 = \left(\frac{v}{v - v_s}\right)f$$

$$\Delta f = f_2 - f_1 = v\left(\frac{(v + v_s) - (v - v_s)}{(v^2 - v_s^2)}\right)f$$

$$\Delta f = \left(\frac{2v_s\,v}{v^2 - v_s^2}\right)f \qquad (v_s << v)$$

$$\Delta f \simeq \frac{2v_s}{v}f$$

$$\Delta f \simeq \frac{2\times 4}{320} \times 240$$

$$\Delta f = 6$$

35. Ans (2)

Number of maxima = 18

Number of minima = 20

36. Ans (1)

$P = kV \Rightarrow PV^{-1} = \text{Constant}$

By using $C = C_v + \frac{R}{1-x}$ (for $PV^x = \text{Constant}$)

We have $C = \frac{3}{2}R + \frac{R}{1-(-1)} = 2R$

Therefore heat supplied

$Q = nC\Delta T = 1\,(2R)\,(2T_0 - T_0) = 2RT_0$

37. Ans (1)

Heat loss = Heat gain

$mL_V + mS_W\,(100 - 90) = 22S_w\,(90 - 20)$

$m[540 + 10] = 22 \times 1 \times 70$

$m = \frac{22 \times 70}{550} = 2.8$ gm

Mass of water = 22 + 2.8 = 24.8 gm

38. Ans (1)

As heat current is same in all cross section so option (1) is correct

39. Ans (1)

$\frac{62-50}{10} = k\left[\frac{62+50}{2} - 26\right]$ .....(1)

$\frac{50-T}{10} = k\left[\frac{50+T}{2} - 26\right]$ .....(2)

(1)/(2) $\Rightarrow$ T = 42°C

40. Ans (3)

Mole conservation

$n_1 + n_2 = n'_1 + n'_2$

$\frac{PV}{R(300)} + \frac{PV}{R(300)} = \frac{P'V}{R(600)} + \frac{P'V}{R(300)}$

$2P = P'\left(\frac{1}{2} + 1\right)$

$P' = \frac{4}{3}P = \frac{4}{3} \times 1 = \frac{4}{3}$ atm

41. Ans (1)

Theory

$C_p - C_v = \frac{R}{M.W.}$

whre C_p & C_v are gm specific heat.

42. Ans (1)

$VT = k$

From Ideal gas equation pv=nRT

$PV^2 = \text{Constant}$

For polytrophic

$\Rightarrow W = \frac{P_1V_1 - P_2V_2}{x-1}$

$= nR\frac{(T_1 - T_2)}{x-1} = \frac{-nR\Delta T}{2-1} = -nR\Delta T$

$Q = \Delta U + W$

$Q = \frac{3}{2}R\Delta T - nR\Delta T = \frac{1}{2}R\Delta T$

44. Ans (2)

$\eta = 1 - \frac{T_2}{T_1} \Rightarrow \frac{W}{3000\text{ kcal}} = 1 - \frac{300}{900}$

$\Rightarrow W = \frac{2}{3} \times 3000\text{ kcal} = 2000\text{ kcal}$

$= 2 \times 4.2 \times 10^6$ J

$= 8.4 \times 10^6$ J

45. Ans (4)

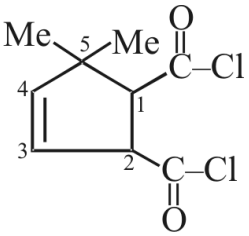
$\gamma = \frac{\Delta V}{V} \times \frac{1}{\Delta\theta} = \frac{25}{100} \times \frac{1}{80} = 0.0031°C$

46. Ans (4)

Furane Thiophene Pyridine

Heterocyclic compounds

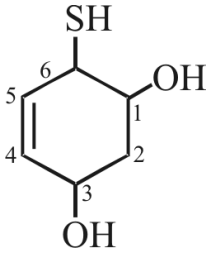
47. Ans (4)



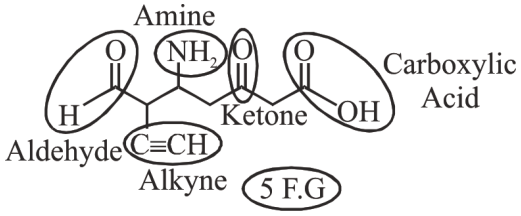
5,5-Dimethyl cyclopent-3-ene-1,2-di carbonyl chloride

48. Ans (3)

Priority order –OH > –SH



50. Ans (3)



51. Ans (4)

Homologous compound have same F.G. but different molecular formulae.

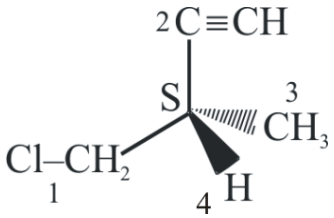
52. Ans (3)

Fact

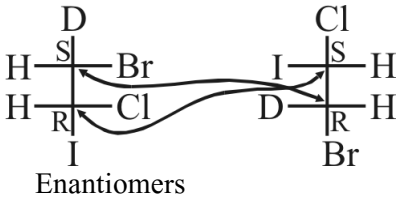
53. Ans (4)

Same molecular formula

54. Ans (4)

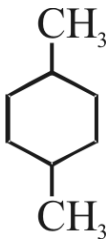


55. Ans (1)



Enantiomers

56. Ans (2)



It does not have chiral carbon

57. Ans (3)

Stability order :

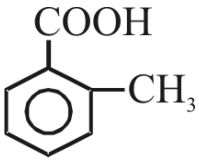
Anti > Gauche > Partially eclipsed > Fully eclipse

58. Ans (3)

$HC\equiv C-H < H2CO_3$

Acidic strength hence it HC≡CH does not react with $NaHCO_3$

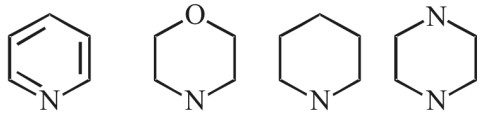
59. Ans (3)



Due to ortho effect it is most acidic

60. Ans (3)

Basic strength $\propto \frac{+M/+H/+I}{-M/-H/-I}$



More EN of nitrogen | More –I of oxygen | +I | Less –I of nitrogen

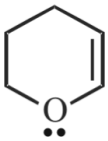
61. Ans (3)

Bond length C–N > C ····· N > C ═ N

62. Ans (4)

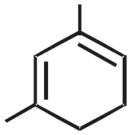
Fact

63. Ans (3)



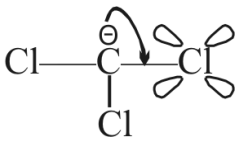
It has conjugation

64. Ans (3)



Resonance and hyperconjugation

65. Ans (4)

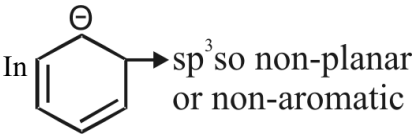


d-orbital resonance

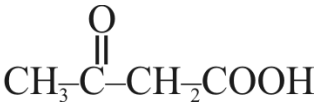
66. **Ans (3)**

Bridge head cannot be sp^2 hybridised

67. **Ans (3)**

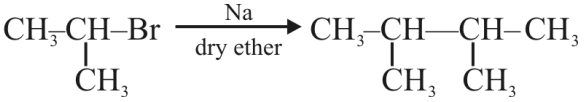


68. **Ans (2)**

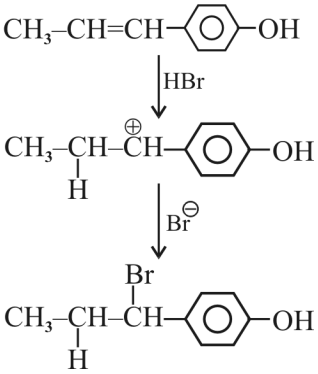


β-keto acid is highly reactive for dicarboxylation

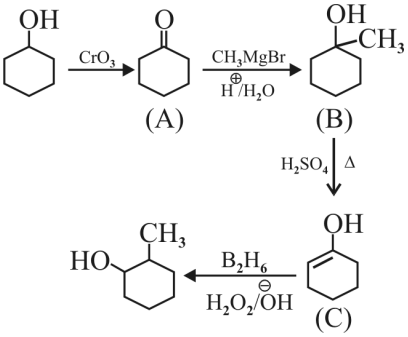
69. **Ans (2)**



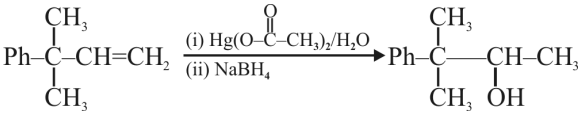
70. **Ans (2)**



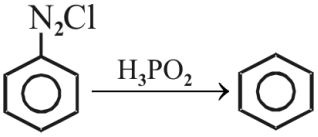
71. **Ans (4)**



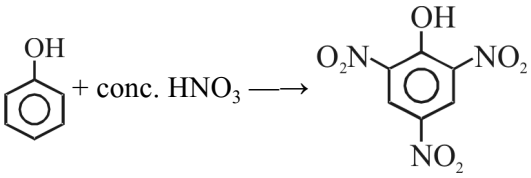
72. **Ans (2)**



73. **Ans (2)**



74. **Ans (3)**



75. **Ans (2)**

Rate of ESR $\propto \dfrac{+M/+H/+I}{-M/-H/-I}$

76. **Ans (4)**

Fact

77. **Ans (1)**

Clean water have BOD less than 5 ppm and polluted water have BOD 17ppm or more

78. **Ans (1)**

Fact

79. **Ans (4)**

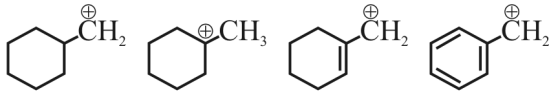
Fact

80. **Ans (2)**

Fact

81. **Ans (4)**

IV > III > II > I



(I)	(II)	(III)	(IV)
Reso(-)n$^+$ (1°)	Reso(-)n$^+$ (3°)	Reso↑	Reso↑↑

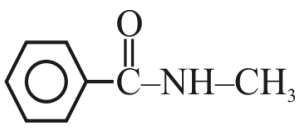
82. **Ans (4)**

Stability of free radical ∝ Resonance

∝ Hyperconjugation

∝ +I

83. **Ans (4)**

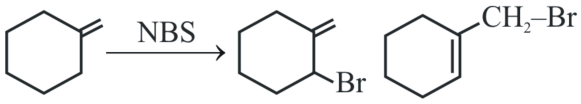


Not give Hoffmann bromamide reaction

84. **Ans (4)**

Fact

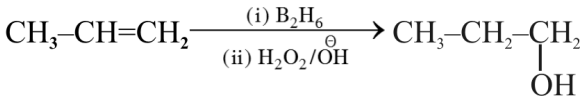
85. Ans (4)



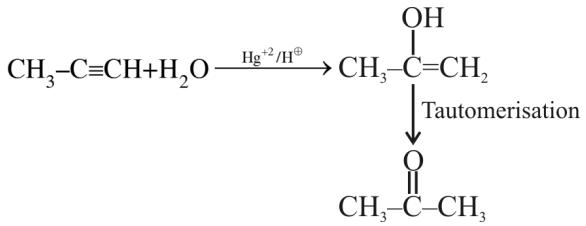
86. Ans (1)

Alkanes are non-polar

87. Ans (3)



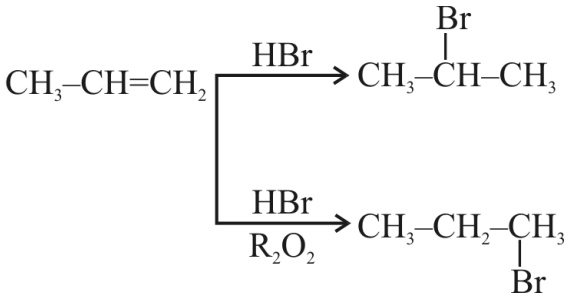
88. Ans (3)



89. Ans (3)

Rate of $S_N1 \propto$ Stability of $C^{\oplus}$

90. Ans (2)



118. Ans (3)

NCERT Pg. # 316 (E)

120. Ans (1)

NCERT Pg. # 316 (E)

121. Ans (3)

NCERT Pg. # 316 (E)

122. Ans (3)

NCERT Pg. # 318 (E)

123. Ans (2)

NCERT Pg. # 319 (E)

124. Ans (1)

NCERT Pg. # 318 (E)

125. Ans (4)

NCERT (XIth) Pg. # 300/ 2nd Last para Last line

126. Ans (4)

NCERT (XIth) Pg. # 296

127. Ans (2)

NCERT (XIth) Pg. # 297/ 4rd Para 1st Line

128. Ans (4)

NCERT (XIth) Pg. # 297/ Topic 19.5 Last Para

129. Ans (4)

NCERT (XIth) Pg. # 292 (Fig 19.2)

162. Ans (2)

NCERT (XIth) (E), Fig.-16.4, Pg. # 260
NCERT (XIth) (H), Fig.-16.4, Pg. # 260

163. Ans (2)

NCERT (XIth) (E), Para-1, Pg. # 260

164. Ans (4)

NCERT New update

165. Ans (1)

NCERT (XIth) (E), Para-1, Pg. # 262
NCERT (XIth) (H), Para-1, Pg. # 262

166. Ans (3)

NCERT (XIth) (E), Tab.-16.1, Pg. # 264
NCERT (XIth) (H), Tab.-16.1, Pg. # 264

167. Ans (3)

NCERT (XIth) (E), Para-3, Pg. # 257
NCERT (XIth) (H), Para-4, Pg. # 257

168. Ans (2)

NCERT (XIth) (E), Para-1, Pg. # 259
NCERT (XIth) (H), Para-2, Pg. # 259

169. Ans (2)

NCERT New update

174. Ans (4)

NCERT Page no. 332

176. Ans (4)

NCERT (XI) Pg. # 333