Enthusiast, Leader & Achiever course

PHASE : (ALL PHASE)

TARGET : PRE-MEDICAL 2020

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

TEST DATE : 20-06-2020

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

HINT – SHEET

1. Ans (1)

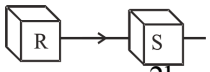
$$I = \frac{dQ}{dt} = 2\alpha t - \beta$$

$i_1 = 2\alpha t_1 - \beta$ and $i_2 = 2\alpha t_2 - \beta$

$i_1 - i_2 = 2\alpha(t_1 - t_2)$

2. Ans (2)

Both plates have same thickness,let thickness is d.



$$R_R = \frac{\rho l}{ld} \quad \text{and} \quad R_S = \frac{\rho 2l}{2ld} \quad \therefore \quad \frac{R_R}{R_S} = 1$$

3. Ans (1)

Resistance in the branch ADC,R_1=3Ω+7Ω=10Ω

Since, arms ADC (10Ω) and AC (10Ω) are in parallel their equivalent resistance,

$$R_2 = \frac{10 \times 10}{10 + 10}\Omega = 5\Omega$$

Since, R_2 is in series with 9Ω in arm AB, equivalent resistance, $R_3 = 5\Omega + 9\Omega = 14\Omega$

As R_3 is in parallel with 5Ω in arm BC, equivalent resistance between B and C,

$$\text{i.e.,} R_{BC} = \frac{14 \times 5}{14 + 5} = \frac{70}{19}\Omega$$

4. Ans (4)

By using KCL at P

$$\frac{V_P - 9}{6+3} + \frac{V_P + 9}{9} + \frac{V_P + 1.5}{1.5} + \frac{V_P - 18}{6+3} = 0$$

$\Rightarrow V_P = 1$ V

5. Ans (2)

$$\gamma_r = 7\gamma_s$$

Hence, $\gamma_a = \gamma_r - \gamma_s = 7\gamma_s - \gamma_s = 6\gamma_s$

$$\therefore \quad \frac{\text{Real expansion}}{\text{Apparent expansion}} = \frac{V\gamma_r\Delta\theta}{V\gamma_a\Delta\theta} = \frac{\gamma_r}{\gamma_a} = \frac{7\gamma_s}{6\gamma_s} = \frac{7}{6}$$

6. Ans (3)

Heat gain by Ice = Heat loss by water

$-20^\circ C \underset{\text{Ice}}{\rightarrow} 0^\circ C \underset{\text{Ice}}{\quad} 0^\circ C \underset{\text{water}}{\rightarrow} 10^\circ C \underset{\text{water}}{\quad}$

$m_i S_i \Delta Q_i = m_w S_w \Delta Q_w$

$10 \times \frac{1}{2} \times 20 = 10 \times 1 \times 10$

Final condition $\Rightarrow$ 0°C Ice of 10g

+

0°C water of 10g

7. **Ans (4)**

$$\frac{Q}{t} \propto \frac{A}{\ell}$$

$$\frac{(Q/t)_1}{(Q/t)_2} \propto \frac{r_1^2}{r_2^2} \cdot \frac{\ell_2}{\ell_1}$$

$$\frac{(Q/t)_1}{(Q/t)_2} \propto \left(\frac{1}{2}\right)^2 \cdot \frac{1}{2}$$

$$\frac{(Q/t)_1}{(Q/t)_2} \propto \frac{1}{8}$$

8. **Ans (4)**

$$\frac{E}{E'} = \frac{\sigma(400)^4 \times 8 \times 4}{\sigma(600)^4 \times 4 \times 2}$$

$$\frac{E}{E'} = \left(\frac{2}{3}\right)^4 \times 4$$

$$E = \frac{81}{64}E$$

9. **Ans (3)**

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

Density ρ remains constant when P/T or volume remains constant. In graph (i) volume is decreasing, hence is increasing; while in graph (ii) and (iii) volume is increasing, hence, density is decreasing. Note that volume would have been constant in case the straight line in graph (iii) had passed through origin.

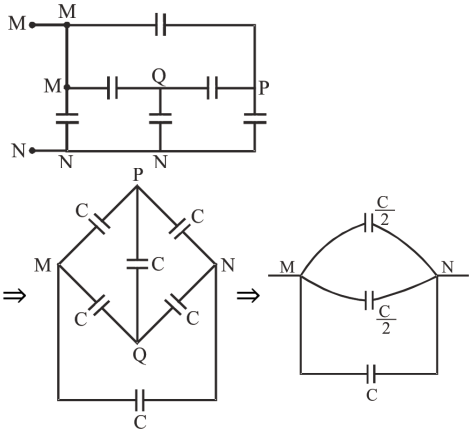
10. **Ans (4)**

Energy store in capacitor is U : $\frac{1}{2}QV$

Area of graph : $\frac{1}{2}QV$

Then area of triangle OAB represents energy stored in the capacitor.

11. **Ans (2)**



$\Rightarrow C_{eq} = 2C = 2 \times 4 = 8\ \mu F.$

12. **Ans (1)**

Capacitor behaves as short circuit. So equivalent resistance = $\frac{3R}{2}$. Hence $I = \frac{2V}{3R}$

13. **Ans (4)**

Given graph is a sine curve for displacement so force or acceleration curve will be negative of it.

14. **Ans (1)**

$$T \propto \sqrt{M}$$

$$\frac{T_1}{T_2} = \sqrt{\frac{M}{2M}}$$

$$T_2 = \sqrt{2}\,T$$

16. **Ans (4)**

Potential of both spheres are same so no charge will flow.

17. **Ans (4)**

radius of n^{th} orbit $r_n \propto n^2$

$$F = \frac{kq_1q_2}{r_1^2}$$

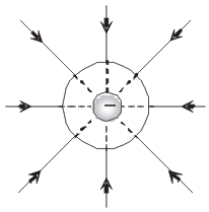
$$F' \propto \frac{1}{r_n^2} \qquad F' \propto \frac{1}{(n^2)^2}$$

$$F' \propto \frac{1}{n^4}$$

$$F' \propto \frac{F}{n^4}$$

18. **Ans (3)**

Electric lines force due to negative charge are radially inward.



20. **Ans (1)**

$$F = 9\sqrt{2}$$

$$3000 = 3 \times \sqrt{2}$$

$$E = 1000\ N/C$$

$$E = \frac{V}{d}$$

$$V = Ed$$

$$= 1000 \times 10^{-2}$$

$$= 10\ volt$$

21. Ans (4)

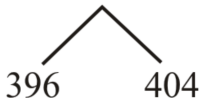
When pulse is reflected from a rigid support, the pulse is inverted both lengthwise and sidewise

22. Ans (4)

Frequency of tunning fork 400 Hz

then for 4 beats/sec

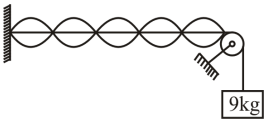
Frequency of stretched wire



If $T\uparrow \Rightarrow f\uparrow$

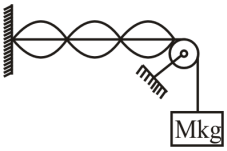
It beats remain constant then frequency of wire is = 396 Hz

23. Ans (1)



$\frac{5\lambda}{2} = \ell$ $\qquad f_1 = \frac{v}{\lambda} = \frac{5v}{2\ell}$

$f_1 = \frac{5}{2\ell}\sqrt{\frac{T}{u}}$ $\qquad f_1 = \frac{5}{2\ell}\sqrt{\frac{9g}{u}}$



$\frac{3\lambda}{2} = \ell$ $\qquad f_2 = \frac{v}{\lambda} = \frac{3v}{2\ell}$

$f_2 = \frac{3}{2\ell} = \sqrt{\frac{T}{u}}$ $\qquad f_2 = \frac{3}{2\ell}\sqrt{\frac{Mg}{u}}$

$f_1 = f_2$ (resonance with T.F.)

$\frac{5}{2\ell}\sqrt{\frac{9g}{u}} = \frac{3}{2\ell}\sqrt{\frac{Mg}{u}}$

$\frac{25}{9} = \frac{9}{M}$ $\qquad M = 25$ kg

24. Ans (1)

When the train is approaching the stationary observer frequency heard by the observer

$n' = n\left[\frac{v}{v - v_s}\right]$

when the train is moving away from the observer then frequency heard by the observer

$n'' = n\left[\frac{v}{v + v_s}\right]$

it is clear that n' and n" are constant and independent of time. Also and n' > n".

25. Ans (2)

In series $\rightarrow$

$\frac{1}{K_{eq}} = \frac{1}{K_1} + \frac{1}{K_2}$

$\frac{1}{mw_{eq}^2} = \frac{1}{mw_1^2} + \frac{1}{mw_2^2}$

$\frac{1}{w_{eq}^2} = \frac{1}{w_1^2} + \frac{1}{w_2^2} \Rightarrow \frac{1}{n_{eq}^2} = \frac{1}{n_1^2} + \frac{1}{n_2^2}$

$\Rightarrow \boxed{T_{eq}^2 = t_1^2 + t_2^2}$

26. Ans (4)

As in free fall effective gravity with respect to support of pendulum will be zero, it will not oscillate and frequency will be zero.

27. Ans (3)

$A = \sqrt{3^2 + 4^2} = 5$

28. Ans (1)

$E = \frac{\Delta V}{r} = \frac{40}{2 \times 10^{-2}} = 2000$ V/m

29. Ans (2)

$S = \frac{1}{2}\frac{eE}{m_e}t_1^2 = \frac{1}{2}\frac{eE}{m_p}t_2^2$

$\boxed{m_e t_2^2 = m_p t_1^2}$

30. Ans (4)

$F \propto \frac{1}{r^3}$

$\frac{F'}{F} = \frac{r^3}{8r^3}$

$F' = \frac{F}{8}$

32. Ans (3)

Let rate of heat supplied be Q. J/s

Total heat given in melting

$= Q \times (90 - 10) = 80Q$ J

Total heat given in vapourization

$= Q\,(120 - 100)$

$= 20\,Q$ J

$L_v < L_f$

Inverse of slope of line represent the specific heat, $S_s > S_\ell$

35. Ans (4)

Given, temperature of the source $T_1 = 500$ K

Temperature of the sink, $T_2 = 300$ K

Work done per cycle, $W = 1$ KJ $= 1000$ J

Heat transferred to the engine per cycle, Q_1 =?

Efficiency of a Carnot engine,

$$\eta = 1 - \frac{T_2}{T_1} = 1 - \frac{300}{500} = \frac{2}{5}$$

and $\eta = \dfrac{W}{Q_1}$

or $Q_1 = \dfrac{W}{\eta} = \dfrac{1000}{(2/5)} = 2500$ J

36. Ans (3)

$PV = NKT$

V, K, T = constant

$P \alpha N$

$\dfrac{P}{P_2} = \dfrac{N}{2N}$ $\quad P2 = 2N$

37. Ans (3)

For $i = 0$ in R_2 $\quad V_1R_3 = V_2R_1$

Hence option (3) is correct for $i \neq 0$

38. Ans (1)

For deflection of galvanometer zero.

$3R_{CB} = 4(R_{AC})$

$3\ell_{CB} = 4\ell_{AC}$

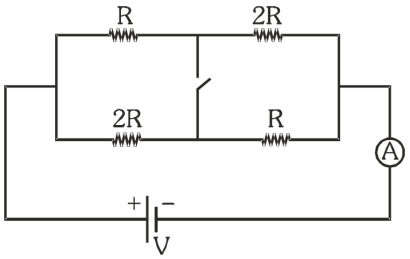
$3(350 - x) = 4x$

$1050 - 3x = 4x$

$7x = 1050$

$x = \dfrac{1050}{7} = 150$ cm

39. Ans (1)



when key open $\quad R_{eq} = \dfrac{3R}{2}$ $\quad i_0 = \dfrac{2V}{3R}$

when key closed $\quad R_{eq} = \dfrac{4R}{3}$ $\quad i_C = \dfrac{3V}{4R}$

40. Ans (3)

Each bulb will glow with maximum brightness.

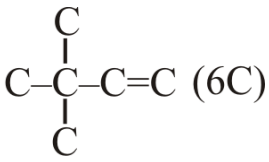
44. Ans (3)

C is independent of Q & V

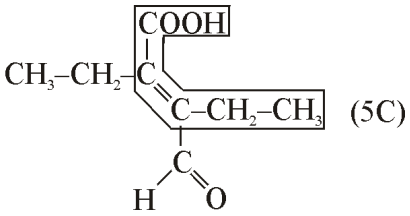
45. Ans (1)

We have to take effective area

46. Ans (4)



47. Ans (2)

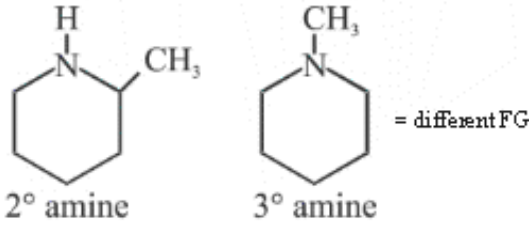


48. Ans (3)

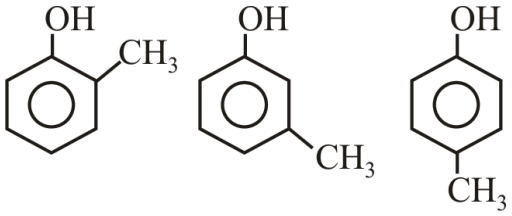
Homologous = (1) same F.G.

(2) Mo. mass different

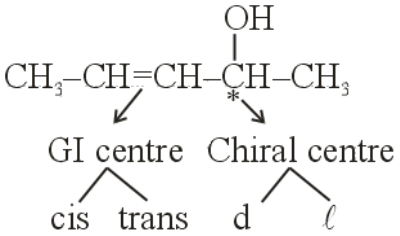
49. Ans (3)



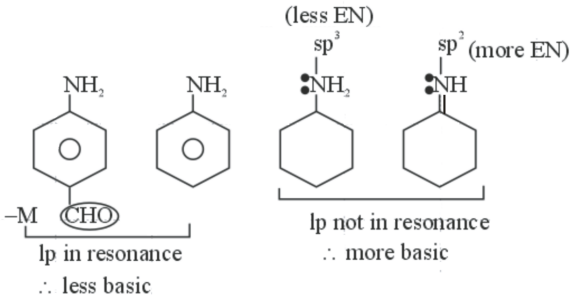
50. Ans (3)



51. Ans (2)



52. Ans (1)



1 < 2 < 4 < 3

53. Ans (3)

$pk_b \propto \frac{1}{\text{basic strength}}$

Basic strength -

I > IV > II > III

↓ ↓ ↓

localised lone pair +M +I –M

54. Ans (1)

compounds 1, 4, 5, and 6 follow Huckel's Rule

55. Ans (1)

In compound I, both resonance and +H-effect are present.

56. Ans (4)

Stability of carbanion $\propto \frac{-M,\ -I}{+M,\ +I,}$

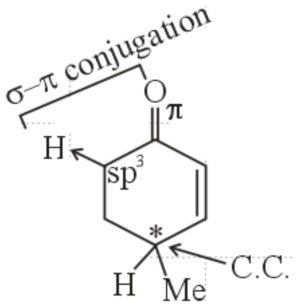
57. Ans (2)

Stability of carbocation $\propto \frac{+M,\ +I,\ +H}{-M,\ -I,\ -H}$

58. Ans (2)

For H-effect C=C π-bond must be in conjugation with $C_{sp^3} - H$ bond.

59. Ans (2)

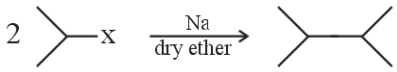


60. Ans (3)

CO_2 obtained as hyproduct will be asborbed by lime.

61. Ans (4)

symmetrical alaknes can be synthesised from single alkanes.



62. Ans (2)

stability of alkane ∝ No. of ∝ - H atoms

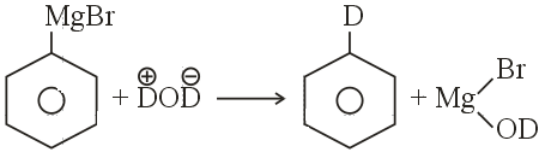
63. Ans (3)

This effect is not observed in symmetrical alkenes.

64. Ans (3)

(3) option involves FAR.

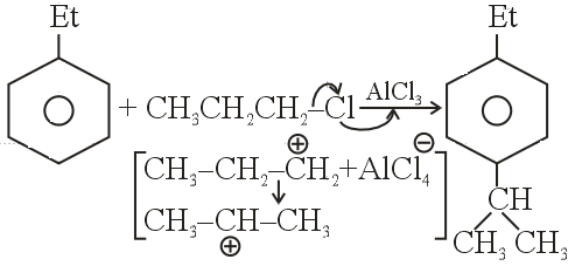
65. Ans (2)



66. Ans (3)

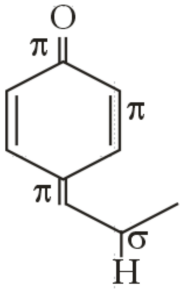
In 3rd option, E ⊕ comes on ring attached with group showing +M effect (activating group)

67. Ans (4)



2° more stable

68. Ans (2)



Here $-\overset{\overset{O}{\|}}{C}-$ is in conjugation with $C_{sp^3} - H$ σ bond.

69. Ans (1)

$$\frac{P^0 - P}{P^0} = \frac{n}{N}$$

$$\frac{0.850 - 0.845}{0.850} = \frac{\frac{0.5}{M_A}}{\frac{39}{78}}$$

$$0.005 \times 0.5 = \frac{0.850 \times 0.5}{M_A}$$

$MA = 170\ gmol^{-1}$

70. Ans (1)

$$\frac{P^0 - P}{P^0} = \frac{n}{N} = \frac{\frac{18}{180}}{\frac{90}{18}} = \frac{0.1}{5} = 0.02$$

71. Ans (4)

$P_s = X_A P^0_A + X_B P^0_B$

$= \frac{1}{4} \times 100 + \frac{3}{4} \times 80$

$= 25 + 60 = 85$ mm Hg

$P_{obs} = 90$ mm Hg

$P_{obs} > P_{Th} \rightarrow$ +ve deviation

72. Ans (3)

$$m = \frac{M \times 1000}{d \times 1000 - M \times M'}$$

$$= \frac{2.05 \times 1000}{1.02 \times 1000 - 2.05 \times 60}$$

$= 2.28\ mol\ kg^{-}$

73. Ans (1)

$$\frac{m_K}{E_K} = \frac{m_{Al}}{E_{Al}}$$

$$\Rightarrow \frac{19.5}{39} = \frac{m_{Al}}{9}$$

$\Rightarrow m_{Al} = 4.5$ g

79. Ans (3)

$2A + B \rightarrow A_2B$

$r_1 = k[A]^2[B]$

$r_2 = k4[A]^2[B] \times 2$

$r_2 = 8k[A][B]$

80. Ans (2)

$$\log k = \log A - \frac{E_a}{2.303R} \cdot \frac{1}{T}$$

$$\text{slope} = -\frac{E_a}{2.303R}$$

81. Ans (3)

rate = rate of slowest step

$= k[P][Q_2]$

From Ist step

$$K = \frac{[P]^2}{[P_2]}$$

$\Rightarrow [P] = K^{\frac{1}{2}}[P_2]^{\frac{1}{2}}$

rate $= kK^{\frac{1}{2}}[P_2]^{\frac{1}{2}}[Q_2]$

$= k'[P_2]^{\frac{1}{2}}[Q_2]$

order = 1.5

82. Ans (4)

B is in octehederal hole hence 6

84. Ans (2)

$$z = \frac{d \times a^3 \times N_A}{M}$$

$$= \frac{6.25 \times (400)^3 \times 10^{-30} \times 6.02 \times 10^{23}}{120}$$

$= 2$ (bcc)

85. **Ans (1)**

$$r_+ + r_- = \frac{13 \times 4.3}{2}$$

$$= 3.72 \text{ Å}$$

86. **Ans (4)**

At low P $\quad \frac{x}{m} \alpha p'$

At High P $\quad \frac{x}{m} \alpha p^{\circ}$

AT Medium P $\quad x/m \ \alpha \ p^{1/n}$

96. **Ans (1)**

NCERT Pg. # 332, 22.2.2

100. **Ans (3)**

NCERT-XIth Pg # 325 (E), 325 (H)

101. **Ans (2)**

NCERT-XI- 324

108. **Ans (2)**

NCERT (XIIth) (Eng), Para-2, Pg. # 53

NCERT (XIIth) (Hindi), Para-1, Pg. # 58

110. **Ans (3)**

NCERT XII Pg. # 60/67(H)Para:4.2

111. **Ans (4)**

NCERT XII, Page # 60

113. **Ans (2)**

NCERT-XIIth, Page#64

116. **Ans (2)**

NCERT (XII) Pg. # 31 (E) 33(H)

118. **Ans (2)**

NCERT (XII) Pg. # 25,27

124. **Ans (3)**

NCERT XII Pg 35(E), 37(H)

128. **Ans (1)**

NCERT(XII) Pg#129/140(H) Para:7.3

131. **Ans (1)**

NCERT-XII, Pg. # 127

133. **Ans (1)**

NCERT–XII, Pg. # 140

135. **Ans (2)**

NCERT (XIIth) Pg. # 140

136. **Ans (1)**

NCERT XII, Pg.no. 140

137. **Ans (2)**

NCERT XII, Page # 134 ; IVth Para

144. **Ans (4)**

NCERT (XIth) Pg. # 264,265

145. **Ans (2)**

NCERT XI, Pg. # No. 269

152. **Ans (4)**

NCERT (E) Pg. # 288

153. **Ans (3)**

NCERT (XI) Pg # 296

158. **Ans (3)**

NCERT XI Pg.# 101, 102

165. **Ans (1)**

NCERT (XI) Page No. # 52

166. **Ans (3)**

NCERT (XI) Pg. # 52

167. **Ans (1)**

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176. **Ans (1)**

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