ENTHUSIAST, LEADER & ACHIEVER COURSE

PHASE : ALL ENTHUSIAST, MLA, B, C, P, Q, R, S, T, U, V, MAZA, ZB, ZC, ZD, ZE, ZF, ZP, ZQ, ZR, ZV, ZX, ZY, ZK, MAPA, MAPB, MSP1, MSP2, LAKSHYA

TARGET : PRE-MEDICAL 2024

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

TEST DATE : 18-04-2024

ANSWER KEY

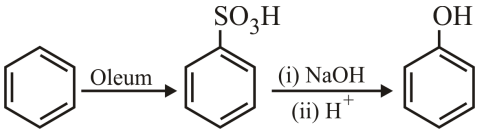
Q.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
A.	3	3	2	3	2	1	3	2	4	4	3	3	2	3	3	2	2	3	4	4	2	1	4	3	3	4	1	2	3	1
Q.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
A.	3	2	4	3	2	2	2	3	4	1	2	2	1	4	1	2	2	1	2	4	3	4	1	3	2	1	2	3	2	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.	2	2	3	1	2	3	4	2	2	2	3	2	3	4	1	3	2	3	4	4	3	1	1	2	2	3	2	3	4	3
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.	4	1	2	2	1	3	3	4	4	1	4	2	3	4	4	3	4	4	3	4	4	1	4	4	3	1	4	4	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	4	2	4	2	1	2	2	1	1	1	3	4	4	3	3	2	1	4	1	1	1	3	1	1	2	1	3	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.	2	1	3	1	3	4	1	4	3	1	4	1	2	2	1	3	4	1	2	1	3	1	3	2	3	3	3	3	2	3
Q.	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200										
A.	3	1	3	3	1	1	2	3	2	4	2	2	3	4	4	3	2	4	3	2										

HINT – SHEET

SUBJECT : CHEMISTRY

SECTION-A

1. Ans (3)



NCERT XII part II, prepration of phenol

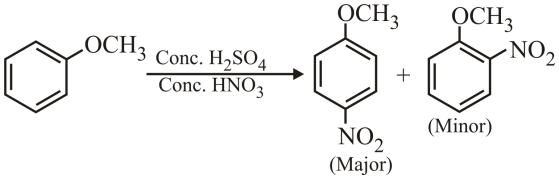
2. Ans (3)

(NCERT XII Part IInd Page. No. 340)

$CH_3–CH=CH–CH_2–OH \xrightarrow{PCC} CH_3–CH=CH–CHO$

3. Ans (2)

(NCERT XIIth Part IInd Page. No. 350)



4. Ans (3)

(NCERT XIIth Part-IInd Page. No. 375)

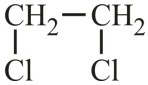
$CH_3(CH_3)_8CH_2OH \xrightarrow[\text{Jones reagent}]{CrO_3.H_2SO_4} CH_3(CH_3)_8COOH$

(1-Decanol) (Decanoic acid)

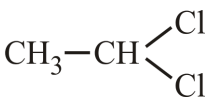
5. Ans (2)

Clemmensen reduction

8. Ans (2)



Ethylene Dichloride



Ethylidene dichloride.

9. Ans (4)

Staggered (B) is more stable than eclipsed (A).

10. Ans (4)

All are aromatic

11. **Ans (3)**

Fact based

12. **Ans (3)**

Intermediate is carbocation.

13. **Ans (2)**

$\Delta T_f = k_f \times m$

$10 = 1.86 \times \left(\frac{W}{92}\right) \times \frac{1000}{600}$

$W = 297$ g

14. **Ans (3)**

$T_b \propto i \times m$

17. **Ans (2)**

eq MnO_4^- = eq $C_2O_4^{-2}$

$1 \times 5 = x \times 2$

$x = 2.5$

25. **Ans (3)**

Number of atom = $n \times N_A \times$ atomicity

(1) $\frac{18}{18} \times N_A \times 3 = 3N_A$

(2) $\frac{64}{64} \times N_A \times 3 = 3N_A$

(3) $\frac{8}{2} \times N_A \times 2 = 8N_A$

(4) $\frac{16}{32} \times N_A \times 2 = N_A$

26. **Ans (4)**

NCERT-XI, Part-I, Pg # 42

27. **Ans (1)**

For reaction $\Delta H = -ve$, $\Delta ng = -ve$

Low T, High P favour product formation

28. **Ans (2)**

milli eq. (HCl) = $75 \times \frac{1}{5} = 15$

milli eq. (NaOH) = $25 \times \frac{1}{5} = 5$

$[H^+] = \frac{15-5}{75+25} = \frac{10}{100} = 0.1$

pH = 1

29. **Ans (3)**

$\overset{+7}{K}MnO_4 \rightarrow Mn^{+2}$ (reduction)

$\overset{-2}{H_2}S \rightarrow S^0$ (oxidation)

30. **Ans (1)**

Angular node = ℓ

for d orbital $\ell = 2$

Total node = $n - 1$

$n - 1 = 3$

$n = 4$

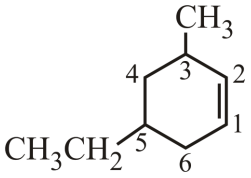
SECTION-B

37. **Ans (2)**

(NCERT XII Part II page No. 339)

$CH_3-\underset{\underset{OH}{|}}{CH}-CH_3 \xrightarrow[440\ K]{85\%\ H_3PO_4} CH_3-CH=CH_2 + H_2O$

38. **Ans (3)**



5-Ethyl-3-methylcyclohexene

39. **Ans (4)**

A and D have same structural formula.

40. **Ans (1)**

A.S. $\alpha \frac{1}{pK_a}$ As $\rightarrow$ O-Nitrophenol > m-Nitrophenol > Phenol > Ethanol

45. **Ans (1)**

NCERT-XI, Part-I, Pg # 176,177

46. **Ans (2)**

NCERT Exampler-XI, Pg # 68, 71

47. **Ans (2)**

For AB_2 type of salt $K_{sp} = 4s^3 = 5 \times 10^{-13}$

$s^3 = \frac{5}{4} \times 10^{-13} = 1.25 \times 10^{-13}$

$s^3 = 125 \times 10^{-15}$

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

SUBJECT : PHYSICS

SECTION-A

51. Ans (3)

$I' = \frac{I}{2}\cos^2(\theta)$

$\frac{1}{3}\left(\frac{I}{2}\right) = \frac{I}{2}\cos^2(\theta)$

$\cos^2(\theta) = \frac{1}{3}$

$\cos(\theta) = \frac{1}{\sqrt{3}}$

$\theta = \cos^{-1}\left(\frac{1}{\sqrt{3}}\right)$

52. Ans (4)

$\mu = \frac{\sin\left(\frac{\delta_{min}+A}{2}\right)}{\sin(A/2)}$

since, $\delta_{min} = A$

$\sqrt{3} = \frac{\sin(A)}{\sin A/2}$

$\sqrt{3} = 2\cos A/2$

$\Rightarrow A = 60°$

53. Ans (1)

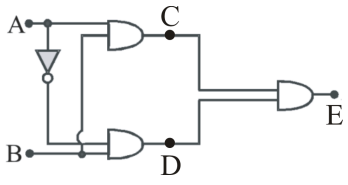
$m = +3 = \frac{f}{f-u}$

$3 = \frac{-18}{-18-u}$

$18 + u = 6$

$u = -12$ cm

54. Ans (3)



A	B	$\bar{A}$	C	D	E
0	0	1	0	0	0
0	1	1	0	1	0
1	0	0	0	0	0
1	1	0	1	0	0

55. Ans (2)

$\lambda = \frac{12400}{1.9}$ Å

$= 6526$Å

$= 652.6$ nm

56. Ans (1)

$\mu_e = 0.36\frac{m^2}{V.S}$; $\mu_h = 0.14\frac{m^2}{V.S}$

$n_i = 2.5 \times 10^{19}/m^3$

Conductivity $s = nie[\mu_e + \mu_h]$

$= 2.5 \times 10^{19} \times 1.6 \times 10^{-19}[0.36 + 0.14]$

$= 2(\Omega^{-1})$

57. Ans (2)

$mvr = \frac{3h}{2\pi}$

$\frac{h}{\lambda_D}r = \frac{3h}{2\pi}$

$\lambda_D = \frac{2\pi}{3}r$

$= \frac{2\pi}{3}(3^2 r_0)$

$\lambda_D = 6\pi(0.529Å)$

$\approx 10Å$

58. Ans (3)

$P_\alpha = 4m(v)$

$P_D = 2m\,(2v)$

same momentum

$\because \lambda = \frac{h}{P}$

$\therefore$ same λ

59. Ans (2)

$K_{eq} = 40\ Nm^{-1}$, $m = 10$ kg

Frequency of oscillation, $f = \frac{1}{2\pi}\sqrt{\frac{K_{eq}}{m}}$

$\Rightarrow f = \frac{1}{2\pi}\sqrt{\frac{40}{10}} = \frac{1}{\pi}$Hz

60. Ans (2)

$\Delta V = \frac{\Delta E}{e} = \frac{hc}{e} = \left(\frac{1}{\lambda_2} - \frac{1}{\lambda_1}\right)$

$= 12400\left[\frac{9}{4000 \times 31}\right]$ volt $= 0.9$ volt

62. Ans (2)

Least count $= \left(\frac{b-a}{b}\right)$ 1 m.s.D.

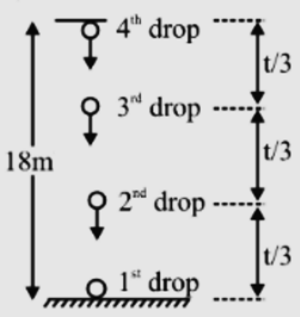
$= \frac{20-19}{20} \times \frac{1}{2}$ mm $= \frac{1}{40}$ mm

$= 0.025$ mm

63. Ans (3)

$t = \sqrt{\frac{2h}{g}} = \sqrt{\frac{2 \times 18}{10}} = \sqrt{\frac{18}{5}}$

$t = 3\sqrt{\frac{2}{5}}$



distance of 3rd drop from root : ⟶

$s_3 = \frac{1}{2} \times 10 \times \frac{1}{9} \times 9 \times \frac{2}{5} = 2m$

distance of 2nd drop from root : ⟶

$s_2 = \frac{1}{2} \times 10 \times \frac{4}{9} \times 9 \times \frac{2}{5} = 8m$

64. Ans (1)

$T_A = Mg$

$2T_B = Mg$

$\Rightarrow \frac{T_A}{T_B} = \frac{2}{1}$

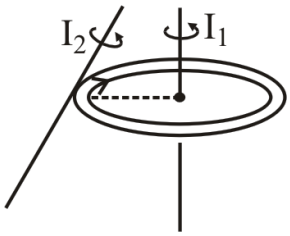
65. Ans (2)

$mg = 0.5 \times 10g$

$\boxed{M = 5kg}$

M = 5 kg

67. Ans (4)



$I_1 = MR^2 = 100\ kgm^2$

$I_2 = I_{cm} + Md^2$

$= \frac{MR^2}{2} + MR^2 = \frac{3}{2}MR^2$

$= \frac{3}{2}(100)$

$= 150\ kgm^2$

68. Ans (2)

$\frac{g_h}{g_s} = \left[\frac{R}{R+h}\right]^2 = \frac{36}{100} = \left[\frac{R}{R+h}\right]^2 \Rightarrow \frac{R}{R+h} = \frac{6}{10}$

10 R = 6R + 6h

4R = 6h

h = 2/3 R

69. Ans (2)

1 atm = 10^5 pascal (approx)

$\frac{\Delta V}{V} = \frac{\Delta P}{B} = \frac{10 \times 10^5}{40 \times 10^9} = 2.5 \times 10^{-5}$

70. Ans (2)

$E_T = \frac{3}{2}PV = 1.5\ PV$

Also, due to collision velocities of gas molecules changes.

71. Ans (3)

$\eta = 1 - \frac{T_{sink}}{T_{source}}$

$0.5 = 1 - \frac{500}{T_{source}}$

$\Rightarrow T_{source} = 1000K$

$0.6 = 1 - \frac{T'_{sink}}{1000}$

$T'_{sink} = 400K$

72. Ans (2)

$\frac{6}{Mo_2} = \frac{PV_0}{R(400)}$ ...(1)

After leakage

$\frac{m}{Mo_2} = \frac{(P/2)V_0}{R(300)}$ ...(2)

from (1) & (2)

$\frac{6}{m} = \frac{600}{400}$

$\Rightarrow m = 4g$

Gas leaked = 6 – 4 = 2g

73. Ans (3)

$P = V_{rms}\ I_{rms}\ Cos\phi$

74. **Ans (4)**

$125 = 50\,(1 + 5 \times 10^{-3}\,\Delta T)$

$2.5 = 1 + 5 \times 10^{-3}\Delta T$

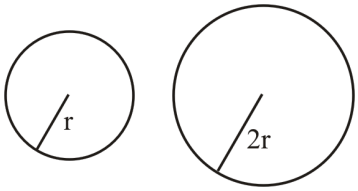
$1.5 = 5 \times 10^{-3}(T - 100)$

$300 = T - 100$

$T = 400°C$

76. **Ans (3)**

After touching & separation of spheres



$\frac{\theta}{3}$ $\frac{2\theta}{3}$

$$\frac{\sigma_1}{\sigma_2} = \frac{\frac{\theta/3}{4\pi r^2}}{\frac{2\theta/3}{4\pi(2r)^2}} = \frac{2}{1}$$

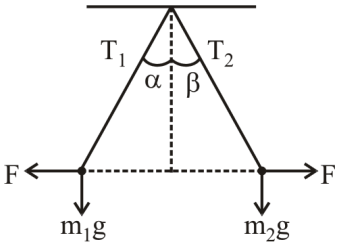
77. **Ans (2)**

$W.D._{\text{ext force}} = -P.E.$

$$= -\left(\frac{kq}{a/\sqrt{3}}\right) \times q \times 3$$

$$= \frac{-3\sqrt{3}kq^2}{a}$$

78. **Ans (3)**



Electrostatic force on both charges are same

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

Here weight mg tends to keep the string vertical

as $\alpha > \beta$ so $m_1g < m_2g$

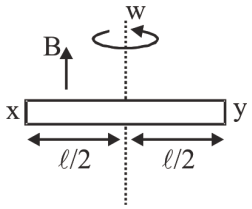
79. **Ans (4)**

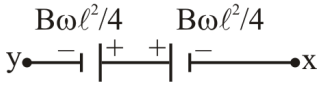
$$E = \frac{1}{4\pi\varepsilon_0}\frac{\theta}{r^2}$$

$$= \frac{1}{4\pi\varepsilon_0}\frac{\rho\left(\frac{4}{3}\pi R^3\right)}{r^2}$$

$$= \frac{\rho R^3}{3\varepsilon_0 r^2}$$

80. **Ans (4)**



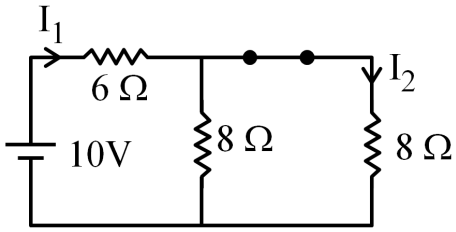


$$v_x + \frac{B\omega\ell^2}{4} - \frac{B\omega\ell^2}{4} - v_y = 0$$

$\Rightarrow v_x - v_y = 0$

81. **Ans (3)**

After long time of key closed, inductor behave short circuit.



$$I_1 = \frac{10}{6 + \frac{8\times8}{8+8}} = \frac{10}{10}A = 1\ A$$

$$I_2 = \frac{8}{8+8} \times 1\ A = 0.5\ A$$

83. **Ans (1)**

$B = \frac{\mu_0 i}{2r}$

$i \propto Br$

$$\frac{i_1}{i_2} = \frac{B_1}{B_2}\frac{r_1}{r_2} = \left(\frac{1}{3}\right)\left(\frac{1}{2}\right) = \frac{1}{6}$$

84. **Ans (2)**

$$R = \frac{\sqrt{2mk}}{qB}$$

$$R' = \frac{\sqrt{2m(2k)}}{q(3B)}$$

$$\frac{R'}{R} = \frac{\sqrt{2}}{3}$$

85. **Ans (2)**

For a diamagnetic substance χ is small, negative and independent of temperature.

SECTION-B

86. Ans (3)

$I_0 = 4I_0\cos^2\left(\frac{\phi}{2}\right)$

$\phi = 120^\circ$ or $\frac{2\pi}{3}$

$\Delta x = \frac{\phi}{2\pi} \times \lambda = \frac{\lambda}{3}$

$\sin\theta = \frac{\Delta x}{d} = \frac{\lambda}{3d}$

$\theta = \sin^{-1}\left(\frac{\lambda}{3d}\right)$

87. Ans (2)

$m = m_0 \times m_e$

$= \left(\frac{f_0}{f_0 + u_0}\right) \times \left(1 + \frac{D}{f_e}\right)$

$= \left[\frac{8}{8-9}\right] \times \left[1 + \frac{25}{2.5}\right]$

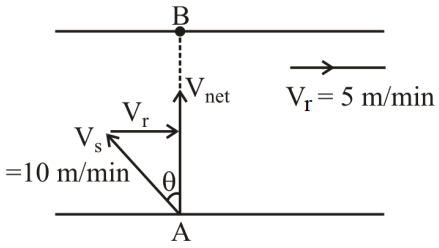
$= 8 \times 11$

$= 88$

88. Ans (3)

based on nuclear phenomenon.

89. Ans (4)



$V_r = V_s \sin\theta$

$5 = 10\sin\theta$

$\Rightarrow \theta = 30^\circ$ W of N

90. Ans (3)

$\tau_{cm} = 0$

$T_1\left(\frac{L}{4}\right) = T_2\left(\frac{L}{2}\right)$

$\frac{T_1}{T_2} = \frac{2}{1}$

92. Ans (1)

$Q = \frac{\pi P r^4}{8h\ell} \Rightarrow P \propto \frac{1}{r^4}$

$\frac{P_1}{P_2} = \left(\frac{r_2}{r_1}\right)^4 \Rightarrow \frac{P_1}{P_2} = \left(\frac{3r}{r}\right)^4 = \frac{81}{1}$

93. Ans (2)

$v = \frac{dx}{dt} = \frac{1}{4} \times 4t^3 = t^3 = 1 ms^{-1}$

work done = change in K.E.

$= \frac{1}{2} \times 1 \times 1 - \frac{1}{2} \times 1 \times 0 = \frac{1}{2}$J

95. Ans (1)

$\Delta H_{\text{water calorimeter}} = \Delta H_{\text{steam}}$

$(1.12) \times 10^3\ (1)\ (80 - 15) = m\ (536)$

$m = 130g = 0.13$ kg

96. Ans (3)

The frequency ratio

425 : 595 : 765

5 : 7 : 9 ⟶ Only odd harmonic

⟶ Close organ pipe

$\frac{5v}{4\ell} = 424$

$\ell = \frac{5 \times 340}{4 \times 425} = 1.0$m

97. Ans (3)

Let the frequencies of two waves are n_1 & n_2

$n_1 = \frac{v}{\lambda_1}, n_2 = \frac{v}{\lambda_2}$

$b = n_1 - n_2$

$v\left[\frac{1}{1} - \frac{1}{1.01}\right] = 3.5$

$v = \frac{3.5 \times 1.01}{0.01} = 353.5$ m/sec

98. Ans (4)

From given graph amplitude (a) = 1cm

Time period (T) = 8 sec

$\therefore \omega = \frac{2\pi}{8} = \frac{\pi}{4}$Hz

Acceleration $A = -\omega^2 a\sin\omega t$

at $t = \frac{4}{3}$sec, $A = -\frac{\pi^2}{16} \times 1 \times \sin\left(\frac{\pi}{4} \times \frac{4}{3}\right)$

$\Rightarrow A = \frac{-\pi^2}{16}\sin\left(\frac{\pi}{3}\right) \Rightarrow A = \frac{-\sqrt{3}}{32}\pi^2$ cm/s^2

99. Ans (4)

$U = 20 + (x-4)^2$ $U_{min} = 20$ J MP = 4

$F = -2(x-4)$ K = 2

$TME = U_0 + K_{max} = 36$ J

$K_{max} = 16$ J

$\frac{1}{2}KA^2 = 16$ K = 2

A = 4

$KE = \frac{1}{2}K(A^2 - x^2) = 12$ J

All are correct

100. Ans (1)

$\frac{R_1}{R_2} = \frac{\ell}{100-\ell}$ and $\frac{R_2}{R_1} = \frac{\ell+25}{75-\ell}$

So $\frac{\ell}{100-\ell} = \frac{75-\ell}{\ell+25}$ or $\ell = \frac{75}{2}$cm

SUBJECT : BOTANY

SECTION-A

101. Ans (4)
NCERT-XI, Pg. # 22

102. Ans (2)
NCERT-XI Pg#33

103. Ans (3)
NCERT XI Pg. # 24

104. Ans (4)
NCERT XI Pg. # 72

105. Ans (4)
NCERT-XI, Pg. # 87

106. Ans (3)
NCERT-XI, Pg. # 89

107. Ans (4)
NCERT XI, Pg. # 222

108. Ans (4)
XI NCERT Page No. # 210

109. Ans (3)
NCERT-XI, Pg. No. # 232

110. Ans (4)
NCERT-XI, Pg. No. # 236 – 237

111. Ans (4)
NCERT XI Pg. # 235

112. Ans (1)
NCERT XI Pg. # 231

113. Ans (4)
NCERT-XI, Pg. No. # 236 - 237

114. Ans (4)
NCERT-XII, Pg#26,27

115. Ans (3)
NCERT-XII, Pg.# 25

116. Ans (1)
NCERT-XII, Pg. No. # 10

117. Ans (4)
NCERT-XII, Pg. # 77, 78

118. Ans (4)
NCERT-XII, Pg. No. # 39

119. Ans (2)
NCERT-XII, Pg. No. # 94

120. Ans (1)
NCERT XII, Pg.No.#106

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