

MAJOR TEST # 03

ALLEN NEET-UG

DATE : 30 - 03 - 2013

SYLLABUS - 03

ANSWER KEY

Q.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
A.	2	2	4	2	4	2	4	3	1	2	1	3	4	2	4	4	3	1	1	4
Q.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
A.	2	4	3	2	3	3	2	2	3	1	4	1	2	1	2	3	1	3	1	2
Q.	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	1	2	2	1	2	3	1	3	4	4	3	2	4	1	3	1
Q.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
A.	1	1	4	2	3	4	3	2	2	1	1	4	4	4	4	1	1	3	3	4
Q.	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
A.	2	1	3	4	1	1	3	3	2	2	1	2	2	3	1	3	3	2	1	4
Q.	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
A.	2	1	2	2	1	4	4	3	2	4	3	2	2	3	3	2	1	4	3	3
Q.	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140
A.	3	1	3	3	3	4	4	4	3	4	1	3	2	2	3	2	2	4	1	4
Q.	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
A.	3	4	2	3	2	4	3	3	3	4	3	2	4	1	3	3	2	3	4	3
Q.	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
A.	3	4	2	3	3	4	1	2	2	3	3	2	2	2	2	4	1	1	4	1

HINT – SHEET

2. $V_{in} = \frac{-GM}{2R^3}(3R^2 - r^2)$

at $r = 0$, $V_c = \frac{-3GM}{2R}$

at $r = R$, $V_s = \frac{-GM}{R}$

4. Gravitational field

$$g = \frac{-\Delta V}{\Delta x} = -\left(\frac{-4}{10}\right) = \frac{4}{10} \text{ J/kg.m}$$

work done is moving a mass of 2 kg from the surface to a point 5m above the surface.

$W = mgh$

$$= (2\text{kg}) \left(\frac{4 \text{ J}}{10 \text{ kgm}} \right) (5\text{m})$$

$= 4\text{J}$

6. To escape the particle

$$|PE| = \frac{1}{2}mv_c^2$$

$$3\left(\frac{GMM}{a\sqrt{3}}\right) = \frac{1}{2}mv_c^2$$

$$v_c = \sqrt{6\sqrt{3}\frac{GM}{a}}$$

7. E changes because it is a vector quantity & V is a scalar quantity, thus electric field changes & V remains unchanged.

8. As, $v_e = \sqrt{\left(\frac{2GM}{R}\right)}$ So $R = \left(\frac{2GM}{v_e^2}\right)$
 $\therefore R = \frac{2 \times 6.67 \times 10^{-11} \times 6 \times 10^{24}}{(3 \times 10^8)^2} = 9 \times 10^{-3} = 9\text{mm}$

9. $E = \frac{KQ}{a^2} = \left(\frac{1}{4\pi\epsilon_0}\right) \frac{Q}{a^2}$

10. As total energy = $-E_x$
To escape total energy must be greater than zero.

14. $v_{\text{escape}} = \sqrt{\frac{2GM}{R}}$

18. $3.15 = R_0 [1 + \alpha \times 20]$ (1)

$3.75 = R_0 [1 + \alpha \times 100]$ (2)

from (1)/(2)

$\frac{3.15}{3.75} = \frac{1+20\alpha}{1+100\alpha}$

$\Rightarrow \alpha = 2.5 \times 10^{-3}$

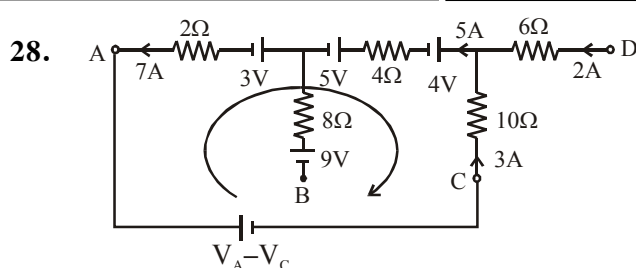
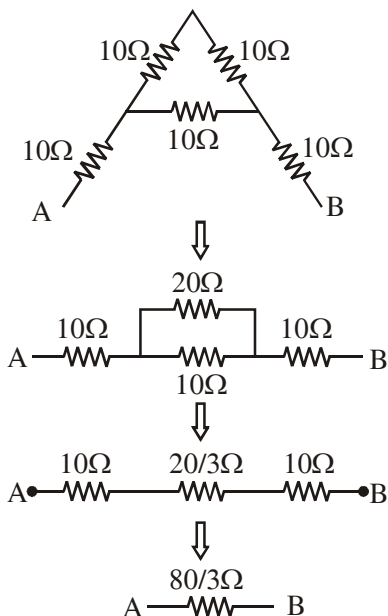
Put value of α in (1)

$3.15 = R_0 [1 + 20 \times 2.5 \times 10^{-3}]$

$R_0 = \frac{3.15}{1.05} = 3\Omega$

20. As 5Ω resistor is shorted, 1A current flows from b to a.

24.

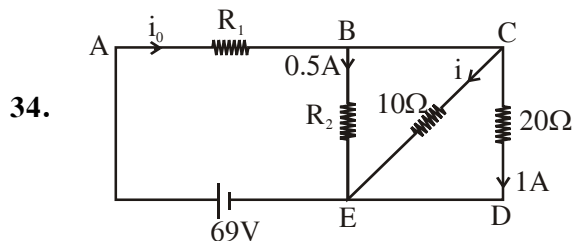


28. By applying KVL in shown loop
 $V_A - V_C + 3 + 5 + 4 = -14 - 20 - 30$
 $\Rightarrow V_A - V_C = -76V$

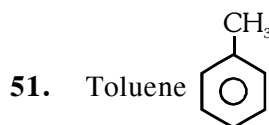
32. $E \propto 52$ (i)

$\frac{ER}{r+R} = \frac{E(5)}{r+5} \propto 40$ (ii)

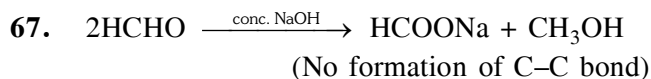
Solve it $r = 1.5 \Omega$



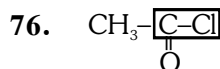
34. $V_{BE} = V_{CD} = V_{CE}$
 $\Rightarrow 0.5R_2 = 1 \times 20$
 $\Rightarrow R_2 = 40 \Omega$
 $10i = 1 \times 20 \Rightarrow i = 2A.$
 $\therefore i_0 = 0.5 + 1 + 2 = 3.5A$
 $\therefore V_{AB} = 69 - V_{BE}$
 $\Rightarrow i_0 R_1 = 69 - 20$
 $\Rightarrow R_1 = 14\Omega$



Electrons releasing effect (+H -effect) of $-CH_3$ group increases reactivity of benzene ring for electrophilic substitution reaction.

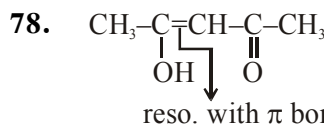


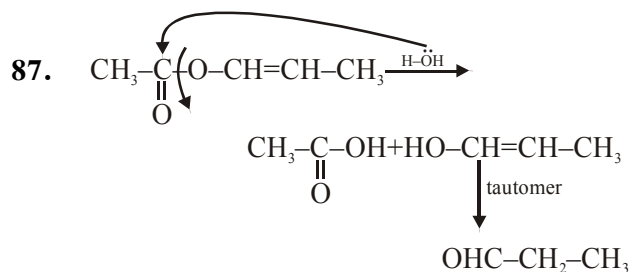
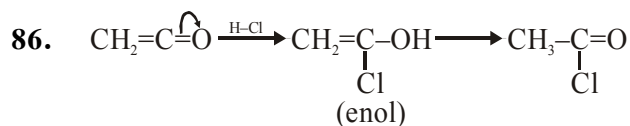
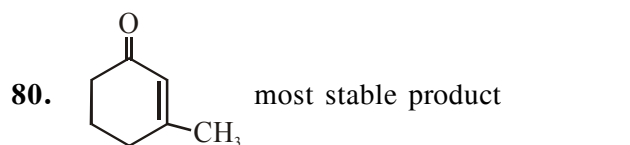
72. See (+)ve charge on carbon of halogen.



has more bond length of C-Cl bond due to big size of Cl.

\therefore more reactive comp.





93. NCERT (XII) Page # 21 (Eng.), 22 (Hindi)
 97. NCERT (XII) Page # 25 (Eng.), 26 (Hindi)
 99. NCERT (XII) Page # 26 (Eng.), 27 (Hindi)
 100. NCERT Page # 123
 102. NCERT Page # 122
 103. NCERT (XII) Page # 23,27 (Eng.), 25,28 (Hindi)
 104. NCERT Page # 121
 105. NCERT (XII) Page # 28 (Eng.), 29 (Hindi)
 106. NCERT Page # 121
 107. NCERT (XII) Page # 29 (Eng.), 30 (Hindi)

108. NCERT Page # 120
 109. NCERT (XII) Page # 36 (Eng.), 38 (Hindi)
 112. NCERT Page # 116
 113. NCERT (XII) Page # 35,36 (Eng.), 37,38 (Hindi)
 115. NCERT (XII) Page # 25,27 (Eng.), 27,28 (Hindi)
 116. NCERT Page # 115
 117. NCERT (XII) Page # 25 (Eng.), 26 (Hindi)
 126. NCERT Page # 82
 134. NCERT Page # 77
 138. NCERT Page # 76
 140. NCERT Page # 70
 144. NCERT Page # 85-86
 146. NCERT Page # 71
 154. NCERT Page # 69
 161. NCERT (XII) Page # 137 Para = 4
 162. NCERT (XII) Page # 44,45(Eng.), 49 (Hindi)
 163. NCERT (XII) Page # 129 Line = 7
 164. NCERT (XII) Page # 60(Eng.), 67 (Hindi)
 165. NCERT (XII) Page # 129 Para = 1
 166. NCERT (XII) Page # 46(Eng.), 49 (Hindi)
 167. NCERT (XII) Page # 131 Para = 4
 169. NCERT (XII) Page # 132 Para = 1,2
 171. NCERT (XII) Page # 133 Line = 4
 173. NCERT (XII) Page # 134 Para = 3,4
 175. NCERT (XII) Page # 134 Para = 4
 177. NCERT (XII) Page # 135 Line = 5

SPECIAL NOTE

Correction NCERT Based Objective Questions (Biology)

On Page # 83 ; Q. No. 42 → Ans. will be (1)

(only English Medium)