ALLEN CAREER INSTITUTE
KOTA (RAJASTHAN)
Path to Success

MAJOR TEST # 01

ALLEN NEET-UG | **DATE : 16 - 03 - 2013**

SYLLABUS - 01

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	1	2	2	1	1	3	2	4	4	2	2	1	2	1	2	3	3	3	3
Q.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
A.	3	1	2	1	1	3	4	3	2	3	3	2	4	3	4	3	4	1	4	1
Q.	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
A.	1	2	4	3	1	2	2	2	1	3	2	4	1	4	4	2	1	1	4	4
Q.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
A.	2	1	2	1	1	3	2	2	2	4	4	4	2	3	3	2	4	1	3	1
Q.	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
A.	2	4	2	2	4	2	3	1	3	3	4	1	2	3	1	3	3	2	4	2
Q.	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
A.	3	3	2	4	1	4	3	3	2	2	3	2	4	2	4	3	2	4	3	2
Q.	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140
A.	3	4	2	3	3	2	1	3	3	1	3	3	4	4	1	2	2	2	3	3
Q.	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
A.	2	1	3	2	3	2	2	2	3	2	2	2	4	4	4	4	4	3	4	2
Q.	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
A.	4	1	4	4	4	4	3	3	4	4	1	4	3	4	3	4	2	3	1	1

HINT – SHEET

3. $\frac{\Delta p}{p} = 3\frac{\Delta a}{a} + 2\frac{\Delta b}{b} + \frac{1}{2}\frac{\Delta c}{c} + \frac{\Delta d}{d}$

$= 3 \times 1\% + 2 \times 3\% + \frac{1}{2} \times 4\% + 2\% = 13\%$

19. $v = \sqrt{v_x^2 + v_y^2}$

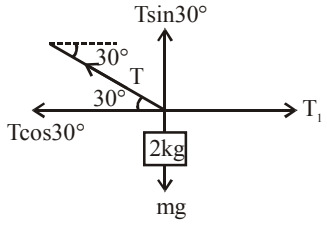
$v^2 = v_x^2 + v_y^2$

$(80)^2 = (40)^2 + v_y^2$

$6400 = 1600 + v_y^2$

$v_y = \sqrt{4800} \approx 70 km/hr$

20.



$T\sin30° = mg$

$T\cos30° = T_1$

$\tan30° = \frac{mg}{T_1}$

$T_1 = \frac{mg}{\tan 30°} = \frac{2g}{1/\sqrt{3}}$

$T_1 = \left(2\sqrt{3}\right) g\ N = 2\sqrt{3}$ Kgwt.

22. $\frac{\Delta P}{P} \times 100 = \left(\sqrt{\frac{E_2}{E_1}} - 1\right) \times 100$

$= \left(\sqrt{\frac{81E}{100E}} - 1\right) \times 100 = \left(\frac{9}{10} - 1\right) \times 100$

$= -10\%$

Decreased by 10%

28. $W = \int F dx = \int_2^6 (5+3x)dx = \left[\frac{5x+3x^2}{2}\right]_2^6 = 68J$

30. $T = \left(\frac{2m_1m_2}{m_1+m_2}\right)g = \frac{2\times2\times3}{5}\times10 = 24N$

$a = \left(\frac{m_1-m_2}{m_1+m_2}\right)g = \left(\frac{3-2}{3+2}\right)10 = 2m/s^2$

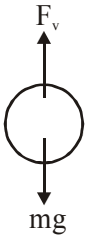
Displacement

$S = ut + \frac{1}{2}at^2$

$= 0 + \frac{1}{2} \times 2 \times (1)^2 = 1m$

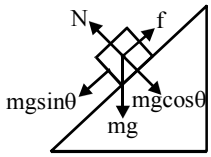
so W = T × Displacement
= 24 × 1 = 24 J

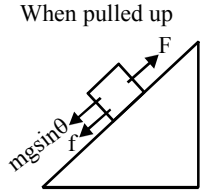
31.



$mg = F_{viscous}$
Ball will attain terminal velocity

32.





when just slide down so F = mgsinθ + f
f = mgsinθ or F = 2mgsinθ
F = 2 × 1 × 10g × sin60°

$= 2 \times 10 \times \frac{\sqrt{3}}{2} = 17.32$ N

34. $F = -\frac{dU}{dr}$

36. $F_{net} = F_{engine} - F_{resistive}$
$ma = F_{engine} - R$
$F_{engine} = (ma + R)$
so $P = \vec{F}.\vec{V}$
$P = (ma + R)V$

39. $T \propto U_y$

40. Maximum KE of block = P.E. of spring

$KE = \frac{1}{2}KL^2$

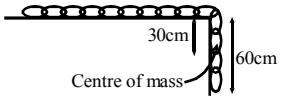
As $KE = \frac{P^2}{2M}$

So $\frac{1}{2}KL^2 = \frac{P^2}{2M}$

$P^2 = MKL^2$

$P = \sqrt{MK}\ L$

42.



∵ mass of 2 m chain = 4 kg

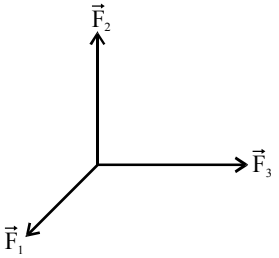
mass of 1m chain = $\frac{4}{2}$ kg

mass of 60 cm chain is = 2 × 0.6 = 1.2 kg
Work done to lift hanged part (m) to the table
W = mgh

$W = (1.2)(10)\left(\frac{30}{100}\right) = 3.6$ J

44. T – mg = ma
840 – 600 = 60a
240 = 60a
$a = 4\ m/s^2$

45.



Initially

$\vec{F}_1 = \vec{F}_1 + \vec{F}_3$

After removal of $\vec{F}_1$ the acceleration of particle

$\frac{\vec{F}_2+\vec{F}_3}{m}$ or $\frac{\vec{F}_1}{m}$

so Ans. (1)

47. $P_{mix}\ V_{mix} = P_AV_A + P_BV_B$

$P_{mix} \times 2 = 1000 \times 0.5 + 800 \times 1$

48. Acc. to Le-chatlier principle exothrmic reaction favared by low temperature.

49. $\frac{r_A}{r_B} = \frac{V_A/t_A}{V_B/t_B} = \sqrt{\frac{M_{WB}}{M_{WA}}}$

$$\frac{1/150}{1/200} = \sqrt{\frac{36}{M_{wA}}}$$

50. For ppt. of AgCl ; $[Ag^+] = \frac{K_{sp}(AgCl)}{[Cl^-]}$

$$= \frac{10^{-10}}{0.05} = 2 \times 10^{-9}$$

for AgI ppt ; $[Ag^{-1}] = \frac{K_{sp}(AgI)}{[I^-]}$

$$= \frac{4\times10^{-16}}{0.05} = 8 \times 10^{-15}$$

Thus, AgI will first precipitate

$$(I^-)_{left} = \frac{4\times10^{-16}}{2\times10^{-9}} = 2 \times 10^{-7}\ M$$

51. $Z < 1$; $\frac{V_m}{V_i} < 1$; $\frac{V_m}{22.4} < 1$

52. Acid $\xrightarrow{-H^+}$ conjugate base

Base $\xrightarrow{+H^+}$ conjugate acid

56. $NH_3 + HCl \Rightarrow 1 : 1$

$NH_3 + NH_4Cl \Rightarrow 2 : 1$ will give

60. $pOH = pKb + \log \frac{[Salt]}{[Base]}$

$$= 4 + \log \frac{[0.2]}{[0.1]}$$

$pOH = 4 + \log 2$

$pH = 10 - \log 2$

69. $\because \Delta E - \Delta H = -\Delta n_g RT = 1200cal$

$$\Rightarrow \Delta n_g = \frac{-1200}{2\times300} = -2$$

$$\therefore \frac{K_p}{K_c} = (RT)^{\Delta n} = (0.082 \times 300)^{-2}$$

$$= 1.648 \times 10^{-3}$$

70. Colligative properties $\propto$ Van't Hoff factor (i)
(i) $\uparrow$; F.P. ($\downarrow$) : B.P. ($\uparrow$) ; O.P.($\uparrow$)
vap. pressure ($\downarrow$) for solution.

74. $\pi_R = \frac{\pi_1 + \pi_2}{2} = \frac{3.70}{2} = 1.85$ atm

78. $(F.P.)_{solution} = (F.P.)_{Solvent} - \Delta T_F$
$(\Delta T_F) = i \times K_f \times m$
$= 1.2 \times 1.86 \times 0.2$
$= 0.4464$ K

80. $P_S = P_A^\circ X_A + P_B^\circ X_B$
$= 300 \times 0.4 + 800 \times 0.6$
$= 600$ torr
Thus, shows deviation from Raoult's law.

81. Heisenberg's uncertainty principle.

82. (a) No. of molecules = $\frac{5}{22.4} \times N_A$

(b) No. of molecules = $\frac{0.5}{2} \times N_A$

(c) No. of molecules = $\frac{10}{32} \times N_A$

(d) No. of molecules = $\frac{15}{22.4} \times N_A$

83. $\Rightarrow E = \frac{hc}{\lambda}$, $E\alpha\frac{1}{\lambda}$

so $\frac{E_1}{E_2} = \frac{\lambda_2}{\lambda_1} = 2$

$E_1 = 2E_2$

84. $N_2 + 3H_2 \longrightarrow 2NH_3$
30 lit 30 lit.
Volume (25 lit.) (15 lit.) (10 lit.)
left $H_2 \longrightarrow$ Limiting reagent

90. If given moles same, than limiting reagent will be that component which have maximum stichiometric cofficient.

91. NCERT-XI, Page # 19 & 23
93. NCERT-XI, Page # 26 & 31
95. NCERT-XI, Page # 12 & 13
97. NCERT-XI, Page # 20 & 21
99. NCERT-XI, Page # 36 & 38
101. NCERT-XI, Page # 35 & 36
103. NCERT-XI, Page # 4 & 5
105. NCERT-XI, Page # 4
107. NCERT-XI, Page # 6
109. NCERT-XI, Page # 6
111. NCERT-XI, Page # 8
113. NCERT-XI, Page # 8
115. NCERT-XI, Page # 9-A,B,C & 11-D
116. NCERT Page # 170
117. NCERT-XI, Page # 8 and 9
118. NCERT Page # 165, 166
119. NCERT-XI, Page # 12 & 13
120. NCERT Page # 139
121. NCERT-XI, Page # 13
122. NCERT Page # 136
123. NCERT-XI, Page # 10
124. NCERT Page # 136
125. NCERT-XI, Page # 9
126. NCERT Page # 126
127. NCERT-XI, Page # 9,10
128. NCERT Page # 132, 133
129. NCERT-XI, Page # 12 Last line
130. NCERT Page # 133, 134
131. NCERT-XI, Page # 16 first line
132. NCERT Page # 128
133. NCERT-XI, Page # 17 table
134. NCERT Page # 129
135. NCERT-XI, Page # 17
137. NCERT-XI, Page # 28, Exercise Q. no. 1 and answer on 18
139. NCERT-XI, Page # 18 & 19
141. NCERT-XI, Page # 19
143. NCERT-XI, Page # 20
145. NCERT-XI, Page # 22
147. NCERT-XI, Page # 40,41
148. NCERT Pg. # 87
149. NCERT-XI, Page # 38 & 39 to 41
151. NCERT Pg. # 49
152. NCERT Pg. # 92
154. NCERT Pg. # 93, 94
156. NCERT-XI Pg. # 93
159. NCERT Page no. # 56
161. NCERT Page no. # 56, 57
165. NCERT Page no. # 54
166. NCERT Pg. # 101 to 104
170. NCERT Pg. # 281
175. NCERT Page no. # 52
176. NCERT Pg. # 280
177. NCERT Page no. # 50, 51