

MAJOR TEST # 09

ALLEN NEET-UG

DATE : 28 - 04 - 2013

FULL SYLLABUS

ANSWER KEY

Q.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
A.	4	3	3	3	4	1	3	1	4	2	2	3	2	1	1	1	3	2	1	1
Q.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
A.	1	3	2	3	2	4	4	1	2	1	2	1	2	3	2	4	3	2	4	4
Q.	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
A.	1	3	2	1	1	1	1	2	2	1	4	3	3	4	2	2	3	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	4	2	4	2	1	4	2	3	4	2	2	1	4	3	1	1	4	1	4
Q.	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
A.	2	4	4	3	2	4	2	4	1	4	2	1	3	1	4	1	2	3	2	2
Q.	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
A.	3	2	3	3	4	2	3	3	3	1	4	4	4	3	2	3	1	4	1	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	4	3	2	4	3	2	4	3	4	4	3	3	3	1	2	3	2	3
Q.	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
A.	1	2	4	2	2	1	3	2	1	4	1	4	2	1	2	4	2	4	2	1
Q.	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
A.	2	3	3	3	2	4	2	2	1	3	3	2	2	1	2	3	1	4	3	1

HINT - SHEET

6. $\beta = \frac{D\lambda}{2a(\mu-1)A} \Rightarrow \mu - 1 = \frac{D\lambda}{2aA\beta}$;

$\Rightarrow \mu = 1 + \frac{D\lambda}{2aA\beta}$

11. As [Energy] = [Force × distance]

so unit of distance = $\frac{\text{unit of Energy}}{\text{unit of force}} = \frac{5\text{J}}{10\text{N}} = 0.5\text{m}$

13. According to work energy theorem

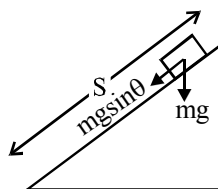
$W_{mg} + W_F = \Delta K$

$Mg(h + S) - FS = 0$ [$K_i = K_f = 0$]

$FS = Mg(h + S)$

$F = Mg\left(1 + \frac{h}{S}\right)$

15.

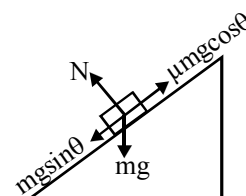


$u = 0$

$a_1 = g\sin\theta = g\sin 45^\circ$

$= \frac{g}{\sqrt{2}}$

$S = 0 + \frac{1}{2}a_1t_1^2$



$u = 0$

$a_2 = \frac{mgsin\theta - \mu mgcos\theta}{m}$

$a_2 = g(\sin\theta - \mu\cos\theta)$

$= g\left(\frac{1}{\sqrt{2}} - \mu\frac{1}{\sqrt{2}}\right)$

$$t_1 = \sqrt{\frac{2S}{a_1}}$$

$$t_1 = \sqrt{\frac{2S}{g/\sqrt{2}}}$$

$$t_1 = \sqrt{\frac{2\sqrt{2}S}{g}}$$

$$\therefore t_2 = 2t_1$$

$$\therefore \sqrt{\frac{2\sqrt{2}S}{g(1-\mu)}} = 2\sqrt{\frac{2\sqrt{2}S}{g}}$$

$$\Rightarrow \frac{1}{1-\mu} = \frac{1}{4} \Rightarrow \boxed{\mu = \frac{3}{4}}$$

$$a_2 = \frac{g}{\sqrt{2}}(1-\mu)$$

$$t_2 = \sqrt{\frac{2S}{a_2}}$$

$$t_2 = \sqrt{\frac{2\sqrt{2}S}{g(1-\mu)}}$$

17. From work energy theorem
Work done by all forces = Change in KE = 0
19. When ball moves down by x then spring also elongated by x then
Loss in P.E. of ball = Gain in spring P. E.

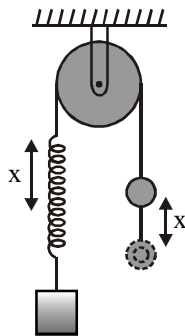
$$mgx = \frac{1}{2}mx^2$$

$$Kx = 2mg \quad \dots(1)$$

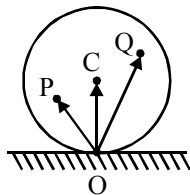
Now to left block "B"
 $Kx \geq Mg \quad \dots(2)$

From (1) & (2)
 $2mg \geq Mg$

$$\boxed{m \geq \frac{M}{2}}$$



21. As $r_{OQ} > r_{OC} < r_{OP}$
so $\omega r_{OQ} > \omega r_{OC} > \omega r_{OP}$
 $\Rightarrow v_Q > v_C > v_P$



25. $(KE)_{\max} = \frac{hc}{\lambda} - \theta_0$ if $\lambda \downarrow \Rightarrow KE \uparrow \Rightarrow v \uparrow$

27. $N_\alpha = \frac{A_i - A_f}{u}$ and $N_B = (Z_f - Z_i) + 2N_\alpha$

31. $2\pi rT = mg$
33. Thermal Tension $F = YA \propto \Delta\theta$
39. C.O.P. = $\frac{T_2}{T_1 - T_2}$
 $9 = \frac{T_2}{300 - T_2} \Rightarrow 300 - T_2 = \frac{T_2}{9}$
 $\Rightarrow \frac{9T_2 + T_2}{9} = 300$

So $T_2 = 270 \text{ K} = -3^\circ\text{C}$

40. NCERT
Here Amplitude = 20 cm
 $a = \frac{-Kx}{m} = \frac{15 \times 20 \times 10^{-2}}{0.3} = 10 \text{ m/sec}^2$

42. $\omega_1 A_1 = \omega_2 A_2$
 $\boxed{\frac{A_1}{A_2} = \frac{\omega_2}{\omega_1} = \sqrt{\frac{K_2}{K_1}}}$ $\omega = \sqrt{\frac{K}{M}}$

43. NCERT
 $\frac{\lambda}{2} = \ell = 40 \text{ cm}$

$$\boxed{\lambda = 80 \text{ cm}}$$

44. $v - 1$ & v have one beat
 v & $v + 1$ have also one beat.
& $v - 1$ & $v + 1$ have two beat.
In same time
So due to overapping of sound only two beat/sec produce

45. NCERT
 $\alpha = K = \frac{2\pi}{\lambda} = \frac{2\pi}{0.08} = 25\pi$

$$\beta = \omega = \frac{2\pi}{T} = \frac{2\pi}{2} = \pi$$

48. It is very dilute solution of NaOH
 $\therefore [\text{OH}^-]_{\text{total}} = [\text{OH}^-]_{\text{NaOH}} + [\text{OH}^-]_{\text{H}_2\text{O}}$
 $[\text{OH}^-]_{\text{total}} = 10^{-7} + 10^{-7} = 2 \times 10^{-7} \text{ M}$

50. Solubility of $\text{Mg}(\text{OH})_2 = 11.6 \times 10^{-3} \text{ gL}^{-1}$

$$= \frac{11.6 \times 10^{-3}}{58} \text{ molL}^{-1}$$


$$\therefore 2 \times 10^{-4} \text{ molL}^{-1}$$

$$K_{sp} \text{ of } \text{Mg}(\text{OH})_2 = 4s^3 = 32 \times 10^{-12}$$

$$= 3.2 \times 10^{-11}$$

52. NCERT Page # 84/3.5.1

After electrolysis of KCl, KOH remains in the solution.

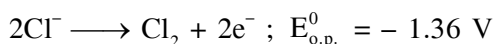
53.  CH_2^+ is more stable by resonance.

54. NCERT Page # 47/Equation (2.25)

$$P_s = \frac{80}{100} P^0 = \frac{4}{5} P^0$$

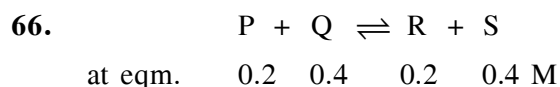
$$\frac{P^0 - P_s}{P^0} = X_{\text{solute}} = \frac{W_B / M_B}{W_A / M_A + W_B / M_B}$$

58. NCERT Page # 68/3.3



$$E_{\text{o.p.}} = E_{\text{o.p.}}^0 - \frac{0.0591}{2} \log \frac{[\text{P}_{\text{Cl}_2}]}{[\text{Cl}^-]^2}$$

64. No effect on equilibrium state on addition of inert gas at constant volume.



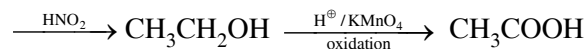
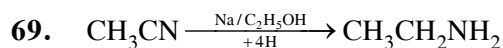
$$K_c = \frac{[\text{R}][\text{S}]}{[\text{P}][\text{Q}]} = \frac{0.2 \times 0.4}{0.2 \times 0.4} = 1$$

K_c depends only on temperature so value of K_c remains same on decreasing the concentrations of R and S.

$$\therefore K_c = 1$$

68. $\frac{1}{\lambda} = RZ^2 \left(\frac{1}{4} - \frac{1}{25} \right) = R \times 1 \times \left(\frac{25-4}{25 \times 4} \right) = \frac{21R}{100}$

$$\lambda = \frac{100}{21R}$$



75. Cl_2 shows anti addition.

91. NCERT XI Page 10 & 18 in Q. No. 7

93. NCERT XI Page 11 & 12

94. NCERT Pg. # 270 (Last line)

95. NCERT XI Page 17

97. NCERT XI Page 18, 19, 20

99. NCERT XI 35, 38

101. NCERT XI Page 34-39

102. NCERT Pg. # 245

103. NCERT XI Bio Pg. # 39, 40

104. NCERT Pg. # 234

107. NCERT-XI E Pg. # 57

111. NCERT-XI E Pg. # 60

113. NCERT, Page No. 279 - 280

114. NCERT Pg. # 243

115. NCERT, Page No. 103

116. NCERT Pg. # 235

117. NCERT, Eng. Pg # 112, Para # 3, Line # 14

Hin. Pg # 113, Para # 4, Line # 14

118. NCERT Pg. # 261

120. NCERT Pg. # 259

122. NCERT Pg. # 116

124. NCERT Pg. # 105

126. NCERT Pg. # 98

130. NCERT Pg. # 112

131. NCERT Pg. # 133

132. NCERT XIth Page No. 320(E)/(H)

133. NCERT Pg. # 135

134. NCERT XIth Page No. 332(E)/(H)

135. NCERT Pg. # 169

136. NCERT XIth Page No. 298,299/(E), 299/(H)

137. NCERT-XI Page # 240
 138. NCERT XIth Page No. 306(E)/(H)
 139. NCERT-XI Page # 230 Fig. 14.2
 140. NCERT XIth Page No. 323/E, 322/H
 141. NCERT-XI Page # 234
 142. NCERT XIth Page No. 286/E
 145. NCERT-XI Page # 198
 148. NCERT Page no. # (E)-132, (H)-142
 149. NCERT-XI Page # 218
 150. NCERT Page no. # (E)-132, (H)-143

151. NCERT-XI Page # 248
 152. NCERT Page no. # (E)-131, (H)-141
 153. NCERT-XI Pg. # (E)-265, 266
 155. NCERT-XI Pg. # (E)-262, 263
 156. NCERT Page no. # (E)-127, (H)-137
 157. NCERT-XI Pg. # (E)-294, 296
 159. NCERT-XI Pg. # (E)-291, 293
 175. NCERT-XII Pg. # (E)-50
 177. NCERT-XII Pg. # (E)-51, (H)-56

CORRECTION IN MAJOR TEST

Test Date	PHASE					
22/03/2013	Achiever (MAX+MAY+MAZ)+ENTHUSE	Q.	165	177	171	
		A.	B(H)	B(H)	4(H)	
22/03/2013	Leader (MLT+MLU+MLV)	Q.	54	90	111	
		A.	2	3	2(E)	
23/03/2013	Achiever (MAW)	Q.	64	72	165	
		A.	1	3	1	
23/03/2013	Leader (MLP+MLQ+MLR+MLS)	Q.	39	58	94	112
		A.	4	3,4	3	2
26/03/2013	Achiever (MAX+MAY+MAZ)+Enthuse	Q.	130	158		
		A.	B(H)	1,2,3		
26/03/2013	Leader (MLT+MLU+MLV)	Q.	4	12	22	98
		A.	2	2	3	1
30/03/2013	Leader (MLP+MLQ+MLR+MLS)	Q.	20			
		A.	1			
31/03/2013	Leader (MLA))	Q.	142			
		A.	2,4			
02/04/2013	Achiever (MAX+MAY+MAZ)+Enthuse	Q.	2	20	147	151
		A.	4	3	1,3	1
02/04/2013	Leader (MLT+MLU+MLV)	Q.	3	24	127	158
		A.	1	3	B	4
04/04/2013	Leader (MLA)	Q.	104	175	176	
		A.	2	3	1	
06/04/2013	Leader (MLP+MLQ+MLR+MLS)	Q.	8	58	111	
		A.	B	3,4	3	
06/04/2013	Achiever (MAW)	Q.	11			
		A.	4			
08/04/2013	Leader (MLT+MLU+MLV+MLA)	Q.	24	36	42	44
		A.	B	B	B	B
08/04/2013	Achiever (MAX+MAY+MAZ)+Enthuse	Q.	15	86	118	
		A.	B	3	4	
11/04/2013	Enthuse + Leader + Achiever	Q.	170			
		A.	3,4			
15/04/2013	Enthuse + Leader + Achiever	Q.	94			
		A.	2			
20/04/2013	Enthuse + Leader + Achiever	Q.	173			
		A.	2			