Enthusiast, Leader & Achiever Course

PHASE : (All Phase)

TARGET : PRE-MEDICAL 2020

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

TEST DATE : 01-05-2020

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

HINT – SHEET

2. Ans (3)

$\cos\theta = \frac{5}{13}$

$H^2 = B^2 + P^2$

$P^2 = H^2 - B^2$

$P = \sqrt{13^2 - 5^2} = \sqrt{169 - 25} = \sqrt{144} = 12$

$\tan\theta = \frac{P}{B} = \frac{12}{5}$

3. Ans (1)

At t = 1, $x_A = 3$, $x_B = 6$, $y_A = 1$, $y_B = 5$

distance $= \sqrt{(x_B - x_A)^2 + (y_B - y_A)^2} = 5$

11. Ans (4)

$\vec{A} + \vec{B} = \vec{D} = 3\hat{i} + 3\hat{j} + 2\hat{k}$

$\vec{C} = 6\hat{i} - 2\hat{j} - 6\hat{k}$

$\vec{D} \cdot \vec{C} = 18 - 6 - 12 = 0 \Rightarrow \theta = 90°$

15. Ans (3)

$\left[\frac{Af}{kT}\right] = L^\circ \Rightarrow \frac{[A]\,T^{-1}}{ML^2T^{-2}} = L^\circ \Rightarrow [A] = ML^2T^{-1}$

So $[B] = \frac{ML^2T^{-1}}{ML^{-1}T^{-2}} = L^3T^1$

16. Ans (3)

Total mass = (2.300 + 0.02015 + 0.02017) kg

= 2.34032 kg

As the least number of significant figures in the mass of box is 2, so maximum number of significant figures in the result can be 2.

∴ Total mass = 2.3 kg

18. Ans (2)

Least count = 1 S.D – 1 V.D

$= \left(1 - \frac{8}{10}\right) = \frac{2}{10}\text{mm} = 0.02\ \text{cm}$

19. Ans (4)

$v = v_0 \sin \omega t$

$$\bar{v} = \frac{\int_0^{T/2} v_0 \sin(\omega t)dt}{\int_0^{T/2} dt}$$

$$= \frac{v_0 \frac{|-\cos(\omega t)|_0^{T/2}}{\omega}}{|t|_0^{T/2} = \left(\frac{T}{2} - 0\right)}$$

$$= \frac{2v_0}{\omega T}\left[\left\{-\cos\left(\frac{\omega T}{2}\right)\right\} - \{-\cos(0)\}\right]$$

$$= \frac{2v_0}{2\pi}(-\cos\pi + 1)$$

$$= \frac{v_0}{\pi}\{-(-1) + 1\} \ (\cos\pi = \cos 180° = -1)$$

$$= \frac{2}{\pi}v_0$$

20. Ans (4)

$a = -\alpha x^2$

$$v.\frac{dv}{dx} = -\alpha x^2$$

$$\int_{v_0}^{0} v.dv = -\int_0^x \alpha x^2 dx$$

$$\frac{v_0^2}{2} = \frac{\alpha x^3}{3} \Rightarrow x = \left[\frac{3}{2}\frac{v_0^2}{\alpha}\right]^{1/3}$$

24. Ans (1)

When the angle of projection is very far from 45° then range will be minimum.

26. Ans (2)

According to the given equation

First case: Separation between the trucks decreases at the rate of 10m/s. Due to the opposite relative motion of trucks away from each other-

$V_1 + V_2 = 10$ (condition given) .....(1)

Seconds case: Separation between the trucks increases due to the opposite relative motion of trucks away from each other-

$V_1 - V_2 = 5$ .....(2) (condition given)

From equation (1) and (2), we get

$V_1 + V_2 = 10$ ...(i)

$V_1 - V_2 = 5$ ...(ii)

Eq^n (i) + (ii)

$2V_1 = 15$

$V_1 = 7.5$ m/s

Eqn (i) – (ii)

$2V_2 = 5$

$V_2 = 2.5$ m/s

27. Ans (3)

Velocity of bullet w.r. to jeep $v_{bj} = 72 \times \frac{5}{18} = 20$ m/s

velocity of bullet w.r. to ground $v_{bg} = 20 + 5 = 25$ m/s

$\therefore$ velocity of bullet w.r. to thief's car

$v_{bg} - v_{th} = 25 - 10 = 15 m/s$

30. Ans (1)

Given that $\vec{p} = p_x\hat{i} + p_y\hat{j} = 2\cos t\,\hat{i} + 2\sin t\,\hat{j}$

$\therefore \ \vec{F} = \frac{d\vec{p}}{dt} = -2\sin t\,\hat{i} + 2\cos t\,\hat{j}$

Now, $\vec{F}.\vec{p} = 0$ i.e. angle between $\vec{F}$ and $\vec{p}$ is 90°.

32. Ans (3)

Force of upthrust will be there on mass m shown in figure, so A weighs less than 2 kg. Balance will show sum of load of beaker and reaction of upthrust so it reads more than 5 kg.

33. Ans (3)

Case (a): $a_1 = \dfrac{2mg - mg}{3m} = \dfrac{g}{3}$

Case (b) : $a_2 = \dfrac{2mg - mg}{m} = g$

35. Ans (4)

Suppose the force F is applied at an angle θ with the horizontal as shown in adjoining figure. For vertical equilibrium,

$$R + F\sin\theta = mg$$

or $R = mg - F\sin\theta$ .....(i)

While for horizontal motion

$F\cos\theta \geq f_L$ or $F\cos\theta \geq \mu R$ .....(ii)

From eqns. (i) and (ii), we get;

$$F\cos\theta \geq \mu(mg - F\sin\theta)$$

or $$F \geq \frac{\mu mg}{(\cos\theta + \mu \sin\theta)}$$

For the force F to be minimum $(\cos\theta + \mu\sin\theta)$ must be maximum,

i.e., $\dfrac{d}{d\theta}(\cos\theta + \mu \sin\theta) = 0$

or $-\sin\theta + \mu\cos\theta = 0$

i.e., $\tan\theta = \mu$ or $\theta = \tan^{-1}(\mu)$

$\therefore$ $\sin\theta = \dfrac{\mu}{\sqrt{1+\mu^2}}$ and $\cos\theta = \dfrac{1}{\sqrt{1+\mu^2}}$

$\therefore$ $F \geqslant \dfrac{\mu mg}{\frac{1}{\sqrt{1+\mu^2}} + \frac{\mu^2}{\sqrt{1+\mu^2}}}$

$\therefore$ $F_{min.} = \dfrac{\mu mg}{\sqrt{1+\mu^2}}$

38. Ans (2)

$L = mvr$

$= [M]\,[LT^{-1}]\,[L]$

$= [M\,L^2\,T^{-1}]$

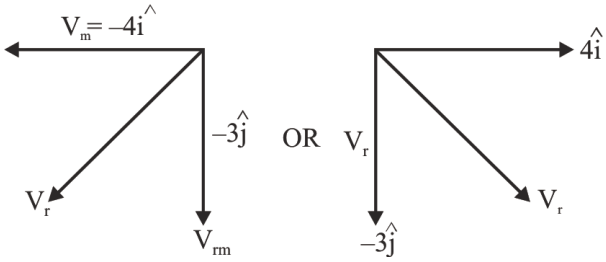
40. Ans (3)

$a = \dfrac{dv}{dt} = 1\ m/s^2$ {Constant}

42. Ans (4)

$V_m = 4m/s$

$V_{rm} = 3$ m/s vertically



43. Ans (1)

$a = \dfrac{5g - 3g}{5+3+2} = 2m/s^2$

46. Ans (2)

$CH_4(g) + 2O_2(g) \rightarrow CO_2(g) + 2H_2O(\ell)$

$\downarrow$

$1L\ CH_4 + 2L\ O_2 \rightarrow 1LCO_2 + 2L\ H_2O$

$\downarrow$

$1L \rightarrow 2\ L$

$20\ L \rightarrow 40L\ O_2$

As we know, volume of air = 5 × volume of O_2

= 5 × 40

= 200 L of air

47. Ans (1)

$a_0 = 0.529 \times \dfrac{1^2}{1}$

$r_a = 0.529 \times \dfrac{4}{1}$

$r_a = 4a_0$

$n\lambda = 2\pi r_a$

$= \pi 4a_0 = 4\pi a_0$

49. Ans (2)

$\Delta H = \Theta$ ve

$\Delta ng = \oplus$ ve

50. Ans (3)

$An \rightleftharpoons nA$

$1-\alpha \quad n\alpha$

$$\frac{D_T}{D_0} = \frac{1+\alpha(n-1)}{1}$$

$$\alpha = \frac{D_T - D_0}{(n-1)D_0}$$

58. Ans (1)

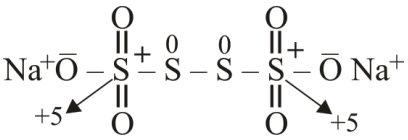
According to Heisenberg's uncertainty principle

$$\Delta x \times \Delta V = \frac{h}{4\pi m}$$

$$\Delta x \times \Delta V = \frac{6.6 \times 10^{-34}\ kg\ m^2 s^{-1}}{4 \times 3.14 \times 9.1 \times 10^{-31}\ kg}$$

$$= 5.8 \times 10^{-5}\ m^2 s^{-1}$$

64. Ans (1)



67. Ans (2)

density of water = 1 g/mL

$\therefore$ mass of 1 cm^3 water = density × volume

$= 1 \times 1$

$= 1$ g

$\therefore$ No. of mole of water molecule in 1 cm^3 =

$\therefore$ No. of molecule of H_2O in 1 $cm^3 = \frac{1}{18} \times N_A$

$$= \frac{1}{18} \times 6 \times 10^{23}$$

$$= 3.3 \times 10^{22}$$

68. Ans (3)

11th NCERT Pg. # 210, equation 7.26

71. Ans (3)

Zn^{2+} and Mn^{+2} precipitates as sulphide salts in basic medium.

72. Ans (2)

$[H^+] = \sqrt{K_a \times C}$

$= \sqrt{3.5 \times 10^{-8} \times 0.4}$

$= \sqrt{140 \times 10^{-10}}$

$\approx 12 \times 10^{-5}$

$\approx 1.2 \times 10^{-4}$

74. Ans (4)

$$r \propto \frac{P}{\sqrt{MW}}$$

$p \propto n$

$$\frac{P_{SO_2}}{P_{CH_4}} = \frac{8}{1}$$

$$\frac{r_{SO_2}}{r_{CH_4}} = \frac{8}{1} \cdot \sqrt{\frac{16}{64}} = \frac{8}{2} = 4:1$$

77. Ans (3)

$A^{2+} \longrightarrow A^{+4} + 2e^- \times 3$

$3e^- + B^{3+} \longrightarrow B \times 2$

Total no. of e^- transfered = 6

84. Ans (3)

$\Delta H = \Delta U + \Delta n_g RT$

$$= 2.1 + \frac{1 \times 2 \times 300}{1000}$$

$= 2.1 + 0.6$

$= 2.7$ KCal

$\therefore \quad \Delta G = \Delta H - T\Delta S$

$$= 2.7 - \frac{300 \times 20}{1000}$$

$= 2.7 - 6$

$= -3.3$ KCal

87. Ans (3)

$C_2H_4 + H_2 \longrightarrow C_2H_6$; $\Delta H_r = \Delta H_{Hyd.}$

$\Delta H_r = \Sigma \Delta H_f(P) - \Sigma \Delta H_f(R)$

$= x_2 - x_1$

90. Ans (1)

$H_2O(g) + C(S) \rightarrow CO(g) + H_2(g)$ ...(1)

$CO(g) + \frac{1}{2}O_2(g) \rightarrow CO_2(g)$ ...(2)

$H_2(g) + \frac{1}{2}O_2(g) \rightarrow H_2O$ ...(3)

$C_{(S)} + O_2(g) \rightarrow CO_2(g)$ ...(4)

Eq. (1) + eq. (2) + eq. (3) = eq. (4)

91. Ans (3)

NCERT-XI - Page No. 6

94. Ans (4)

NCERT (XI) Pg. # 6

95. Ans (4)
NCERT, Pg. # 6

98. Ans (1)
NCERT Pg. # 9,10

100. Ans (1)
NCERT (XI) Pg. # 9

106. Ans (2)
NCERT (XIth) Pg. # 19

112. Ans (4)
NCERT (XIth) Pg. # 21

114. Ans (1)
NCERT Pg. # 20

115. Ans (3)
NCERT (XIth) Pg. # 20,21

117. Ans (2)
NCERT (XI) Pg. # 24

118. Ans (4)
NCERT-XIth Pg # 23, 4th para

123. Ans (2)
NCERT (XIth) Pg. # 25-26

126. Ans (4)
NCERT Pg. # 32

129. Ans (1)
NCERT-XI, Pg. # 36

130. Ans (3)
NCERT Pg. # 35, 3.2.1

131. Ans (3)
NCERT Pg. # 35

134. Ans (4)
NCERT Pg.# 37, Fig. 3.3

137. Ans (2)
NCERT XI Pg.# 35

140. Ans (2)
NCERT XI pg # 39

144. Ans (1)
NCERT (XIth) Pg. # 86

147. Ans (2)
NCERT XI Pg # 87

148. Ans (3)
NCERT XI Pg # 90

150. Ans (3)
NCERT Pg.#92

151. Ans (1)
NCERT Pg # 91

152. Ans (4)
NCERT Pg # 94, Fig. 6.8(a)

156. Ans (1)
NCERT XI Pg. 95, Fig. 9.5

157. Ans (4)
NCERT (XIth) Pg. # 66

165. Ans (1)
NCERT XI, Page # 81

168. Ans (4)
NCERT Pg. 74, 5.5.1

170. Ans (2)
NCERT-XI Pg. # 75, Figure-5.16

176. Ans (3)
Module-4

178. Ans (4)
NCERT (XIth) Eng. Med. Pg. # 79