Enthusiast, Leader & Achiever Course

PHASE : ALL PHASE

TARGET : PRE-MEDICAL 2020

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

TEST DATE : 24-08-2020

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

HINT – SHEET

1. Ans (3)

Mass measured by physical balance remains unaffected due to variation in acceleration due to gravity.

2. Ans (3)

$V = 2t + 3$, here acceleration is constant,

$$V_{av} = \frac{u+v}{2} = \frac{3+(2t+3)}{2}$$

$$= (3+t)_{t=1} = 4 \text{ m/s}$$

3. Ans (2)

$L = mv_{\perp}r = 5\ (3\sqrt{2}\cos 45)\ (4)$

$= 60$ units.

4. Ans (4)

$W = \int pdv$ = area under p–v curve

$= -10J$ (–ve as ACW)

5. Ans (4)

$w = \frac{2\pi}{60}$ rad/s.

$v = wr = \frac{\pi}{30}$ cm/s (speed of tip)

Angle Rotated in 15 sec. is $= \frac{\pi}{2}$

Change in velocity $= 2v \sin\frac{\theta}{2}$

$$= 2\ \alpha\left(\frac{\pi}{30}\right)\sin\left(\frac{1}{2}\times\frac{\pi}{2}\right) = \frac{\pi\sqrt{2}}{30}\text{cm/s}$$

6. Ans (3)

$$f' = f\left(\frac{V \pm V_{wind} \pm V_o}{V \pm V_{wind} \pm V_S}\right)$$

here $V_o = V_S = 0$

$$f_A = f\left(\frac{V + V_{wind}}{V + V_{wind}}\right) = f$$

$$f_B = f\left(\frac{V - V_{wind}}{V - V_{wind}}\right) = f$$

7. **Ans (1)**

$$\frac{a}{V+\left(-\frac{\sqrt{3}V}{2}\right)}=\frac{2a}{V(2-\sqrt{3})}$$

8. **Ans (2)**

$$\eta=1-\frac{T_2}{T_1}\Rightarrow 0.3=1-\frac{350}{T_1}$$

$$\Rightarrow \frac{350}{T_1}=1-0.3=0.7$$

$$\Rightarrow T_1=500\ K=227°C$$

9. **Ans (2)**

$$\frac{V_1}{V_2}=\sqrt{\frac{\rho_2}{\rho_1}}=\sqrt{\frac{1}{4}}=\frac{1}{2}$$

10. **Ans (3)**

Escape velocity $V_e=\sqrt{2Rg}$

$V=2\sqrt{Rg}$

$V>V_e$

11. **Ans (3)**

$$N_P=\frac{mv^2}{r}+mg$$

$$=\frac{500(20)^2}{10}+500\times 10=25000N$$

12. **Ans (3)**

$$\frac{1}{2}mV_o^2=\frac{1}{2}m\left(\frac{V_\cdot}{2}\right)^2+\frac{1}{2}kx^2$$

$$k=\frac{3mV_o^2}{4x^2}$$

13. **Ans (4)**

$U=U_1+U_2$

$=\mu_1 C_{v_1}T+\mu_2 C_{v_2}T$

$=2\times\frac{5}{2}RT+4\times\frac{3}{2}RT$

$=5RT+6RT=11RT$

14. **Ans (4)**

$K=2$

$$T=2\pi\sqrt{\frac{m}{K}}\Rightarrow T=2\pi\sqrt{\frac{2}{2}}\Rightarrow T=2\pi$$

15. **Ans (3)**

from law of conservation of angular momentum $I_1\omega_1=I_2\omega_2$

$$\frac{1}{2}MR^2\omega=\left[\frac{1}{2}MR^2+\frac{1}{2}\frac{M}{4}R^2\right]\omega_2$$

$$\omega=\left[1+\frac{1}{4}\right]\omega_2$$

$$\omega_2=\frac{4\omega}{5}$$

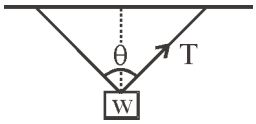
16. **Ans (1)**

$$\tan\theta=\frac{v^2}{rg}$$

17. **Ans (3)**

$$T\cos\left(\frac{\theta}{2}\right)=W$$

$$T=\frac{W}{\cos\left(\frac{\theta}{2}\right)}$$



For larger angle cos (θ/2) is smaller & T is larger, So the string is more likely to break.

18. **Ans (2)**

Centre of mass always lies towards heavier mass.

19. **Ans (3)**

Colour is related with frequency of light, that depends on temperature.

20. **Ans (1)**

$W=W_{AB}+W_{BC}+W_{CD}+W_{DA}$

$W_{AB}+W_{CD}=nR(T_B-T_A)+nR(T_D-T_C)$

$W_{AB}+W_{CD}=0$

W_{BC}, W_{DA} are isothermal process

$$W_{BC}=nRT\ln\left(\frac{P_B}{P_C}\right)=2\times R\times 400\ln 2$$

$$W_{DA}=2\times R\times 300\times\ln\left(\frac{1}{2}\right)$$

$W=W_{BC}+W_{DA}=200\ R\ln_2$

21. Ans (2)

first case $K_{eq_1} = \frac{k \times k}{k + k} = \frac{k}{2}$

Second case $K_{eq_2} = 2k$

$$T = 2\pi\sqrt{\frac{m}{k}}$$

22. Ans (3)

As uniform speed, acceleration = 0, tension = mg

23. Ans (3)

$B = W_{air} - W_{water} = 5 - 2 = 3$ N

24. Ans (2)

Distance covered in 1st sec is $x = \frac{1}{2} g (1)^2 = \frac{g}{2}$

Let it falls for n sec then last sec is n^{th} sec.

$\therefore \quad 7x = 0 + \frac{g}{2}(2n - 1)$

$\Rightarrow \quad 7 \times \frac{g}{2} = \frac{g}{2}(2n - 1)$

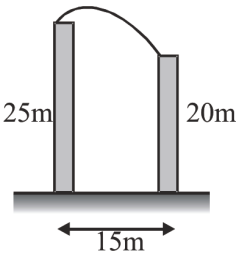
$\Rightarrow \quad 2n = 8$

$\Rightarrow \quad n = 4$ sec

25. Ans (2)

By COM

26. Ans (3)



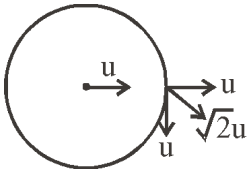
$$t = \sqrt{\frac{2 \times 5}{10}} = 1 \text{ ms}^{-1}$$

$$\text{speed} = \frac{15}{1} = 15 \text{ms}^{-1}$$

27. Ans (1)

Density of iron is more than that of aluminium. For greater moment of inertia larger mass should be at larger distance from axis.

28. Ans (3)



29. Ans (4)

$$\int dv = \int a dt$$

30. Ans (2)

Since the book is at rest so,

acceleration = 0 so R = W.

31. Ans (2)

For equal distance

$$v_{avg} = \frac{2v_1 v_2}{v_1 + v_2} = \frac{2 \times 2.5 \times 4}{(2.5 + 4)}$$

$$v_{avg} = \frac{40}{13} \text{ km/hr}$$

32. Ans (4)

$$\cos\theta = \frac{\vec{A} \cdot \vec{B}}{AB} = \frac{(\hat{i} + \hat{j} + \hat{k}) \cdot (\hat{i})}{(\sqrt{3})(1)} = \frac{1}{\sqrt{3}}$$

33. Ans (2)

At x = 0, y = a sinωt so y' = – a sinωt at x = 0

34. Ans (4)

$$\Delta l = \frac{Fl}{\pi r^2 Y} \Rightarrow \Delta l \propto \frac{l}{r^2}$$

Only option 'radius 3 mm, length 2 m' is satisfying the above relation.

35. Ans (2)

Let l be the length of the pipes and v the speed of sound. Then frequency of open organ pipe of n th overtone is,

$f_1 = (n + 1)\frac{v}{2l}$

and frequency of closed organ pipe of n the overtone is,

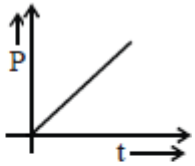
$f_2 = (2n + 1)\frac{v}{4l}$

$\therefore$ The desired ratio is $\frac{f_1}{f_2} = \frac{2(n+1)}{(2n+1)}$

36. Ans (1)

$F = \text{Const.} = k$

$\Rightarrow a = \frac{k}{m} \Rightarrow \frac{dv}{dt} = \frac{k}{m}$



$\Rightarrow v = \frac{k}{m}t$

$P = F.v. = \frac{k^2}{m}t$ so

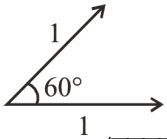
37. Ans (4)

$T = 2\pi\sqrt{\ell/g} \Rightarrow g \propto \ell T^{-2}$

$\Rightarrow \frac{\Delta g}{g} = \frac{\Delta \ell}{\ell} + 2\frac{\Delta T}{T}$

$= 1 + 2(2) = 5\%$

38. Ans (3)



$A_{net} = \sqrt{1^2 + 1^2 + 2 \times 1 \times 1 \cos 60} = \sqrt{3}$

39. Ans (1)

$a = g \sin\theta - \mu g \cos\theta$

$= g[\sin 45° - 0.5 \times \cos 45°]$

$= \frac{4.9}{\sqrt{2}} m/s^2 1$

40. Ans (1)

$F = \frac{dm}{dt} \times v = 0.5 \times 2 = 1N$

41. Ans (3)

$V_T = \frac{2}{9}\frac{r^2(\rho - \sigma) \times g}{\eta}$

$[V \propto r^2]$

$\frac{V_0}{4V_0} = \frac{r_1^2}{r_2^2} \Rightarrow \frac{r_1}{r_2} = \frac{1}{2}$

$\frac{M}{m} = \frac{\rho \times \frac{4}{3}\pi r_2^3}{\rho \times \frac{4}{3}\pi r_1^3} = \left(\frac{r_2}{r_1}\right)^3 \Rightarrow \frac{8}{1}$

42. Ans (4)

$P = \frac{x^2 - b}{at} \Rightarrow a = \frac{x^2 - b}{Pt}$

$[a] = \frac{[x^2]}{[P][t]} = \frac{[L^2]}{[ML^2T^{-3}T]} = [M^{-1}T^2]$

43. Ans (4)

$f = \frac{W}{2\pi} = \frac{1}{0.02} = 50Hz$

$V = \frac{W}{k} = \frac{100}{0.02} = 5000$ cm/s = 50 m/s

$(Vp)_{max} = AW = (4)\frac{2\pi}{(0.02)} = 400\pi$ cm/s $= 4\pi$ m/s

44. Ans (3)

$a = -\omega^2 x$

Phase difference between displacement and acceleration is π.

45. Ans (1)

10 gm water at 60ºC can provide heat H = ms $\Delta Q = 10 \times 1 \times 60 = 600$ Cal to bring it up to 0ºC,

Heat required to heat & melt ice from –5ºC to 0ºC

$H = m_i s \Delta\theta + m_i L$

$= 10 \times (0.5)(5) + 10 \times 80 = 825$ Cal

So complete ice will not melt & final temperature = 0ºC

48. Ans (2)

Chain isomers have different number of carbon in main chain.

49. Ans (3)

Aceteline $\xrightarrow[\text{Fe tube}]{\text{Red hot}}$  Benzene

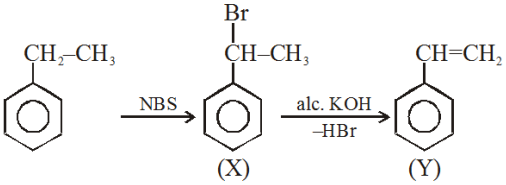
It does not react with Br_2/H_2O

51. Ans (2)

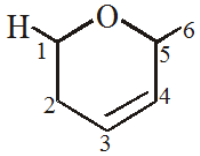
$P_t V = n_t RT$

$Pt \times 1 \left[\frac{4}{32} + \frac{2}{2}\right] \times 22.4$

52. Ans (2)



53. Ans (1)



56. Ans (4)

(i) Size ore $P > S > Cl$

$\therefore$ π bond form by 'P' is weak.

(ii) $SnCl_2$ is undergoes +4 oxidation state.

(iii) XeF_2 and XeO_3F_2 has zero dipole moment.

So, $XeF_2 = XeO_3F_2$

57. Ans (2)

$[Cr(H_2O)_4Cl_2]^+$

$\downarrow$

$x + 4(0) - 2 = +1$

$x = +3$

58. Ans (2)

$Cl_2 + FeCl_3 \longrightarrow \overset{\oplus}{Cl}$

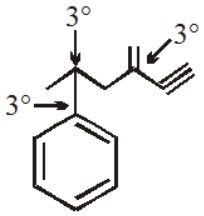
59. Ans (3)

$n = 2$ $XeF_2 \longrightarrow$ Linear, sp^3d

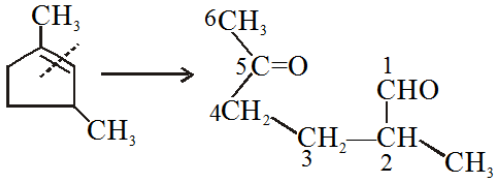
$n = 4$ $XeF_4 \longrightarrow$ Sq. planar, sp^3d^2

$n = 6$ $XeF_6 \longrightarrow$ Capped octahedral, sp^3d^3

60. Ans (2)



61. Ans (2)



63. Ans (1)

$_3Li$

$1s^2\ 2s^1$

$Li^+ \rightarrow 1s^2$ acquired He configuration so it has maximum II I.P.

64. Ans (2)

$$\text{Volatile nature} \propto \frac{1}{\text{b. pt.}}$$

Volatile nature p-nitro phenol < o-nitro phenol

65. Ans (1)

$NaOH \rightarrow \bar{O}—H$

$Na_2O_2 \rightarrow \bar{O}—\bar{O}$

$BaO_2 \rightarrow \bar{O}—\bar{O}$

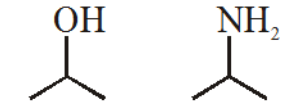
$CaC_2 \rightarrow \bar{C}\equiv\bar{C}$

$CaH_2 \rightarrow 2H^-$

$BaCl_2 \rightarrow 2Cl^-$

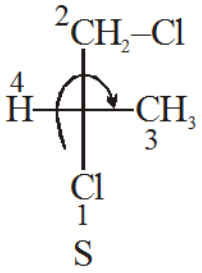
$Na_2S_2 \rightarrow \bar{S}—\bar{S}$

66. Ans (2)



2° alcohol 1° amine

68. Ans (2)



70. Ans (4)

Stability of alkene $\propto$ Hyperconjugation

72. Ans (1)

$$\text{Basic strength} \propto \frac{1}{\text{Electronegativity}}$$

74. Ans (4)

$\sigma \rightarrow$ Zero nodal plane

$\pi \rightarrow$ One NP

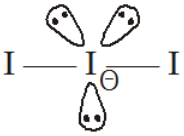
$\sigma^* \rightarrow$ One NP

$\pi^* \rightarrow$ Two NP

76. Ans (4)

$M \equiv M \rightarrow 0$ sp, linear

$N \equiv N :\rightarrow N-$ sp, linear



sp^3d, Linear

sp^3, Bent

77. Ans (1)

Due to half filled stable configuration of N, energy required for addition of e^- in 'N' atom.

So, $N \rightarrow N^-$ Endothermric

$Cl \rightarrow Cl^-$

$F \rightarrow F^-$] Exothermic

$H \rightarrow H^-$

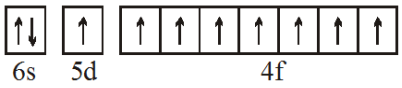
78. Ans (4)

$$CO + H_2 + H_2O(g) \xrightarrow[FeCrO_4]{773\ K} CO_2 + 2H_2(g)$$

Water gas shift reaction.

79. Ans (3)

$_{64}Gd \longrightarrow {}_{54}[Xe]\ 6s^2\ 5d^1\ 4f^7$



6s 5d 4f

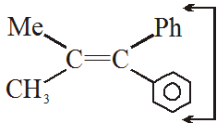
Total unpaired elecrons = 1 + 7 = 8

80. Ans (2)

$H^+ < Li^+ < H^-$

Isoelectronic series

81. Ans (4)

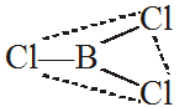


same group so not show G.I.

82. Ans (3)

For resonance compound should have conjugated system.

83. Ans (3)



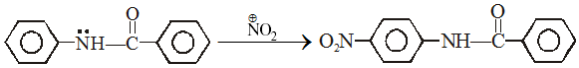
BA = 120°

84. Ans (3)

In s-block moving from top to bottom basic nature increases.

$Al_2O_3 < MgO < Na_2O < K_2O$

85. Ans (4)



86. Ans (4)

Sodium methanoate not react with soda lime.

88. Ans (2)

By using Gypsum is cement, setting time of cement increases.

89. Ans (2)

Lattice energy $\propto \frac{1}{size} \propto q_1 \times q_2$

MgO has maximum LE

91. Ans (1)

NCERT Pg. # 191

92. Ans (2)

NCERT XI, Pg. # 38, 39, para-1, 1, 1, 2

93. Ans (1)

NCERT Pg. # 324

94. Ans (1)

NCERT XI Pg.# 299

103. Ans (1)

XIth NCERT Pg. No. 102

107. Ans (2)

NCERT Pg.# 108, para 6 (E), Pg.# 109 para 6 (H)

108. Ans (1)

NCERT Pg. # 139

121. Ans (3)

NCERT-Pg. No. 139, Fig-8.12

124. Ans (1)

NCERT Pg. No. # 284

133. Ans (3)

NCERT Pg.#102

134. Ans (3)

Module Pg. # 124

138. Ans (4)

NCERT Pg. # 78

139. Ans (3)

NCERT (XI) Pg. # 230

142. Ans (2)
NCERT Pg. # 92

147. Ans (3)
NCERT XI Pg. # 10, Fig. 1.1

149. Ans (4)
NCERT XI Pg # 94, 6.3.6

159. Ans (1)
NCERT Pg No. # 265, 266

160. Ans (4)
NCERT, Page No. # 126

165. Ans (3)
From Module

166. Ans (4)
NCERT XIth Pg. No. # 146

168. Ans (4)
NCERT Pg. # 229 (Para-14.2)

179. Ans (4)
NCERT (XI), Pg. # 312