ENTHUSIAST, LADER & ACHIEVER COURSE

PHASE : (All Phase)

TARGET : PRE-MEDICAL 2020

Test Type : **DRILL TEST # 10** Test Pattern : **NEET (UG)**

TEST DATE : 22-04-2020

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

HINT – SHEET

2. Ans (4)

Time constant $\tau = [T]$ and Viscosity $\eta = [ML^{-1}T^{-1}]$

For options (1), (2) and (3) dimensions are not matching with time constant.

6. Ans (2)

Ⓐ ⟶ 5 ms^{-1} 5 ms^{-1} ⟵ Ⓑ

Before collision

⟶ve

5 m s^{-1} ⟵ Ⓐ Ⓑ ⟶ 5 m s^{-1}

After collision

Initial momentum of ball A = (0.05 kg) (5 ms^{-1})
= 0.25 kg ms^{-1}

As the speed is reversed on collision,

Final momentum of the ball A = (0.05 kg)(–5 ms^{-1})
= – 0.25 kg m s^{-1}

Impulse imparted to the ball A
= Change in momentum of ball A
= Final momentum – Initial momentum
= – 0.25 kg m s^{-1} – 0.25 kg m s^{-1}
= – 0.5 kg m s^{-1}

Similarly,

Initial momentum of ball B = (0.05kg)(–5 m s^{-1})
= – 0.25 kg m s^{-1}

Final momentum of ball B = (0.05 kg)(5 m s^{-1})
= + 0.25 kg m s^{-1}

Impulse imparted to ball B = (0.25 kg m s^{-1})
– (– 0.25 kg m s^{-1})
= 0.5 kg m s^{-1}

Imulse imparted to each ball is 0.5 kg m s^{-1} in magnitude. The two impulses are opposite in direction.

7. Ans (2)

$$U_p = \frac{4}{3}\pi\frac{D^3}{8} \times \frac{D}{2}g$$

$$U_Q = D^3\frac{D}{2}g$$

$$U_R = \frac{\pi}{3}\frac{D^2}{4} \cdot \frac{D}{4} \cdot g$$

$$U_S = \frac{\pi D^2}{4} \cdot D \cdot \frac{D}{2}\, g$$

8. Ans (3)

$$\upsilon = \sqrt{Rg\ \tan\theta}$$

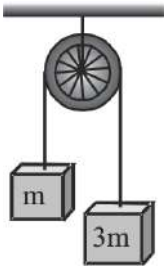
$$R = 10\sqrt{3}m,\ \theta = 30$$

$$\upsilon = \sqrt{10\sqrt{3} \times 10 \times \frac{1}{\sqrt{3}}}$$

$= 10m/sec = 36km/hr$

9. **Ans (1)**

$$a = \frac{(3m - m)}{3m + m} g = \frac{g}{2}$$



$$\vec{a}_{cm} = \frac{3m\vec{a}_1 + m\vec{a}_2}{3m + m}$$

Both mass have same magnitude of accleration but in opposite direction $\vec{a}_1 = -\vec{a}_2 = a$ Let)

$$a_{cm} = \left(\frac{3m - m}{4m}\right) \times \frac{g}{2} = \frac{g}{4}$$

10. **Ans (1)**

$$K = \frac{J^2}{2I}$$

$$J = \sqrt{2IK}$$

$$J' = \sqrt{2I \times 4K} = 2J$$

$$\therefore \frac{\Delta J}{J} \times 100 = \frac{2J - J}{J} \times 100 = 100\%$$

12. **Ans (2)**

Height of jump on the planet B

$= \frac{g_A}{g_B} \times$ height of jump on the planets A

($\because$ mgh = constant)

13. **Ans (3)**

$$(TE)_i = -\frac{GM_E m}{2(2R_E)} = -\frac{GM_E m}{4R_E}$$

$$(TE)_f = -\frac{GM_E m}{2(4R_E)} = -\frac{GM_E m}{8R_E}$$

Energy required

$$= (TE)_f - (TE)_i = -\frac{GM_E m}{8R_E} + \frac{GM_E m}{4R_E}$$

$$= \frac{GM_E m}{8R_E}$$

14. **Ans (4)**

$2T\ell = W$

$$T = \frac{W}{2\ell} = \frac{1.5 \times 10^{-2}}{2 \times 0.3}$$

$= 2.5 \times 10^{-2}$ N/m

16. **Ans (2)**

Convection is a mode of heat transfer by actual motion of matter. If is possible only in fluids. convection can be natural or forced.

17. **Ans (1)**

$$\eta = 1 - \frac{T_2}{T_1} = \frac{T_1 - T_2}{T_1} \Rightarrow \eta_1 = \frac{(473 - 273)}{473} = \frac{200}{473}$$

and $\eta_2 = \frac{273 - 73}{273} = \frac{200}{273}$

So required ratio $\frac{\eta_1}{\eta_2} = \frac{273}{473} = 0.577$

18. **Ans (4)**

Argon is a monoatomic gas so it has only translational energy.

20. **Ans (2)**

$$\frac{P}{\rho} = \frac{RT}{M_w}$$

$$\rho = \frac{PM_W}{RT}$$

$$\rho \propto \frac{P}{T}$$

$$\rho_A = \rho_0 = \frac{P_0}{T_0}$$

$$\Rightarrow \rho_B = \frac{3P_0}{2T_0} = \frac{3}{2}\rho_0$$

21. **Ans (4)**

$\lambda = \frac{v}{n} = \frac{352}{384}$ m thus during 1 vibration of fork sound will travel $\frac{352}{384}$ m so during 36 vibration of fork sound will travel $\frac{352}{384} \times 36 = 33$m.

23. **Ans (2)**

At point A, source is moving away from observer so apparent frequency $n_1 < n$ (actual frequency).

At point B source is coming towards observer so apparent frequency $n_2 > n$ and point C source is moving perpendicular to observer so $n_3 = n$.

Hence, $n_2 > n_3 > n_1$

25. **Ans (4)**

Since the surface densities are equal, hence

$\frac{q_1}{4\pi r^2} = \frac{q_2}{4\pi R^2}$ (where $\theta_1 + \theta_2 = Q$)

or $\frac{q_1}{r^2} = \frac{q_2}{R^2} = \frac{q_1 + q_2}{r^2 + R^2} = \frac{Q}{r^2 + R^2}$

$\therefore \quad q_1 = \frac{Q}{r^2 + R^2} \times r_2$

and $q_2 = \frac{Q}{r^2 + R^2} \times R^2$

So, potential at the common centre,

$V = \frac{q_1}{4\pi\varepsilon_0 r} + \frac{q_2}{4\pi\varepsilon_0 R} = \frac{1}{4\pi\varepsilon_0}\left(\frac{q_1}{r} + \frac{q_2}{R}\right)$

$= \frac{1}{4\pi\varepsilon_0}\left[\frac{Q}{R^2 + r^2} \times \frac{r^2}{r} + \frac{Q}{R^2 + r^2} \times \frac{R^2}{R}\right]$

$= \frac{1}{4\pi\varepsilon_0}\frac{Q(R + r)}{(R^2 + r^2)}$

27. **Ans (1)**

Current in loop = 3A

$V_A - V_B = 3 + 2 - (1\Omega)\,(3A)$

$= 2V$

30. **Ans (3)**

The magnetic field due to wire D at wire C is:

$B_D = \left(\frac{\mu_0}{4\pi}\right)\frac{2I}{r} = \frac{10^{-7} \times 2 \times 30}{0.03} = 2 \times 10^{-4} T$

which is directed into the page.

The magnetic field due to wire G at C is,

$B_G = \frac{10^{-7} \times 2 \times 20}{0.02} = 2 \times 10^{-4}\ T$

which is directed out of page. Therefore, the field at the position of wire C is :

$B = B_D - B_G = 2 \times 10^{-4} - 2 \times 10^{-4} = 0$

The force on 25 cm of wire C is:

$F = BIl \sin\theta = 0$

33. **Ans (2)**

The magnitude of induced e.m.f. is directly proportional to the rate of change of magnetic flux. Induced charge doesn't depend upon time.

34. **Ans (3)**

Wattless current = $I_{rms}\sin\phi$

$\sqrt{3} = 2\sin\phi$

$\Rightarrow \phi = 60°$

P.F. = $\cos\phi = \frac{1}{2}$

35. **Ans (1)**

$P_1 = 2P_L + P_M$

$= 2(n-1)\left(\frac{1}{R} - \frac{1}{\infty}\right) + 0$

$= \frac{2(n-1)}{R}$

$P_2 = 2P_L + P_M$

$= 2(n-1)\left(\frac{1}{\infty} - \frac{1}{-R}\right) + \frac{2}{R}$

$= \frac{2n}{R}$

$\Rightarrow \frac{f_1}{f_2} = \frac{P_2}{P_1} = \frac{n}{n-1}$

36. **Ans (3)**

$\vec{v}_I = -\vec{v}_0 + 2\vec{v}_m = -0 + 2\,(10) = 20\ cm/s$

41. **Ans (1)**

$\lambda = \frac{h}{\sqrt{2mE}} \Rightarrow \lambda \propto \frac{1}{\sqrt{m}} \Rightarrow \frac{\lambda_P}{\lambda_\alpha} = \sqrt{\frac{m_\alpha}{m_P}} = \frac{2}{1}$

42. **Ans (1)**

Energy emitted by the lamp in time t = Pt

where P is the power of the lamp

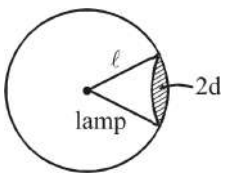
If 2d is radius of the sphere and ℓ is the distance of source, then the energy reaching the sphere.

$E = \frac{Pt}{4\pi\ell^2}\pi(2d)^2$

$E = \frac{Pt\,d^2}{\ell^2}$

$\frac{nhc}{\lambda} \Rightarrow \frac{Pt\,d^2}{\ell^2}$

$n = \frac{Pt\,d^2}{\ell^2} \times \frac{\lambda}{hc} \Rightarrow n = \frac{Pt\lambda\,d^2}{hc\,\ell^2}$

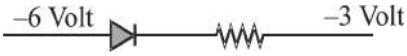


43. Ans (1)

$\therefore -6 < -3$

i.e. 'P' is at low potential than 'N'

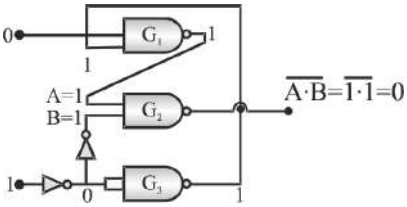
$\therefore$ Diode is reverse biased.



44. Ans (3)

(Universal gate) → NAND, NOR

45. Ans (1)



50. Ans (4)

$W = -P_{ext.}\Delta V$

$\therefore W = 0$

53. Ans (4)

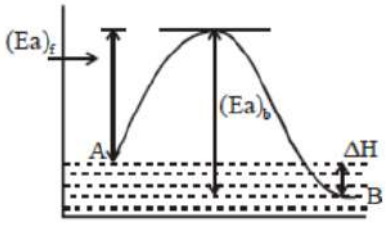
Octahedral void present at the centre of cube and tetrahedral void is present at (1/4)th of the distance along each body diagonal.

$\therefore \frac{\sqrt{3}a}{4}$ = distance between octahedral and tetrahedral void.

54. Ans (4)

ΔS = –ve, ΔH = –ve

55. Ans (1)



$\Delta H = (Ea)_f - (Ea)_b$

$-60 = 40 - (Ea)_b$

$(E_a)_b = 40 + 60 = 100$ kCal

57. Ans (2)

$m = ZQ$

$\frac{m}{Q} = Z$

62. Ans (4)

NCERT-XI, Pg No. 126, Para-2

64. Ans (2)

AB A_2B $A_2B_3B = -2$

$Z^+.Z^- \Rightarrow$ 2×2 1×2 3×2

$=4$ $=2$ $=6$

$U \propto Z^+.Z^- \Rightarrow A_2B_3 > AB > A_2B$

OR

Lattice energy $\propto q_1q_2$

76. Ans (2)

$H-\underset{\underset{O}{\|}}{C}-O-CH_2-CH_3$; $CH_3-\underset{\underset{O}{\|}}{C}-O-CH_3$

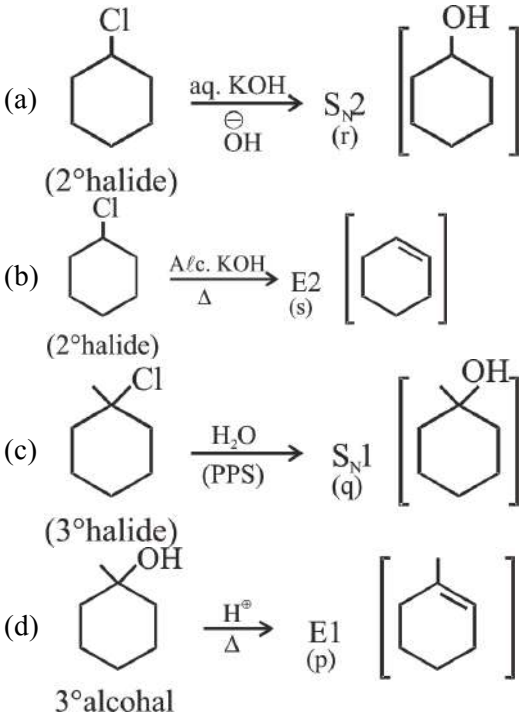
77. Ans (4)

EWG increases reactivity for NAR and EDG decreases reactivity for NAR aldehydes are more reactive than ketones.

80. Ans (3)

Rate of ESR $\propto$ +I/+M Resonance

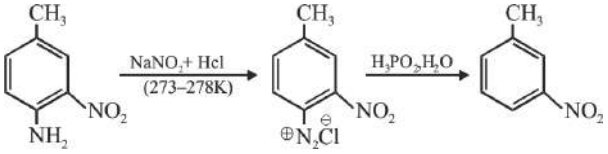
81. Ans (2)



83. Ans (3)

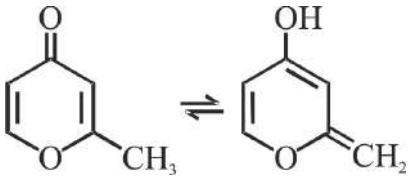
Presence of β-keto w.r.t. carboxylic acid increases rate of decarboxylation.

84. Ans (1)



86. **Ans (3)**
NCERT Pg.# 370 (ex. 12.5) and 431 (Para.- 3)

88. **Ans (1)**
Reactivity $\propto$ Leaving group Ability
$\propto$ Stability of anion.
Cl is best leaving group among all.

90. **Ans (4)**


92. **Ans (1)**
NCERT XI Pg.# 14

95. **Ans (3)**
NCERT XI Pg. No. # 24

100. **Ans (1)**
NCERT (XI) Pg. # 72, Para - 1, line-4,5,6,7
para - 2, line - 1, 2, 3

102. **Ans (3)**
NCERT (XI) Pg. # 92,93

104. **Ans (4)**
NCERT XI Pg. # 138

108. **Ans (3)**
Module-2 Pg.# 230

109. **Ans (4)**
NCERT XIth Pg. No. # 146

120. **Ans (3)**
NCERT XIIth Pg.#7

121. **Ans (2)**
NCERT XII Page # 29

128. **Ans (4)**
NCERT (XII) Pg. # 117

142. **Ans (3)**
NCERT XIIth Pg. No. 222,224,225

143. **Ans (4)**
NCERT Pg. # 259(E), 283 (H)

151. **Ans (4)**
NCERT XIth Pg.#54

163. **Ans (3)**
NCERT-XI, Pg#311

173. **Ans (2)**
NCERT Page # (E/H) 133,143