Enthusiast, Leader & Achiever Course

PHASE : ALL PHASE

TARGET : PRE-MEDICAL 2020

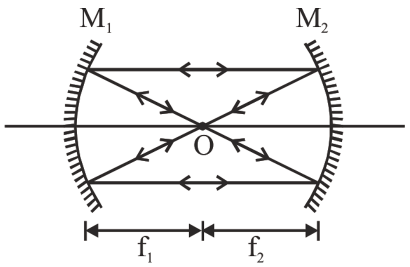
Test Type : **MAJOR** Test Pattern : **NEET (UG)**

TEST DATE : 31-08-2020

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

HINT – SHEET

1. **Ans (1)**



2. **Ans (3)**

Energy released if

$BE_f > BE_i$

in (3) $BE_i = 900$ MeV

$BE_f = 1020$ MeV

So $BE_f > BE_i$

3. **Ans (3)**

As the density of water increases up to 4°C,

$\Delta V = -ve$

$\Rightarrow \Delta W = -$ ve and $\Delta U = 300$ cal

By, $\Delta Q = \Delta U + \Delta W$

$\Delta Q < 300$ cal.

4. **Ans (2)**

$f = 5$ cm, $u = ?$

for closest distance
न्यूनतम दूरी के लिये
$v = -25$ cm

$$\frac{1}{f} = \frac{1}{v} - \frac{1}{u}$$

$$\frac{1}{5} = \frac{1}{-25} - \frac{1}{u}$$

$$\frac{1}{u} = -\frac{1}{25} - \frac{1}{5}$$

$$\boxed{u = -4.2\text{cm}}$$

for farthest ditance
अधिकतम दूरी के लिये
$v' = \infty$, $u' = ?$

$$\frac{1}{f} = \frac{1}{v'} - \frac{1}{u'}$$

$$\frac{1}{5} = \frac{1}{\infty} - \frac{1}{u'}$$

$$\boxed{u' = -5\text{cm}}$$

5. **Ans (3)**

$$\Delta U = \frac{mgh}{1 + \frac{h}{R}} \quad \text{where } h = R/5$$

6. Ans (3)

$$C = \frac{\varepsilon_0 KA}{d} = \frac{(8.85 \times 10^{-12}) \times 10 \times 1}{10^{-3}}$$

$$i = \frac{d}{dt}(CV) = C\frac{dV}{dt} = 8.85 \times 10^{-8} \times 25$$

$$= 2.2 \times 10^{-6} A$$

7. Ans (2)

In case of diffraction

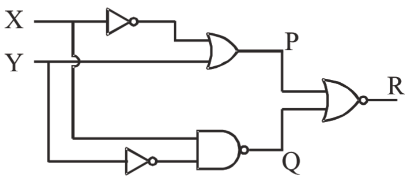
$d \sin\theta = n\lambda$; $\sin\theta = \theta = y/D$ $d\left(\frac{y}{D}\right) = n\lambda$

$$\Rightarrow \boxed{y = \frac{D}{d}(n\lambda)}$$

$$\text{So, } y_3 - y_1 = \frac{D}{d}(3\lambda - \lambda) = \frac{D}{d}(2\lambda)$$

$$\Rightarrow d = \frac{0.50 \times \left(2 \times 6 \times 10^{-7}\right)}{3 \times 10^{-3}} = 0.2\text{mm}$$

8. Ans (3)



$$R = \overline{P + Q}$$

$$P = \bar{X} + Y,\ Q = \overline{X\bar{Y}} = \bar{X} + Y$$

$$R = \overline{(\bar{X} + Y) + (\bar{X} + Y)}$$

$$R = \overline{\bar{X} + Y} = X\bar{Y}$$

$R = 1$, when $X = 1, Y = 0$

9. Ans (2)

$$P_1 + P_2 = 9$$

$$P = P_1 + P_2 - dP_1P_2$$

$$\frac{27}{9} = 9 - \frac{20}{100} \times P_1P_2$$

The above equation is correct only for

$P_1 = 3$ and $P_2 = 6$

10. Ans (1)

At constant pressure

$\Delta W = P\Delta V = P \times (V_f - V_i)$ ...(i)

For an ideal gas $PV = nRT$

or $PV_f = nRT_f$ and $PV_i = nRT_i$

From (i)

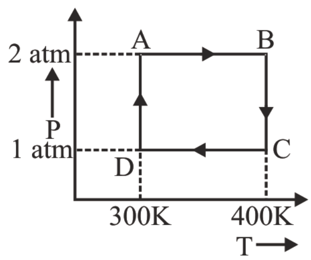
$\therefore \Delta W = nR(T_f - T_i)$ ...(ii)

For constant temperature, PV = constant

$P_fV_f = P_iV_i$ or $\left(\frac{V_f}{V_i}\right) = \left(\frac{P_i}{P_f}\right)$

$\Delta W = nRT \ \ell n \frac{P_i}{P_f}$ ...(ii)

So work done for path AB, BC, CD and DA respectively will be



$\Delta W_{AB} = nR(T_f - T_i) = 2 \times R(400 - 300)$

$= 200\ R$ (Using(ii))

$\Delta W_{BC} = nRT\ln\left(\frac{P_i}{P_f}\right) = 2 \times R \times 400\ln2$

$= 800R\ln2$ (Using(iii))

$\Delta W_{CD} = nR(T_f - T_i) = 2 \times R[300 - 400]$

$= -200R$ (Using(ii))

$\Delta W_{DA} = nRT\ln\left(\frac{P_i}{P_f}\right) = 2 \times R \times 300\ \ell n\left(\frac{1}{2}\right)$

$= -600R\ln2$ (Using(iii))

Hence, the work done in the complete cycle

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

$= 200R + 800R\ln2 - 200R - 600R\ln2$

$= 200R\ln2$

11. Ans (4)

$$B_1 = \frac{\mu_0 I\,(a/2)}{2\pi a^2}$$

$$B_2 = \frac{\mu_0 I}{2\pi\,(2a)} \qquad \frac{B_1}{B_2} = 1$$

12. Ans (1)

For the process with ideal gas PV^n = constant. If expansion happens with $n > 1$ then only the temperature decreases. But here $n = 2/3$, so here $n < 1$ so temperature must increase.

13. Ans (3)

$$\frac{1}{2}mV_{max}^2 = \frac{hc}{\lambda} - \phi$$

$$\Rightarrow V_{max} = \left[\frac{2(hc - \lambda\phi)}{m\lambda}\right]^{1/2}$$

14. Ans (2)

Here $\vec{\tau}_{net} = 0$, so

$\vec{L}$ = constant

$\therefore L_i = L_F$ ...(i)

$$L_i = I_1\omega_1$$

$$L_i = \left(\frac{ML^2}{12}\right)\omega_0$$

When ball reaches to the ends :

$$L_F = I_2\omega_2 = \left(\frac{ML^2}{12} + 2 \times \frac{mL^2}{4}\right)\omega_2$$

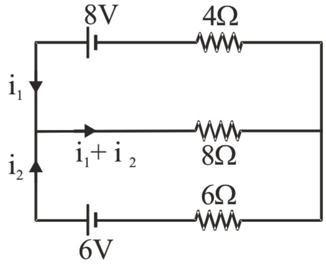
$$L_F = \left(\frac{ML^2 + 6mL^2}{12}\right)\omega_2$$

From eq. ...(i)

$$\left(\frac{ML^2}{12}\right)\omega_0 = \left(\frac{ML^2 + 6mL^2}{12}\right)\omega_2$$

$$\omega_2 = \frac{M\omega_0}{M + 6m}$$

15. Ans (1)



Use KVL in upper loop

$$8 - 8(i_1 + i_2) - 4i_1 = 0$$

or $8 = 12i_1 + 8i_2$ ......(i)

In lower loop

$$6 - 8(i_1 + i_2) - 6i_2 = 0$$

$6 = 8i_1 + 14i_2$ ......(ii)

$(ii) \times \frac{3}{2} \Rightarrow 9 = 12i_1 + 21i_2$ ......(ii)

By (i) & (ii) (ii) – (i)

$1 = 13i_2$ Put in (i)

$$8 = 12i_1 + 8\left(\frac{1}{13}\right) \Rightarrow 2 = 3i_1 + \frac{2}{13}$$

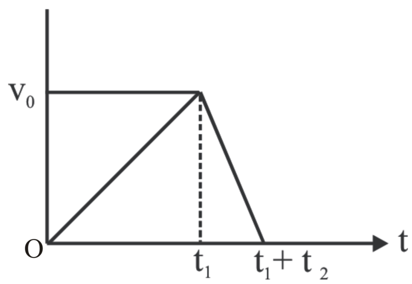
$$3i_1 = \frac{24}{13} \Rightarrow i_1 = \frac{8}{13}$$

$$i_1 + i_2 = \frac{8}{13} + \frac{1}{13} = \frac{9}{13} \approx 0.69 \text{ A}$$

16. Ans (3)

$$Y = \frac{F}{A}\cdot\frac{L}{\Delta L} = \frac{\text{dyne}}{\text{cm}^2} = \frac{10^{-5}\text{N}}{10^{-4}\text{m}^2} = 0.1 \text{ N/m}^2$$

17. Ans (4)



Acceleration is a_1, $v_0 = a_1t_1$ ......(i)

Retardation is a_2, $0 = v_0 - a_2t_2$ ......(ii)

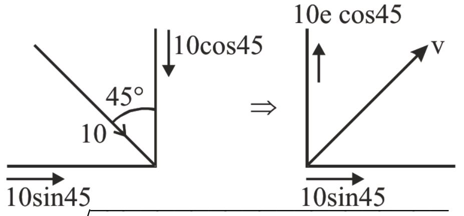
$a_2 = 3a_1$, put in (ii) $v_0 = 3a_1t_2$ ......(iii)

By (i) & (iii) $t_1 = 3t_2$

Given $t_1 + t_2 = 8$

then $t_1 + \frac{t_1}{3} = 8 \Rightarrow t_1 = 6$ s

18. Ans (3)

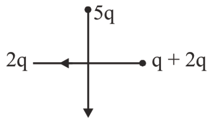


$$v = \sqrt{(10\sin 45)^2 + (10e\ \ \cos 45)^2}$$

$v = 5\sqrt{3}$ m/s

19. Ans (2)

(A) E due to 5q and q



(B) E due to 5q only

2q and 2q cancels each other

(C) 5q and 5q cancels each other

So E due to 3q – 2q = q

(D) 5q and 5q cancels each other

3q and 3q cancels each other

result is zero

$E_A > E_B > E_C > E_D$

20. Ans (3)

Closed organ pipe

$$L = \frac{3\lambda_c}{4},\ V_c = \sqrt{\frac{\gamma P}{\rho_1}} = \lambda_c f \quad \ldots\ldots(i)$$

For open organ pipe

$$L_0 = 2\left(\frac{\lambda_0}{2}\right),\ V_0 = \sqrt{\frac{\gamma P}{\rho_2}} = \lambda_0 f \ldots\ldots(ii)$$

(ii) ÷ (i)

$$\sqrt{\frac{\rho_1}{\rho_2}} = \frac{\lambda_0}{\lambda_c}$$

Put $\lambda_0 = L_0,\ \lambda_c = \dfrac{4L}{3}$

$$\Rightarrow \lambda_0 = \frac{4L}{3}\sqrt{\frac{\rho_1}{\rho_2}}$$

21. Ans (3)

Required length of winding wire $L = 2\pi rN$

……(i)

r = radius of solenoid

N = Number of turns

Magnetic field inside solenoid

$$B = \mu_0\left(\frac{N}{\ell}\right)I$$

ℓ = length of solenoid

by eq.(i) & (ii)

$$\Rightarrow B = \mu_0\left(\frac{L}{2\pi r}\right)\frac{I}{\ell}$$

Put $B = 0.2$ T, $I = 10$ A, $r = 3 \times 10^{-2}$ m

$\ell = 0.80$ m

On solving $L = 2.4 \times 10^3$ m

22. Ans (1)

Speed of wave $v = \sqrt{\dfrac{T}{\mu}} = \dfrac{\omega}{k}$

$$\sqrt{\frac{T}{1.3 \times 10^{-4}}} = \frac{30}{1}$$

$\Rightarrow\ T = 900 \times 1.3 \times 10^{-4}$

$T \simeq 0.12$ N

23. Ans (3)

$I = \dfrac{1}{2}\rho v a^2\omega^2 \quad \Rightarrow \quad I \propto n^2a^2$

24. Ans (2)

As F = 100 N,

Tension in string is 50 N

So m_2 can not move, its acceleration is zero, for m_1

$50 - 4g = 4a \Rightarrow a = 2.5$ m/s^2

25. Ans (1)

Most of current passes through shunt

$25 \times 10^{-3} = 25\ R_s$

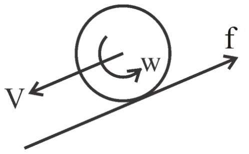
$\Rightarrow R_s = 0.001$

26. Ans (4)

$f \le \mu mg\cos\theta$ so (a) is false

In pure rolling no loss of energy

so (b) is false



f increases ω, decreases v

(c) is true

Equation of motion for sphere

$mg\sin\theta - f = ma$......(1)

torque $\tau = fR = mk^2\propto$

about centre, $a = R\propto$

$fR = mk^2\frac{a}{R}$

$fR^2 = mK^2a$ ..... (2) Put in (1)

$mg\sin\theta - f = \frac{fR^2}{k^2}$

$mg\sin\theta = f\left(1 + \frac{R^2}{k^2}\right)$

$f = \frac{mg\sin\theta}{1 + R^2/K^2}$

As θ decreases, friction decreases.

27. Ans (3)

$t_{min} = \frac{d}{V_{s/r}}$ (same)

28. Ans (3)

Electric field of large sheet is $E = \frac{\sigma}{2\epsilon_0}$

A rod is hinged in this field. If we consider the rod as an electric dipole of moment P then,

$P = (\lambda\ell).\ell = \lambda\ell^2$

Torque $\tau = PE\sin\theta$

$\tau = (\lambda\ell^2)\frac{\sigma}{2\epsilon_0}\sin\theta$

29. Ans (4)

From the relation $B_V = I\sin\phi$

$I = \frac{V}{\sin\phi} = \frac{6\times10^{-5}}{\sin 30^\circ} = \frac{6\times10^{-5}}{0.5} = 12\times10^{-5}$ tesla

30. Ans (1)

Maximum possible friction between block and slab

$f_{s(lim)} = \mu_S N_{AB} = 0.60 \times 10g = 60$ N

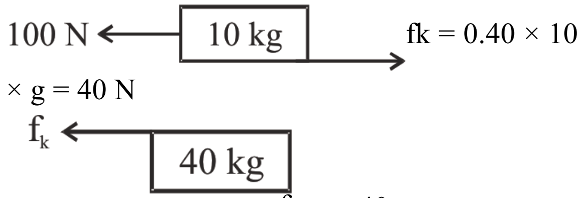
then acceleration of slab in this condition

$a = \frac{60}{40} = 1.5\ m/s^2$

If both block and slab move together under the effect of 100 N then common acceleration would be

$a_c = \frac{100}{10+40} = 2\ m/s^2$

Slab can not with this acceleration so there is sliding between block and slab. So



Acceleration of slab $= \frac{f_k}{40} = \frac{40}{40} = 1\ m/s^2$

31. Ans (4)

$\therefore$ E = same so $\lambda = \frac{h}{\sqrt{2mE}}$

$\lambda \propto \frac{1}{\sqrt{m}}$

$\frac{\lambda_p}{\lambda_\alpha} = \sqrt{\frac{m_\alpha}{m_p}} = \sqrt{\frac{4\cancel{m_p}}{\cancel{m_p}}} = 2$

$\lambda_p = 2\lambda_\alpha$

32. Ans (3)

$A_1V_1 = A_2V_2$

$= \pi\left(\frac{3}{2}\right)^2 \times 4 = \pi\left(\frac{6}{2}\right)^2 \times v$

$= v = 1$ m/s

33. Ans (3)

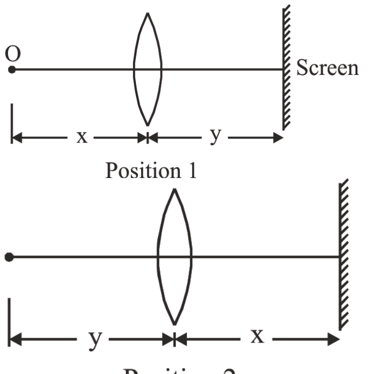
According to Stefan's law $E = \sigma\varepsilon AT^4$

$=$

$\frac{1.58\times10^5\times4.2}{60\times60} = 5.67\times10^{-8}\times10^{-4}\times0.8\times T^4$

T = 2500 K

34. Ans (2)



$d = y - x,\ m = \dfrac{y}{x}$

$d = mx - x = (m-1)x \quad \ldots\ldots(i)$

For position-1

$u = -x,\ v = y$

Focal length f, $\Rightarrow \dfrac{1}{f} = \dfrac{1}{v} - \dfrac{1}{u} = \dfrac{1}{y} - \dfrac{1}{-x}$

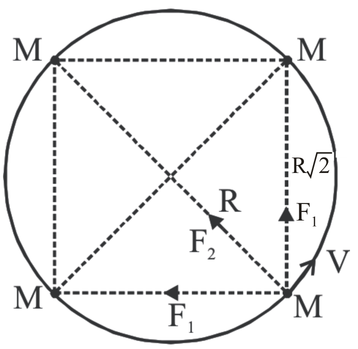
$\dfrac{1}{f} = \dfrac{1}{mx} + \dfrac{1}{x} = \dfrac{(1+m)}{mx}$

$\Rightarrow \quad f = \dfrac{mx}{m+1} \qquad \ldots\ldots(ii)$

Put $x = \dfrac{d}{m-1}$ in (ii)

$f = \dfrac{md}{m^2 - 1}$

35. Ans (3)



Net force on M is $F_2 + \sqrt{2}F_1 = \dfrac{MV^2}{R}$

$F_2 = \dfrac{GM^2}{(2R)^2}$, $F_1 = \dfrac{GM^2}{(\sqrt{2}R)^2}$

$\dfrac{MV^2}{R} = \dfrac{GM^2}{4R^2} + \sqrt{2}\dfrac{GM^2}{2R^2}$

$V = \dfrac{1}{2}\sqrt{\dfrac{GM}{R}(1 + 2\sqrt{2})}$

36. Ans (1)

$i = \dfrac{\varepsilon}{R}\left(1 - e^{-\frac{tR}{L}}\right)$

Emf across R is $\varepsilon_R = \varepsilon\left(1 - e^{-\frac{tR}{L}}\right)$

$\Rightarrow \varepsilon_R = 6V\left(1 - e^{-\ln\sqrt{2}.2}\right)$

$\Rightarrow \varepsilon_R = 6V\left(1 - \dfrac{1}{2}\right) = 3V$

Voltage across coil $\varepsilon_c = \varepsilon - \varepsilon_R = 3$volt

37. Ans (2)

Here the tangential acceleration also exits which requires power.

Given that $a_c = k^2rt^2$ and $a_c = \dfrac{v^2}{r}$

$\therefore \dfrac{v^2}{r} = k^2rt^2$

$v^2 = k^2r^2t^2$ or $v = krt$

Tangential acceleration $a_t = \dfrac{dv}{dt} = kr$

Now force $F = ma$

$F = mkr$

So power $P = F \times v$

$P = mkr \times krt = mk^2r^2t$

38. Ans (1)

For small amplitude, the angular motion is nearly simple harmonic and the time period is given by,

$$T = 2\pi\sqrt{\dfrac{I}{mg\ell}} = 2\pi\sqrt{\dfrac{\dfrac{mL^2}{3}}{mg\left(\dfrac{L}{2}\right)}} = 2\pi\sqrt{\dfrac{2L}{3g}}$$

Now by substituting values of L and g

$$T = 2\pi\sqrt{\dfrac{2\times 60\times 10^{-2}}{3\times 10}} = 0.4 \text{ second}$$

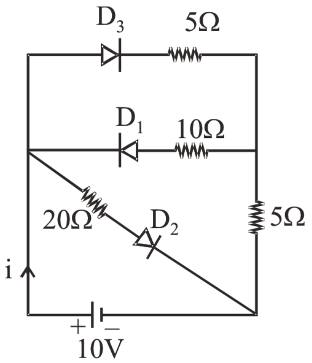
39. Ans (4)

$$\frac{I_{max}}{I_{min}} = \frac{\left(\sqrt{\frac{I_1}{I_2}}+1\right)^2}{\left(\sqrt{\frac{I_1}{I_2}}-1\right)^2} = \frac{(\sqrt{\beta}+1)^2}{(\sqrt{\beta}-1)^2}$$

$$= \frac{\beta+1+2\sqrt{\beta}}{\beta+1-2\sqrt{\beta}}$$

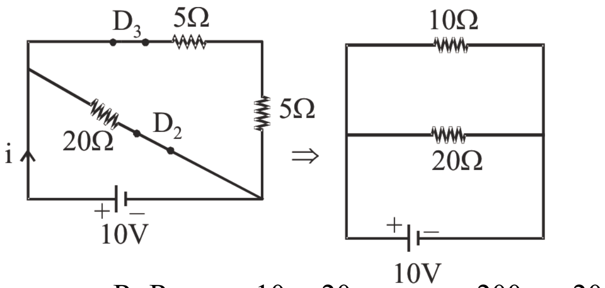
$$\frac{I_{max}-I_{min}}{I_{max}+I_{min}} = \frac{\frac{I_{max}}{I_{min}}-1}{\frac{I_{max}}{I_{min}}+1} = \frac{2\sqrt{\beta}}{1+\beta}$$

40. Ans (3)



Diode D_1 is RB & D_2 & D_3 is FB

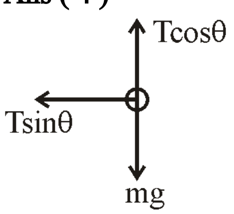
Thus



$$R_{eq} = \frac{R_1R_2}{R_1+R_2} = \frac{10\times20}{10+20};\quad R_{eq} = \frac{200}{30} = \frac{20}{3}$$

$$i = \frac{10\times3}{20} = \frac{3}{2} = 1.5\text{ Amp}$$

41. Ans (4)



$T\cos\theta = mg$

$T\sin\theta = (m)\,(4)^2(L)\sin\theta$

$T = 16\text{ mL}$

42. Ans (4)

Efficiency n = 90%

$0.9 \times$ power in = power out

$0.9 \times 2300 \times 5 = 230 \times I_{out}$

$I_{out} = 45$ A

43. Ans (1)

$$Y = \frac{\text{stress}}{\Delta L/L} \text{ or } \frac{\Delta L}{L} = \frac{\text{stress}}{Y} = \frac{5\times10^7}{2\times10^{11}} = 2.5\times10^{-4}$$

Now, $V = \pi r^2 L$

$$\frac{\Delta V}{V} = \frac{\pi\Delta(r^2L)}{\pi r^2 L}$$

or $$\frac{\Delta V}{V} = \frac{\Delta L}{L} + 2\frac{\Delta r}{r}$$

or $$2\frac{\Delta r}{r} = \frac{\Delta V}{V} - \frac{\Delta L}{L}$$

or $$2\frac{\Delta r}{r} = \frac{0.02}{100} - 2.5\times10^{-4}$$

or

$$\frac{\Delta r}{r} = 1\times10^{-4} - \frac{2.5}{2}\times100^{-4} = -0.25\times10^{-4}$$

44. Ans (4)

E (initial) =

$$\frac{Q_0^2}{2C} = \frac{1}{2}CV_0^2 = V_0^2$$

$$\text{Final energy } E(f) = \frac{Q_0^2}{2C_{cff}}$$

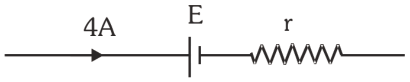
$$E(f) = \frac{1}{2}\times\frac{2v_0}{10}\times2v_0 = \frac{v_0^2}{5}$$

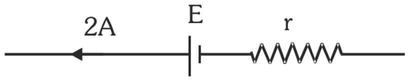
$$\Delta E(\text{loss}) = \frac{4v_0^2}{5}$$

$$\%\text{loss} = \frac{4v_0^2}{5v_0^2}\times100$$

$$\Delta E(\text{loss})\% = 80\%$$

45. Ans (3)





$E + 4r = 12$

$E - 2r = 9$

$\Rightarrow E = 10\text{ V} \ \& \ r = 0.5\Omega$

46. Ans (3)

$\because \ pH = 5$

$\therefore \ [H^+] = 10–5\text{ M}$

After dilution $[H^+] = \frac{10^{-5}}{1000} = 10^{-8}\text{ M}$

Total $[H^+] = 10^{-8} + 10^{-7}$

$= 10^{-7}[10^{-1} + 1]$

$= 10^{-7}[1.1]$

$pH = -\log(1.1 \times 10^{-7}) = 6.95$

47. Ans (2)

$P_T = P_B{}^0X_B + P_T{}^0X_T$

$= 96 \times \frac{1}{2} + 28 \times \frac{1}{2} = 48 + 14 = 62 \text{ torr}$

$Y_B = \frac{P_B}{P_{total}} = \frac{48}{62} = 0.77$

$y_T = 1 - 0.77 = 0.23$

48. Ans (2)

$\Lambda_m^0\,(NH_4OH) = 150 + 2.70 - 149$

$\Rightarrow 280 \text{ S cm}^2\text{ mol}^{-1}$

$\alpha = \frac{\Lambda_m}{\Lambda_m^\alpha} = \frac{25}{280} = 0.09$

$K_a = \frac{C\alpha^2}{1-\alpha} = \frac{0.02(0.09)^2}{1-0.09} = 1.0 \times 10^{-4}$

49. Ans (3)

$t = \frac{2.303}{0.2303}\log 4$

$t = 6.02$ sec

50. Ans (3)

$\frac{200-190}{200} = n_B = \frac{n_B}{n_B + \frac{624}{78}}$

$\frac{1}{20} = \frac{n_B}{n_B + B}$

$19nB = 8 \Rightarrow n_B = \frac{8}{19}$

Mol. wt = 152g

51. Ans (3)

$CH_3NH_2 + HCl \longrightarrow CH_3NH_3Cl^-$

0.08 0.02 0.02

0.06 –

$pOH = pK_b + \log\left(\frac{.02}{.06}\right)$

$pOH = 3.3 + \log\frac{1}{3}\frac{1}{3}$

$pOH = 2.83$

$pH = 14 - 2.83 = 11.17$

52. Ans (3)

$A \rightarrow \frac{1}{8} \times 8 = 1A \rightarrow \frac{1}{8} \times 8 = 1$

$B \rightarrow \frac{1}{2} \times 5 = \frac{5}{2}B \rightarrow \frac{1}{2} \times 5 = \frac{5}{2}$

A_2B_5

53. Ans (3)

$H_2 + \frac{1}{2}\frac{1}{2}O_2 \longrightarrow H_2O$

15 10 15

L.R. $10–7.5 = 2.5$ mL O_2

54. Ans (2)

No. of atoms $= \frac{6.8}{68}\frac{6.8}{68} \times N_A \times 3$

$= 6.023 \times 3 \times 10^{22}$

$= 18.06 \times 10^{22}$

55. Ans (3)

$\log\frac{x}{m} = \log K + \frac{1}{n}\log P$

$\log\frac{x}{m} = \log K + \frac{1}{n}\log P$

56. Ans (4)

n = 4, l = 3,2, 11.2 = 3,2,1,0

4s	4p	4d	4f
↓	↓	↓	↓
2	6	10	14

Total 32 electrons

But with $M_s = +\frac{1}{2}\frac{1}{2}$

16 electrons

57. Ans (3)

No. of moles of $e^- = \dfrac{0.4 \times 8 \times 3600}{96500} \times 0.75$

= 0.089

Volume of

$C_2H_6 = \dfrac{0.089}{2} \times 22.4 \times \dfrac{720}{760} \times \dfrac{300}{273}$

$C_2H_6 = \dfrac{0.089}{2} \times 22.4 \times \dfrac{720}{760} \times \dfrac{300}{273}$

$= 1.03L = 1.03L$

58. Ans (2)

$C_7H_{16} + 11O_2 \longrightarrow 7CO_2 + 8H_2O$

$\Delta H^0 = 7(-394) + 8(-286) - (-200)$

$\Delta H^0 = -2758 - 2288 + 200 = -4846$

59. Ans (3)

$PT = P°_A x_A + P°_B x_B$

$450 = 300\left(\dfrac{2}{x+2}\right) + 500\left(\dfrac{x}{x+2}\right)$

$450 = 300\left(\dfrac{2}{x+2}\right) + 500\left(\dfrac{x}{x+2}\right)$

$\Rightarrow \quad 45 = \dfrac{60}{x+2} + \dfrac{50x}{x+2}$

$45 = \dfrac{60}{x+2} + \dfrac{50x}{x+2}$

$\Rightarrow (x + 2)45 = 60 + 50x$

$x = 6$

60. Ans (1)

Due to formation of most stable transition stage.

61. Ans (2)

PV = nRT

$P = \dfrac{nR}{V} \times TP = \dfrac{nR}{V} \times T$

$\text{Slope} = \dfrac{nR}{V}\ \text{Slope} = \dfrac{nR}{V}$

62. Ans (2)

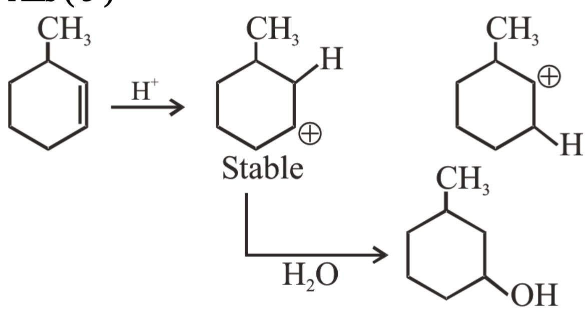
(Conc. H_2SO_4 + Conc. HNO_3)

⇒ Nitrating mixture

63. Ans (1)

Cellulose is a polymer of β-glucose.

64. Ans (3)



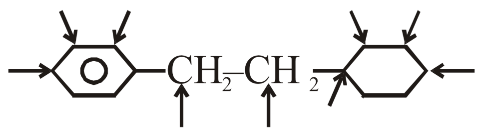
65. Ans (1)

$\begin{matrix} CH_3 \\ CH_3 \end{matrix}\!\!>\!CH\text{–}OH \xrightarrow{[O]} \begin{matrix} CH_3 \\ CH_3 \end{matrix}\!\!>\!C{=}O$

66. Ans (2)

General formula of saturated fatty acid is $C_nH_{2n+1}COOH$

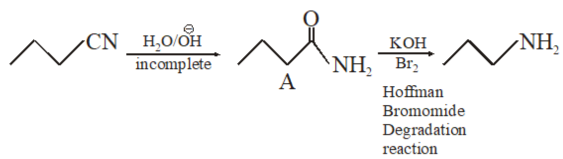
71. Ans (4)



72. Ans (2)

$CH_3\text{–}\underset{\displaystyle CH_2OH}{\underset{|}{CH}}\text{–}COOH \xrightarrow{LiAlH_4} CH_3\text{–}\underset{\displaystyle CH_2OH}{\underset{|}{CH}}\text{–}CH_2OH$

74. Ans (1)



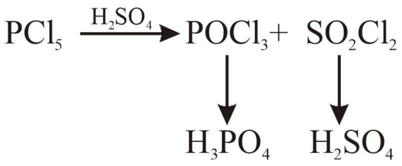
75. Ans (2)

3° alcohol reacts fastest with lucas reagent as it forms most stable 3° carbocation.

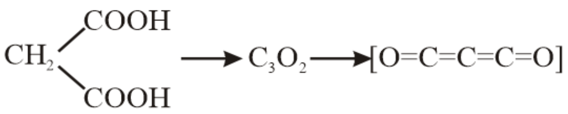
76. **Ans (2)**

In presence of sun light ($h\nu$) free radical substitution reaction will takes place.

77. **Ans (2)**



79. **Ans (1)**



80. **Ans (1)**

$CN_2^{-2} \Rightarrow \overset{\ominus}{N}=C=\overset{\ominus}{N}$

83. **Ans (2)**

For polyatomic anion

Thermal stability $\propto$ Size of cation

84. **Ans (3)**

Metal carbonyl contain synergic bond between Metal atom and CO molecules

$C \xrightarrow[\sigma]{} M$

$M \xrightarrow[\pi]{} C$

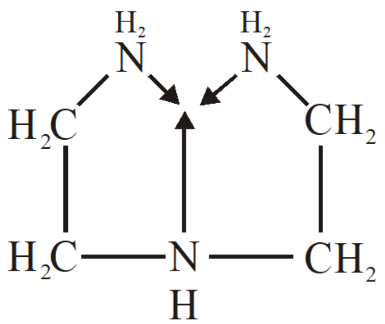
85. **Ans (3)**

Bauxite is ore of aluminium

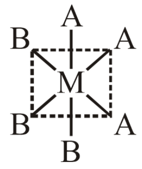
It has impurities of Fe_2O_3 and SiO_2

86. **Ans (3)**

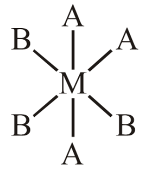
dien $\rightarrow$ Diethylene triamine



87. **Ans (2)**



Fac. isomer



Mer. isomer

88. **Ans (4)**

Cl_2 cannot displace F_2.

89. **Ans (2)**

AsO_3^{-3}, ClO_3^{-} and $SO_3^{-2} \Rightarrow sp^3$ hybridisation so non planar.

90. **Ans (1)**

The important step in the extraction of Metal from carbonate ore is calcination.

$ZnCO_3 \rightarrow ZnO + CO_2$

99. **Ans (2)**

NCERT XIIth Pg # 195

101. **Ans (3)**

NCERT XIIth Pg.#25 (E), 26 (H)

105. **Ans (2)**

New NCERT Update

107. **Ans (3)**

NCERT (XI) Pg. # 269; para-1

108. **Ans (1)**

NCERT (XI) Pg. # 272

109. **Ans (2)**

NCERT XI- Pg. # 282

110. **Ans (1)**

NCERT (XI) Page No. # 273

115. **Ans (2)**

NCERT XI Page # 72

119. **Ans (4)**

NCERT-XII, Pg No. # 153

122. **Ans (1)**

NCERT Pg # 113 para 7.4.2 fig 7.16

130. Ans (2)
NCERT(XIth) Pg.#52, Ist para

134. Ans (2)
NCERT (XI) Pg. # 138, para-01

138. Ans (2)
NCERT XII Pg.# 185 (E), Pg.# 204 (H)

141. Ans (2)
NCERT Pg. # 10

143. Ans (3)
NCERT (XIth) Pg. # 21

152. Ans (4)
NCERT(XII) Pg#133/143(H) Para:7.4

154. Ans (2)
NCERT(XII) Pg#140/151(H) Para:7.9

157. Ans (4)
NCERT Page-60

158. Ans (2)
NCERT (XIth) Pg. # 306,307

161. Ans (1)
NCERT–XI, Pg. # 148, Para-1

164. Ans (3)
NCERT Pg.#203

166. Ans (3)
NCERT Pg. # 212

178. Ans (2)
NCERT Pg # 279, 16.3.1