RJ VISION PVT. LTD.

(MOST STABLE & INNOVATIVE INSTITUTE)

FT – 2

ENG

PCB

SOLUTION

COURSE NAME: 12TH | DATE : 28-05-2026

FT - 2 (FR) (NEET - CBSE, GSEB) (28 - 05 - 2026)

ANSWER KEY

Q	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Ans	1	2	3	1	1	2	1	3	2	2	4	2	1	4	4	3	4	3	4	4
Q	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Ans	2	1	3	3	1	4	2	1	2	2	1	4	2	3	4	3	1	2	4	1
Q	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans	2	2	1	2	2	2	1	3	4	3	2	1	1	3	2	1	1	1	2	3
Q	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
Ans	4	3	1	3	3	3	4	1	3	4	3	2	2	2	3	3	1	4	2	4
Q	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
Ans	3	2	4	2	3	3	2	2	2	4	4	2	4	3	1	1	1	2	1	1
Q	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
Ans	2	4	4	2	2	4	3	4	2	3	3	1	3	2	2	3	1	4	2	2
Q	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140
Ans	1	2	4	4	3	4	4	3	2	4	1	2	1	4	4	4	1	2	1	2
Q	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
Ans	3	4	3	3	4	3	4	3	2	4	1	3	2	3	3	4	3	4	3	3
Q	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
Ans	4	4	1	3	4	3	1	3	2	1	3	3	1	3	3	3	3	3	1	1

PHYSICS:

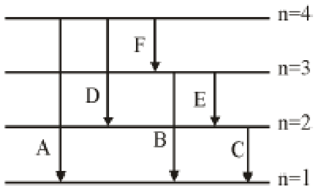
1. **Sol. (1)**

When electron beam of 12.75 eV is incident over H-gaseous.

Energy of H-atoms will be

$= -13.6 + 12.75 = -0.85$ eV,

Which corresponds to n = 4 excited state



Clearly, emitted radiation lies in lyman series (A, B and C) few emissions are is Balmer series (D and E). One of them (n=4 to n=3) lies in paschen series (F).

2. **Sol. (2)**

$BE = [(3\ M_H + 4\ M_n) - M_{Li}] \times 931$ MeV

$Be = [(3 \times 1.007825 + 4 \times 1.008665)$

$- 7.016005] \times 931$ MeV

$= 39.2$ MeV

3. **Sol. (3)**

$$\lambda = \frac{h}{\sqrt{2mqV}}$$

4. **Sol. (1)**

248 nm = (1240/248) eV = 5 eV

310 nm = (1240/310) eV = 4 eV

$$\frac{K.E_1}{K.E_2} = \frac{4}{1} = \frac{5eV - W}{4eV - W}$$

$\Rightarrow\ 16 - 4W = 5 - W \Rightarrow 11 = 3W$

$\Rightarrow\ W = \frac{11}{3} = 3.67\ eV\ \cong 3.7\ eV$

5. **Sol. (1)**

$$P = \frac{E}{C} = \frac{1 \times 10^6 \times 1.6 \times 10^{-19}}{3 \times 10^8}$$

$= 0.53 \times 10^{-21}$ kg ms^{-1}

6. **Sol. (2)**

7. **Sol. (1)**

$\frac{100}{R_{eq}} = \frac{200}{40} \qquad \Rightarrow \quad R_{eq} = 20\Omega$

$R_{eq} = \frac{R \times 100}{100 + R} = 20\Omega \qquad \Rightarrow R = 25\Omega$

8. Sol. (3)

Here, P = 100 W, V = 230 V

Let R be resistance of the filament of the bulb.

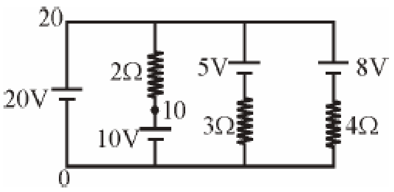
Now, electric power, $P = Vi = \frac{V^2}{R}$

Therefore, $R = \frac{V^2}{P} = \frac{(230)^2}{100} = 529\Omega$

When the voltage drops to 115 V, heat and light energy produced by the bulb in 20 min is given by

$$W = Vit = \frac{V^2}{R}t = \frac{(115)^2}{529} \times 20 \times 60 = 30000\,J$$

9. Sol. (2)



R	2Ω	3Ω	4Ω
P	$\frac{10^2}{2}$	$\frac{15^2}{3}$	$\frac{12^2}{4}$

10. Sol. (2)

$$W = \frac{1}{2}CV_2^2 - \frac{1}{2}CV_1^2 = \frac{1}{2}C(900-225)$$

$$C = \frac{2}{675}W$$

Now in 2nd case

$$\frac{1}{2}C\left[(60)^2-(30)^2\right] = \frac{1}{2}C\,[3600-900]$$

$$= \frac{1}{2}\cdot\frac{2}{675}W\,[2700] = 4W$$

11 Sol. (4)

$$G = \frac{RS}{R-S}$$

$$\frac{(4900)(98)}{4900-98} = 100\Omega$$

Full scale current

$$I_g = \frac{E}{R+G} = \frac{5}{4900+100} = 1mA$$

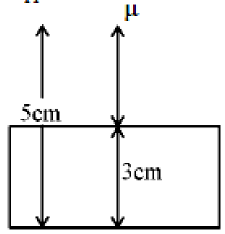
F.O.M.

$$= \frac{\text{current}}{\text{Deflection (or Division)}} = \frac{1mA}{20} = 50\mu A/div$$

12. Sol. (2)

$$d_{app.} = \frac{d_{ac}}{\mu}$$

$$d_{app.} = 2 + \frac{3}{\mu} = 4.0cm \Rightarrow \mu = \frac{3}{2}$$



13. Sol. (1)

For eye piece

u_e = ?

v_e = -25

f_e = 6.25

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

then, $u_e = -5$ cm

$v_0 = L - |u_e| = 10$ cm

For objective

f_0 = 2 cm

u_0 = ?

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

$u_0 = -2.5$ cm

14. Sol. (4)

$$\frac{f_w}{f_a} = \frac{({}_a\mu_g - 1)}{({}_W\mu_g - 1)}$$

$$\Rightarrow \frac{f_w}{f_a} = \frac{(1.5-1)}{\left(\frac{1.5\times3}{4} - 1\right)} \Rightarrow f_w = 32\text{ cm}$$

15. Sol. (4)

$$-5 = \frac{f}{f-u}$$

$$-5 = \frac{-60}{-60-u} \Rightarrow u = -72cm$$

16. Sol. (3)

$$E = \frac{KQx}{(R^2+x^2)^{3/2}} = \frac{KQ\sqrt{8}R}{(9R^2)^{3/2}} = \frac{\sqrt{8}KQ}{27R^2}$$

$$= \frac{2\sqrt{2}KQ}{27R^2}$$

17. Sol. (4)

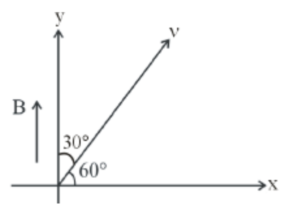
$W = -q\,(V_F - V_I)$

Where $V_F = 0$

$$V_I = 8 \times \frac{kq}{\left(\frac{\sqrt{3}}{2}a\right)}$$

$$= \frac{16\,kq}{\sqrt{3}\,a}$$

18. Sol. (3)



Path of proton will be helix

$$r = \frac{mv\sin 30^\circ}{qB}$$

$$r = \frac{1.67\times10^{-27}\times2\times10^{6}\times\frac{1}{2}}{1.6\times10^{-19}\times0.104}$$

r = 0.1 m

$$T = \frac{2\pi m}{qB} = \frac{2\pi\times1.67\times10^{-27}}{1.6\times10^{-19}\times0.104}$$

$T = 2\pi \times 10^{-7}$ sec.

19. Sol. (4)

(e) τ is zero. [∵ Angle between plane of loop and direction of magnetic field is 90°] stable equilibrium.

(f) τ is zero. yet equilibrium is not stable.

Resultant force is zero in each case.

20. Sol. (4)

Force on SR and PQ are equal but opposite so their net force will be zero. Force between two parallel conductors carrying currents I_1 and I_2.

$$F = \frac{\mu_0}{2\pi}\frac{I_1I_2\ell}{r}$$

where, r = distance between two parallel conductors

$$F_{PS} = \frac{10^{-7}\times2\times20\times20\times15\times10^{-2}}{2\times10^{-2}} = 6\times10^{-4}\,N$$

$$F_{QR} = \frac{10^{-7}\times2\times20\times20\times15\times10^{-2}}{12\times10^{-2}} = 1\times10^{-4}\,N$$

$\therefore F_{net} = F_{PS} - F_{QR}$

$= 6 \times 10^{-4} - 1 \times 10^{-4} = 5 \times 10^{-4}$ N.

21. Sol. (2)

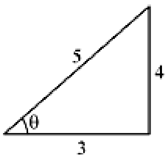
$P = V_{rm}I_{rm}\cos\theta$

$1500 = 250 \times 10\cos\theta$

$\therefore \cos\theta = \frac{15}{25} = \frac{3}{5} \Rightarrow \sin\theta = \frac{4}{5}$

$\therefore I_{wattless} = I\sin\theta$

$= 10 \times \frac{4}{5} = 8$ A



22. Sol. (1)

Intensity, $I = \frac{1}{2}\varepsilon v E_p^2$

$$v = \frac{1}{\sqrt{\mu\varepsilon}} = \frac{1}{\sqrt{(4\mu_0)(\varepsilon_0)}} = \frac{c}{2}$$

$$I = \frac{1}{2}\varepsilon_0\left(\frac{c}{2}\right)E_p^2 = \frac{1}{2}\times8.8\times10^{-12}\times\left(\frac{3\times10^{8}}{2}\right)(50)^2$$

I = 1.65 W/m²

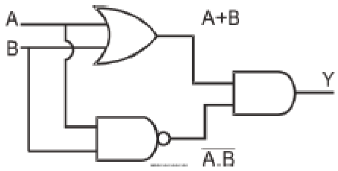
23. Sol. (3)

$n_e n_h = n_i^2$

where $n_e = \frac{1}{10^6}\times5\times10^{22}\times10^{6}\,m^{-3}$

$n_i = 1.5\times10^{16}\,m^{-3}$

24. Sol. (3)



$Y = (A+B).(\overline{A.B})$

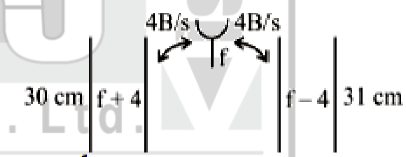
$= (A+B).(\bar{A}+\bar{B})$

$Y = A.\bar{B} + \bar{A}.B$ (XOR)

25. Sol. (1)

$T = \mu v^2 = 1.3 \times 10^{-4} \times (30)^2 \simeq 0.12$

26. Sol. (4)



$f \propto \frac{1}{\ell}$

$$\frac{f+4}{f-4} = \frac{31}{30}$$

$\Rightarrow 30f + 120 = 31f - 124$

f = 244 Hz

27. Sol. (2)

$[E] = [M]^x [L]^y [F]^z = [M]^x [L]^y [T^{-1}]^z$

$[M^1L^2T^{-2}] = [M^x] [L^y] [T^{-z}]$

x = 1, y = 2, z = 2

⇒ x + y + z = 5

28. Sol. (1)

In addition and subtraction, see minimum decimal point.

29. Sol. (2)

$$mg = Kx_0$$

$$\frac{m}{K} = \frac{x_0}{g} = \frac{0.2}{10}$$

$$T = 2\pi\sqrt{\frac{m}{K}} = 2\pi\sqrt{\frac{0.2}{10}} = 2\sqrt{\frac{2}{10}}$$

$$\left\{T = \frac{2}{\sqrt{5}}\text{sec}\right\}$$

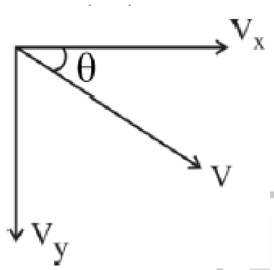
30. Sol. (2)

$$S = \left(\frac{u+v}{2}\right)t$$

$$200 = \left(\frac{20+80}{2}\right)t$$

t = 4sec

31. Sol. (1)



$V_y = -gt \Rightarrow V_y = -100$

$V_x = 500$

$$\tan\theta = \frac{V_y}{V_x} = \frac{100}{500} \Rightarrow \theta = \tan^{-1}\frac{1}{5}$$

32. Sol. (4)

$$(V_{rms})_{O_2} = (V_{rms})_{H_2}$$

$$\frac{T_{O_2}}{M_{WO_2}} = \frac{T_{H_2}}{M_{WH_2}}$$

$$T_{O_2} = \frac{20\times 32}{2}$$

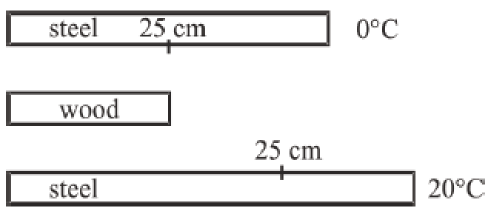
$$T_{O_2} = 320K$$

$$T_{O_2} = 47°C$$

33. Sol. (2)

At 0°C reading of scale is 25 cm.

At 20°C, the reading is correct, means the rod length < 25 cm on actual scale (at 20 °C).



34. Sol. (3)

In conical pendulum, about vertical axis net torque is zero and hence angular momentum remains conserved.

35. Sol. (4)

$$\frac{94-86}{2} = K\left(\frac{94+86}{2} - 20\right) \quad ....(i)$$

$$\frac{71-69}{t} = K\left(\frac{71+69}{2} - 20\right) \quad ....(ii)$$

Dividing (i) by (ii), we get

$$t = \frac{7}{10}\text{ min} = 42\text{ sec}$$

36. Sol. (3)

$$Q = W + \Delta U \quad [W = \frac{Q}{4}]$$

$$Q = \frac{Q}{4} + \Delta U \quad (C = \text{Molar specific heat})$$

$$\Delta U = \frac{3Q}{4} \Rightarrow \mu C_v\Delta T = \frac{3}{4}\mu C\Delta T \Rightarrow C_v = \frac{3}{4}C$$

$$C = \frac{4}{3}C_v = \frac{4}{3}\left(\frac{f}{2}R\right) \quad [\text{For diatomic gas, } f = 5]$$

$$C = \frac{4}{3}\times\frac{5}{2}R = \frac{10}{3}R$$

37. Sol. (1)

$$W = \frac{mg\ell}{2n^2}$$

$$n = \frac{5}{2}$$

$$W = \frac{2mg\ell}{25}$$

38. Sol.(2)

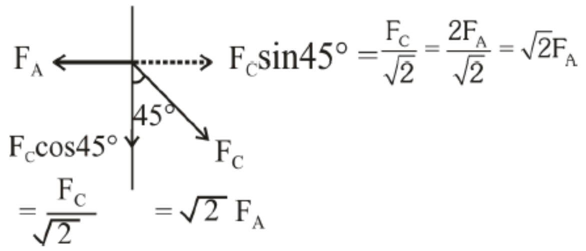
$T = m\omega^2R$

$$\omega = \sqrt{\frac{T}{mR}}$$

$$\omega = \sqrt{\frac{4}{4\times 169}} = \frac{1}{13}rad/s$$

$$v = \omega R = \frac{169}{13} = 13m/s$$

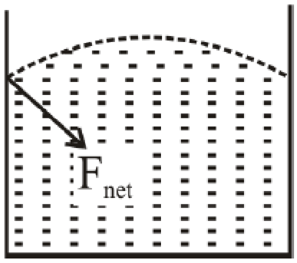
39. Sol. (4)



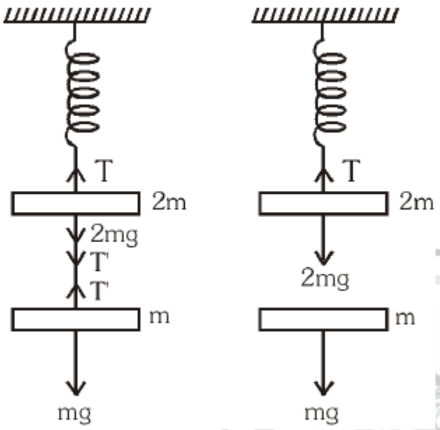
It means resultant shape of meniscus is convex angle of contact is obtuse liquid will not wet glass

$$h = \frac{2T\cos\theta}{R\rho g} = \frac{2T(-ve)}{R\rho g} = -ve$$

means liquid will descend in capillary.



40. **Sol. (1)**



By equilibrium of mass m, T'=mg ...(i)

By equilibrium of mass 2m, T=2mg+T'...(ii)

From (i) and (ii), T=2mg+mg=3mg ...(iii)

When the string is cut :

For mass m :

$F_{net} = ma_m \Rightarrow mg = ma_m \Rightarrow a_m = g$ (down wards)

For mass 2m :

$F_{net} = 2ma_{2m} \Rightarrow T - 2mg = 2m\, a_{2m}$

$\Rightarrow 3mg - 2mg = 2ma_{2m} \Rightarrow a_{2m} = \frac{g}{2}$ (up wards)

41 **Sol. (2)**

$$F = \frac{GM.M}{d^2} = \frac{GM^2}{d^2}, F' = \frac{G\frac{M}{2}.\frac{3M}{2}}{\left(\frac{d}{2}\right)^2}$$

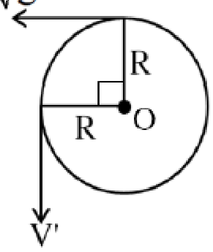
$$F' = \frac{3GM}{d^2} = 3F$$

Gravitational force does not depend on medium

42. **Sol. (2)**

Crossing with critical speed at top most point.

$v = \sqrt{gR}$

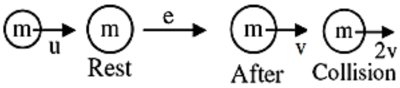


when string is horizontal,

$(v')^2 = v^2 + 2(g)(R) \Rightarrow (v')^2 = gR + 2gR = 3gR$

$$a_c = \frac{(v')^2}{R} = \frac{3gR}{R} = 3g$$

43. **Sol. (1)**



Before collision

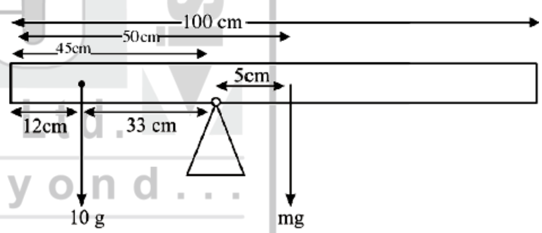
by COLM, $m(u) + 0 = m(v) + m(2v)$

$\Rightarrow u = 3v$ ....(1)

$$e = \left|\frac{\vec{v}_2 - \vec{v}_1}{\vec{u}_1 - \vec{u}_2}\right| \Rightarrow e = \frac{2v - v}{u - 0} = \frac{v}{u} = \frac{v}{3v}$$

$$\Rightarrow e = \frac{1}{3}$$

44. **Sol. (2)**



By $\tau_{net} = 0$

$10g(33) = mg(5)$

$\boxed{m = 66\text{ gm}}$

45. **Sol. (2)**

$$\rho = \frac{m}{V} = \frac{\pi}{2 \times \frac{4}{3}\pi(0.5)^3}$$

$$= \frac{3}{8} \times \frac{1}{0.125} = 3\text{gm/cc}$$

$$\text{Now } \eta = \frac{2}{9}\frac{r^2(\rho - \sigma)}{V_T}g \quad \left[V_T = \frac{S}{t}\right]$$

$$= \frac{2}{9}\frac{(0.25)(3 - 1.2)(980)(5)}{50} = 9.8\text{ poise}$$

CHEMISTRY:

46. **Sol.(2)**

47. **Sol.(1)**

48. **Sol.(3)**

49. **Sol.(4)**

50. **Sol.(3)**

51. **Sol.(2)**

52. **Sol.(1)**

as per EN

HF > H_2O > NH_3

(H Bond strength)

53. **Sol.(1)**

54. **Sol.(3)**

55. **Sol.(2)**

56. **Sol.(1)**

57. **Sol.(1)**

58. **Sol.(1)**

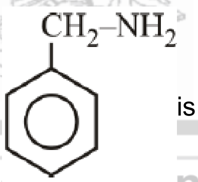
59. **Sol.(2)**

60. **Sol.(3)**

61. **Sol.(4)**

62. **Sol.(3)**

63. **Sol.(1)**

Duo to localized lone pair 

is the strongest base

64. **Sol.(3)**

65. **Sol.(3)**

66. **Sol.(3)**

67. **Sol.(4)**

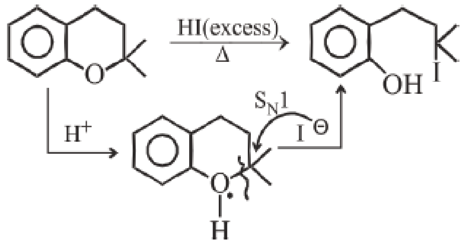
$$CH_3—CH_2—Cl \xrightarrow{AgCN} CH_3—CH_2—NC$$

$$CH_3—CH_2—Cl \xrightarrow{KCN} CH_3—CH_2—CN$$

68. **Sol.(1)**

69. **Sol.(3)**

70. **Sol.(4)**



71. **Sol.(3)**

72. **Sol.(2)**

73. **Sol.(2)**

74. **Sol.(2)**

Fact

75. **Sol.(3)**

76. **Sol.(3)**

n must be greater than ℓ

77. **Sol.(1)**

$$E_{Al} = 9,\ 2.7 = \frac{9 \times Q}{96500} \quad \left\{ w = \frac{E \times Q}{96500} \right\}$$

78. **Sol.(4)**

Arrange in decreasing order of SRP

79. **Sol.(4)**

Isotonic means same osmotic pressure

∴ same concentration

$$\frac{5 \times 10}{MM_{urea}} = \frac{2 \times 10}{MM_{sub}} \quad \{M\,M_{urea} = 60\}$$

80. **Sol.(4)**

$$d = \frac{P \times MM}{R \times T} = \frac{2 \times 44}{0.0821 \times 400}$$

81. **Sol.(3)**

$$P_4 + 3O_2 \xrightarrow[\text{yield}]{80\%} P_4O_6$$

$$n_{P_4} = \frac{62}{124} = 0.5 \qquad n_{P_4O_6} = 0.5 \times 0.8$$

$$\downarrow \qquad = 0.4$$

$$\text{Mass of } P_4O_6 = 0.4 \times 220$$

$$= 88 \text{ g}$$

82. **Sol.(2)**

Eq. wt of metal = E_M, Eq. wt. of metal oxide

= E_M + 8 = 24

E_M = 16

Eq. wt of chloride = E_M + E_{Cl} = 16 + 35.5 = 51.5

83. **Sol.(4)**

Longest λ of balmer in He Shorterst λ of lyman in H

$n_2 = 3 \quad z = 2 \qquad\qquad z = 1 \quad n_2 = \infty$

$\downarrow \qquad\qquad\qquad\qquad \downarrow$

$n_1 = 2 \qquad\qquad\qquad\qquad n_1 = 1$

$$\frac{1}{\lambda_1} = R \times 2^2\left[\frac{1}{2^2} - \frac{1}{3^2}\right] \qquad \frac{1}{\lambda_2} = R \times 1^2\left[\frac{1}{1^2} - \frac{1}{\infty^2}\right]$$

$$\frac{5}{9x} = R \times 4\left[\frac{9-4}{4 \times 9}\right] \qquad \frac{1}{\lambda_2} = R$$

$$\frac{1}{x} = R \qquad \Rightarrow \lambda_2 = \frac{1}{R} = x$$

84. **Sol.(2)**

$$Al(OH)_3 \rightleftharpoons Al^{+3} + 3OH^-$$
$$\quad\quad S' \quad\quad 3S' + 0.1$$
$$K_{sp} = (Al^{+3})\,(OH^-)^3$$
$$1.9 \times 10^{-33} = (s')\,(3s' + 0.1)^3$$
$$1.9 \times 10^{-33} = S' \times 10^{-3} \quad \left\{ \begin{array}{l} 3s' << 0.1 \\ \therefore 3s' + 0.1 \approx 0.1 \end{array} \right\}$$
$$S' = 1.9 \times 10^{-30}$$

85. **Sol.(3)**

NH_4COONH_4 (s) $\rightleftharpoons$ $2NH_3$ (g) + CO_2(g)

2P P

$K_p = (PNH_3)^2(PCO_2)$

$108 \times 10^{-6} = (2P)^2\,(P)$

$108 \times 10^{-6} = 4p^3$

$P = 3 \times 10^{-2}$

Total pressure = $3P = 9 \times 10^{-2}$

86. **Sol.(3)**

87. **Sol.(2)**

S-I

pH of solution of salt of WA & WB is given as

$$pH = 7 + \frac{1}{2}\ [pK_a - pK_b]$$

S-II

$$h = \sqrt{K_h} = \sqrt{\frac{K_w}{K_a \times K_b}}$$

$\therefore$ degree of hydrolysis is independent of conc.

88. **Sol.(2)**

$$A \longrightarrow B \quad\quad t_{1/2} = \frac{2.303}{k}\log 2 \quad\quad ...(1)$$
$$t = 0 \quad 100 \quad\quad t_{90}\% = 40$$
$$t_{90\%} \quad 10 \quad\quad 40 = \frac{2.303}{k}\log\left(\frac{100}{10}\right) \quad ....(2)$$

divide (1) & (2)

89. **Sol.(2)**

Catalyst only increases rate of reaction

90. **Sol.(4)**