

RANK BOOSTER TEST SERIES

TARGET : PRE-MEDICAL 2022

Test Type : UNIT TEST # 04

Test Pattern : NEET (UG)

TEST DATE : 16-02-2022

ANSWER KEY

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	2	1	4	1	1	2	2	4	2	1	4	2	2	4	4	1	4	2	2	1	3	1	3	3	3	1	2	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.	4	1	3	2	3	2	3	1	2	3	1	4	3	3	4	3	4	2	4	1	4	1	2	4	4	3	3	3	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.	4	2	1	1	2	1	4	3	2	4	3	2	4	2	4	3	3	3	2	2	2	1	2	3	2	2	3	3	3	3
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	3	3	1	1	1	2	3	4	3	3	2	4	3	4	2	4	4	1	2	1	3	2	4	4	4	1	3	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.	1	3	4	1	2	2	2	1	1	4	2	1	3	4	4	4	2	2	1	2	4	2	1	2	3	1	3	4	2	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.	1	3	2	3	4	4	1	2	3	4	2	3	4	3	3	3	2	3	1	2	1	3	2	1	3	4	1	3	4	2
Q.	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200										
A.	4	2	1	3	2	3	3	1	1	3	4	2	2	2	3	1	1	3	2	4										

HINT - SHEET

SUBJECT : PHYSICS

SECTION-A

1. **Ans (1)**

$$w = \int_{x=4}^{x=-2} E_x dx = \int_{x=4}^{x=-2} (-6x^3) dx$$

$$w = -6 \left[\frac{x^4}{4} \right]_{x=4}^{x=-2} = \left(-\frac{3}{2} \right) (-240) = 360J$$

2. **Ans (2)**

$$\frac{1}{2}MV^2 = \frac{1}{2} \left(\frac{M}{2} \right) u^2 \quad \dots(1)$$

$$\Rightarrow u = v\sqrt{2} \quad \dots(2)$$

Here M = mass of man

v = speed of man

u = speed of boy

$$\text{Now } \frac{1}{2}M(v+2)^2 = \frac{1}{2} \left(\frac{M}{2} \right) (u+x)^2 \quad \dots(3)$$

by equation (2) & (3)

$$2(v+2)^2 = (v\sqrt{2}+x)^2$$

take under root.

$$\sqrt{2}v + 2\sqrt{2} = v\sqrt{2} + x$$

$$\Rightarrow x = 2\sqrt{2}$$

3. **Ans (1)**

From $F = -\frac{dU}{dx}$ से

$$\int_0^{U(x)} dU = - \int_0^x F dx = - \int_0^x (kx) dx$$

$$\therefore U(x) = -\frac{kx^2}{2}$$

as $U(0) = 0$

Therefore, the correct option is (1).

4. **Ans (4)**

Kinetic energy of ball = potential energy of spring

$$\text{i.e., } \frac{1}{2}mv^2 = \frac{1}{2}kx^2$$

$$\therefore 16 \times 10^{-3} \times v^2 = \frac{90}{10^{-2}} \times (12 \times 10^{-2})^2$$

$$\text{or } v^2 = \frac{90 \times 144 \times 10^{-4}}{10^{-2} \times 16 \times 10^{-3}}$$

$$\text{or } v = 90 \text{ ms}^{-1}$$

5. **Ans (1)**

$$a = \frac{v_1}{T_1}$$

$$v = u + at$$

$$v = 0 + \frac{v_1}{T_1}t \Rightarrow v = \frac{v_1}{T_1}t$$

$$P = Fv = ma.v$$

$$P = m \left(\frac{v_1}{T_1} \right) \left(\frac{v_1}{T_1}t \right) \Rightarrow P = \frac{mv_1^2}{T_1^2}t$$

6. **Ans (1)**

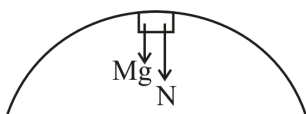
At highest point

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

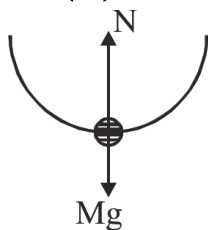
$$N = \frac{mv'^2}{r} - mg$$

$v' \rightarrow$ same as height attain in all cases is same

$$r \uparrow \Rightarrow \frac{mv'^2}{r} \downarrow \Rightarrow \left(N = \frac{mv'^2}{r} - mg \right) \downarrow$$



7. **Ans (2)**



$$F_{\text{net toward centre}} = \frac{MV^2}{r}$$

$$N - Mg = \frac{MV^2}{r}$$

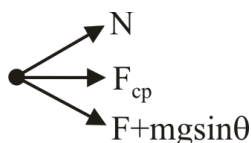
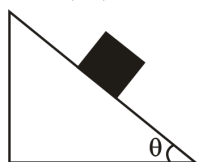
$$N = Mg + \frac{MV^2}{r}$$

$$r \uparrow \quad N \downarrow$$

$$r_A < r_B$$

$$N_A > N_B$$

8. **Ans (2)**

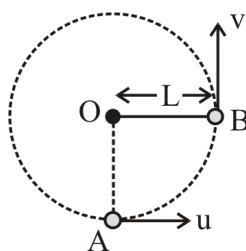


$$F_{cp} = N \sin \theta + f \cos \theta \quad \dots (1)$$

$$Mg + f \sin \theta = N \cos \theta \quad \dots (2)$$

9. **Ans (4)**

Applying law of conservation of mechanical energy between points A and B,



$$\frac{1}{2}mu^2 = \frac{1}{2}mv^2 + mgL$$

$$\therefore v = \sqrt{u^2 - 2gL}$$

So, magnitude of change in velocity,

$$\text{i.e., } |\vec{v} - \vec{u}| = \sqrt{v^2 + u^2 - 2uv \cos 90^\circ}$$

$$\Delta v = \sqrt{v^2 + u^2} = \sqrt{2(u^2 - gL)}$$

10. **Ans (2)**

$$B = B_1 + B_2$$

$$B = \frac{\mu_0 I}{4\pi \times \left(\frac{d}{2}\right)} + \frac{\mu_0 I}{4\pi \times \left(\frac{d}{2}\right)}$$

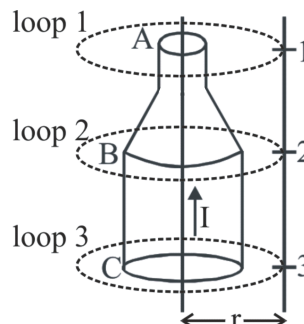
$$\Rightarrow B = \frac{\mu_0 I}{\pi d} \otimes$$

11. **Ans (1)**

By ampere circuital law net current enclosed by loop 1,

loop 2, loop 3 is I (same) and point 1, 2, 3 are

equidistant from axis of conductor So $B_1 = B_2 = B_3$



13. **Ans (2)**

Magnetic moment of revolving proton

$$\vec{M} = I\vec{A} \Rightarrow \vec{M} = \left(\frac{eV}{2\pi r} \right) \pi r^2 \Rightarrow \vec{M} = \frac{evr}{2}$$

$$\text{As } L = m_p vr$$

$$\vec{M} = \frac{e\vec{L}}{2m_p}$$

14. **Ans (2)**

Force on AB = $BI\ell = 12 \text{ N}$ (upward)

Force on BC = 16 N (left)

so force on ABC = $\sqrt{(12)^2 + (16)^2} = 20 \text{ N}$

15. **Ans (4)**

$$\ell = N(2\pi R) \Rightarrow R = \frac{\ell}{2\pi N}$$

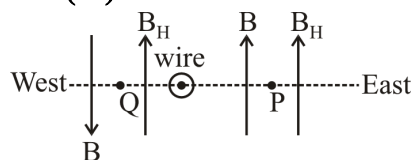
$$\Rightarrow A = (\pi R^2) = \pi \left(\frac{\ell}{2\pi N} \right)^2 = \frac{\ell^2}{4\pi N^2}$$

$$\therefore \tau_{\max} = Ni AB = Ni \frac{\ell^2 B}{4\pi N^2} = \frac{iB\ell^2}{4\pi N}$$

$$N_{\text{minimum}} = 1$$

$$\therefore \tau_{\max} = \frac{iB\ell^2}{4\pi}$$

17. **Ans (1)**



$$B_P = B + B_H > B_Q = B - B_H$$

$B \rightarrow$ Wire

B_H = Horizontal component of earth magnetic field.

18. **Ans (4)**

$$B = \frac{\mu_0 \mu_r Ni}{2\pi r} \Rightarrow 1 = \frac{4\pi \times 10^{-7} \times \mu_r \times 400 \times 2}{0.4}$$

$$\Rightarrow \mu_r \approx 400$$

19. **Ans (2)**

Here $m = \frac{dM}{dl}$ So, Rate of KE = $\frac{d(KE)}{dt}$

$$\frac{d(KE)}{dt} = \frac{1}{2} \frac{dM}{dt} v^2$$

Also,

$$\frac{dM}{dt} = \frac{dM}{dt} \cdot \frac{dl}{dl} = \frac{dM}{dl} \cdot \frac{dl}{dt} = mv$$

$$\frac{d(KE)}{dt} = \frac{1}{2} (mv)(v^2) = \frac{1}{2} mv^3$$

20. **Ans (2)**

$$KE = 7t \Rightarrow \frac{1}{2} mv^2 = 7t$$

$$v \propto \sqrt{t}$$

$$a = \frac{dV}{dt} \propto t^{-1/2}$$

$$F = ma \propto t^{-1/2}$$

21. **Ans (1)**

WD is independent of path for conservative forces.

22. **Ans (3)**

Loss in potential energy = Gain in kinetic energy

$$\Rightarrow U = \frac{1}{2} mv^2 \Rightarrow m = \frac{2U}{v^2}$$

23. **Ans (1)**

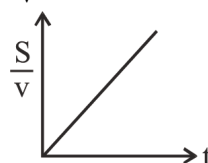
$$Pt = \frac{1}{2} mv^2$$

$$v = \sqrt{\frac{2Pt}{m}}$$

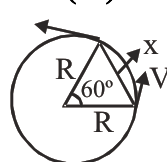
$$\frac{dS}{dt} = \sqrt{\frac{2P}{m}} t^{1/2}$$

$$S = \frac{2}{3} \sqrt{\frac{2P}{m}} t^{3/2}$$

$$\frac{S}{v} \propto t$$



24. **Ans (3)**

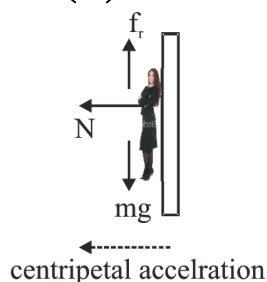


According to cosine formula

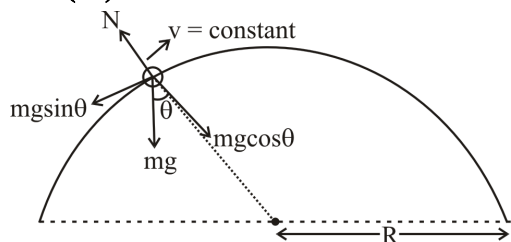
$$\cos 60^\circ = \frac{r^2 + r^2 - x^2}{2r^2}$$

$$x = r$$

26. **Ans (3)**



27. Ans (1)



$$F_{\text{net centre}} = \frac{mv^2}{R}$$

$$mg \cos \theta - N = \frac{mv^2}{R}$$

$$\Rightarrow N = mg \cos \theta - \frac{mv^2}{R}$$

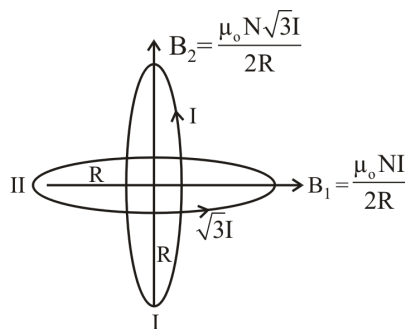
When motorcycle ascending on the over bridge

θ changes from 90° to 0° and $\cos \theta$ from 0 to 1.

for $N_{\text{max}} \Rightarrow \cos \theta = \text{maximum} = 1$

So, Normal force increases.

28. Ans (2)



$$\vec{B}_{\text{Net}} = \vec{B}_1 + \vec{B}_2$$

$$|\vec{B}_{\text{Net}}| = \frac{\mu_0 N}{2R} \sqrt{I^2 + (\sqrt{3}I)^2}$$

$$= \frac{\mu_0 NI}{R}$$

29. Ans (4)

$$B = \mu_0 nI$$

$$\mu_0 H = \mu_0 nI$$

$$H = nI = 10^4 \times 4 = 4 \times 10^4 \text{ A/m.}$$

30. Ans (2)

$$R = \frac{\sqrt{2m_e(K.E)}}{eB} \quad \dots (i)$$

$$R' = \frac{\sqrt{2m_e(2KE)}}{e(3B)} \quad \dots (ii)$$

(ii), (i)

$$\frac{R'}{R} = \frac{\sqrt{2}}{3} \Rightarrow R' = \frac{\sqrt{2}}{3} R$$

31. Ans (4)

$$B = \mu_0 nI = \mu_0 \times \frac{N}{2\pi R} \times I$$

$$= 4\pi \times 10^{-7} \times \frac{500}{2\pi(10 \times 10^{-2})} \times 0.1$$

$$= 10^{-4} \text{ T}$$

32. Ans (1)

Two straight conductors carry current in same direction, then attractive force acts between them.

33. Ans (3)

$$\text{Area vector } \vec{A} = \vec{AB} \times \vec{BC}$$

$$\vec{AB} = a \cos 30^\circ \hat{i} + a \sin 30^\circ \hat{k}$$

$$\vec{BC} = \frac{a}{2} [\sqrt{3} \hat{i} + \hat{k}] \text{ \& } \vec{BC} = a(-\hat{j})$$

$$\vec{A} = \frac{a}{2} (\sqrt{3} \hat{i} + \hat{k}) \times (-a\hat{j})$$

$$\vec{A} = \frac{a^2}{2} [-\sqrt{3} \hat{k} + \hat{i}]$$

$$\vec{M} = I\vec{A} = \frac{Ia^2}{2} [\hat{i} - \sqrt{3} \hat{k}]$$

34. Ans (2)

Theoretical

SECTION-B

36. Ans (2)

$$w = \Delta K$$

$$-\int_{10}^{20} 0.1 x dx = (KE)_f - (KE)_i$$

$$-0.1 \left(\frac{x^2}{2} \right)_{10}^{20} = (KE)_f - \frac{1}{2} \times 10 \times (10)^2$$

$$-15 = (KE)_f - 500$$

$$(KE)_f = 485 \text{ J}$$

37. Ans (3)

$$\vec{F}_C = \frac{-K}{r^2} \hat{r} \text{ compare it with gravitational force}$$

$$\vec{F} = -\frac{GMm}{r^2} \hat{r},$$

$$\text{then total energy is } E = -\frac{GMm}{2r}$$

$$\text{So here } E = \frac{-K}{2r}$$

38. Ans (1)

$$\Delta K.E. = \frac{1}{2} kx^2$$

$$\Rightarrow \frac{1}{2} mv^2 - \frac{1}{2} m \left(\frac{v}{2} \right)^2 = \frac{1}{2} kx^2$$

$$\Rightarrow \frac{1}{2} mv^2 \left(\frac{3}{4} \right) = \frac{1}{2} kx^2$$

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

39. Ans (2)

$$a_i = K^2 r t^2$$

$$\frac{v_2}{r} = K^2 r t^2$$

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

$$W = \frac{1}{2} mv^2$$

$$W = \frac{1}{2} m k^2 r^2 t^2$$

$$P = \frac{dW}{dt} = \frac{1}{2} m k^2 r^2 (2t) = m k^2 r^2 t$$

40. Ans (3)

$$F_C = \frac{mv^2}{R}$$

$$kE = CS^2$$

$$\frac{Mv^2}{R} = \frac{2CS^2}{R}$$

$$\int F_{\text{tang}} \cdot ds = CS^2$$

$$F_{\text{net}} = \sqrt{F_{\text{centre}}^2 + F_{\text{tangential}}^2}$$

$$= 2CS \sqrt{1 + \frac{S^2}{R^2}}$$

41. Ans (1)

$$V = \sqrt{rg \left(\frac{\tan \theta - \mu}{1 + \mu \tan \theta} \right)}, \text{ (here } \theta = 45^\circ, \mu = 0.5)$$

$$\text{So, } V = \sqrt{rg \left(\frac{1 - 0.5}{1 + 0.5} \right)} = \sqrt{\frac{rg}{3}}$$

$$\omega = \frac{v}{r} = \sqrt{\frac{g}{3r}}$$

$$r = R \sin 45^\circ = 10 \text{ m}$$

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

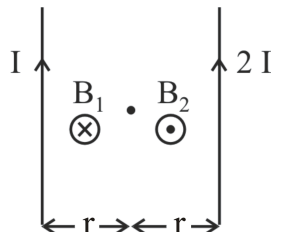
42. Ans (4)

At highest point $v = 0$

$$v^2 = u^2 - 2gh$$

$$\Rightarrow h = \frac{u^2}{2g} = \frac{5^2}{20} = 1.25 \text{ m}$$

43. Ans (3)



$$B_{\text{Net}} = B = B_2 - B_1$$

$$= \frac{\mu_0 (2I)}{2\pi r} - \frac{\mu_0 I}{2\pi r}$$

$$= \frac{\mu_0 I}{2\pi r}$$

when 2I switched off

$$B_{\text{net}} = B_1 = \frac{\mu_0 I}{2\pi r} = B$$

44. Ans (3)

$$B_{\text{centre}} = n \times B$$

$$= n \times \mu_0 \left(\frac{N}{L} \right) I$$

B_{centre} does not depend on diameter of solenoid

45. Ans (4)

$$\vec{F} = q (\vec{v} \times \vec{B}) = 0$$

as $\vec{v} \parallel \vec{B} = 0$ OR $\theta = 0^\circ$

46. Ans (3)

$$\therefore U = -MB \cos \theta$$

$$U_1 = -MB \cos 90^\circ = 0$$

$$U_2 = -MB \cos \theta$$

$$\Rightarrow 0 < \theta < 90^\circ$$

$$-MB < U_2 < 0$$

$$U_3 = -MB \cos \theta = -MB$$

$$U_4 = -MB \cos \theta, 90^\circ < \theta < 180^\circ$$

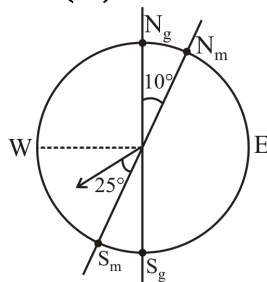
$$0 < U_4 < MB$$

$$\therefore U_3 < U_2 < U_1 < U_4$$

47. Ans (4)

In uniform $\vec{B}$, net force on current carrying loop is always zero.

48. Ans (2)



Actual direction of motion from geographical south is $(25^\circ + 10^\circ) = 35^\circ$ W of S.

49. Ans (4)

Using the formula of voltage sensitivity,

$$V = \frac{NAB}{kR}$$

$$\therefore \frac{V_{s2}}{V_{s1}} = \frac{N_2 B_2 A_2 \cdot k_1 R_1}{k_2 \cdot R_2 \cdot N_1 B_1 A_1}$$

$$= \frac{42 \times 0.50 \times 1.8 \times 10^{-3} \times k \times 10}{k \times 14 \times 30 \times 0.25 \times 3.6 \times 10^{-3}} = 1$$

50. Ans (1)

$$T = 2\pi \sqrt{\frac{I}{MB_H}} \Rightarrow T \propto \frac{I}{\sqrt{M}}$$

$$M_1 = M + 2M = 3M \Rightarrow T_1 \propto \frac{1}{\sqrt{3M}}$$

$$M_2 = 2M - M = M \Rightarrow T_2 \propto \frac{1}{\sqrt{M}}$$

$$T_2 > T_1$$

SUBJECT : CHEMISTRY

SECTION-A

52. Ans (1)

$$-\frac{d[A]}{dt} = k[A]$$

$$0.08 = k[A]_1 \dots (i), t_1 = 20 \text{ s}$$

$$0.04 = k[A]_2 \dots (ii), t_2 = 30 \text{ s}$$

$$\frac{[A]_1}{[A]_2} = \frac{0.08}{0.04} = \frac{2}{1}$$

$$\therefore t_{1/2} = 10 \text{ s}$$

53. Ans (2)

From a, b -

$$\frac{6 \times 10^{-3}}{1.8 \times 10^{-2}} = \frac{K[0.03]^x [0.1]^y}{K[0.09]^x [0.1]^y}$$

$$\therefore 3^x = 3 \text{ or } x = 1$$

From b, c -

$$\frac{1.8 \times 10^{-2}}{3.6 \times 10^{-2}} = \frac{K[0.09]^x [0.1]^y}{K[0.09]^x [0.2]^y}$$

$$\therefore 2^y = 2 \text{ or } y = 1$$

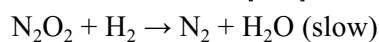
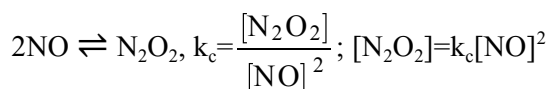
and rate expression is - $r = K[A][B]$

54. Ans (4)

$$\frac{\Delta[\text{NO}_2]}{\Delta t} = \frac{2.4 \times 10^{-2}}{6} = 4 \times 10^{-3} \text{ Ms}^{-1}$$

$$-\frac{\Delta[\text{N}_2\text{O}_5]}{\Delta t} = \frac{1}{2} \frac{\Delta[\text{NO}_2]}{\Delta t} = 2 \times 10^{-3} \text{ Ms}^{-1}$$

55. Ans (4)



$$r = k[\text{H}_2][\text{N}_2\text{O}_2] = k[\text{N}_2] \times k_c [\text{NO}]^2$$

$$r = k[\text{N}_2][\text{NO}]^2$$

$$\text{order} = 3$$

56. Ans (3)

$$\Delta H = E_{a_f} - E_{a,b}$$

57. Ans (3)

$$\text{A(g)} \rightarrow \text{B(g)} + \text{C(g)}$$

t=0	100	0	0
t=10 min,	100-x	x	x
	100+x		
	x		

$$100 + x = 120$$

$$x = 20$$

$$k = \frac{2.303}{t} \log \frac{A_0}{A_0 - x}$$

58. Ans (3)

$$\text{rate} = \text{atm sec}^{-1}$$

$$K = (\text{atm})^{1-n} \text{ sec}^{-1}$$

$$= (\text{atm})^{1-3/2} \text{ sec}^{-1}$$

$$= \text{atm}^{-1/2} \text{ sec}^{-1}$$

59. Ans (4)

$$\text{RoR} = -\frac{1}{2} \frac{d[A]}{dt} = \frac{d[B]}{dt} = \frac{1}{3} \frac{d[C]}{dt}$$

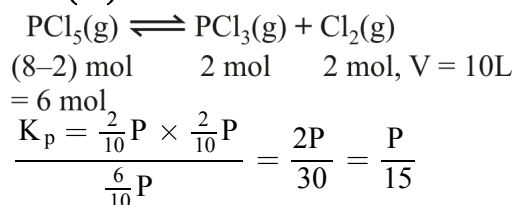
$$\frac{1}{2} K_1 [A]^2 = K_2 [A]^2 = \frac{1}{3} K_3 [A]^2$$

$$\frac{K_1}{2} = K_2 = \frac{K_3}{3}$$

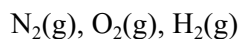
60. Ans (3)

Rate of reaction exponentially decreases with time for first order

65. Ans (2)



66. Ans (1)



2 mol, 3 mol 5 mol, $P_T = 3 \text{ atm}$

$$P_{\text{He}} = x_{\text{He}} P_T = \frac{5}{10} \times 3 = 1.5$$

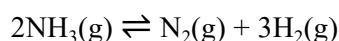
67. Ans (4)

$$(iii) = (i)/2 - (ii)$$

69. Ans (2)

$$\begin{aligned} \text{Unit of } K_p &= \frac{(\text{atm})^2 (\text{atm})^1}{(\text{atm}) (\text{atm})^4} \\ &= \frac{1}{\text{atm}^2} = \text{atm}^{-2} \end{aligned}$$

71. Ans (3)



$$\frac{D_0}{D_T} = 1 + \alpha$$

$$\frac{8.5}{6} = 1 + \alpha$$

$$\alpha = 41.66\%$$

72. Ans (2)

$$Q_c = \frac{[\text{B}]^2 [\text{C}]^2}{[\text{A}]^3} = \frac{(2 \times 10^{-4})^2 (2 \times 10^{-4})^2}{(2 \times 10^{-4})^3}$$

$$= 2 \times 10^{-4}$$

$Q_c > K_c$, backward

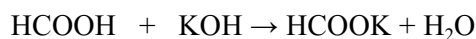
78. Ans (3)

$$\text{Strength of acid} \propto \frac{1}{pK_a}$$

81. Ans (2)

$$\begin{aligned} \text{OH}^- &= \sqrt{K_b \cdot C} \\ &= 1.35 \times 10^{-2} \end{aligned}$$

82. Ans (1)



$$40 \times 0.5 \quad 50 \times 0.2 \quad 0 \quad 0$$

$$= 20 \text{ m mol} \quad = 10 \text{ m mol}$$

$$10 \text{ m mol} \quad 0 \quad 10 \text{ m mol} \quad \text{excess}$$

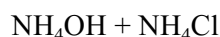
$$\text{pH} = \text{p}K_a + \log \frac{n_{\text{HCOOK}}}{n_{\text{HCOOH}}}$$

$$= 4 - \log 1.8 + \log \frac{10}{10}$$

$$= 3.75$$

SECTION-B

86. Ans (2)



$$0.05 \text{ M} \quad 0.001 \text{ M}$$

$$\text{pOH} = \text{p}K_b + \log \frac{[\text{NH}_4\text{Cl}]}{[\text{NH}_4\text{OH}]}$$

$$= 5 - \log 1.8 + \log \frac{0.001/x}{.05/x}$$

$$= 5 - \log 1.8 + \log \frac{1}{50}$$

$$= 4.74 - 1.7$$

$$= 3.04$$

$$[\text{OH}] = 9 \times 10^{-4}$$

89. Ans (3)

CN^- is a conjugate base of HCN so for conjugate acid-base pair

$$\text{p}K_a + \text{p}K_b = 14$$

$$\text{p}K_a \text{ of HCN} = 14 - \text{p}K_b = 14 - 4.7 = 9.3$$

NaCN is a WASB type of salt

$$\text{So pH} = 7 + \frac{1}{2} \text{p}K_a + \frac{1}{2} \log C$$

92. Ans (2)



$$2(1-0.6) \quad 2 \times 0.6 \quad 1 \times .06$$

$$= 0.8 \quad = 1.2 \quad 0.6$$

$$n_T = 0.8 + 1.2 + 0.6 = 2.6 \text{ moles}$$

93. Ans (3)

At equilibrium all reactants and products are

$$\text{present and } K_C = \frac{[\text{HI}]^2}{[\text{H}_2][\text{I}_2]} \Rightarrow [\text{HI}]^2 [\text{I}_2] [\text{H}_2]$$

96. Ans (1)

$$r = k[\text{A}]^0$$

$r = k \rightarrow$ It is independent of conc. but k depends on temperature

100. Ans (4)

$$\log \frac{k_2}{k_1} = \frac{E_{a1} - E_{a2}}{2.303 RT}$$

$$\log \frac{10^5}{1} = \frac{\Delta E_a}{2.303 RT}$$

$$5 \times 2.303 \times RT = \Delta E_a$$

$$28.5 \text{ kJ mol}^{-1} = \Delta E_a$$

SUBJECT : BOTANY

SECTION-A

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SECTION-B

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