LEADER & ACHIEVER COURSE

PHASE : MLA, MLB, MLC, MLQ, MLR, MLS, MLT, MLU, MLV, MAZA, MAZB, MAZC, MAZD, MAZE, MAZF, MAZP, MAZQ & MAZR

TARGET : PRE-MEDICAL 2024

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

TEST DATE : 26-02-2024

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

HINT – SHEET

SUBJECT : PHYSICS

SECTION-A

1. Ans (3)

$$[\lambda] = \left[\frac{A}{B}\right]$$

$$[B] = \frac{[A]}{[\lambda]} = \frac{[MLT^{-2}]}{[ML^{-1}]}$$

$$[B] = [L^2T^{-2}] \quad ...(1)$$

Latent heat

$$Q = mL$$

$$L = \frac{Q}{m} = \frac{[ML^2T^{-2}]}{[M]} = [L^2T^{-2}] \quad ...(2)$$

2. Ans (3)

$$[x] = [M\,L^2\,T^{-3}]$$

$$\frac{\Delta x}{x} \times 100 = \frac{\Delta M}{M} \times 100 + \frac{2\Delta L}{L} \times 100 + \frac{3\Delta T}{T} \times 100$$

$$= 2 + 2(3) + 3(1)$$

$$= 11\%$$

3. Ans (3)

$$1 \text{ Watt} = \frac{1\,kg - m^2}{s^3}$$

$\because\ n_1u_1 = n_2u_2$

$$\Rightarrow \frac{1\,kg - m^2}{s^3} = n_2 \frac{(5kg)\,(10m)^2}{(5s)^3}$$

$$\Rightarrow 1 = n_2 \frac{5 \times 100}{125}$$

$$1 = 4n_2 \Rightarrow n_2 = \frac{1}{4}$$

$$1 \text{ Watt} = \frac{1}{4} \text{ unit}$$

$$4 \text{ Watt} = 1 \text{ unit}$$

4. Ans (2)

$$\left[\frac{d^2F}{dt^2}\right] = \frac{[F]}{[t^2]} = \frac{[MLT^{-2}]}{[T^2]} = [MLT^{-4}]$$

5. **Ans (2)**

Pitch = $\frac{2}{4} = 0.5$ mm

L. C. = $\frac{0.5}{100} = 0.005$ mm = 0.0005 cm

6. **Ans (4)**

$|\vec{B}| = \sqrt{(7)^2 + (24)^2} = 25$

Vector parallel to $\vec{A}$ and same magnitude of $\vec{B}$

$= \left(\hat{A}\right) \times |\vec{B}| = \left(\frac{3\hat{i} + 4\hat{j}}{5}\right) \times 25 = 15\hat{i} + 20\hat{j}$

7. **Ans (1)**

Projection = $\frac{\vec{A}.\vec{B}}{B}$

$\vec{A}.\vec{B} = 12 + 12 = 24$

$B = \sqrt{4^2 + 3^2} = 5$

So projection = $\frac{24}{5} = 4.8$

8. **Ans (4)**

Vector $(\vec{B} \times \vec{A})$ is perpendicular to the plane containing the vectors $\vec{B}$ and $\vec{A}$. Therefore $\vec{B} \times \vec{A}$ is $\perp \vec{A}$

9. **Ans (2)**

$\vec{F}_1 + \vec{F}_2 + \vec{F}_3 = \vec{0}$

$\vec{F}_1 + \vec{F}_3 = -\vec{F}_2$

$|\vec{F}_1 + \vec{F}_3| = |-\vec{F}_2|$

$\sqrt{F_1^2 + F_3^2 + 2F_1F_3\cos\theta} = 60$

$\cos\theta = -\frac{4}{5}$

$\theta = 143°$

10. **Ans (2)**

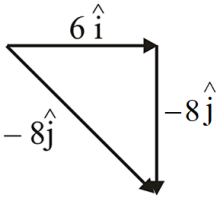
$\vec{F}_1 + \vec{F}_3 = \vec{F}_2$

$\vec{F}_1 - \vec{F}_2 + \vec{F}_3 = 0$

11. **Ans (1)**

Area = $\frac{1}{2}|\vec{A} \times \vec{B}| = \frac{1}{2}$(Base) (height)

$= \frac{1}{2}(6)(8) = 24$



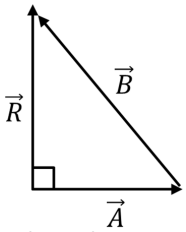
12. **Ans (1)**

Let the two forces are $\vec{A}$ and $\vec{B}$,

$A + B = 16$ N and $|\vec{A} + \vec{B}| = 8$ N $= |\vec{R}|$ and $\vec{R}$ is perpendicular to smaller force.

We can write B = 16-A and R = 8 N

From the diagram, we can write,



$A^2 + R^2 = (16-A)^2$

$\Rightarrow A^2 + R^2 = 256 - 32A + A^2$

$\Rightarrow A^2 + 64 = 256 - 32A + A^2$

$\Rightarrow 32A = 192 \Rightarrow A = 6$ N, B = 10 N

13. **Ans (3)**

$\vec{r} \cdot \vec{v} = 0$ (Always)

14. **Ans (2)**

$S = ut + \frac{1}{2}at^2$

$S_1 = 0 + \frac{1}{2} \times a \times (10)^2 = 50\,a$

and, $S_1 + S_2 = 0 + \frac{1}{2} \times a\,(20)^2 = 200\,a$

$\therefore \frac{S_1}{S_1 + S_2} = \frac{1}{4}$

$\Rightarrow \frac{S_1}{S_2} = \frac{1}{3}$

15. **Ans (1)**

$S_{1^{st}} : S_{2^{nd}} : S_{3^{rd}} : S_{4^{th}} : S_{5^{th}} : S_{6^{th}}$

$= 1 : 3 : 5 : 7 : 9 : 11$

16. **Ans (2)**

$-h = 5 \times 2 - \frac{1}{2} \times 10(2)^2 \Rightarrow h = 10$ m

17. **Ans (3)**

$V_{avg} = \frac{\text{Total distance}}{\text{Total time}}$

$= \frac{10 + 10 + 10}{15} = 2\,m/s^2$

18. **Ans (1)**

$\tan\theta = \frac{V_y}{V_x} \Rightarrow \tan 45° = \frac{gt}{40}$

$\therefore 40 = 10\,t$

$\therefore t = 4$ sec

19. Ans (1)

$t = \frac{\text{Width}}{v_s}$

$\Rightarrow \frac{400}{1000 \times v_s} = \frac{10}{60}$

$\Rightarrow v_s = \frac{400 \times 6}{1000} = 2.4\,\text{km/hr.}$

20. Ans (1)

Relative initial velocity

$u_r = 2 - 0 = \text{m/s}$

relative acceleration

$a_r = g - g = 0$

now relative separation

$s_r = u_r t + \frac{1}{2} a_r t^2$

$18 = 2 \times t + \frac{1}{2} \times 0 \times t^2$

$18 = 2t$

$t = \frac{18}{2} = 9\ \text{s}$

21. Ans (2)

$\vec{V}_r = -10\hat{j}$

$\vec{V}_c = v\hat{i}$

$\vec{V}_r - \vec{V}_c = -10\hat{j} - v\hat{i}$

$\left|\vec{V}_r - \vec{V}_c\right| = \sqrt{10^2 + v^2} = 20\,\text{m/s}$

$v = 10\sqrt{3}\ \text{m/s}$

22. Ans (1)

$A = \pi r^2$

$\frac{dA}{dt} = 2\pi r \cdot \frac{dv}{dt}$

$2\pi \times \frac{5}{\pi} \times (0.1) = 1\,\text{cm}^2/\text{sec}$

23. Ans (3)

If monkey move downward with acceleration 'a', then its apparent weight decreases. In that condition,

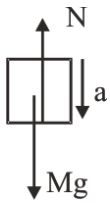
Tension in string = m(g − a)

This should not be exceed over breaking strength of the rope i.e.

$360 \geqslant m(g - a) \Rightarrow 360 \geqslant 60(10 - a)$

$\Rightarrow a \geqslant 4\,\text{m/s}^2$

24. Ans (3)



FBD of block : $Mg - N = Ma$

Now according to question, $N = \frac{Mg}{10}$

so, $a = \frac{Mg - \frac{Mg}{10}}{M} = 0.9\ g$

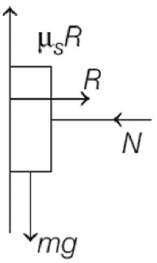
25. Ans (3)

$T = T\sqrt{2} = mg\sqrt{2}$

$\therefore\ T = 100\sqrt{2}\ \text{N}$

26. Ans (3)

The various forces acting on the book are shown in the figure.



At equilibrium,

$R = N$ .....(i)

$\mu_s R = mg$ .....(ii)

Given, m = 10 kg and $\mu_s = 0.2$

From Eq. (ii), we get

0.2 R = 10 x 10

$R = \frac{100}{0.2} = 500\ \text{N}$

$\therefore$ Minimum force needed is 500 N.

27. Ans (2)

Force over block = k_2x_2

but $k_2x_2 = k_1x_1$

$\therefore a = \frac{k_2x_2}{m} = \frac{k_1x_1}{m}$

28. Ans (3)

Work done by Pseudo force can be positive, Negative or zero.

29. Ans (1)

$P = \vec{F} \cdot \vec{V}$

$= 4\ \text{W}$

30. Ans (1)

$W = FS\cos\theta$

If $\theta = 90°$, $W = 0$

31. Ans (2)

$P = \frac{mgh}{t}$

$1000 = \frac{m \times 10 \times 10}{1}$

$\Rightarrow m = 10$ Kg

32. Ans (4)

$F = -\frac{du}{dx}$

$\Rightarrow F = -10x + 8 = 0$

$\Rightarrow x = 0.8$ m

33. Ans (3)

$f_r = 0.4 \times 100 = 40$ N

body will be at rest.

34. Ans (4)

$s = \frac{t^2}{4}$

Velocity $v = \frac{ds}{dt} = \frac{1}{4}(2t) = \frac{t}{2}$

$v_{i(t=0)} = \frac{0}{2} = 0$

$v_{f(t=2)} = \frac{2}{2} = 1$

work done $= \frac{1}{2}m(v_f^2 - v_i^2)$

work done $= \frac{1}{2} \times 6(1^2 - 0^2)$

= 3 Joule

35. Ans (3)

Work done in conservative force field does not depend on path.

$W_{PR} = W_{PQ} + W_{QR}$

$= 14 + 6 = 22$ J

SECTION-B

36. Ans (2)

Energy $E \propto P^x A^y T^z$

$[E] = [P]^x [A]^y [T]^z$

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

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

By solving $x = 1$

$y = 1/2$

$z = -1$

$\therefore [E] = [P^1 A^{1/2} T^{-1}]$

37. Ans (3)

LC = 0.01 cm,

ZE = + 0.3 mm = + 0.03 cm

Measurement :

Observed reading = MSR + VSR

= 9.5 cm + (6 × 0.01) cm

= 9.56 cm

Correct Reading = Obsorved reading − ZE

= 9.56 cm − 0.03 cm = 9.53 cm

38. Ans (2)

Here $u = 0$, $h_{n^{th}} = h_2$

$a = g = 9.8$ ms^{-2}

Using $h_{n^{th}} = u + \frac{9.8}{2}(2n-1)$, we get

$h_n = 0 + \frac{9.8}{2}(2n-1)$

or $h_n = 4.9(2n-1)$ .....(1)

Here $u = 0$, $t = 3$ s, $a = g = 9.8$ m s^{-2}, $S = h$

Using $S = ut + \frac{1}{2}gt^2$, we get

$h = 0 + \frac{1}{2} \times 9.8 \times (3)^2$ .....(2)

or $h = 44.1$ m

Now, $h_n = h$

$4.9(2n-1) = 44.1$ or $n = 5$ s

39. Ans (3)

Comparing with the standard equation of projectile,

$y = x\tan\theta - \frac{gx^2}{2u^2\cos^2\theta}$

We get, $\theta = 45°$

and $u = 20\sqrt{2}$ m/s

Time of flight of this projectile is 4 s. Hence, after 4 s velocity vector will again make 45° angle with horizontal.

40. Ans (2)

$H_1 + H_2 = \frac{u^2}{2g}(\sin^2\theta + \cos^2\theta)$

$= \frac{u^2}{2g} = \frac{(20)^2}{2(10)} = 20$ m

41. Ans (1)

Distance in last second of upward journey

= distance in 1st second of downward journey

$= \frac{1}{2}gt^2 = \frac{1}{2} \times 10 \times 1^2 = 5$ m

42. Ans (1)

Acceleration of system = $\frac{F}{5m} = 2\ m/sec^2$

Normal force between B and C is = $3 \times 2\ N = 6\ N$

Normal force between A and B is = $4 \times 2 = 8\ N$

Normal force between C and D is = $2 \times 2 = 4\ N$

43. Ans (2)

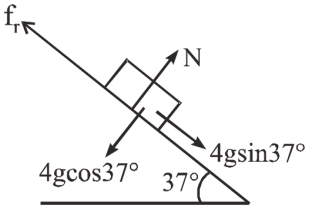
$$F = \frac{udm}{dt} = m(g+a)$$

$$\Rightarrow \frac{dm}{dt} = \frac{m(g+a)}{u}$$

$$= \frac{5000 \times (10+20)}{800} = 187.5\,kg/s$$

44. Ans (2)

Driving force F = 4g sin 37° = 24 N



Maximum static friction $f_{max} = \mu N$

$= \mu\ 4g \cos 37°$

$= 0.4\ (32)$

$= 12.8\ N$ = Friction force acting on block

$F > f_{max} \Rightarrow$ Block moves downward

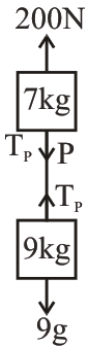
$f = f_k = \mu\ 4g \cos 37°$

$= 12.8\ N$

45. Ans (2)

$$a = \frac{200-160}{16}$$

$$a = \frac{40}{16} = \frac{5}{2}\ m/s^2$$



$T_P - 9g = 9a$

$T_P = 9g + 9a$

$= 90 + 9 \times \frac{5}{2}$

$= \frac{225}{2} = 112.5\,N$

46. Ans (2)

$$F_{avg} = \frac{\Delta p}{t} = \frac{2mv \sin 30°}{0.25}$$

$$= \frac{2 \times 0.5 \times 12}{1} \times \frac{1}{2} \times 4 = 24\,N$$

47. Ans (4)

$\theta = \tan^{-1}(\mu_s)$

$= \tan^{-1}(1.3) = \tan^{-1}\left(\frac{4}{3}\right)$

$= 53°$

48. Ans (4)

$w_g + w_a = \Delta k$

$-mgh - w_a = 0 - \frac{1}{2}mv^2$

$w_a = \frac{1}{2}mv^2 - mgh = \frac{1}{2} \times 1 \times 20 \times 20 - 1 \times 10 \times 18$

$= 20\ J$

49. Ans (4)

$W = KE_f - KE_i$

$-\frac{1}{2} \times 4 \times 20 = KE_f - \frac{1}{2} \times 25 \times 4$

$\Rightarrow KE_f = -40 + 50 = 10$ Joule

50. Ans (4)

According to question

$$\frac{1}{2}mv^2 = \frac{1}{2}kx^2 \Rightarrow x = v\sqrt{\frac{m}{k}} = 1.5\sqrt{\frac{0.5}{50}}$$

$= 0.15\ m$

SUBJECT : CHEMISTRY

SECTION-A

51. Ans (2)

NCERT (2017), Pg. # 182

52. Ans (2)

NCERT (2017), Pg. # 183

53. Ans (2)

NCERT (2017), Pg. # 166

54. Ans (1)

NCERT (2017), Pg. # 158

55. Ans (4)

NCERT (2017), Pg. # 180, 176

56. Ans (2)

NCERT (2017), Pg. # 171

58. Ans (3)

NCERT (2017), Pg. # 171

59. Ans (4)

NCERT, Pg. # 175

60. Ans (1)

$[Fe(H_2O)_5NO]SO_4$

$x + (0 \times 5) + 1 - 2 = 0$

$\Rightarrow x = +1$

61. Ans (2)

No. of gm eq. of $KMnO_4$ = No. of gm eq. of KI

$n \times 3 = 1 \times 6$

$n = 2$

62. Ans (4)

$$\text{Eq. wt.} = \frac{\text{Mol. wt.}}{\text{V . F}}$$

$$E = \frac{246}{28} = \frac{123}{14}$$

63. Ans (3)

$NH_4NO_2 \longrightarrow N_2 + 2H_2O$

is comproportionation reaction

64. Ans (4)

Theory based

65. Ans (4)

No. of gm eq. of $K_2Cr_2O_7$ = No. of gm eq. of Sn

$$\frac{1}{10} \times V = \frac{1.19}{119} \times 4$$

$V = 0.4$ L = 400 ml

66. Ans (1)

NCERT-XI, Part-I, Ionic equilibrium, Ionization of weak base.

$C_5H_5N + H_2O \rightleftharpoons C_5H_5N^+H + OH^-$

In aq. solution of pyridine, conc. of pyridinium ion is same as that of OH^- ion.

$[C_5H_5N^+H] = [OH^-] = \sqrt{k_b . c}$

$= \sqrt{1.7 \times 10^{-9} \times 0.1}$

$= \sqrt{17 \times 10^{-11}}$

$= \sqrt{170 \times 10^{-12}}$

$\simeq 13 \times 10^{-6}$

$= 1.3 \times 10^{-5}$ M

67. Ans (2)

K_{sp} of $Ca(OH)_2 = 4s^3$

$0.5 \times 10^{-15} = 4s^3$

$$\left(\frac{1}{8} \times 10^{-15}\right)^{1/3} = s$$

$$s = \frac{1}{2} \times 10^{-5}$$

$s = 5 \times 10^{-6}$ M

$Ca(OH)_2 \longrightarrow Ca^{2+} + 2OH^-$

$\quad\quad\quad\quad\quad\quad\quad\quad s \quad\quad 2s$

$[OH^-] = 2s$

$= 2 \times 5 \times 10^{-6}$

$= 10^{-5}$ M

$pOH = 5$

$pH = 14 - 5 = 9$

68. Ans (2)

NCERT-XI, Part-I, Ionic equilibrium, Pg. # 220, Topic-7.13

69. Ans (2)

$C_6H_5OH \rightleftharpoons C_6H_5O^- + H^+$

$\quad C \quad\quad\quad 0 \quad\quad\quad 0$

$C - C\alpha \quad\quad C\alpha \quad\quad C\alpha$

$C_6H_5ONa \longrightarrow C_6H_5O^- + Na^+$

$\quad\quad\quad\quad\quad\quad 0.01\text{ M} \quad\quad 0.01\text{ M}$

$$K_a = \frac{[C_6H_5O^-][H^+]}{[C_6H_5OH]}$$

$$10^{-10} = \frac{(0.01) \times (C\alpha)}{C[1 - \alpha]}$$

$1 - \alpha \simeq 1$

$10^{-10} = 0.01\alpha$

$\alpha = 10^{-8}$

$\alpha\% = 10^{-6}\ \%$

70. Ans (1)

NCERT-XI, Part-I, Pg. # 206, Topic-7.10 acids, bases and salts

71. Ans (4)

pH ↑ pOH ↓ $[OH^-]$ ↑

Option-(1)

m eq. of H_2SO_4 = N × V(mL)

= M × V.F. × V(mL)

$= \frac{1}{10} \times 2 \times 200 = 40$

m eq. of NaOH = $800 \times \frac{1}{10} = 80$

$80 - 40 = [OH^-]\ V_{final}$

$[OH^-] = \frac{40}{1000}$ M

Option-(2)

m eq. of HCl = $800 \times \frac{1}{10} = 80$

m eq. of $Ba(OH)_2 = 200 \times \frac{1}{10} \times 2 = 40$

$80 - 40 = [H^+]\ V_{final}$

$[H^+] = \frac{40}{1000}$M

$[OH^-] = \frac{10^{-11}}{40}$M

Options-(3)

m eq. of H_2SO_4 = m eq. of $Ba(OH)_2$

$\Rightarrow$ neutral solution

$\Rightarrow [OH^-] = 10^{-7}$ M

Options-(4)

m eq. of $HNO_3 = 250 \times \frac{1}{10} = 25$

m eq. of KOH = $750 \times \frac{1}{10} = 75$

$75 - 25 = [OH^-]\ V_{final}$

$[OH^-] = \frac{50}{1000}$ M (maximum)

72. Ans (1)

For WASB salt ($NaNO_2$) solution :

$pH = 7 + \frac{1}{2} pK_a + \frac{1}{2} \log C$

$pH = 7 + \frac{3.35}{2} + \frac{1}{2} \log (10^{-2})$

$pH = 8.675 - 1$

$pH = 7.675$

73. Ans (3)

No. of molecules (oxygen)

$= \frac{16}{32} \times N_A = \frac{1}{2} N_A$

In 14 g N_2, no. of molecules

$= \frac{14}{28} \times N_A = \frac{1}{2} N_A$

75. Ans (3)

8.8 g of CO_2(g) :-

No. of oxygen atoms = $\frac{8.8}{44} \times N_A \times 2$

$= 0.4 \times 6.023 \times 10^{23}$

$= 2.4088 \times 10^{23} = 24.088 \times 10^{22}$

2.8 g of CO_2(g) :-

No. of molecules = $\frac{2.8}{28} \times 6.022 \times 10^{23}$

$= 6.022 \times 10^{22}$

$= 2.4088 \times 10^{23} = 24.088 \times 10^{22}$

5.6 g of O_2(g) :-

No. of oxygen atoms = $\frac{5.6}{22.4} \times 6.022 \times 10^{23} \times 2$

$= 3.011 \times 10^{23}$

0.02M, 100 mL H_2SO_4 :-

No. of molecules = $\frac{0.02}{1000} \times 6.022 \times 10^{23}$

$= 12.044 \times 10^{20}$

77. Ans (3)

$CaCO_3 \longrightarrow CaO + CO_2$(g)

44g

= 1 mole

mole of $CaCO_3$ = 1 mole

mass of $CaCO_3$ = 100 g

percentage purity = $\frac{100}{150} \times 100$

= 66.67 %

78. Ans (3)

Molarity of a solution depends upon temperature because volume of a solution is temperature dependent.

79. Ans (2)

$N_2(g) + 3H_2(g) \longrightarrow 2NH_3(g)$

2 mole 3 mole

LR $\frac{2}{1}$ $\frac{3}{3}$ (minimum)

3 mole $H_2 \longrightarrow$ 2 mole NH_3

80. Ans (3)

moles of HCl = Molarity × Volume

$= 5 \times 4 = 20$ mole

mass of HCl = $36.5 \times 20 = 730$ g

81. Ans (2)

Ref

Chapter : Chemical equilibrium

Topic : Factor affecting equilibria

Pg. # 201

82. Ans (1)

Ref

Chapter : Chemical equilibrium

Topic : Equilibrium involving dissolution of solid or gases in liquid

Pg. # 188

83. Ans (1)

Ref

Chapter : Chemical equilibrium

Topic : Law of chemical equilibrium and equilibrium constant.

Pg. # 191

84. Ans (2)

Ref

Chapter : Chemical equilibrium

Topic : Predicting the direction of reaction

Pg. # 199

85. Ans (2)

Ref

Chapter : Chemical equilibrium

Topic : Equilibrium constants in gaseous system

Pg. # 194

SECTION-B

86. Ans (2)

NCERT (2017), Pg. # 173

87. Ans (4)

NCERT (2017), Pg. # 179

88. Ans (3)

NCERT (2017), Pg. # 178

89. Ans (2)

Theory based

90. Ans (3)

$$\overset{3}{\underset{}{Cr^{+3}}} + BrO^- \longrightarrow \overset{2}{\underset{}{CrO_4^{-2}}} + Br^-$$

$2Cr^{+3} + 3BrO^- \longrightarrow 2CrO_4^{-2} + 3Br^- + 5H_2O + 10\ OH^-$

91. Ans (1)

NCERT-XI, Part-I, Edition-2017, Pg. # 210, 211, 214, 219

HCO_3^-, NH_2^- and $H_2PO_4^-$ are conjugate bases of weak acid H_2CO_3, NH_3 and H_3PO_4 respectively so they are very good proton acceptor cations of strong bases and anions of strong acids simply get hydrated but do not hydrolyse.

92. Ans (3)

NCERT-XI, Part-I, Pg. # 222

$Pb(OH)_2 \rightleftharpoons Pb^{2+} + 2OH^-$

s' 2s'

$Ba(OH)_2 \longrightarrow Ba^{2+} + 2OH^-$

0.1 M 2(0.1)

= 0.2 M

$K_{sp} = [Pb^{2+}]\,[OH^-]^2$

$1.2 \times 10^{-15} = (s')\,(2s' + 0.2)^2$

$2s' << 0.2$ so $2s' + 0.2 \simeq 0.2$

$1.2 \times 10^{-15} = (s')\,(0.2)^2$

$s' = 30 \times 10^{-15}$

$s' = 3 \times 10^{-14}$ M

93. Ans (4)

$CH_3COOH + NaOH \longrightarrow CH_3COONa + H_2O$

millimol = M × V (mL)

= 0.1 × 50	0.1 × 25		
= 5	2.5	0	–
2.5 millimol	0	2.5 millimol	–

Final solution = $\underbrace{\underset{\text{(WA)}}{CH_3COOH} + \underset{\text{(WASB)}}{CH_3COONa}}_{\text{Acidic buffer}}$

94. Ans (3)

In 28 g of $N_2(g)$,

no. of atoms = $\frac{28}{28} \times N_A \times 2 = 2N_A$ atoms

In 32 g of $O_2(g)$,

no. of atoms = $\frac{32}{32} \times N_A \times 2 = 2N_A$ atoms

95. Ans (3)

1 molecule of oxygen = $\frac{32}{6.023 \times 10^{23}}$ g

1 atom of nitrogen = $\frac{14}{6.023 \times 10^{23}}$ g

1 mole of water = 18 g

1 g atom of oxygen = 16 g

96. Ans (2)

Moles of C = $\frac{6.023 \times 10^{23}}{6.023 \times 10^{23}} = 1$

Moles of H = $\frac{1.8069 \times 10^{24}}{6.023 \times 10^{23}} = 3$

Moles of O = $\frac{3.0115 \times 10^{23}}{6.023 \times 10^{23}} = 0.5$

C : H : O = 1 : 3 : 0.5 = 2 : 6 : 1

97. Ans (3)

$m = \frac{1000M}{1000d - M \times M_w} = \frac{1000 \times 1}{1000 \times 1.12 - 1 \times 120}$

$= \frac{1000}{1120 - 120} = \frac{1000}{1000} = 1m$

98. Ans (3)

Ref : Unit 7

Chapter : Chemical equilibrium

Topic : Factor affecting equilibria

Pg. # 201

99. Ans (4)

Ref

Chapter : Chemical equilibrium

Topic : Law of chemical equilibrium and equilibrium constant.

Pg. # 191

100. Ans (2)

Ref

Chapter : Chemical equilibrium

Topic : Equilibrium constant in gaseous system

Pg. # 194

SUBJECT : BOTANY

SECTION-A

101. Ans (4)

NCERT-XI Pg # 5

102. Ans (4)

NCERT-XI Pg # 5

103. Ans (2)

NCERT-XI, Pg. No. 10,11

104. Ans (2)

NCERT-XI, Pg. No. 10

105. Ans (3)

NCERT-XI, Pg # 16

106. Ans (3)

NCERT-XI, Pg # 20

107. Ans (1)

NCERT-XI, Pg. No. # 19

108. Ans (3)

NCERT - XI, Pg. # 128, 129

109. Ans (3)

NCERT-XI, Pg. # 21

110. Ans (4)

NCERT XI Pg.# 21

111. Ans (2)

NCERT-XI, Pg # 20

112. Ans (3)
NCERT XIth, Page : 24

113. Ans (3)
NCERT XIth, Page : 24

114. Ans (2)
NCERT-XI, Page No. 24

115. Ans (4)
NCERT XI, Pg. # 23, 24

116. Ans (2)
NCERT XI- Pg # 22, 23, 24
A and D are correct

117. Ans (4)
NCERT XI, Page no. # 24

118. Ans (2)
XIth NCERT Page No. – 25, 26, 27

119. Ans (3)
NCERT XI, Pg # 33

120. Ans (4)
NCERT-XI, Pg.# 30, 32

121. Ans (1)
NCERT-XI Pg.# 30

122. Ans (4)
NCERT-XI Pg.# 32
Volvox, Chara, Ulothrix, Spirogyra

123. Ans (2)
NCERT XI Pg : 36

124. Ans (3)
NCERT-XI Pg#35,36

125. Ans (2)
NCERT-XI, Pg # 36

126. Ans (1)
NCERT-XI, Page No. 38

127. Ans (2)
NCERT (XI) Pg. # 38

128. Ans (4)
NCERT-XI, Pg # 38, 39

129. Ans (1)
NCERT-XI, Pg # 39

130. Ans (4)
NCERT-XI Pg # 38, 40

131. Ans (3)
NCERT-XI Pg # 39

132. Ans (2)
NCERT XI Pg.# 39
Microsporophyll and microsporangia bearing strobili are called male cone because these form microspore which are small in size compare to female spore (megaspore). Microspore germinate to form Reduced male gametophyte in gymnosperm given reason not correct explanation of Assertion.

133. Ans (2)
NCERT-XI, Pg. # 38, 39
(a), (c) and (d) are correct.

134. Ans (3)
NCERT-XI Pg.# 30, 32

135. Ans (2)
NCERT-(XI), Pg. # 36
Protonema is first gametophytic stage in mosses because in mass haploid spore not directly germinate firstly germinate to form protonema & then protonema form gametophyte It is a correct explanation of given Assertion given Reason also correct but not correct explanation.

SECTION-B

136. Ans (4)
NCERT-XI Pg # 7

137. Ans (4)
NCERT XIth Pg.#16

138. Ans (4)
NCERT-XI, Pg.# 19

139. Ans (3)
NCERT-XI, Pg. # 20, 21

140. Ans (2)

NCERT-XI, Page No. 20

141. Ans (3)

NCERT XIth, Page : 22, 23

142. Ans (1)

NCERT XI Pg. # 24, 2.3.2

143. Ans (4)

NCERT-XI, Pg. # 22, 23, 24

144. Ans (2)

NCERT XI, Pg # 32

145. Ans (1)

NCERT XI, Pg # 35

146. Ans (1)

NCERT-XI Pg.# 35

Bryophytes are amphibians of plant Kingdom because they generally live on soil (land) but they required water for fertilization (sexual reproduction) therefore reason in correct explanation of given assertion.

147. Ans (2)

NCERT XI, Pg # 36,38

148. Ans (3)

NCERT (XI) Pg. # 37 [figure 3.3(a&b)]

149. Ans (3)

NCERT-XI Pg. # 36

150. Ans (2)

NCERT XI Pg : 35, 36

SUBJECT : ZOOLOGY

SECTION-A

160. Ans (4)

NCERT Pg. # 51, 52

162. Ans (3)

NCERT Pg. # 47

163. Ans (1)

NCERT Pg. # 51

164. Ans (2)

NCERT Pg.51

166. Ans (2)

NCERT XI Pg # 104

172. Ans (2)

NCERT-XII, Pg. # 102

173. Ans (2)

NCERT Pg # 104

174. Ans (2)

NCERT Pg. # 102

181. Ans (1)

NCERT XI, Pg. No. 120

182. Ans (4)

NCERT XI, Pg. No. 116

SECTION-B

189. Ans (4)

NCERT Pg. # 56

190. Ans (1)

NCERT Pg#54

192. Ans (3)

NCERT-XI Pg # 102

197. Ans (4)

NCERT XI, Page # 113