LEADER TEST SERIES / JOINT PACKAGE COURSE

TARGET : PRE-MEDICAL 2025

Test Type : **UNIT TEST # 01** Test Pattern : **NEET (UG)**

TEST DATE : 07-07-2024

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

HINT – SHEET

SUBJECT : PHYSICS

SECTION - A

1. Ans (3)

$$\frac{\Delta x}{x} = \frac{3\Delta k}{k} + \frac{2\Delta \ell}{\ell} + \frac{\Delta m}{m} + \frac{1}{2}\frac{\Delta n}{n}$$

$$= 3(1\%) + 2(2\%) + 3\% + \frac{1}{2}(4\%)$$

$$\frac{\Delta x}{x} = 12\%$$

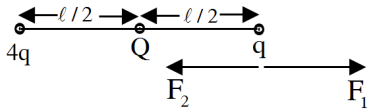
2. Ans (1)

$$500 = \frac{kQ}{r^2} \& 3000 = \frac{kQ}{r}$$

$$500r^2 = 3000r$$

$$r = 6 \text{ m}$$

3. Ans (1)



$$\frac{kQq}{(\ell/2)^2} = \frac{k(4q)(q)}{\ell^2}$$

$$Q = (-)q$$

4. Ans (3)

Random error is reduced by making large number of observations and taking mean of all the results.

5. Ans (2)

$$\cos^2\alpha + \cos^2\beta + \cos^2\gamma = 1$$

$$\cos^2 45° + \cos^2 60° + \cos^2\gamma = 1$$

$$\cos^2\gamma = \frac{1}{4}$$

$$\hat{n} = \cos\alpha\hat{i} + \cos\beta\hat{j} + \cos\gamma\hat{k}$$

$$\boxed{\hat{n} = \frac{1}{\sqrt{2}}\hat{i} + \frac{1}{2}\hat{j} + \frac{1}{2}\hat{k}}$$

6. Ans (3)

$$n = \frac{q}{e} \rightarrow \text{integer}$$

7. Ans (2)

$$\tau_{max} = pE\sin 90^o$$

$$= q\ell E$$

$$= 2 \times 10^{-6} \times 3 \times 10^{-2} \times 2 \times 10^{5}$$

$$= 12 \times 10^{-3} \text{ Nm}$$

8. **Ans (3)**

$\angle P - \angle Q = 50°$

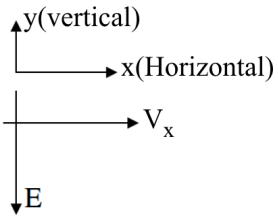
and $\angle P + \angle Q = 180°$ (from diagram)

$2\angle P = 230^o$

$\angle P = 115^o$

then $\angle Q = 65^o$

9. **Ans (1)**



$V_x \rightarrow$ same

$V_y \rightarrow$ changes ∵ acceleration along y axis

10. **Ans (4)**

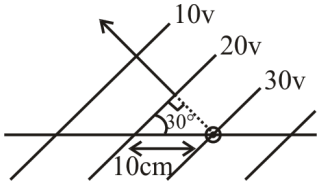
$F = qE = q\dfrac{2kp}{r^3}$

$F \propto \dfrac{1}{r^3}$

11. **Ans (1)**

No electric field line exist in conductor and electric field lines originate or terminate perpendicularly on surface of conductor.

13. **Ans (1)**



$30 - 20 = (\varepsilon)\,(10 \sin 30°) \times 10^{-2}$

$\varepsilon = 200$ v/m

14. **Ans (1)**

$|\vec{a}| \cos\theta = \dfrac{\vec{a}.\vec{b}}{|\vec{b}|}$

$= \dfrac{-4+5}{\sqrt{2}} = \dfrac{1}{\sqrt{2}}$

15. **Ans (2)**

(A) $\sin(90 + \theta) = \cos(-\theta)$

$\cos\theta = \cos\theta$

(B) $\sin(180 - \theta) = \cos(90-\theta)$

$\sin\theta = \sin\theta$

(C) $\sin(360 - \theta) = \cos(360-\theta)$

$-\sin\theta \neq \cos\theta$

(D) $\sin(180 + \theta) = \cos(90-\theta)$

$-\sin\theta \neq \sin\theta$

16. **Ans (4)**

Addition/substraction or exp/log or trigonometric terms cannot be revealed using diemensional analysis.

17. **Ans (2)**

$\tan\theta = \dfrac{A_y}{A_x}$

$\tan\theta = \dfrac{-1}{\sqrt{3}}$

$\theta = -30^o$

18. **Ans (1)**

On equating,

$[M^1L^1T^{-2}] = [a\sqrt{x}] = [a]\left[L^{1/2}\right]$

$\Rightarrow [a] = \left[M^1L^{1/2}T^{-2}\right]$

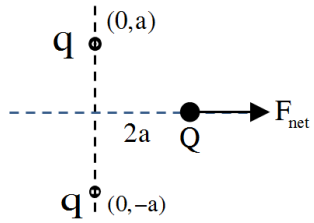
$[M^1L^1T^{-2}] = [bt] = [b][T] \Rightarrow [b] = [M^1L^1T^{-3}]$

The units for length [L], mass [M] and time [T] are meter (m), kilogram (kg) and second (s) respectively.

Substituting the units for dimensions [L], [M] and [T].

a = kg $m^{1/2}$ s^{-2} and b = kg m s^{-3}

19. **Ans (3)**



20. **Ans (4)**

If $\vec{A} \perp \vec{B}$ then $\vec{A} \cdot \vec{B} = 0$

check with all four option

21. **Ans (2)**

$W_{agent} = U_f - U_i = -W_{field}$

23. **Ans (3)**

$\rho_1 = 20\dfrac{gm}{cm^3}$

$\rho_2 = N\dfrac{10kg}{(5m)^3} = \dfrac{N\ 10 \times 10^3 gm}{\left(5 \times 10^{+2}\right)^3 cm^3}$

Equating both we get the value of N as

$N = \dfrac{20}{\frac{10\times10^3}{\left(5\times10^{+2}\right)^3}}$

$= 2 \times 10^3 \times 5^3 = 250 \times 10^3$

$= 2.5 \times 10^5$

24. Ans (2)

$|3\vec{a}| = 6$; $|2\vec{b}| = 6$ and angle $\theta = 120^o$

So $|3\vec{a} + 2\vec{b}| =$

$\sqrt{(6)^2 + (6)^2 + 2(6)(6)\cos(120^o)} = 6$

26. Ans (4)

$u = \frac{\alpha}{\beta}\sin\left(\frac{\alpha x}{kt}\right)$

$[\alpha] = \left[\frac{kt}{x}\right] = \frac{[\text{Energy}]}{[\text{Distance}]}$

$[\beta] = \left[\frac{\alpha}{u}\right] = \frac{[\text{Energy}]/[\text{Distance}]}{[\text{Energy}]/[\text{V olume}]}$

$= [L^2]$

27. Ans (3)

$\left(\vec{a} - \vec{b}\right) \times \left(\vec{a} + \vec{b}\right)$

$= \vec{a} \times \vec{a} + \vec{a} \times \vec{b} - \vec{b} \times \vec{a} - \vec{b} \times \vec{b}$

$= 0 + 2(\vec{a} \times \vec{b}) + 0$

28. Ans (1)

$\vec{F}_x = 1 \cos 60° \, i - 4 \sin 30° \, i + 2 \sin 30° \, i$

$= \frac{1}{2}\hat{i} - 2i + \hat{i}$

$\vec{F}_x = -0.5\hat{i}$

So minimum additional force : $\vec{F} = -\vec{F}_x = 0.5\hat{i}$

29. Ans (2)

Here, $a = 1$, $r = \frac{1}{4}$

so $S_\infty = \frac{a}{1-r} = \frac{1}{1-1/4} = \frac{4}{3}$

30. Ans (2)

$\frac{d}{dx}\sqrt{\sin 2x}$ from chain rule

$\Rightarrow \frac{1}{2}(\sin 2x)^{-1/2}.(\cos 2x)(2)$

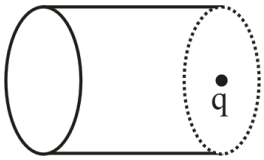
$\Rightarrow (\cos 2x)(\sin 2x)^{-1/2}$

31. Ans (3)

as $KE = \frac{P^2}{2m}$ $K \propto P^2$; (parabola) when graph between K and P

$K = \frac{P^2}{2m}$ $K \propto P^2$; straight line ; when graph between K and P^2.

32. Ans (3)



$\phi_{\text{cylinder}} = \frac{q}{2\varepsilon_0}$

33. Ans (2)

$[F] = [M^1 L^1 T^{-2}]$

$[P] = [M^1 L^{-1} T^{-2}]$

$[G] = [M^{-1} L^3 T^{-2}]$

35. Ans (3)

$E = \frac{kQ}{R^2} = \frac{k(ne)}{R^2}$

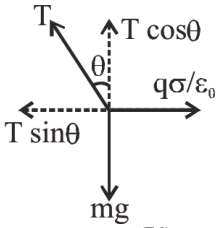
$3.6 \times 10^{-2} = \frac{9 \times 10^9 \times n \times 1.6 \times 10^{-19}}{10^{-2}}$

$n = \frac{1}{4} \times 10^6 = 2.5 \times 10^5$

SECTION - B

36. Ans (2)

From the figure, we find,



$T \sin\theta = \frac{\sigma q}{\varepsilon_0}$ ...(i)

$T \cos\theta = mg$ ...(ii)

From eqns. (i) and (ii),

$\tan\theta = \frac{\sigma q}{\varepsilon_0 mg}$

$\therefore \quad \sigma \propto \tan\theta.$

37. Ans (1)

$V = \frac{4}{3}\pi r^3$, $A = 4\pi r^2$

$\frac{dV}{dr} = 4\pi r^2$ ___(1)

$\frac{dA}{dr} = 8\pi r$ ___(2)

(1)/(2)

$\frac{dV/dr}{dA/dr} = \frac{4\pi r^2}{8\pi r} = \frac{r}{2}$

at r = 2cm

$\frac{dV}{dA} = \frac{2}{2} = 1\text{cm}$

38. Ans (4)

$\tan\theta = \frac{F_e}{mg}$

as $\alpha < \beta$

$m_1 > m_2$

39. Ans (1)

$\int \frac{3}{(2-x)^2}.dx$

by substitution method

Let $(2-x) = t$

$-dx = dt$

$dx = -dt$

$-3\int \frac{dt}{t^2} \Rightarrow -3\frac{t^{-2+1}}{-2+1} + C$

$\Rightarrow +\frac{3}{t} + C \Rightarrow \frac{3}{2-x} + C$

40. Ans (3)

Least count = pitch/number of divisions on circular scale

L.C. = (0.5 / 50) mm = 0.01 mm

Measured diameter = (main scale reading) + (circular scale reading) (least count)

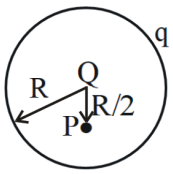
= 2.5 mm + (45) (0.01 mm) = 2.95 mm

Actual diameter = measured diameter – zero error

2.95 mm – (–0.03 mm)

= 2.98 mm

41. Ans (4)



$V_P = \frac{kQ}{R/2} + \frac{kq}{R}$

$V_P = \frac{2Q}{4\pi\varepsilon_0 R} + \frac{q}{4\pi\varepsilon_0 R}$

42. Ans (2)

In ice

$F_i = \frac{1}{4\pi\in_0 K}\frac{q^2}{(25\times10^{-2})^2}$ ...(1)

In water

$F_w = \frac{1}{4\pi\in_0 (80)}\frac{q^2}{(5\times10^{-2})}$ ...(2)

Given $F_i = F_w$ so by eq (1) & (2)

K = 3.2

43. Ans (3)

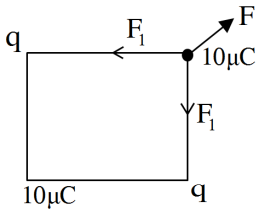
$F = -\sqrt{2}F_1$

$\frac{-k100\times10^{-6}\times10^{-6}}{(\sqrt{2}a)^2}$

$= \frac{-\sqrt{2}kq10\times10^{-6}}{a^2}$

$q = \frac{(-)10\times10^{-6}}{2\sqrt{2}}C$

$q = \frac{(-)5}{\sqrt{2}}\mu C$



44. Ans (1)

$W_D = Q\vec{E}.d\vec{r}$

$= Q\left(e_1\hat{i} + e_2\hat{j} + e_3\hat{k}\right).\left(a\hat{i} + b\hat{j}\right)$

$= Q[e_1 a + e_2 b]$

45. Ans (1)

a kg = New unit of mass

1 kg = $\frac{1}{a}$ new unit of mass

b m = New unit of length

1 m = $\frac{1}{b}$ new unit of length

And, c sec = New unit of time

Then, 1 sec = $\frac{1}{c}$ new unit of time

We have,

$1W = \frac{1kgm^2}{sec^3}$

$6W = 6\times\frac{1kg\times1m^2}{1sec^3}$

in new unit

$6W = 6\times\frac{\left(\frac{1}{a}\right)\times\left(\frac{1}{b}\right)^2}{\left(\frac{1}{c}\right)^3}$

$6W = 6\times\frac{c^3}{ab^2}$

$6W = \frac{6c^3}{ab^2}$

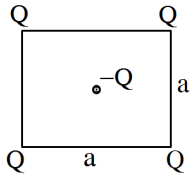
Hence, the magnitude of 6 watt of power in the new system is $\frac{6c^3}{ab^2}$.

46. Ans (3)

$W_D = U_f - U_i$

$= 0 - (-Q)\frac{4kQ\sqrt{2}}{a}$

$= \frac{4\sqrt{2}kQ^2}{a} = \frac{\sqrt{2}Q^2}{\pi\varepsilon_0 a}$



47. Ans (4)

$E = -\frac{\partial V}{\partial x} = -(4x + 10)\hat{i}$

$= -14\hat{i}$

48. Ans (1)

(a) The given quantity is 0.007 m^2.

Thus, the number of significant figure is 1.

(b) The given quantity is 2.64×10^{24} kg. Thus, the number of significant figure is 3.

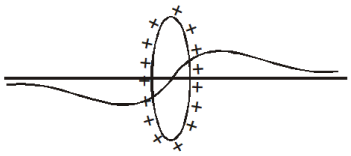
(c) The given quantity is 0.0021 g cm^{-3}

Thus, the number of significant figure is 2.

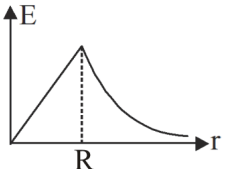
(d) The number of significant figure in the quantity 0.0006032 J is 4.

49. Ans (1)

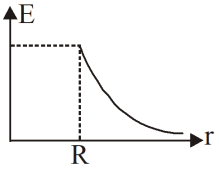
For (A) :



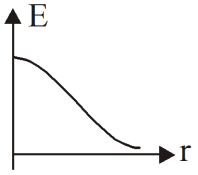
For (B) :



For (C) :



For (D) :



50. Ans (2)

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

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

$M^1L^2T^{-2} \propto M^x L^{x+2y} T^{-x+z}$

On comparision

$x = 1 \qquad -x + z = -2$

$x + 2y = 2 \quad z = -2+1 = -1$

$2y = 1 \qquad E \propto P^1 A^{1/2} T^{-1}$

$y = 1/2$

SUBJECT : CHEMISTRY

SECTION - A

51. Ans (3)

No. of protons in one NH_4^+ ion = 7 + 4 = 11

No. of NH_4^+ ions in 1.8 g = $\frac{1.8}{18} \times N_A = 0.1\ N_A$

$\therefore$ No. of protons in 1.8 g $NH_4^+ = 11 \times 0.1N_A$

$= 1.1\ N_A$

52. Ans (3)

$n_{C\text{-atom}} = 12 \times n_{C_{12}H_{22}O_{11}}$

$n_{C-atom} = 12 \times \frac{34.2}{342}$

$n_{C-atom} = 1.2$

53. Ans (4)

$n_{H_2} = \frac{64}{2} = 32\ mol$

$n_{O_2} = \frac{64}{32} = 2\ mol$

1 mol of O_2 requires = 2 mol of H_2

2 mol of O_2 requires = 4 mol of H_2

Since H_2 is present in excess, therefore, O_2 is the limiting reagent

(1) Wrong

(2) So, O_2 is the limiting reagent

(3) 2mol of O_2 = 4 moles of $H_2O = 4 \times 18$

$= 72$ g H_2O

Moles of H_2 left = 32 – 4 = 28 mol

$= 28 \times 2 = 56$ g H_2

Mixture contains = (72 g H_2O + 56 g H_2)

54. Ans (3)

Remaining molecules

$= \frac{44 \times 10^{-3}}{44} \times 6.023 \times 10^{23} - 2 \times 10^{20}$

$= 4 \times 10^{20}$

55. Ans (3)

Element	C	H	O
% composition	38.71	9.67	51.62
Relative mole	$\frac{38.71}{12}$	$\frac{9.67}{1}$	$\frac{51.62}{16}$
Simplest ratio	1	3	0

56. Ans (1)

At STP 224 mL occupies ⟶ 0.44 g

∴ AT STP 22400 mL occupies ⇒ 44 g
(1 mol.)

and wt. of N_2O is 44 g

57. Ans (4)

$C_xH_y(g) + O_2(g) \longrightarrow CO_2(g) + H_2O(g)$

(Hydrocarbon) ↓ ↓

10 mL 40 mL 50 mL

or 1 vol. 4 vol. 5 vol.

$C_xH_y + 13O_2 \longrightarrow 4CO_2 + 5H_2O$

Comparing both sides

x = 4

y = 10

58. Ans (1)

Conceptual

59. Ans (3)

Let the at. wt. of A and B are a & b

wt. of 0.05 moles of B_2A_3 = 9 and

wt. of 0.1 mole of B_2A = 10 gms

then wt. of 1 moles of B_2A_3 = 180 and

wt. of 1 mole of B_2A = 100

∵ wt. of 1 mole of compound = mol wt.

mol. wt. of B_2A_3 : 2b + 3a = 180 .... (i)

mol. wt. of B_2A : 2b + a = 100 ....(ii)

solve eq. (1) & (ii) and get value of a & b

60. Ans (2)

$$V.D = \frac{\text{density of gas}}{\text{density of } H_2(0.000089\ \text{gm/ml})}$$

61. Ans (4)

For the two different elements to show law of multiple proportion , the two different elements should react to form different compounds in a such a way that with fixed mass of one element the other element will be in multiple ratio in mass Eg D_2O , D_2O_2.

62. Ans (4)

NCERT(2017)-XI, Part-1, Pg # 5,12,13,15

63. Ans (4)

% of O in C_2H_5OH =

$$\frac{\text{Mass of Oxygen in 1 mole}}{\text{Molar mass}} \times 100$$

$$= \frac{16 \times 1}{46} \times 100 = 34.7\%$$

64. Ans (1)

$MgCO_3 \xrightarrow{\Delta} MgO + CO_2$

moles $\frac{8}{40} = \frac{1}{5}$

1 mol $MgCO_3$ ⟶ 1 mol MgO

$n_{MgO} = n_{MgCO_3} = \frac{1}{5}$

Mass of $MgCO_3 = \frac{1}{5} \times 84 = \frac{84}{5} = 16.8$

% Purity $= \frac{16.8}{20} \times 100 = 84\%$

65. Ans (4)

d = 1 gm/mol.

18 gm = 18 ml = 1 mole

18 ml H_2O

Contain molecule = 6.02×10^{23}

0.0018 ml contain molecule

$$= \frac{6.02 \times 10^{23}}{18} \times 18 \times 10^{-4}$$

$= 6.02 \times 10^{19}$

66. Ans (2)

Gas A Gas B

$n_A = n_B$

$\frac{w_A}{40} = \frac{w_B}{x}$

$\frac{w_A}{w_B} = \frac{40}{x}$

$\frac{5}{8} = \frac{40}{x}$

x = 64

67. Ans (2)

	3d	4s
n	3	4
ℓ	2	0
n + ℓ	5	4

Energy is higher for the subshell having higher value of n + ℓ.

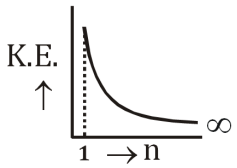
68. Ans (3)

NCERT, Pg # 42

69. Ans (3)

K. E. $= \frac{kZe^2}{2r}$

K. E. $\propto \frac{1}{n}$



K. E. ↑ then n ↓

70. Ans (4)

Each transition of e^- is associated with one quantum having low or high energy.

71. Ans (1)

e^- jumps from higher to lower energy realises & lower to higher energy absorbed.

$$\frac{1}{\lambda} = R_H z^2 \left[\frac{1}{n_1^2} - \frac{1}{n_2^2}\right] \text{ --}$$

$$\frac{c}{\lambda} = R_H c z^2 \left[\frac{1}{n_1^2} - \frac{1}{n_2^2}\right] \text{ --}$$

$$\nu = R_H c z^2 \left[\frac{1}{1} - \frac{1}{4}\right] = \frac{3R_H c z^2}{4} \text{ [minimum]}$$

72. Ans (1)

U.V. region ⟶ Lyman series ⟶ 3

I^{st} Line ⟶ 2 ⟶ 1

II^{nd} Line ⟶ 3 ⟶ 1

III^{rd} Line ⟶ 4 ⟶ 1

$n_2 = 4$

4 ⟶ 3 ⟶ Total lines = 1 (in paschen series)

73. Ans (4)

Orbital angular momentum for a

subshell $= \sqrt{\ell(\ell+1)}\frac{h}{2\pi}$

For 3s, $\ell = 0$, O.A.M. = 0

For 3p, $\ell = 1$, O.A.M. $= \sqrt{1(1+1)}\frac{h}{2\pi} = \frac{h}{\sqrt{2}\pi}$

74. Ans (1)

NCERT, Pg # 55

75. Ans (2)

Na – $1s^2\ 2s^2\ 2p^6\ \boxed{3s^1}$

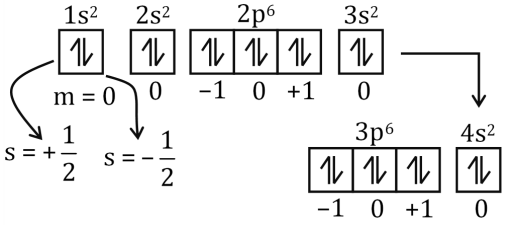
$n = 3, \ell = 0, m = 0, s = +\frac{1}{2}$

76. Ans (1)

2K, 8L, 8M, 2N

Number of e^- is 20

Z = 20



6 electrons ⇒ m = 0

$S = +\frac{1}{2}$

77. Ans (4)

NCERT, Pg # 56

78. Ans (3)

Energy order is decided by $(n + \ell)$ rule

79. Ans (3)

Avg. atomic mass $= \frac{m_1x_1 + m_2x_2 + m_3x_3}{x_1 + x_2 + x_3}$

$= \frac{11 \times 80 + 12 \times 15 + 13 \times 5}{80 + 15 + 5} = 11.25$

80. Ans (1)

$r_3 - r_2$

81. Ans (2)

$r \propto n^2$

$\frac{r_2}{r_1} = 4 \Rightarrow \frac{r_2}{a_0} = 4$

$\Rightarrow r_2 = 4a_0$

$n\lambda_d = 2\pi r$

$2 \times \lambda_d = 2\pi r_2$

$\Rightarrow \cancel{2}\lambda d = \cancel{2} r \times 4a_0$

$\Rightarrow \lambda_d = 4\pi a_0$

82. Ans (2)

First line of lyman series have minimum energy and maximum wavelength.

$$\frac{1}{\lambda} = Rz^2\left(\frac{1}{n_1^2} - \frac{1}{n_2^2}\right)$$

$$= R \times 1^2\left(\frac{1}{1^2} - \frac{1}{2^2}\right)$$

$$\frac{1}{\lambda} = \frac{3}{4}R$$

$$\lambda = \frac{4}{3} \times \frac{1}{R} = \frac{4}{3} \times 912\text{Å}$$

λ = 1216 Å (approx)

83. Ans (2)

Total energy $E = \frac{nhc}{\lambda}$

$\therefore n = \frac{1 \times 4 \times 10^{-7}}{6.62 \times 10^{-34} \times 3 \times 10^{8}} = 2 \times 10^{18}$

84. Ans (3)

$m_e = 9.1 \times 10^{-28}$

$h = 6.6 \times 10^{-27} gcm^2/sec.$

$\Delta v = 0.011\%$ of 3×10^4

$= 3.3 cm/sec.$

$\Delta x = \frac{h}{4\pi m \Delta v} = \frac{6.6 \times 10^{-27}}{4\pi \times 9.1 \times 10^{-28} \times 3.3}$

$= 0.1748 cm$

85. Ans (4)

I line : $3 \longrightarrow 2$

II line : $4 \longrightarrow L$

III line : $5 \longrightarrow Z$

SECTION - B

86. Ans (4)

$C_2H_4 + 3O_2 \longrightarrow 2CO_2 + 2\ H_2O$

1 L 3 L

$\therefore$ 10 L 30 L

and volume of air = $30 \times 5 = 150$ L

($\because$ Air contains approximately 20% of O_2 by volume)

87. Ans (3)

$C + O_2 \longrightarrow CO_2$

4g 4g

$\left(\frac{1}{3}mol\right)$ $\left(\frac{1}{8}mol\right)$ –

(L.R.)

$\frac{1}{8}$ mol of O_2 will produce $\frac{1}{8}$ mol CO_2

OR

(LR)

$C + O_2 \longrightarrow CO_2$

n_i $\frac{1}{3}$ $\frac{1}{8}$ 0

n_f $\frac{5}{24}$ 0 $\frac{1}{8}$

88. Ans (3)

No. of atoms = $\frac{16}{32} \times 2N_A = N_A$

No. of atoms = $\frac{16}{48} \times 3N_A = N_A$.

89. Ans (3)

Number of Fe-atoms =

$\frac{67200 \times 0.33}{56 \times 100} = 3.96 \simeq 4$

90. Ans (3)

$CaCO_3(s) \xrightarrow{\Delta} CO_2(g) + CaO(s)$

100 kg $\longrightarrow$ 44 kg

$\frac{80}{100} \times 10$ kg $\longrightarrow$ $\frac{44}{100} \times \frac{80}{100} \times 10 = 3.52$ kg

91. Ans (3)

Theory based

92. Ans (2)

(i) same Z $\longrightarrow$ Isotopes

(ii) same A (p+n) $\longrightarrow$ Isobars

(iii) same n $\longrightarrow$ Isotones

(iv) same n – p $\longrightarrow$ Isodiaphers

(v) same Z $\longrightarrow$ Isotopes.

93. Ans (1)

NCERT, Pg # 60

94. Ans (3)

$_{29}Cu \Rightarrow 1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^1\ 3d^{10}$

$_{24}Cr \Rightarrow 1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^1\ 3d^5$

$_{30}Zn \Rightarrow 1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^2\ 3d^{10}$

$_{19}K \Rightarrow 1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^1$

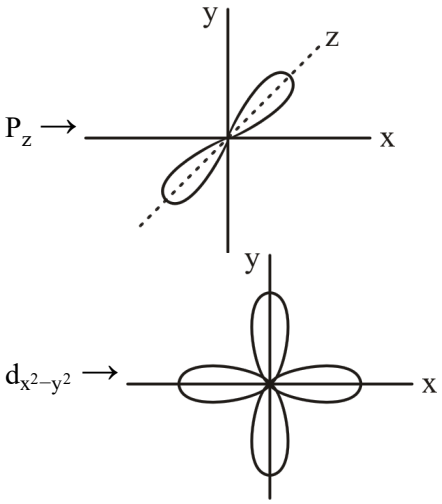
95. Ans (3)

Argon - $1s^2\ 2s^2\ \boxed{2p^6}\ 3s^2\ \boxed{3p^6}$

$2p^6$ $3p^6$

$\therefore$ m = +1 $\therefore$ Total electrons = 4

96. Ans (4)



97. Ans (4)

$\lambda = 300 \text{ nm} = 300 \times 10^{-9}\text{m}$

$E = \frac{hc}{\lambda} = \frac{(6.626 \times 10^{-34})(3 \times 10^{8})}{300 \times 10^{-9}}$

$= 6.626 \times 10^{-9}$ J

for 1 mole $\Rightarrow 6.626 \times 10^{-9} \times 6.023 \times 10^{23}$

$= 3.99 \times 10^{5}$ J/mole

K.E.$= 1.68 \times 10^{5}$ J/mole

$h\nu_0 = h\nu - \text{K.E.}$

$h\nu_0 = 3.99 \times 10^{5} - 1.68 \times 10^{5}$

$= 2.31 \times 10^{5}$ J/mole

minimum energy $= 2.31 \times 10^{5}$ J/mole^{-1}

98. Ans (1)

$\lambda = \frac{h}{P} \Rightarrow P = \frac{h}{\lambda}$

$\lambda = 1 \text{ Å} = 10^{-8}\text{cm}$

$P = \frac{6.6252 \times 10^{-27}\text{erg/s}}{1 \times 10^{-8}\text{cm}}$

$P = 6.6252 \times 10^{-19}$ gcm/sec.

99. Ans (2)

λ minimum, E maximum (As per theory)

100. Ans (4)

Charge / mass for n = 0, for $\alpha = \frac{2}{4}$

for p $= \frac{1}{1}$, for $e^{-} = \frac{1}{1/1837}$

SUBJECT : BOTANY

SECTION - A

101. Ans (2)

NCERT XI Page No. # 6

ii and v are correct.

102. Ans (1)

NCERT XI Page No. # 2

103. Ans (2)

NCERT XI Page No. # 4 and 5

104. Ans (3)

NCERT XI Page No. # 24

105. Ans (1)

NCERT XI Page No. # 8

106. Ans (1)

NCERT XI Page No. # 7

107. Ans (1)

NCERT XI Page No. # 11

108. Ans (3)

NCERT XI Page No. # 11

109. Ans (2)

NCERT XI Page No. # 13

110. Ans (3)

NCERT XI Page No. # 13

111. Ans (3)

NCERT XI Page # 13

112. Ans (1)

NCERT XI Page No. # 11, 13

113. Ans (3)

NCERT XI Page No. # 15

114. Ans (3)

NCERT XI Page No. # 14

115. Ans (3)

NCERT XI Page No. # 18

116. Ans (2)

NCERT XI Page No. # 16

117. Ans (1)
NCERT XI Page No. # 18

118. Ans (3)
NCERT (XI) Pg. # 21

119. Ans (3)
NCERT XI Page No. # 17,18

120. Ans (1)
NCERT XI Page No. # 26

121. Ans (4)
NCERT XI Page # 17,25,28,31

122. Ans (2)
NCERT XI Page # 27

123. Ans (2)
NCERT XI Page No. # 30

124. Ans (1)
NCERT XI Page No. # 29

125. Ans (3)
NCERT XI Page No. # 30, 32

126. Ans (1)
NCERT XI Page No. # 32

127. Ans (1)
NCERT XI Page # 32

128. Ans (1)
NCERT XI Page No. # 32

129. Ans (1)
NCERT XI Page No. # 32

130. Ans (3)
NCERT XI Page No. # 33

131. Ans (2)
NCERT XI Page No. # 33

132. Ans (3)
NCERT Pg. # 20,21

133. Ans (1)
NCERT Pg. # 24

134. Ans (4)
NCERT XI Pg. # 32

135. Ans (3)
NCERT XI Page No. # 32, 33

SECTION - B

138. Ans (3)
NCERT XI Page No. # 10,11,13

139. Ans (2)
NCERT XI Page No. # 13

140. Ans (3)
NCERT XI Page No. # 15

141. Ans (3)
NCERT XI Page No. # 5

142. Ans (3)
NCERT XI Page No. # 16, 17

143. Ans (1)
NCERT XI Page No. # 21

144. Ans (2)
NCERT XI Page No. # 26

145. Ans (4)
NCERT XI Page No. # 17,18

146. Ans (4)
NCERT XI Page No. # 27, 28

147. Ans (1)
NCERT XI Page # 24

148. Ans (3)
NCERT XI Page No. # 30

149. Ans (2)
NCERT XI Page No. # 32

150. Ans (2)
NCERT XI Page No. # 8

SUBJECT : ZOOLOGY

SECTION - A

151. Ans (4)
NCERT Pg. # 40

152. Ans (4)
NCERT Pg. # 40

153. **Ans (4)**
NCERT Pg. # 41

154. **Ans (2)**
NCERT Pg. # 41

155. **Ans (4)**
NCERT Pg. # 42

156. **Ans (4)**
NCERT Pg. # 42

157. **Ans (1)**
NCERT Pg. # 51

158. **Ans (4)**
NCERT Pg. # 43

159. **Ans (3)**
NCERT Pg. # 43,44

160. **Ans (3)**
NCERT Pg. # 44

161. **Ans (4)**
NCERT Pg. # 47,48

162. **Ans (3)**
NCERT XI, Pg. # 42

163. **Ans (2)**
NCERT Pg. # 43

164. **Ans (3)**
NCERT Pg # 22, 40

165. **Ans (3)**
NCERT Pg. No. # 44

166. **Ans (2)**
NCERT-XI Pg # 46

167. **Ans (4)**
NCERT Pg. # 43

168. **Ans (1)**
NCERT Pg. # 48

169. **Ans (4)**
NCERT Pg. # 49

170. **Ans (2)**
NCERT Pg.# 48

171. **Ans (3)**
NCERT Pg. # 44

172. **Ans (1)**
NCERT Pg. # 41

173. **Ans (2)**
NCERT Pg. # 38

174. **Ans (1)**
NCERT Pg.# 41, 42, 45

175. **Ans (2)**
NCERT Pg.# 49, 50, 51

176. **Ans (2)**
NCERT Pg. # 45

177. **Ans (3)**
NCERT Pg. # 47,48

178. **Ans (2)**
NCERT XI Page No. 42, 43

179. **Ans (3)**
NCERT Pg. # 39

181. **Ans (2)**
NCERT XI Page No. 38

182. **Ans (4)**
NCERT Pg. # 48

183. **Ans (3)**
NCERT Pg. # 47

184. **Ans (4)**
NCERT Pg. # 48

185. **Ans (3)**
NCERT-XI, Pg. # 44

SECTION - B

186. **Ans (2)**
NCERT Pg. # 44

187. **Ans (4)**
NCERT Pg. # 46

188. **Ans (1)**
NCERT Pg.# 50

189. **Ans (4)**
NCERT Pg. # 48

190. **Ans (2)**
NCERT Pg. # 48

191. **Ans (3)**
NCERT Pg. # 46

192. **Ans (1)**
NCERT, Pg # 47

193. **Ans (4)**
NCERT Pg. No. # 48

194. **Ans (1)**
NCERT-XI Page No. 47

195. **Ans (3)**
NCERT XI, Pg # 38

196. **Ans (2)**
NCERT Pg. # 40

197. **Ans (1)**
NCERT XI, Pg.no. 47,48

198. **Ans (1)**
NCERT Pg. # 44

199. **Ans (1)**
NCERT Pg. # 38

200. **Ans (2)**
NCERT XI Pg # 54