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g	Al	Si	P	S	Cl	Ar
2	Ge	As	Se	Br	Kr	
3	In	Sn	Sb	Te	Xe	
4	Tl	Pb	Bi	Po	Rn	

B - SECTION - III

SCIENCE (PCM)

CHEMISTRY

61. The d-orbital that participates in dsp^3 hybridisation with trigonal bipyramidal geometry is :
- (A) dz^2 ✓
 (B) dxy
 (C) $dx^2 - y^2$
 (D) dxz
62. The correct order of ionisation potential of the following elements is :
- (A) $C < N < O < F$ ✓
 (B) $C > N > O > F$
 (C) $C < O < N < F$
 (D) $C < O < F < N$
63. The correct order of electron affinity of the following elements is :
- (A) $N < O < F < Cl$ ✓
 (B) $O < N < Cl < F$
 (C) $N < Cl < O < F$
 (D) $N < O < Cl < F$
64. The set of quantum numbers (n, l, m and s) that represent valency electron of sodium is :
- (A) $3, 2, 1, +\frac{1}{2}$
 (B) $3, 2, 0, +\frac{1}{2}$ ✓
 (C) $3, 1, 1, -\frac{1}{2}$
 (D) $3, 0, 0, +\frac{1}{2}$
65. The number of unpaired electrons present in Cr^{3+} is :
- (A) 1
 (B) 2
 (C) 3
 (D) 4 ✓
66. Oxidation number of sulphur in sodium tetrathionate is :
- (A) +2
 (B) +2.5
 (C) +3 ✓
 (D) +6
67. If the molecular weight of $KMnO_4$ is 'M' then the equivalent weight of $KMnO_4$ in the reaction :
- $$KMnO_4 + H_2SO_4 + H_2C_2O_4 \rightarrow K_2SO_4 + MnSO_4 + CO_2 + H_2O$$
- is :
- (A) $\frac{M}{5}$
 (B) $\frac{M}{3}$ ✓
 (C) $\frac{M}{4}$
 (D) $\frac{M}{2}$

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68. The volume of CO_2 at NTP obtained by complete decomposition of 1gm of marble is :

- (A) 22.4 L
(B) 2.24 L
(C) 0.224 L
(D) 0.0224 L

69. The density of a gas is found to be 1.56 g/litre at 745 mm pressure and 65°C . The molecular mass ($\text{g}\cdot\text{mol}^{-1}$) is :

- (A) 22.1
(B) 44.2
(C) 66.3
(D) 88.4

70. If rate of diffusion of O_2 is r_1 then under similar conditions of temperature and pressure the rate of diffusion of SO_2 is :

- (A) $\sqrt{2}r_1$
(B) $\frac{r_1}{\sqrt{2}}$
(C) $2r_1$
(D) $\frac{r_1}{2}$

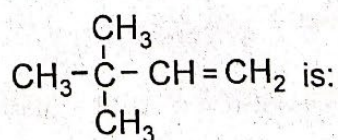
71. The correct order in which the following compounds are arranged in order of increasing acidity is :

- (A) Methyl alcohol < Phenol < p-nitro phenol
(B) Methyl alcohol < p-nitrophenol < phenol
(C) p-Nitrophenol < Methyl alcohol < phenol
(D) Phenol < Methyl alcohol < p-nitrophenol

72. The hydrocarbon which is formed by only single covalent bonds between the atoms is :

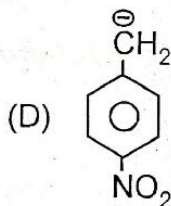
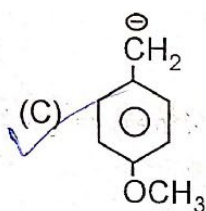
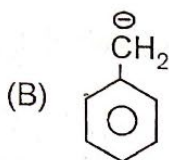
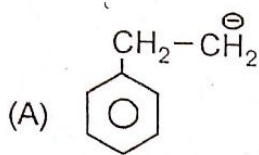
- (A) C_5H_{10}
(B) C_6H_6
(C) C_5H_8
(D) C_4H_4

73. The IUPAC name of the compound having the formula



- (A) 3, 3, 3 trimethyl propane
(B) 1, 1, 1 trimethyl-2-pentene
(C) 3, 3 Dimethyl-1-butene
(D) 2, 2 Dimethyl 3-butene

74. The most stable carbanion among the following is :



75. Which of the following ores does not contain sulphur ?

(A) Argentite

(B) Cassiterite

(C) Cinnabar

(D) Galena

76. Ice floats in water. This is due to the presence of :

(A) Ionic bond

(B) Covalent bond

(C) Intermolecular hydrogen bond

(D) Intra molecular hydrogen bond

77. 100 ml of 1 N NaOH solution, 200 ml of 0.5 N NaOH solution, 500 ml of 0.1 N NaOH solution and 200 ml of 0.25 N NaOH solution are mixed together. The normality of the resultant solution is :

(A) 0.1

(B) 0.2

(C) 0.3

(D) 0.4

78. The pH of 0.01 M acetic acid with degree of dissociation 0.001 is :

(A) 5

(B) 4

(C) 3

(D) 2

79. If K_f and K_b represents the equilibrium constants of the forward and backward chemical reactions respectively of a particular reversible reaction then :

(A) $K_f = K_b$

(B) $K_f = \frac{1}{K_b}$

(C) $K_f > K_b$

(D) $K_f < K_b$

80. The purest form of iron is :

(A) Pig iron

(B) Steel

(C) Wrought iron

(D) Cast iron

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