

CHEMISTRY

76. The oxidation state of Cr in $[\text{Cr}(\text{NH}_3)_4\text{Cl}_2]^+$ is

- 1) 0 2) +1 3) +2 4) +3

Ans. (4)

77. Which one of the following types of drugs reduces fever?

- 1) Tranquiliser 2) Antibiotic 3) Antipyretic 4) Analgesic

Ans. (3)

78. Which of the following oxides is amphoteric in character?

- 1) SnO_2 2) SiO_2 3) CO_2 4) CaO

Ans. (1)

SnO_2 is an amphoteric oxide since it can react both with acid and bases.

79. Which one of the following species is diamagnetic in nature?

- 1) H_2^- 2) H_2^+ 3) H_2 4) He_2^+

Ans. (3) There is no unpaired electron in H_2

80. If α is the degree of dissociation of Na_2SO_4 , the van't Hoff's factor (i) used for calculating the molecular mass is

- 1) $1 - 2\alpha$ 2) $1 + 2\alpha$ 3) $1 - \alpha$ 4) $1 + \alpha$

Ans. (2) $\text{Na}_2\text{SO}_4 \rightarrow 2\text{Na}^{(+)} + \text{SO}_4^{2-}$

$$1 - \alpha \quad 2\alpha \quad \alpha$$

$$i = 1 - \alpha + 2\alpha + \alpha$$

$$i = 1 + 2\alpha$$

81. Which of the following is a polyamide?

- 1) Bakelite 2) Terylene 3) Nylon-66 4) Teflon

Ans. (3)



82. Due to the presence of an unpaired electron, free radicals are:

- 1) Cations 2) Anions
3) Chemically inactive 4) Chemically reactive

Ans. (4)

83. For a spontaneous reaction the ΔG , equilibrium constant (K) and E_{cell}^0 will be respectively

- 1) -ve, >1, -ve 2) -ve, <1, -ve 3) +ve, >1, -ve 4) -ve, >1, +ve

Ans. (4)

For Spontaneous process,

$$\Delta G = -ve, K > 1 \text{ and } E_{\text{cell}}^0 = +ve$$

90. The volume of a colloidal particle, V_C as compared to the volume of a solute particle in a true solution V_S , could be

1) $\frac{V_C}{V_S} \sim 10^3$

2) $\frac{V_C}{V_S} \sim 10^{-3}$

3) $\frac{V_C}{V_S} \sim 10^{23}$

4) $\frac{V_C}{V_S} \sim 1$

Ans. (1)

For true solution the diameter range is 1 to $< 10\text{\AA}$ and for colloidal solution diameter range is 10 to 1000\AA . Taking the lower limits.

$$\frac{V_C}{V_S} = \frac{\frac{4}{3}\pi r_C^3}{\frac{4}{3}\pi r_S^3} = \left(\frac{r_C}{r_S}\right)^3$$

Putting ratio of diameters in place of $\frac{r_C}{r_S}$

$$\therefore \text{Ratio of diameters} = \left(\frac{10}{1}\right)^3 = 10^3$$

$$\therefore \frac{V_C}{V_S} \approx 10^3$$

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