

85. The oxidation number of Mn in the product of alkaline oxidative fusion of MnO_2 is : (2009)

Paragraph for Q. 86 to 88



p-Amino-N, N-dimethylaniline is added to a strongly acidic solution of X. The resulting solution is treated with a few drops of aqueous solution of Y to yield a blue colouration due to the formation of methylene blue. Treatment of the aqueous solution of Y with the reagent potassium hexacyanoferrate (II) leads to the formation of an intense blue precipitate. The precipitate dissolves on excess addition of the reagent. Similarly, treatment of the solution of Y with the solution of potassium hexacyanoferrate (III) leads to a brown colouration due to the formation of Z.

86. The compound X is : (2009)

(A) NaNO_3 (B) NaCl (C) Na_2SO_4 (D) Na_2S

87. The compound Y is : (2009)

(A) MgCl_2 (B) FeCl_2 (C) FeCl_3 (D) ZnCl_2

88. The compound Z is : (2009)

(A) $\text{Mg}_2[\text{Fe}(\text{CN})_6]$ (B) $\text{Fe}[\text{Fe}(\text{CN})_6]$ (C) $\text{Fe}_4[\text{Fe}(\text{CN})_6]_3$ (D) $\text{K}_2\text{Zn}_3[\text{Fe}(\text{CN})_6]_2$

Paragraph for Q. 89 to 91



Copper is the most noble of the first low transition metals and occurs in small deposits in several countries. Ores of copper include chalcantite ($\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$), atacamite ($\text{Cu}_2\text{Cl}(\text{OH})_3$), cuprite (Cu_2O), copper glance (Cu_2S) and malachite ($\text{Cu}_2(\text{OH})_2\text{CO}_3$). However, 80% of the world copper production comes from the ore chalcopyrite (CuFeS_2). The extraction of copper from chalcopyrite involves partial roasting, removal of iron and self-reduction. (2010)

89. Partial roasting of chalcopyrite produces

(A) Cu_2S and FeO (B) Cu_2O and FeO
(C) CuS and Fe_2O_3 (D) Cu_2O and Fe_2O_3

90. Iron is removed from chalcopyrite as:

(A) FeO (B) FeS (C) Fe_2O_3 (D) FeSiO_3

91. In self-reduction, the reducing species is:

(A) S (B) O^{2-} (C) S^{2-} (D) SO_2