

Date Planned : __ / __ / __	Daily Tutorial Sheet-7	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	JEE Advanced (Archive)	Exact Duration : _____

92. Reducing of the metal centre in aqueous permanganate ion involves (2011)
- (A) 3 electrons in neutral medium
(B) 5 electrons in neutral medium
(C) 3 electrons in alkaline medium
(D) 5 electrons in acidic medium

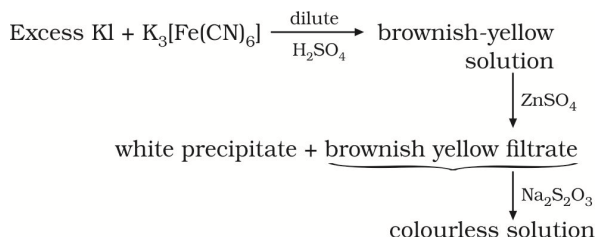
Paragraph for Q. 93 to 95



When a metal rod M is dipped into an aqueous colourless concentrated solution of compound N, the solution of compound N, the solution turns light blue. Addition of aqueous NaCl to the blue solution gives a white precipitate O. Addition of aqueous NH_3 dissolves O and gives an intense blue solution. (2011)

93. The metal rod M is :
(A) Fe (B) Cu (C) Ni (D) Co
94. The compound N is :
(A) AgNO_3 (B) $\text{Zn(NO}_3)_2$ (D) $\text{Al(NO}_3)_3$ (D) $\text{Pb(NO}_3)_2$
95. The final solution contains :
(A) $[\text{Pb(NH}_3)_4]^{2+}$ and $[\text{CoCl}_4]^{2-}$ (B) $[\text{Al(NH}_3)_4]^{3+}$ and $[\text{Cu(NH}_3)_4]^{2+}$
(C) $[\text{Ag(NH}_3)_2]^+$ and $[\text{Cu(NH}_3)_4]^{2+}$ (D) $[\text{Ag(NH}_3)_2]^+$ and $[\text{Ni(NH}_3)_6]^{2+}$
96. The colour of light absorbed by an aqueous solution of CuSO_4 is : (2012)
(A) orange-red (B) blue-green (C) yellow (D) violet

- *97. For the given aqueous reactions, which of the statements is (are) true? (2012)



- (A) The first reaction is a redox reaction
(B) White precipitate is $\text{Zn}_3[\text{Fe(CN)}_6]_2$
(C) Addition of filtrate to starch solution gives blue colour
(D) White precipitate is soluble in NaOH solution
- *98. The correct statement(s) about Cr^{2+} and Mn^{3+} is(are) [Atomic numbers of Cr = 24 Mn = 25] (2015)
(A) Cr^{2+} is a reducing agent
(B) Mn^{3+} is an oxidizing agent
(C) Both Cr^{2+} and Mn^{3+} exhibit d^4 electronic configuration
(D) When Cr^{2+} is used as a reducing agent, the chromium ion attains d^5 electronic configuration.

99. In neutral or faintly alkaline solution. 8 moles of permanganate anion quantitatively oxidize thiosulphate anions to produce X moles of a sulphur containing product. The magnitude of X is : (2016)
100. Which of the following combination will produce H_2 gas? (2017)
- (A) Cu metal and conc. HNO_3
- (B) Zn metal and $NaOH_{(aq)}$
- (C) Au metal and $NaCN_{(aq)}$ in the presence of air
- (D) Fe metal and conc. HNO_3
- *101. Addition of excess aqueous ammonia to a pink coloured aqueous solution of $MCl_2 \cdot 6H_2O(X)$ and NH_4Cl gives an octahedral complex Y in the presence of air. In aqueous solution, complex Y behaves as 1 : 3 electrolyte. The reaction of X with excess HCl at room temperature results in the formation of a blue coloured complex Z. The calculated spin only magnetic moment of X and Z is 3.87 B.M., whereas it is zero for complex Y. Among the following options, which statement(s) is (are) correct ? (2017)
- (A) The hybridization of the central metal ion in Y is d^2sp^3 .
- (B) When X and Z are in equilibrium at $0^\circ C$, the colour of the solution is pink.
- (C) Z is tetrahedral complex
- (D) Addition of silver nitrate to Y gives only two equivalents of silver chloride.
- *102. The correct option(s) to distinguish nitrate salts Mn^{2+} and Cu^{2+} taken separately is (are) (2018)
- (A) Mn^{2+} shows the characteristic green colour in the flame test
- (B) only Cu^{2+} shows the formation of precipitate by passing H_2S in acidic medium
- (C) only Mn^{2+} shows the formation of precipitate by passing H_2S in faintly basic medium
- (D) Cu^{2+}/Cu has higher reduction potential than Mn^{2+}/Mn (measured under similar conditions).
- *103. Fusion of MnO_2 with KOH in presence of O_2 produces a salt W. Alkaline solution of W upon electrolytic oxidation yields another salt X. The manganese containing ions present in W and X, respectively, are Y and Z. Correct statement(s) is(are) : (2019)
- (A) In aqueous acidic solution, Y undergoes disproportionation reaction to give Z and MnO_2
- (B) In both Y and Z, π -bonding occurs between p-orbitals of oxygen and d-orbitals of manganese
- (C) Both Y and Z are coloured and have tetrahedral shape
- (D) Y is diamagnetic in nature while Z is paramagnetic