

Date Planned : __ / __ / __	Daily Tutorial Sheet-5	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	JEE Advanced (Archive)	Exact Duration : _____

61. Write balanced equations for the reaction of zinc with dilute nitric acid. (1997)
62. Amongst the following, the lowest degree of paramagnetism per mole of the compound at 298 K will be shown by (1998)
(A) $\text{MnSO}_4 \cdot 4\text{H}_2\text{O}$ (B) $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ (C) $\text{FeSO}_4 \cdot 6\text{H}_2\text{O}$ (D) $\text{NiSO}_4 \cdot 6\text{H}_2\text{O}$
63. Addition of high proportions of manganese makes steel useful in making rails of railroads, because manganese: (1998)
(A) Gives hardness of steel
(B) Helps the formation of oxides of iron
(C) Can remove oxygen and sulphur
(D) Can show highest oxidation state of +7
64. Work out the following using chemical equations :
In moist air copper corrodes to produce a green layer on the surface. (1998)
65. When the ore haematite is burnt in air with coke around 2000°C along with lime, the process not only produces steel but also a silicate slag that is useful in making building materials such as cement. Discuss the same and show through balanced chemical equations. (1998)
66. In the dichromate dianion, (1999)
(A) 4 Cr — O bonds are equivalent
(B) 6 Cr — O bonds are equivalent
(C) All Cr — O bonds are equivalent
(D) All Cr — O bonds are nonequivalent
67. Give reason : CrO_3 is an acid anhydride. (1999)
68. The chemical processes in the production of steel from haematite ore involve (2000)
(A) reduction (B) oxidation
(C) reduction followed by oxidation (D) oxidation followed by reduction
69. (i) Write the chemical reactions involved in the extraction of metallic silver from argentite.
(ii) Write the balanced chemical equation for developing photographic films. (2000)
70. Write the chemical reaction associated with the 'brown ring test'. (2000)
71. Anhydrous ferric chloride is prepared by: (2002)
(A) heating hydrated ferric chloride at a high temperature in a stream of air
(B) heating metallic iron in a stream of dry chlorine gas
(C) reaction of metallic iron with hydrochloric acid
(D) reaction of metallic iron with nitric acid

- 72.** In the process of extraction of gold, (2003)

$$\text{Roasted gold ore} + \text{CN}^- + \text{H}_2\text{O} \xrightarrow{\text{O}_2} [\text{X}] + \text{OH}^-$$

$$[\text{X}] + \text{Zn} \rightarrow [\text{Y}] + \text{Au}$$
 Identify the complexes [X] and [Y]
(A) $\text{X} = [\text{Au}(\text{CN})_2]^-$, $\text{Y} = [\text{Zn}(\text{CN})_4]^{2-}$ **(B)** $\text{X} = [\text{Au}(\text{CN})_4]^{3-}$, $\text{Y} = [\text{Zn}(\text{CN})_4]^{2-}$
(C) $\text{X} = [\text{Au}(\text{CN})_2]^-$, $\text{Y} = [\text{Zn}(\text{CN})_6]^{4-}$ **(D)** $\text{X} = [\text{Au}(\text{CN})_4]^-$, $\text{Y} = [\text{Zn}(\text{CN})_4]^{2-}$
- 73.** When MnO_2 is fused with KOH , a coloured compound is formed, the product and its colour is: (2003)
(A) K_2MnO_4 , purple green **(B)** KMnO_4 , purple
(C) Mn_2O_3 , brown **(D)** Mn_3O_4 , black
- 74.** $(\text{NH}_4)_2\text{Cr}_2\text{O}_7$ on heating liberates a gas. The same gas will be obtained by: (2004)
(A) heating NH_4NO_2 **(B)** heating NH_4NO_3
(C) treating H_2O_2 with NaO_2 **(D)** treating Mg_3N_2 with H_2O
- 75.** The product of oxidation of I^- with MnO_4^- in alkaline medium is: (2004)
(A) IO_3^- **(B)** I_2 **(C)** IO^- **(D)** IO_4^-