CBSE TEST PAPER 01

CLASS XI CHEMISTRY

(Redox Reactions)

General Instruction:

- All questions are compulsory.
- Marks are given alongwith their questions.

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1. Define oxidation reaction? [1]

2. Define reduction reaction? [1]

3. In the reactions given below, identify the species undergoing oxidation and reduction.

$H_2S(g) + Cl_2(g) \rightarrow 2HCl(g) + S_{(s)}$ [1]

4. What is the most essential conditions that must be satisfied in a redox reaction? [1]

5. In the reaction

$MnO_2 + 4HCl \rightarrow MnCl_2 + Cl_2 + 2H_2O$

Which species is oxidized? [1]

6. Why the following reaction is an example of oxidation reaction?

$CH_4(g) + 2O_2(g) \rightarrow CO_2(g) + 2H_2O$ [1]

7. Explain why

$3Fe_3O_4(S) + 8Al(S) \rightarrow 9Fe(S) + 4Al_2O_3$

Is an oxidation reaction? [3]

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[ANSWERS]

Ans 1. Addition of oxygen /electronegative element to a substance or removal of hydrogen / electropositive element from a substance.

Ans 2. Removal of oxygen / electronegative element form a substance or addition of hydrogen / electropositive element to a substance.

Ans 3. H_2S is oxidized because a more electronegative element, Chlorine is added to hydrogen (or more electropositive element hydrogen has been removed from S). Chlorine is reduced due to addition of hydrogen to it.

Ans 4. In a redox reaction, the total number of electrons lost by the reducing agent must be equal to the number of electrons gained by the oxidizing agent.

Ans 5. HCl is oxidized to Cl_2.

Ans 6. Methane is oxidized owing to the addition of oxygen to it.

Ans 7. Aluminum is oxidized because oxygen is added to it Ferrous ferric oxide (Fe_3O_4) is reduced because oxygen has been removed from it.