

**Senior School, Gulshan**

**Class IX**

**Worksheet 1 on Halogens and Chemical formulae, equations and calculations: Part 2**

1. What is meant by the term halogen?

Write down the members of the group 7 elements along with their symbol and the physical state in which they appear at room temperature and pressure (r.t.p.).

2. Explain the trend in reactivity of the group 7 elements.
3. What is a displacement reaction?
4. Bromine is added to a solution containing potassium iodide solution.
- Write the chemical equation for this reaction.
  - What is the type of the above reaction?
  - What is an oxidation reaction and which substance is being oxidized in the above reaction?
  - Use ionic half equation to show oxidation and reduction in the above reaction.
5. What is molar volume?
6. Calculate the volume in  $\text{dm}^3$  of 0.08mol of  $\text{NH}_3$ .
7. Calcium carbonate reacts with hydrochloric acid to form calcium chloride, water and carbon dioxide.
- Write a balanced chemical equation for this reaction.

Given that 2.05g of calcium carbonate was added to excess hydrochloric acid.

- Calculate the volume of carbon dioxide produced at room temperature and pressure.

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**Worksheet 2 on Reactivity Series and Chemical formulae, equations and calculations: Part 2**

1. Define oxidation and reduction in terms of electron transfer.
2. Zinc reacts with copper sulfate solution to form zinc sulfate and copper.
  - a) Write an ionic equation for this reaction.
  - b) Use your answer to part (a) to identify the substance which is being oxidized and the substance which is being reduced.
  - c) Which is the oxidizing agent in the above reaction?
  - d) What is a reducing agent?
  - e) Why is this reaction a displacement as well as a redox reaction?
  - f) What can you observe during the reaction?
3. What is the difference between corrosion and rusting?
4. Design an experiment to find out the conditions required for rusting to occur.  
What are the ways in which rusting can be prevented?
8.  $25.00 \text{ cm}^3$  of  $0.100 \text{ mol/dm}^3$  sodium hydroxide solution was titrated with hydrochloric acid and it was seen that  $23.50 \text{ cm}^3$  of the acid was required for the reaction to complete.
  - a) What is a titration?
  - b) Write the chemical equation for the above reaction.
  - c) Use your answer to part (b) to calculate the concentration of hydrochloric acid that was used in the reaction.
  - d) What is the type of the above reaction?
9. Calculate the volume (in  $\text{cm}^3$ ) of  $0.01\text{g}$  of nitrogen gas at r.t.p.  
[  $A_r$ : N=14]
10. What is the concentration in  $\text{mol/dm}^3$  of a solution containing  $2.1\text{g}$  of sodium hydrogencarbonate,  $\text{NaHCO}_3$ , in  $250\text{cm}^3$  of a solution? [  $A_r$  H=1 , C=12 , O=16 , Na=23]

