



MEGA LECTURE

Topic 6 Exercise 3 – Reactions of Halogens and Halides

- 1) By what name are the elements F_2 , Cl_2 , Br_2 and I_2 collectively known?
- 2) By what name are the ions F^- , Cl^- , Br^- and I^- collectively known?
- 3) State and explain the trend in electronegativity of the Group 7 elements
- 4) State and explain the trend in boiling point of the Group 7 elements
- 5) Explain why the halogens are all oxidizing agents and state and explain the trend in oxidizing ability of the halogens
- 6) Explain why the halides are all reducing agents and state and explain the trend in reducing ability of the halides
- 7) Predict whether or not a reaction would take place between the following pairs of solutions. If a reaction does take place, state what you would observe and write an ionic equation for the reaction taking place:
 - a) Sodium chloride and iodine
 - b) Sodium iodide and chlorine
 - c) Sodium bromide and iodine
 - d) Sodium iodide and bromine
 - e) Potassium chloride and bromine
 - f) Potassium bromide and chlorine



8) Write a half-equation for the following half-reactions:

- a) I^- to I_2
- b) Br^- to Br_2
- c) H_2SO_4 to SO_2
- d) H_2SO_4 to H_2S

9) Chloride ions cannot reduce concentrated sulphuric acid

Bromide ions reduce concentrated sulphuric acid to sulphur dioxide

Iodide ions reduce concentrated sulphuric acid to hydrogen sulphide

Explain these observations in terms of the relative reducing ability of the halides and write equations to show the reactions between:

a) Iodide ions and concentrated sulphuric acid

b) Bromide ions and concentrated sulphuric acid

10) Chloride ions react with concentrated sulphuric acid to give hydrogen chloride gas. Write an equation for this reaction and show that it is not a redox reaction.