**1.3.3 Exercise 1 – Group 7, the Halogens**

1. Describe the physical appearance of the three most common halogens at room temperature, in the pure elemental state and when dissolved in an organic solvent such as cyclohexane.

2. State and explain the trend in boiling points of the halogens.

3. Describe what you would see when you add

a) chlorine to a solution of potassium bromide, and then add cyclohexane and shake

b) chlorine to a solution of potassium iodide, and then add cyclohexane and shake

c) bromine to a solution of potassium chloride, and then add cyclohexane and shake

d) bromine to a solution of potassium iodide, and then add cyclohexane and shake

e) iodine to a solution of potassium chloride, and then add cyclohexane and shake

f) iodine to a solution of potassium bromide, and then add cyclohexane and shake

Write equations for any reactions occurring, use oxidation numbers to explain the type of reaction taking place and explain your predictions.

4. Describe briefly a test you could carry out to determine whether or not a solution contained chloride, bromide or iodide ions. Write ionic equations to show the reactions taking place.

How could you use aqueous ammonia to confirm your result?