MEGA LECTURE

Topic 6 Exercise 2 – Group II Chemistry

1. By what name are the group II metals also known?

2. State and explain the trend in atomic radius down group II

3. State and explain the trend in first ionization energy down group II

4. State and explain the trend in melting point down group II

5. a) State and explain how the reactivity of the group II elements to water changes down the group.

   b) Write equations for:

      i) the reaction of magnesium with steam

      ii) the reaction of calcium with water

      iii) the reaction of barium with water

   c) State two differences you would observe in the reactions of calcium and barium with water.

www.megalecture.com

6. a) State the trend in the solubility of the Group II sulphates

b) State the trend in the solubility of the Group II hyrdoxides

c) Hence state what you would observe when the following solutions are mixed, and write ionic equations for any reactions you observe:

i) barium chloride and sulphuric acid

ii) barium chloride and sodium hydroxide

iii) magnesium chloride and sodium hydroxide

iv) calcium chloride and sodium hydroxide

v) calcium chloride and sulphuric acid

vi) magnesium chloride and sulphuric acid

d) Hence describe a suitable test for sulphate ions in solution

e) Hence explain how $BaSO_4$ is used in medicine

f) Hence explain how $MgSO_4$ is used in medicine

7. Write equations for the following reactions:

   a) magnesium hydroxide with hydrochloric acid

   b) calcium hydroxide with hydrochloric acid

   c) calcium oxide with sulphur dioxide

   d) calcium carbonate with sulphur dioxide

8. Explain a useful application of each of the reactions in question 7.

9. Explain the use of magnesium in the extraction of titanium from TiCl4

www.megalecture.com