GROUP 2 QUESTIONS

1) a) A group 2 metal, X, fizzes when added to water. When a solution of sodium sulphate is added to a solution of XCl_2, a white precipitate is formed.

Identify X and write equations for reactions occurring.

Identity of X ……

Reaction with water ……

Reaction of XCl_2 with sodium sulphate …… (3)

b) A group 2 metal, Y, has no visible reaction when added to water. When a solution of potassium hydroxide is added to a solution the nitrate of Y, a white precipitate is formed.

Identify Y and write equations for reactions occurring.

Identity of Y ……

Reaction of nitrate of Y with potassium hydroxide…… (2)

c) State the trend in atomic radius down Group II from Mg to Ba and give a reason for this trend.

Trend .....

Reason .....

.....

..... (2)

d) State and explain the trend in melting points of the elements down Group II from Mg to Ba.

Trend .....

Reason .....

.....

.....

..... (3)

e) State and explain the trend in ionisation energy of the elements down Group II from Mg to Ba.

Trend .....

Reason .....

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..... (4)

2) Radium is the element below barium is Group 2.

a) State whether or not each of the following is soluble in water.

i) radium hydroxide ……..……..

ii) radium sulphate ……..……..……..…….. (2)

b) i) Is the atomic radius of radium more or less than that of barium? ……..……

ii) Explain your reasoning. ……..……..

……..…….. (2)

c) i) Is the first ionisation energy of radium more or less than that of barium? ……..……

ii) Explain your reasoning. ……..……..

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……..……..

……..…….. (4)

d) i) Is the melting point of radium more or less than that of barium? ……..……

ii) Explain your reasoning. ……..……..

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…….. (3)