Practice Question Set For A-Level
Subject : Chemistry
Paper-1 Topic: Inorganic 1

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Name of the Student:_____
Max. Marks : 22 Marks **Time : 22 Minutes**

Q1.

There are many uses for compounds of barium.

(a) (i) Write an equation for the reaction of barium with water.

_____

(1)

(ii) State the trend in reactivity with water of the Group 2 metals from Mg to Ba

_____

(1)

(b) Give the formula of the **least** soluble hydroxide of the Group 2 metals from Mg to Ba

_____

(1)

(c) State how barium sulfate is used in medicine.
Explain why this use is possible, given that solutions containing barium ions are poisonous.

Use _____

_____

Explanation _____

_____

(2)
(Total 5 marks)

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Q2.

Group 2 elements and their compounds have a wide range of uses.

(a) For parts (a)(i) to (a)(iii), draw a ring around the correct answer to complete each sentence.

(i) From $Mg(OH)_2$ to $Ba(OH)_2$, the solubility in water

decreases.

increases.

stays the same.

(1)

(ii) From Mg to Ba, the first ionisation energy

decreases.

increases.

stays the same.

(1)

(iii) From Mg to Ba, the atomic radius

decreases.

increases.

stays the same.

(1)

(b) Explain why calcium has a higher melting point than strontium.

_____

_____

_____

_____

_____

(2)

(c) Acidified barium chloride solution is used as a reagent to test for sulfate ions.

(i) State why sulfuric acid should **not** be used to acidify the barium chloride.

_____

_____

_____

(1)

(ii) Write the **simplest ionic** equation for the reaction that occurs when acidified barium chloride solution is added to a solution containing sulfate ions.

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(1)

(Total 7 marks)

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Q3.

(a) Give the **formula** of a Group 2 metal hydroxide used in agriculture.

_____

(1)

(b) Identify a sodium halide that does **not** undergo a redox reaction when added as a solid to concentrated sulfuric acid.

_____

(1)

(c) Chlorine gas reacts with cold dilute sodium hydroxide solution to form sodium chloride and another chlorine-containing compound, **X**.

Give the **formula** of **X**.

_____

(1)

(d) Give the **formula** of the substance responsible for the orange colour when chlorine gas is bubbled through an aqueous solution of sodium bromide.

_____

(1)

(e) Solid sodium iodide undergoes a redox reaction with concentrated sulfuric acid.

Give the **formula** for each of the following in this reaction.

Formula of the solid reduction product _____

Formula of the oxidation product _____

(2)

(f) Draw the structure of each of the following organic compounds.

(i) The hydrocarbon that is a chain isomer of methylpropene, but does **not** exhibit E–Z stereoisomerism.

(1)

(ii) The alcohol that is a position isomer of butan-2-ol.

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(1)

(iii) The hydrocarbon that has a peak, due to its molecular ion, at *m/z* = 44 in its mass spectrum.

(1)

(iv) The bromoalkane that reacts with sodium cyanide to produce propanenitrile.

(1)
(Total 10 marks)

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