

1. X`In order to identify an unknown solution **A**, a few drops of the solution was added separately to two test tubes:

- o a test tube containing solution of dilute hydrochloric acid, and
- o a test tube containing dilute sodium hydroxide solution.

In both test tubes there was no visible reaction.

Which of the following could be solution **A**?

- (a)  $\text{Na}_2\text{CO}_3(\text{aq})$
- (b)  $\text{CuSO}_4(\text{aq})$
- (c)  $\text{BaCl}_2(\text{aq})$
- (d)  $\text{AgNO}_3(\text{aq})$

2. Approximately 80 g of solid copper sulfate is added to water in a beaker and stirred. When the mixture settles, it has become a clear blue liquid with some blue crystals at the bottom of the beaker. Which of the following statements is true?

- (a) The clear liquid is a saturated solution.
- (b) Adding more copper sulfate crystals will make the blue colour deeper.
- (c) The beaker contains a homogeneous mixture.
- (d) Adding more water will increase the concentration of the solution as more solid will dissolve.

#### Question 27

(4 marks)

For each of the following reactions, describe expected observations, including any

- Colours
- Odours
- Precipitates (give the colour)
- Gases evolved (give the colour or describe as colourless)

(a) Solid copper(II) carbonate is added to dilute sulfuric acid to produce copper(II) sulfate, carbon dioxide and water. (2 marks)

Description	Marks
Green solid dissolves to form blue solution	1
Colourless odourless gas produced	1
<b>Total</b>	<b>2</b>

(b)  $\text{FeCl}_2(\text{aq}) + \text{AgNO}_3(\text{aq}) \rightarrow 2 \text{AgCl}(\text{s}) + \text{Fe}(\text{NO}_3)_2(\text{aq})$  (2 marks)

Description	Marks
White solid/precipitate	1
In pale green solution	1
<b>Total</b>	<b>2</b>

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