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

* a test tube containing solution of dilute hydrochloric acid, and
* 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**?

* 1. Na2CO3(aq)
  2. CuSO4(aq)
  3. BaCℓ2(aq)
  4. AgNO3(aq)

1. 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?
   1. The clear liquid is a saturated solution.
   2. Adding more copper sulfate crystals will make the blue colour deeper.
   3. The beaker contains a homogeneous mixture.
   4. 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 |
| **Total** | **2** |

(b) FeCℓ2(aq) + AgNO3(aq) → 2 AgCℓ(s) + Fe(NO3)2(aq) (2 marks)

|  |  |
| --- | --- |
| **Description** | **Marks** |
| White solid/precipitate | 1 |
| In pale green solution | 1 |
| **Total** | **2** |

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