|  |  |
| --- | --- |
|  | Module 4: Lesson 1 ASSIGNMENT |

|  |  |
| --- | --- |
|  | Lesson 1 Assignment: Classifying Matter and Solutions |

|  |  |  |
| --- | --- | --- |
|  | 1. | What is the purpose of the experiment in the video clip? (2 marks) |

|  |  |  |
| --- | --- | --- |
|  | 2. | Why is it important to use distilled or deionized water when making the aqueous solutions in the experiment? (1 mark) |

|  |  |  |
| --- | --- | --- |
|  | 3. | Outline the procedures on the experiment. (Hint: there are three parts to consider. (3 marks) |

|  |  |  |
| --- | --- | --- |
|  | a. |  |
|  | b. |  |

|  |  |  |
| --- | --- | --- |
|  | c. |  |

|  |
| --- |
|  |

|  |  |  |
| --- | --- | --- |
|  | 4. | Explain the results from each part of the lab. (3 marks) |

|  |  |  |
| --- | --- | --- |
|  | a. | solid sodium chloride |

|  |  |  |
| --- | --- | --- |
|  | b. | molten sodium chloride |

|  |  |  |
| --- | --- | --- |
|  | c. | aqueous sodium chloride |

|  |  |  |
| --- | --- | --- |
|  | d. | solid sugar |

|  |  |  |
| --- | --- | --- |
|  | e. | molten sugar |

|  |  |  |  |
| --- | --- | --- | --- |
|  | | f. | aqueous sugar |
|  | 5. | For each of the following, determine whether the statement is true or false. For those that are false, write a brief sentence indicating the required correction. (9 marks)   * 1. Mixtures may be homogeneous or heterogeneous.   2. Distilled water is obtained by letting the water sit until impurities settle out.   3. Homogenized milk is a heterogeneous mixture.   4. A perfectly clear solution is a pure substance.      * 1. In a solution, the solute is the substance present in a lesser amount.   2. Liquid water in air forms a solution of humid air.   3. A solution of ethanol does not conduct electricity since C2H5OH is a molecular compound.   4. Pure water does not conduct electricity.      * 1. Pure water may be classified as a solution. | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 6. | There are four beakers with visually identical liquids: Sr(OH)2(aq), C12H22O11(aq), H3PO4(aq), and H2O(l).  A student must correctly identify which liquid is in each beaker.   1. For each beaker, predict the results of a conductivity test and a litmus test. (4 marks)  |  |  |  | | --- | --- | --- | | **Beaker Contents** | **Result of Conductivity Test** | **Result of**  **Litmus Test** | | Sr(OH)2(aq) |  |  | | C12H22O11(aq) |  |  | | H3PO4(aq) |  |  | | H2O(l) |  |  |  1. Is it possible to correctly identify all four solutions by only performing conductivity and litmus tests? Explain. (2 marks) |

* + 1. Read the following information; then answer the questions.

|  |
| --- |
| Gold jewellery is very common in society, and an understanding of alloy solutions will help you next time you make a purchase at a jewellery store. First, the purity of gold rings is measured in karats (k). A 24-k gold ring is 100% gold, an 18-k gold ring is 75% gold, and so on. To determine the percentage of gold in a ring, simply divide the karat number by 24 and multiply by 100%.  Gold rings need not be confined to the traditional yellow colour; white gold is an enormously popular alternative. The difference between yellow gold and white gold comes from other metals present in the alloy solution. Yellow gold contains elemental gold mixed with metals such as copper and zinc, while white gold contains elemental gold mixed with metals such as silver and palladium. Since white gold is still not completely white even after the addition of these metals—it’s more of an off-white or light grey—a layer of rhodium is added to the ring to give the final shiny appearance. This layer can be rubbed off over time, so white gold jewellery typically requires a rhodium replating after approximately two or three years of use.  White gold has led to some health concerns in the past, as nickel metal was used as one of the metals in the alloy. About 12%–15% of the population suffers from skin allergies from nickel. Often, white gold rings will be described as “hypoallergenic,” meaning that no nickel was used in the production of the ring. Palladium is typically used as an alternative. |

1. What percentage of a 10-k gold ring is actually gold? (1 mark)
2. 22-k gold rings and higher are typically not produced. Why would these rings make poor jewellery? (1 mark)

|  |  |  |  |
| --- | --- | --- | --- |
|  | |  |  |
|  | |  |  |
|  | |  |  |
| Once you have completed all of the questions, submit your work to your teacher. | | | |