**H/W 9 – Metals and Alloys**

**PART A**

1**.** Which of the following metals burns brightly when heated in air / oxygen?

1. gold
2. copper
3. tin
4. magnesium (1 mark)

2. A metal ore is

1. a compound of the metal made in the laboratory
2. a naturally occurring compound of the metal
3. a sample of the pure metal made in the laboratory
4. a naturally occurring sample of the pure metal (1 mark)

3. Which of the following metals will corrode the fastest?

1. Sodium
2. Magnesium
3. Zinc
4. Gold (1mark)

4. Which of the following metals **does not** react vigorously with water?

1. Magnesium
2. Lithium
3. Sodium
4. Potassium (1 mark)

5. Which of the following metals is most likely to be found uncombined (native) in the Earth's crust?

1. Sodium
2. Magnesium
3. Gold
4. Iron (1 mark)

6. The grid shows the names of some metals.

|  |  |  |
| --- | --- | --- |
| **A.** **COPPER** | **B. MAGNESIUM** | **C. ZINC** |
| **D. BRASS** | **E. SODIUM** | **F. STEEL** |

1. Identify the metal which produces the yellow in a street lamp. (You may wish to use page 4 of the data book)
2. Identify the **two** alloys.
3. Identify the metal which galvanises iron. (4 marks)

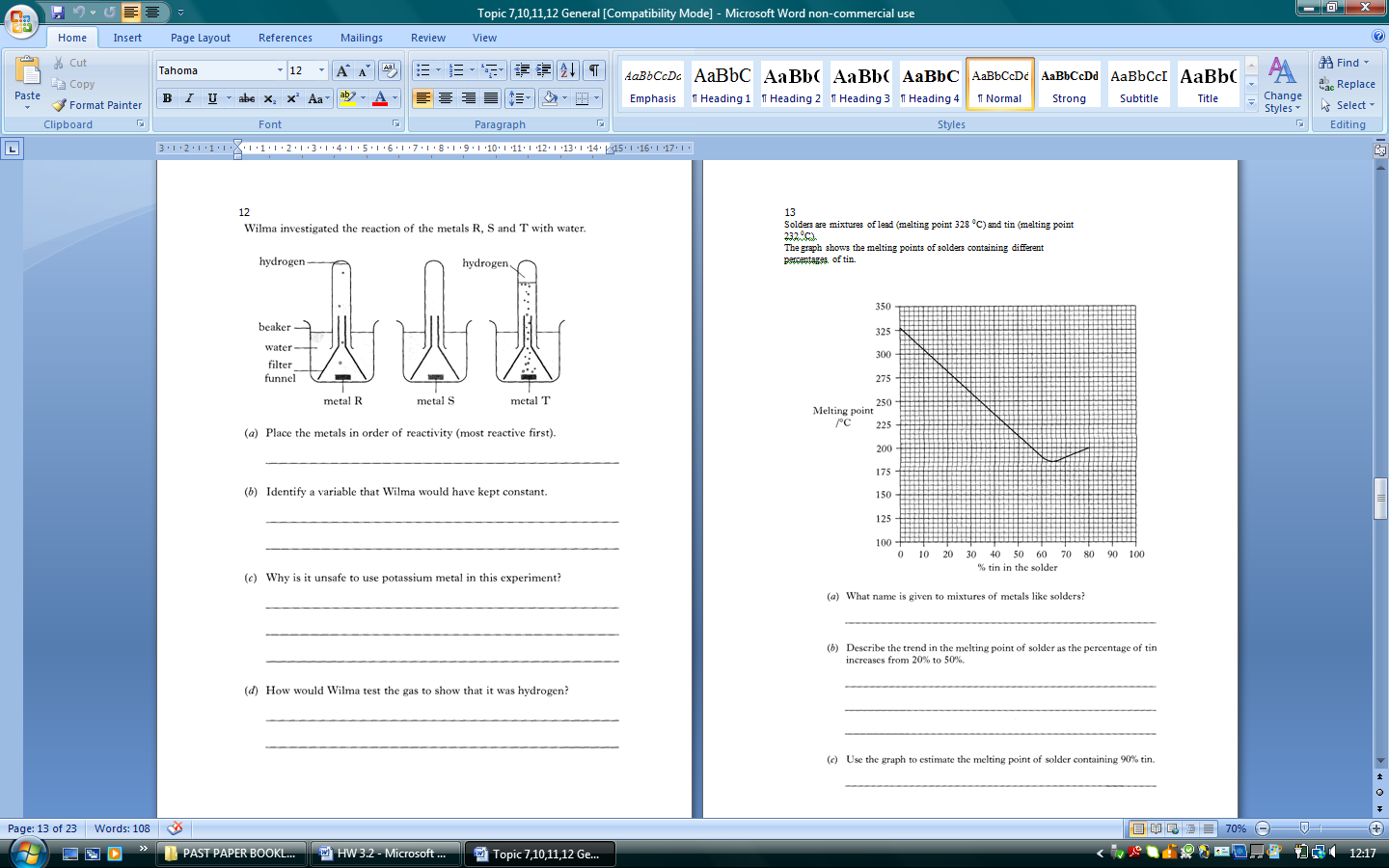
7. Gold and silver are both used to make jewellery. Identify the statement(s) which are true for both gold and silver.

|  |  |
| --- | --- |
| **A.** | They are NOT transition metals. |
| **B.** | They conduct electricity. |
| **C.** | They are found uncombined in the Earth’s crust. |
| **D.** | They react with dilute hydrochloric acid. |
| **E.** | They are more reactive than copper. |

(2 marks)

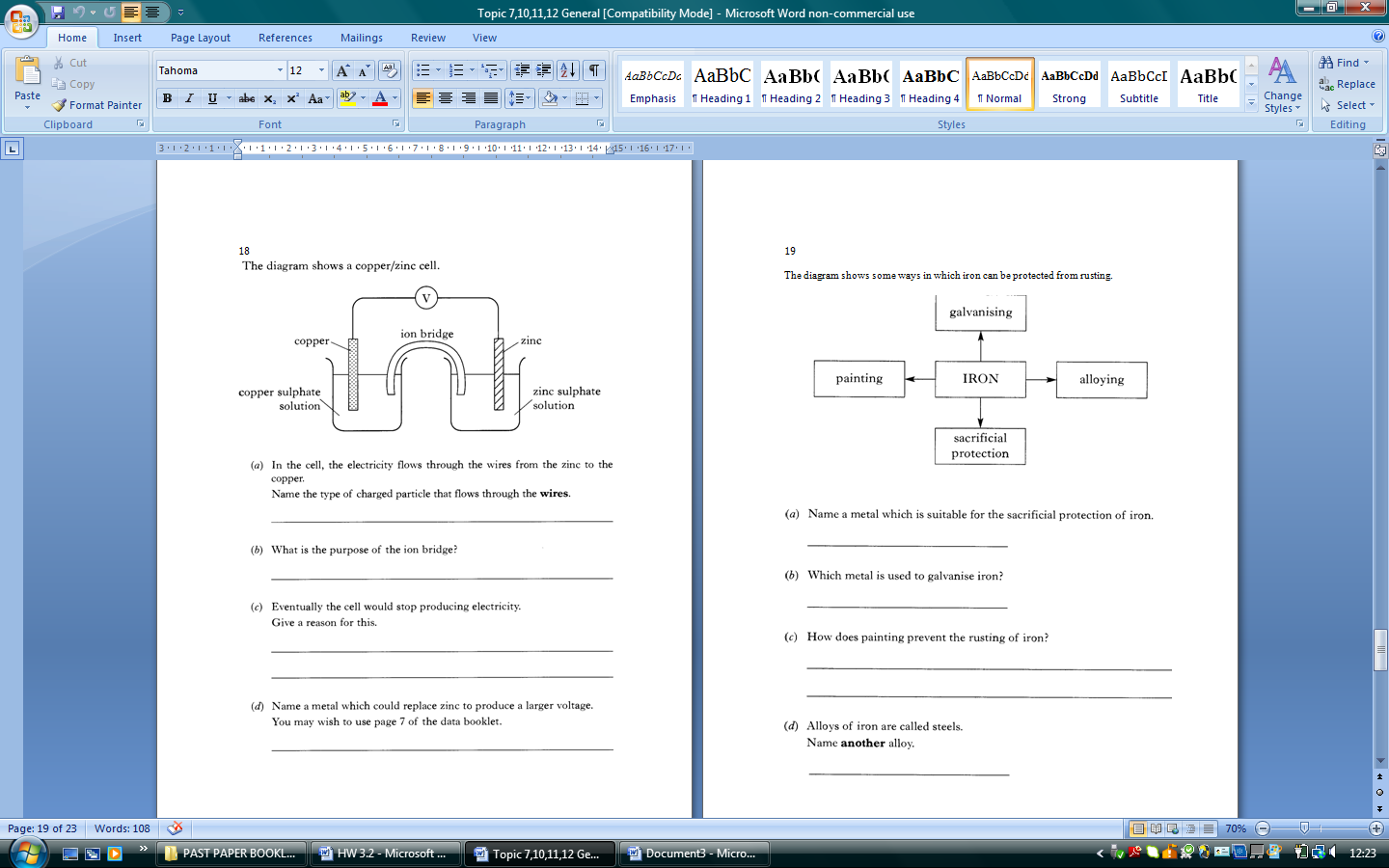
**PART B**

8. Wilma investigated the reaction of metals R, S and T with water.



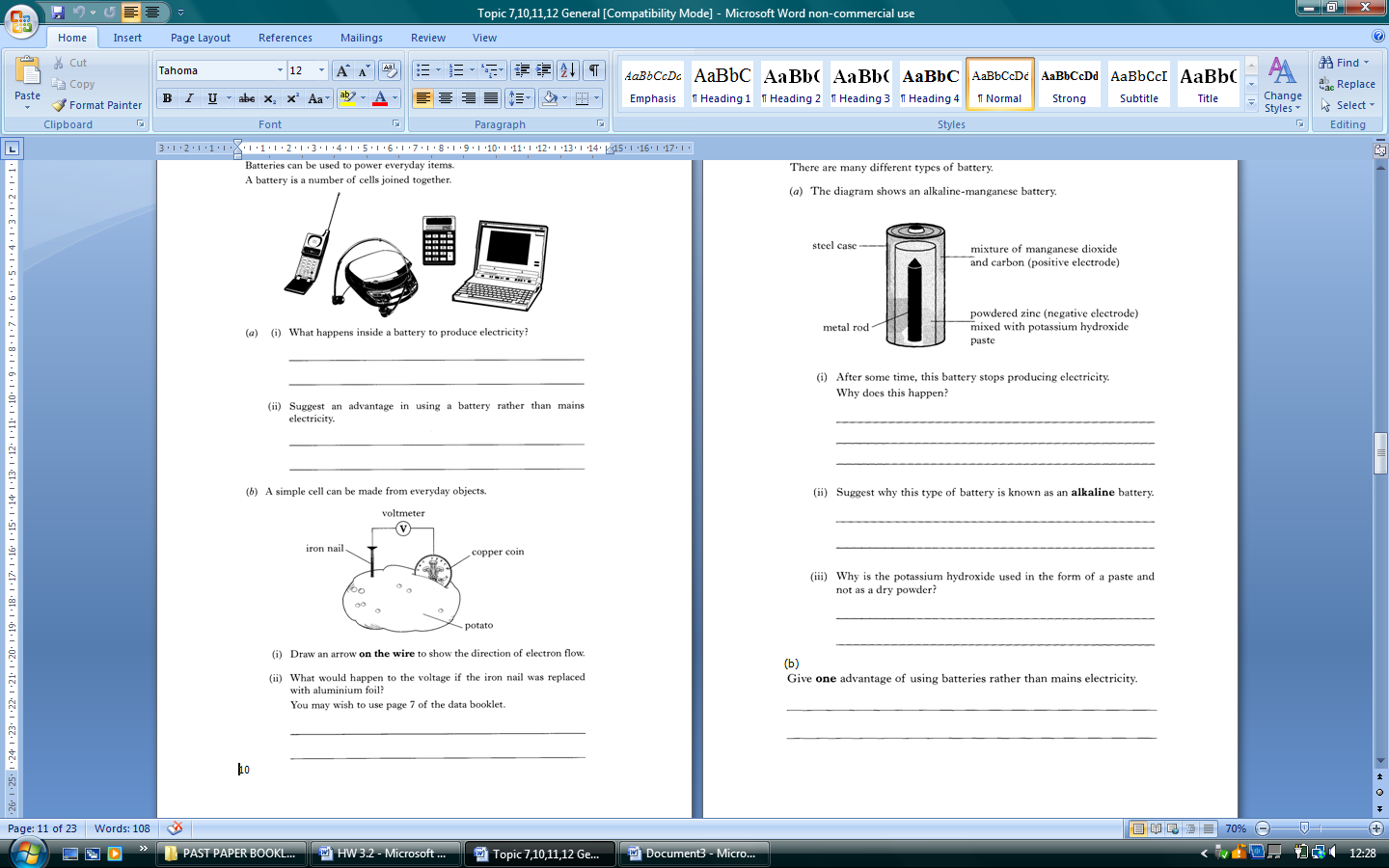
1. Place the metals in order of reactivity (most reactive first).
2. How would Wilma test the gas to show that is was hydrogen? (2 marks)

9. The diagram shows some ways in which iron can be protected from rusting.



1. Name a metal which is suitable for sacrificial protection of iron.
2. How does painting protect iron from rusting? (2 marks)

10. A simple cell can be made from everyday objects.



1. What will be the direction of electron flow through the wires?
2. What would happen to the voltage if the iron nail was replaced with aluminium foil? You may wish to use page 7 of the data book to help you. (2 marks)

11. Metals can be extracted from their ores by different methods.

Copy the table and place the following methods in the correct space in the table.

**Reacting with Carbon**

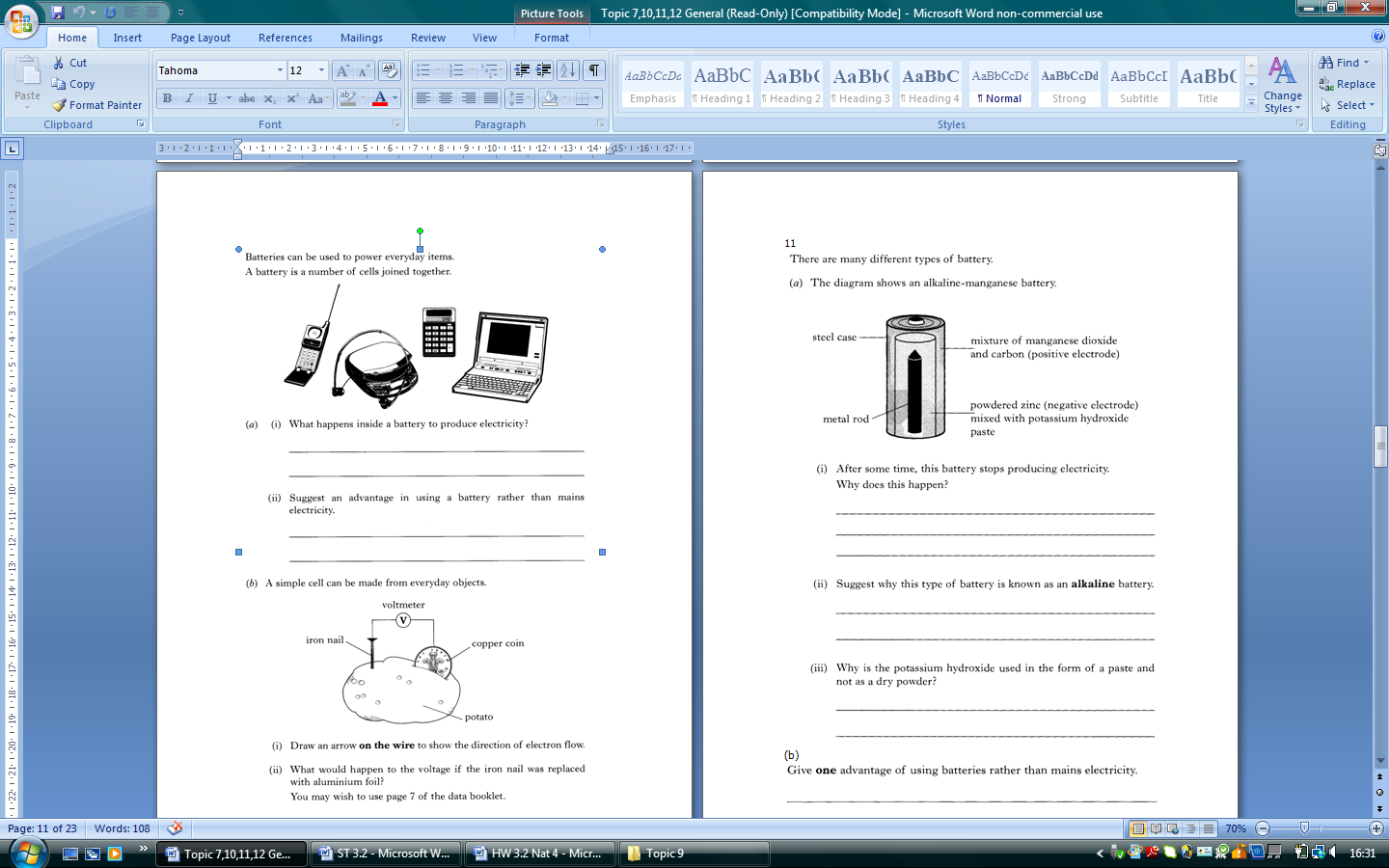
**Electrolysis**

**Heat alone.**

|  |  |
| --- | --- |
| **METAL** | **METHOD** |
| Mercury |  |
| Iron |  |
| Magnesium |  |

(1 mark)

12. Batteries can be used to power everyday objects. A battery is a number of cells joined together.



1. What happens inside a battery to produce electricity?
2. Suggest an advantage in using a battery than using mains electricity. (2 marks)

**TOTAL = 20 Marks**