**Grade 9 Science Chemistry Final**



**Name:­**

**Date:**

**Modified True/False**

**Answer the following questions on the Bubble Answer Sheet. A=True, B=False.**

*Indicate whether the sentence or statement is true or false.* ***If false, change the identified word or phrase to make the sentence or statement true.***

\_\_\_\_ 1. A change of state is an example of a physical change. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_ 2. The total volume of the new substances in a chemical change is always the same as that of the original substances. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_ 3. Pure water is an element. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_ 4. When water is decomposed, there is twice as much hydrogen gas produced as oxygen gas. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_ 5. The symbols for calcium, carbon and chlorine are Ca, C, and Cl, respectively. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Multiple Choice**

*Identify the letter of the choice that best completes the statement or answers the question.*

\_\_\_\_ 6. When this WHMIS safety symbol is present on a container, it indicates that the substance is

|  |  |
| --- | --- |
| a. | poisonous and infectious causing other toxic effects. |
| b. | flammable and combustible. |
| c. | corrosive. |
| d. | dangerously reactive. |

\_\_\_\_ 7. Which of the following is **not** a chemical change?

|  |  |
| --- | --- |
| a. | Rusting |
| b. | Burning |
| c. | Baking |
| d. | Dissolving |

\_\_\_\_ 8. Which of the following questions is the **most important** one to ask when you are trying to determine if a change is chemical or physical?

|  |  |
| --- | --- |
| a. | Has the colour changed? |
| b. | Is a new substance produced? |
| c. | Is heat or light given off? |
| d. | Have bubbles of gas formed? |

9.

\_\_\_\_ 10. “The manner in which a substance behaves” would best define which of the following terms?

|  |  |
| --- | --- |
| a. | Chemical reactions |
| b. | Physical properties |
| c. | Chemical properties |
| d. | Properties |

\_\_\_\_ 11. Thomson’s “plum pudding” atomic model states that

|  |  |
| --- | --- |
| a. | negatively charged electrons are embedded in a mass that is positively charged. |
| b. | the centre of an atom is called the atomic nucleus. |
| c. | most electrons are found near the nucleus. |
| d. | most of an atom is occupied by very small electrons. |

\_\_\_\_ 12. Which of the following statements are true?

I. A compound is always a pure substance.

II. A pure substance is always an element.

III. An element is always a pure substance.

IV. Some compounds are elements.

|  |  |
| --- | --- |
| a. | II and III |
| b. | I and IV |
| c. | I and III |
| d. | III only |

The following graph illustrates the composition of Earth’s crust. 

\_\_\_\_ 13. The graph above displays the principal elements present in Earth’s crust. Which of the elements are non-metals?

|  |  |
| --- | --- |
| a. | Oxygen  |
| b. | Sodium |
| c. | Potassium and magnesium |
| d. | Oxygen and calcium |

\_\_\_\_ 14. When the “staircase” is drawn into the periodic table, where are the metals found?

|  |  |
| --- | --- |
| a. | The metals are separated by the staircase. |
| b. | The metals are found to the right of the staircase. |
| c. | The metals are found along the top row of the staircase. |
| d. | The metals are found to the left of the staircase. |

\_\_\_\_ 15. Magnesium reacts in the presence of hydrochloric acid to produce hydrogen magnesium oxide. Which of the following steps could slow this reaction?

|  |  |
| --- | --- |
| a. | Increase the surface area of the magnesium metal. |
| b. | Decrease the concentration of the hydrochloric acid. |
| c. | Increase the concentration of the hydrogen magnesium oxide. |
| d. | Increase the surrounding temperature. |

\_\_\_\_\_ 16.




17.



18.

Use the following information for the next 2 questions



19.

20.

21. 

**Numeric Response Question #1.**



1.

1..

The following molecule has one carbon atom (light) and four hydrogen atoms (dark).



\_\_\_\_ 22. The molecule shown above is

|  |  |
| --- | --- |
| a. | a molecular compound. |
| b. | an ionic compound. |
| c. | a molecular atom. |
| d. | an ionic atom. |



\_\_\_\_ 23.

**Numeric Response Question #2**





 24.



 25.

 26.



 27.



 28.

**Numeric Response Question #3**

Identify each element as either
1. Noble Gas
2. Alkali Metal
3. Halogen
4. Alkaline Earth Metal

 Fluorine Francium Neon Magnesium

*Use the following information to answer questions 29 and 30.*

You observe a metal being placed into a beaker of green coloured acid. Very soon, a gas is being given off, the green colour begins to fade, and the temperature of the solution in the beaker increases.

 29. Which statement best describes the changes that take place?

 A. endothermic chemical reaction

 B. exothermic chemical reaction

 C. endothermic corrosion reaction

 D. exothermic respiration reaction

30. Which of the following observations of the reaction is **not** evidence of a chemical change?

 A. melting

 B. temperature change

 C. color change

 D. gas being produced

**31.** The combination of baking soda ions (HCO3) and acetic acid (HC2H3O2) forms water and carbon dioxide. What is the correct word equation for this reaction?

 A. baking soda 🡪 water + carbon dioxide

 B. acetic acid + water 🡪 carbon dioxide

 C. baking soda + acetic acid 🡪 water + carbon dioxide

 D. acetic acid 🡪 water + carbon dioxide

32. For your first trial with this reaction, you used cold acetic acid and small chunks of baking soda. The reaction took 30 s to complete. Which of the following suggestions would NOT increase the rate of the reaction?

 A. Use a smaller container.

 B. Increase the temperature of acetic acid.

 C. Crush the baking soda.

 D. Increase the concentration of the acetic acid.

**True and False.**

**1. \_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**2. \_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**3. \_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**4. \_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**5. \_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Written Response and Fill in the Blank.**

****

(1 Marks)

(1 Mark)

2. Fill in the following table with the appropriate name, formula and category. (7 Marks)

|  |  |  |
| --- | --- | --- |
| **Formula**  | **Compound Name** | **Ionic or Molecular** |
| MgCl2 |  |  |
| CaO |  |  |
| FeS |  |  |
| NO2 |  |  |
|  | silver bromide |  |
|  | tetraphosphorus hexachloride |  |
|  | Tribromine Hexaoxide |  |

3. Write chemical equations to represent each of the following statements. (6 Marks)

a) Salt (NaCl) forms as a result of a reaction between sodium and chlorine (Cl2).

b) The reaction of methane (CH4) with oxygen produces carbon dioxide, water, and heat.

c) Dihydrogen Monoxide is broken down using electrolysis into Hydrogen and Oxygen.



Numeric Response:

1. 2.

 

 3.

 

MC /32

NR /3

WR /15 Total /50