**Chemistry 2 & Energy Units Study Guide**

**Section 1: Vocabulary: Describe or provide definitions for the following:**

|  |  |  |
| --- | --- | --- |
| 1 | Fossil Fuels |  |
| 2 | 4 ways to increase the rate of a chemical reaction |  |
| 3 | Concentration of a solution |  |
| 4 | Pure Substance |  |
| 5 | Product |  |
| 6 | Reactant |  |
| 7 | Law of Conservation of Mass |  |
| 8 | Chemical Equation |  |
| 9 | Non-renewable Resources |  |
| 10 | Renewable Resources |  |

**Section 2: Short Answers: Answer the following questions. Be thorough and provide examples if possible.**

11. Name 3 examples of a physical change.

12. Name 3 examples of a chemical change.

13. Why is NaCl considered to be a pure substance but **NaCl + H2O** is not?

14. If you had 6 pounds of natural gas (**CH4**) and burned it to produce 18 pounds of product, how much oxygen gas (**O2**) did you take out of the atmosphere to begin with?

15. In the chemical formula **3H2,** use the chart below to identify the **subscript** and the **coefficient,** then count the total atoms of hydrogen are present?

|  |  |
| --- | --- |
| subscript |  |
| coefficient |  |
| total atoms of Hydrogen |  |

16. How many total atoms are in the chemical formula **C6H12O6**? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

17. CIRCLE the reactants and UNDERLINE the products in this chemical equation: **2H2O2 → 2H2O + O2**,

18. Two or more atoms bonded together are known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

19. Two or more different types of atoms bonded together are known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

20. A single atom found on the periodic table is known as an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

21. What is the biggest difference between a physical change and a chemical change?

22. Balance the following chemical reaction: **2 Mg + O2 → \_\_\_\_\_\_\_\_\_ MgO**

23. How has the burning of fossil fuels affected our climate on Earth?

24. What is the chemical equation for photosynthesis? How many total molecules are in the reactants? How many total molecules are in the products?

25. What is the difference between exothermic and endothermic reactions?