

Name: _____

Chemical Reactions Practice Test Ms. Eggleston

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 1) Which of the following is NOT evidence that a chemical reaction has occurred?
 - A) color change
 - B) solid formation
 - C) gas formation
 - D) emission of light
 - E) All of the above are evidence of a chemical reaction.

- 2) Which of the following is evidence for a chemical reaction?
 - A) A gas is produced.
 - B) A precipitate is formed.
 - C) A flame is observed.
 - D) all of the above
 - E) none of the above

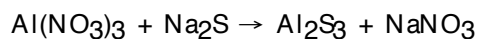
- 3) Which of the following statements about balancing reactions is FALSE?
 - A) If there is no coefficient or subscript, a one is implied.
 - B) When coefficients are added the type of compounds is changed in the chemical reaction.
 - C) Subscripts are multiplied by the coefficients to determine the number of atoms in a compound.
 - D) Coefficients are added to compounds to ensure both sides of the reaction have equal numbers of each atom.
 - E) All of the above statements are true.

- 4) Before a chemical equation can be written, one must know
 - A) the atomic mass of all the elements involved.
 - B) the molar mass of all the compounds.
 - C) the symbols and formulas of all reactants and products.
 - D) the number of moles of all reactants and products.
 - E) none of the above.

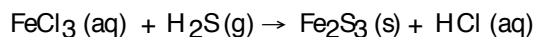
- 5) What is the term for a digit in front of a chemical formula that helps to balance a chemical equation?
 - A) coefficient
 - B) exponent
 - C) subscript
 - D) superscript
 - E) none of the above

- 6) When the equation, $\text{___N}_2 + \text{___H}_2 \rightarrow \text{___NH}_3$ is balanced, the coefficient of hydrogen is:
- A) 1
 - B) 2
 - C) 3
 - D) 4
 - E) none of the above

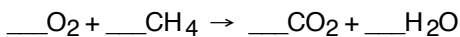
- 7) When the following equation is balanced, the coefficients are _____.



- A) 2, 3, 1, 6
 - B) 2, 1, 3, 2
 - C) 1, 1, 1, 1
 - D) 4, 6, 3, 2
 - E) 2, 3, 2, 3
- 8) When the following equation is balanced, the coefficient of H_2S is _____.



- A) 1
 - B) 2
 - C) 3
 - D) 5
 - E) 4
- 9) What are the coefficients for the following reaction when it is properly balanced?



- A) 2, 1, 3, 1
 - B) 2, 3, 2, 2
 - C) 1, 3, 2, 1
 - D) 2, 1, 1, 2
 - E) none of the above
- 10) What are the coefficients for the following reaction when it is properly balanced?
- ___potassium iodide + ___lead (II) acetate \rightarrow ___lead (II) iodide + ___potassium acetate
- A) 2, 1, 1, 1
 - B) 2, 1, 1, 2
 - C) 3, 2, 2, 1
 - D) 1, 1, 2, 2
 - E) none of the above

- 11) What type of reaction is the generic equation $A + B \rightarrow AB$?
- A) synthesis/combination
 - B) decomposition
 - C) single displacement
 - D) double-displacement
 - E) none of the above
- 12) What type of reaction is the generic equation $AB \rightarrow A + B$?
- A) synthesis/combination
 - B) decomposition
 - C) single displacement
 - D) double-displacement
 - E) none of the above
- 13) Which of the following reactions is a single replacement reaction?
- A) $\text{HCl} + \text{NaOH} \rightarrow \text{NaCl} + \text{H}_2\text{O}$
 - B) $\text{Mg} + \text{HCl} \rightarrow \text{H}_2 + \text{MgCl}_2$
 - C) $\text{CaCl}_2 + \text{H}_2\text{O} \rightarrow \text{CaCl}_2 \cdot 2\text{H}_2\text{O}$
 - D) $\text{KClO}_3 \rightarrow \text{KCl} + \text{O}_2$
- 14) Which of the following is a synthesis reaction?
- A) $\text{HCl} + \text{NaOH} \rightarrow \text{NaCl} + \text{H}_2\text{O}$
 - B) $\text{Mg} + \text{HCl} \rightarrow \text{H}_2 + \text{MgCl}_2$
 - C) $\text{Ca} + \text{Cl}_2 \rightarrow \text{CaCl}_2$
 - D) $\text{KClO}_3 \rightarrow \text{KCl} + \text{O}_2$
- 15) Which of the following reactions is incorrectly classified?
- A) $2\text{NO}_2 + \text{H}_2\text{O}_2 \rightarrow 2\text{HNO}_3$ (synthesis)
 - B) $\text{Fe} + \text{CuSO}_4 \rightarrow \text{Cu} + \text{FeSO}_4$ (single-replacement)
 - C) $\text{F}_2 + 2\text{NaCl} \rightarrow \text{Cl}_2 + 2\text{NaF}$ (single-replacement)
 - D) $\text{H}_2 + \text{Cl}_2 \rightarrow 2\text{HCl}$ (synthesis)
 - E) $\text{BaCl}_2 + \text{H}_2\text{SO}_4 \rightarrow \text{BaSO}_4 + 2\text{HCl}$ (single-replacement)
- 16) Which of the following are decomposition reactions?
- 1) $\text{CH}_4(\text{g}) + \text{O}_2(\text{g}) \rightarrow \text{CO}_2(\text{g}) + \text{H}_2\text{O}(\text{l})$
 - 2) $\text{CaO}(\text{s}) + \text{CO}_2(\text{g}) \rightarrow \text{CaCO}_3(\text{s})$
 - 3) $\text{Mg}(\text{s}) + \text{O}_2(\text{g}) \rightarrow \text{MgO}(\text{s})$
 - 4) $\text{PbCO}_3(\text{s}) \rightarrow \text{PbO}(\text{s}) + \text{CO}_2(\text{g})$
- A) 1, 2, and 3
 - B) 4 only
 - C) 1, 2, 3, and 4
 - D) 2 and 3
 - E) 2, 3, and 4

1. List the 5 factors that influence reaction rate **AND** Explain HOW they influence reaction rate.

a)

b)

c)

d)

e)

2. Which of the following could prevent a reaction from occurring?

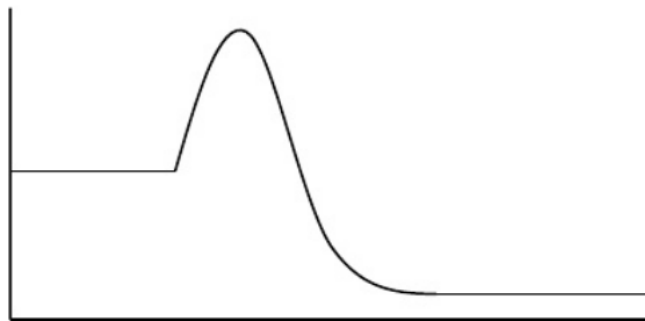
A. Adding a catalyst

B. Increasing temperature

C. Adding an inhibitor

D. Increasing surface area

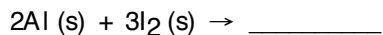
3. Below is a graph that represents the progression of a reaction. Using your notes, label the following: Energy, Activation Energy, Reaction Progress, Reactants, and Products.



4. Is it possible to reuse a catalyst? Explain why or why not.

5. Explain the term "activation energy." Why is it important in chemical reactions?

17) Which one of the following substances is the product of this synthesis reaction?



- A) 2AlI_2
- B) 2AlI
- C) 2AlI_3
- D) $2\text{Al}_2\text{I}_3$
- E) $2\text{Al}_3\text{I}_2$

TRUE/FALSE. Mark 'A' if the statement is true and 'B' if the statement is false.

18) The following equation IS balanced: $\text{CH}_4 + 2\text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$

19) The coefficients in the balanced equation $\text{Au}_2\text{S}_3 + \text{H}_2 \rightarrow \text{Au} + \text{H}_2\text{S}$ are 1: 6: 2: 3.

20) The following equation IS balanced: $\text{HNO}_3 + \text{NaHSO}_3 \rightarrow \text{NaNO}_3 + \text{H}_2\text{O} + \text{SO}_2$

Reaction Rate

1. List the five factors that influence reaction rate.

2. Which of the following could prevent a reaction from occurring?

- a. adding a catalyst
- b. increasing temperature
- c. decreasing surface area
- d. increasing pressure

3. Explain the term "activation energy." Why is it important in chemical reactions?