

TEST 4 – CHEMICAL EQUATIONS

PART A MULTIPLE CHOICE – CIRCLE THE CORRECT ANSWER (1 POINT EACH)

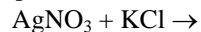
- Which of the following is true in an endothermic reaction?
 - Energy is conserved.
 - The breaking of bonds in the reactants requires more energy than the formation of bonds in the products.
 - Energy is absorbed as bonds are broken.
 - All of the above.
- $A + BC \rightarrow AC + B$ is an example of which type of reaction?
 - Synthesis.
 - Decomposition.
 - Single displacement.
 - Double displacement.
- In a chemical equation, what does the arrow mean?
 - Equals.
 - Yields.
 - Is greater than.
 - Is less than.
- Which of the following will cause the rate of a reaction to increase?
 - An increase in temperature.
 - A decrease in temperature.
 - A decrease in surface area.
 - An increase in amount.
- In the reaction, $H_{2(g)} + Cl_{2(g)} \leftrightarrow 2HCl_{(g)} + \text{heat}$, the forward reaction will be favored if
 - The reaction is heated.
 - $H_{2(g)}$ is increased.
 - Pressure is increased.
 - $2HCl_{(g)}$ is increased.

PART B FILL IN THE BLANK (1 POINT EACH)

- Heat is released in _____ reactions.
- In a _____ reaction, two small substances become a larger substance.
- Heat, carbon dioxide, and water are always products in a _____ reaction of hydrocarbons.
- In the equation $2C_2H_6 + 7O_2 \rightarrow 6H_2O + 4CO_2$, the number 7 is a _____.
- The equation, $H_2 + I_2 \leftrightarrow 2HI$, is an example of _____.

PART C MATH – SHOW ALL WORK (4 POINTS EACH)

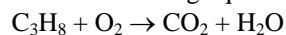
11. Complete the following double displacement equation:



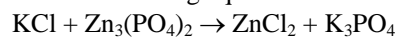
12. Write the following equation:

Zinc reacts with iron(III) chloride yielding zinc chloride plus iron precipitate.

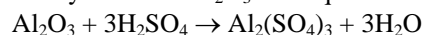
13. Balance the following equation:



14. Balance the following equation:



15. How many moles of Al_2O_3 are required to make 9 moles of water?



PART D SHORT ANSWER (4 POINTS EACH)

16. Explain exothermic reaction and give an example.

17. What is a decomposition reaction? Give an example.

18. List three factors that affect the rate of a reaction.

19. What does it mean when a system shifts to favor the reactants?

20. Explain what is wrong with the following statement: "In a reaction that has reached equilibrium, the particles have stopped moving."

→ STOP AND CHECK YOUR WORK

