NAME _____ DATE _____ CLASS _____

QUIZ

Predicting Outcomes Chemical Reactions

1. Combination and decomposition reactions can be identified based on their typical characteristics. Which statements **best** describe the characteristics of combination and decomposition reactions? Select all that apply.
   - **A.** Combination reactions are typically exothermic and reactants are molecular compounds of single elements.
   - **B.** Decomposition reactions are typically endothermic and the reactant is a compound with two or more elements.
   - **C.** Combination reactions are typically endothermic and the reactant is a compound with two or more elements.
   - **D.** Decomposition reactions are typically exothermic and reactants are molecular compounds of single elements.

2. Based on the understanding of the mechanism of a single displacement reaction, which of the following chemical equations represent a single displacement reaction? Select all that apply.
   - **A.** $NaCl + AgNO_3 \rightarrow NaNO_3 + AgCl$
   - **B.** $Cu + AgNO_3 \rightarrow CuNO_3 + Ag$
   - **C.** $2NaBr + Cl_2 \rightarrow 2NaCl + Br_2$
   - **D.** $F_2 + 2NaBr \rightarrow 2NaF + Br_2$
   - **E.** $KOH + HCl \rightarrow KCl + H_2O$

3. Which of the following compounds would **most likely** be the reactants in a combustion reaction?
   - **A.** sulfuric acid and water
   - **B.** oxygen and hydrocarbon
   - **C.** oxygen and carbon dioxide
   - **D.** carbon dioxide and hydrocarbon

NAME _____ DATE _____ CLASS _____

Read the passage and use the table to answer the next two questions.
A student used the activity series of metals to predict whether or not a reaction takes place when one metal is placed in the aqueous solution of another metal. The activity series is shown.

Activity Series of Metals

	Name	Symbol
Decreasing reactivity ↓	Lithium	Li
	Potassium	K
	Calcium	Ca
	Sodium	Na
	Magnesium	Mg
	Aluminum	Al
	Zinc	Zn
	Iron	Fe
	Lead	Pb
	(Hydrogen)	H
	Copper	Cu
	Mercury	Hg
	Silver	Ag

*Metals from Li to Na will replace H from acids and water; from Mg to Pb they will replace H from acids only.

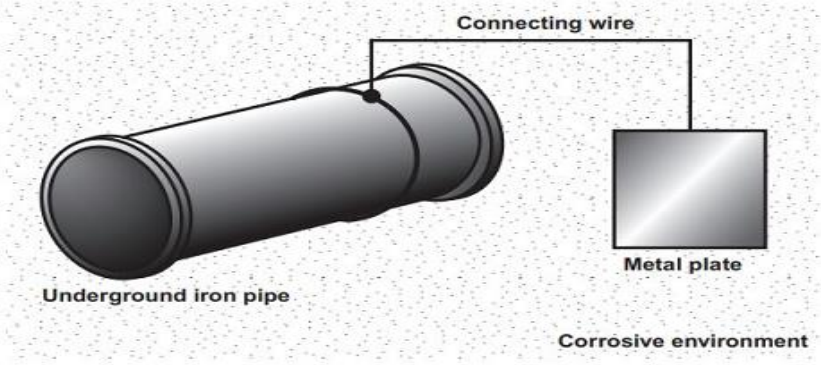
4. Based on the understanding of the way the metals are placed in the activity series, the student correctly predicted the outcome of four reactions. According to the student, which reactions are **most** likely to take place? Select all that apply.

A. Zn and $CuSO_4$
B. Ag and $CuSO_4$
C. Fe and $ZnSO_4$
D. Mg and $ZnSO_4$

NAME _____ DATE _____ CLASS _____

5. When laying underground iron pipes, the pipe is usually connected to a metal plate by a wire. The corrosive environment of the soil preferentially oxidizes the metal plate instead of the iron pipe. The metal plate gradually corrodes away preventing the iron pipe from rusting.

The diagram shows the placement of the underground pipe and the metal plate. Five metal plate options are shown as well as the activity series of metals.



Zn	Pb	Al	Mg	Cu

Based on the activity series of metals shown, which set of metal plates may prevent the iron pipe from corroding?

A. Pb, Cu
B. Mg, Cu
C. Zn, Pb, Cu
D. Zn, Al, Mg