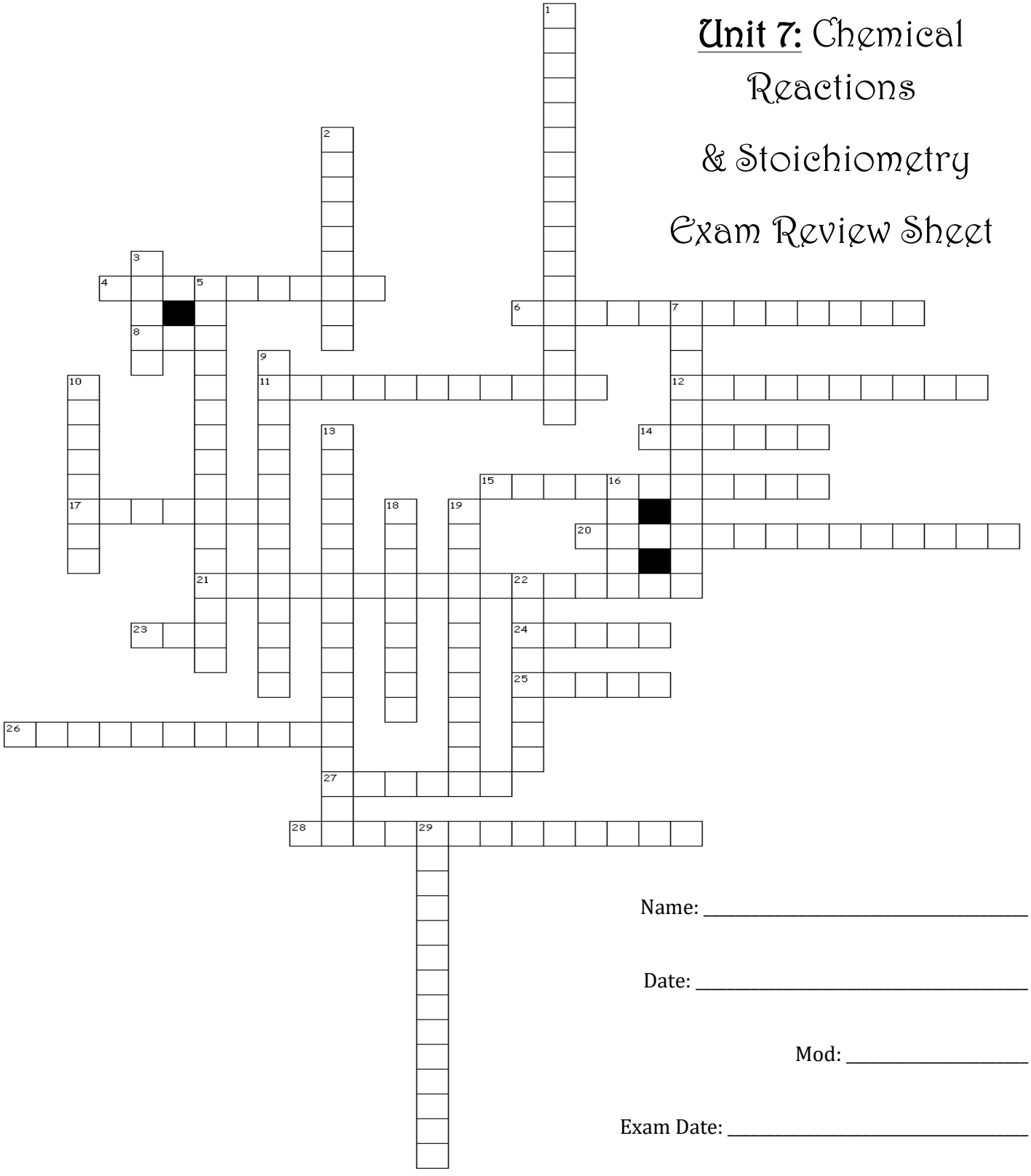
Unit 7: Chemical Reactions & Stoichiometry Exam Review Sheet



Name: _____

Date: _____

Mod: _____

Exam Date: _____

A. Identify each of the following symbols:

1. (s) _____
2. (g) _____
3. (l) _____
4. (aq) _____
5. $\xrightarrow{\Delta}$ _____

B. Why do chemical equations have to be balanced?

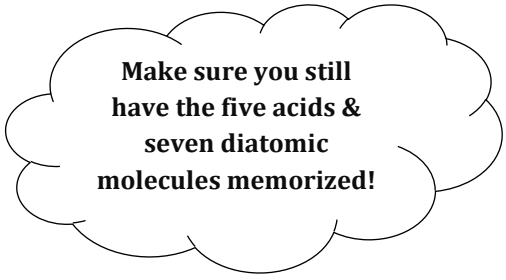
1. _____
   _____
   _____
   _____
   _____

C. Across

4. one or more substances (elements/compounds) that start a reaction
6. type of reaction where a single compound (reactant) undergoes a reaction that produces two or more simpler substances (products)
8. in stoichiometry problems, if you start with moles you do not need step _____(word).
11. number in front of substance in a balanced equation that tells how many are in the reaction
12. type of reaction where a substance (usually a hydrocarbon compound) combines with oxygen, releasing a large amount of energy in the form of light and heat
14. most decomposition reactions do not take place unless this is added, sometimes in the form of heat or electricity
15. the measured amount of a product obtained from a chemical reaction; given in the problem
17. step #3 of stoichiometry is to _____ back to the desired units (which are usually grams).
20. step # 2 of stoichiometry is to determine the _____ (include a hyphen in your answer)
21. the maximum amount of product that can be produced from a given amount of reactant; the calculated value
23. in stoichiometry problems, you always need step _____ (word)
24. step #1 of stoichiometry is to covert the given quantity to _____.
25. in stoichiometry problems, if you want your answer in moles, you do not need step _____ (word)
26. a solid that is produced as a result of a chemical reaction in solution; it is insoluble and separates from the solution
27. the reactant that is not completely used up in a chemical reaction
28. the calculation of the quantities of reactants and products involved in a chemical reaction

Down

1. type of reaction where the ions of two compounds (reactants) exchange places in aqueous solution to form two new compounds (products)
2. a conversion factor derived from the coefficients of a balanced chemical equation
3. in the activity series, the most active elements are placed at the top and can replace each of the elements _____ it in a compound
5. the process by which one or more substances are changed into one or more different substances
7. the ratio of the actual yield to the theoretical yield, multiplied by 100
9. a list of elements organized according to the ease with which the elements undergo certain chemical reactions
10. one or more NEW substances (elements/ compounds) formed from a reaction
13. type of reaction where one element replaces a similar element in a compound (reactant) to form a new element and compound (products)
16. an element farther down in the activity series can replace any element below it but not any ____ it
18. type of reaction where two or more substances (reactants) combine to form a new compound (product)
19. the decomposition of a substance by an electric current
22. the reactant that determines the amount of product that can be formed by a chemical reaction; completely used up in a chemical reaction
29. another name for a chemical reaction



D. Solve the following problems. Show all of your work **on loose-leaf**.

1. Mercury (II) oxide, when heated, breaks down into mercury and oxygen gas. How many moles of mercury (II) oxide are needed to produce 5.5 moles of oxygen?
2. Calcium and oxygen combine to form calcium oxide. How many moles of calcium oxide are formed from 6.6 kilograms of oxygen?
3. Butene (C_4H_8) reacts with oxygen to produce carbon dioxide and water. How many grams of butene are required to produce 84.3 grams of water?
4. Silicon dioxide reacts with hydrogen fluoride forming water and silicon tetrafluoride. If 8.0 moles of hydrogen fluoride and 12.5 moles of silicon dioxide are available, which is the limiting reactant?
5. Copper (II) sulfate reacts with aluminum creating aluminum sulfate and copper. If 3.95 grams of aluminum actually produces 11.3 grams of copper, what is the percent yield for the copper?

E. Identify the type of reaction for each of the problems in Section D.

F. **On loose-leaf**, list the various indicators of a chemical reaction.