

Name: _____

Chemistry 11 Course Summary Assignment

Introduction to Chemistry Unit

1. Write the following values in scientific notation with 3 significant figures:
 - a. 0.00033056
 - b. 120,200,000
 - c. 124
 - d. 0.07
 - e. 59.62

The Nature of Matter Unit

2. What is the difference between a homogeneous mixture and a heterogenous mixture? Provide an example of each.

3. What is the difference between an element and a compound?

4. Describe your understanding of chemistry using a qualitative statement, and a quantitative statement.

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5. Name the following compounds:

- a. $\text{Mg}(\text{NO}_3)_2$
- b. H_2SO_4
- c. HF
- d. N_2O_3
- e. $\text{FeO} \cdot 3\text{H}_2\text{O}$

6. Write the atomic formula for the following compounds:

- a. Aluminum phosphate
- b. Hydrobromic acid
- c. Tin (IV) Oxide
- d. Potassium Iodide dihydrate
- e. Dihydrogen Monoxide

Atomic Theory Unit

7. Why does atomic radius decrease as you move left to right across the periodic table?

8. Why do elements like cesium and francium have low ionization energies?

9. Why does an element like fluorine have a high electronegativity?

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10. Write the full electron configuration for copper.

11. Write the core electron notation for calcium

12. How many protons, neutrons and electrons are found in a sodium ion?

13. Draw the lewis structure for C_2H_4

The Mole Concept Unit

14. Solve the molar mass of $Ca(OH)_2$

15. What is the empirical formula of a compound containing 39 % Si and 61% O (by mass)?

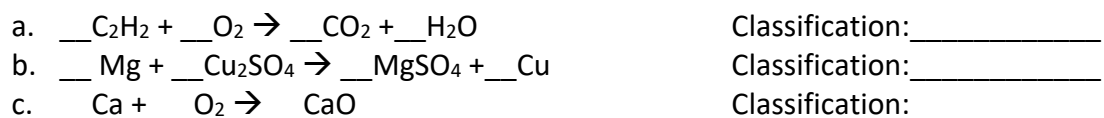
16. What is the molarity of a solution when 15.12 g of NaCl is added to enough water to make 250.0 mL of solution?

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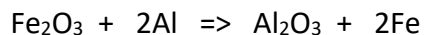
17. How many ml of concentrated hydrochloric acid (13.7 M) are required to make 750.0 mL of a 0.475 molar solution?

Chemical Reactions Unit

18. Balance the following Reactions and classify each reaction as one of: synthesis, decomposition, single replacement, double replacement, or combustion.



19. Iron(III) Oxide reacts with excess aluminum according to the balanced reaction equation shown below. If you have 30.00 grams of aluminum, how many grams of Iron (III) Oxide will react?



20. If 10.0 g of H_2 react with 48.0 g of O_2 to form water, Which reactant is the limiting reagent, what is the theoretical yield in grams of water?, and which reactant is present in excess and by how many grams?

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Solutions Unit

21. Describe why polar covalent and ionic solutes will fully dissolve in polar solvents, but nonpolar covalent molecules will not.

Organics Unit (BONUS)

22. Name the compound: $\text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_3$

23. Sketch the compound: 2, 2 – dimethyloctane