

Name _____

Date _____

Due Date _____

Mark _____/28

*Correct and Hand in Again by _____***Chemistry 11****Hand In Assignment # 6 – Percent Composition, Empirical and Molecular Formulas, Molarity Calculations and Dilution**

This Assignment will be marked and you are allowed to do one set of corrections.

1. Find the percent composition (% by mass of each element) in the following compound: $\text{Ba}_3(\text{PO}_4)_2$. Show your work. (3 marks)

Answer _____%Ba, _____%P, _____%O

2. Calculate the percent by mass of water (H_2O) in strontium hydroxide octahydrate, $\text{Sr}(\text{OH})_2 \cdot 8\text{H}_2\text{O}$. (2 marks)

Answer _____% H_2O

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3. A compound was analyzed and the following results were obtained:

Molar mass: 162.0 g/mol

Mass of sample: 0.8821 g

Mass of hydrogen: 0.0220 g

Mass of phosphorus: 0.3374 g

Mass of oxygen: the remainder of the sample is oxygen

- a. Determine the mass of oxygen in the sample. (1 mark)

Answer _____

- b. Determine the empirical formula for this compound. (4 marks)

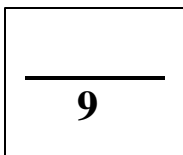
Answer: Empirical Formula: _____

- c. Determine the molecular formula for this compound. (2 marks)

Answer: Molecular Formula: _____

4. 89.523 g of sodium sulphate Na_2SO_4 are dissolved in enough water to form 850.0 mL of solution. Calculate the molar concentration of Na_2SO_4 ($[\text{Na}_2\text{SO}_4]$) Include proper units in your work and in your answers. (2 marks)

Answer _____



5. Calculate the mass of potassium carbonate (K_2CO_3) needed to make 400.0 mL of a 0.200 M solution of K_2CO_3 . Include proper units in your work and in your answers. (2 marks)

Answer _____

6. What volume of 2.50 M Li_2SO_3 would need to be evaporated in order to obtain 422.55 g of solid Li_2SO_3 ? Include proper units in your work and in your answers. (2 marks)

Answer _____

7. 150.0 mL of water are added to 200.0 mL of 0.60 M HNO_3 . Calculate the final $[HNO_3]$. Include proper units in your work and in your answers. (2 marks)

Answer _____

8. What volume of water needs to be added to 50.0 mL of 6.00 M H_2SO_4 in order to bring the concentration down to 2.50 M? Include proper units in your work and in your answers. (2 marks)

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Answer _____

9. What volume of 12.0 M HCl must be used in order to produce 500.0 mL of 0.250 M HCl? Include proper units in your work and in your answers. (2 marks)

Answer _____

10. 200.0 mL of 0.450 M NaOH is diluted to a total volume of 1.00 L. Calculate the final concentration of NaOH. Include proper units in your work and in your answers. (2 marks)

Answer _____

11. Give directions on how to make 400.0 mL of 0.020 M KMnO_4 using solid KMnO_4 and water. Include proper units in your work and in your answers. (2 marks)

