Practice Problems for Exam 1 – Chem10301 Tamargo

1. a. (4) What is the name of the compound K2SO4?

b. (4) Is the above compound ionic or molecular?

c. (4) What is the molar mass of the above compound?

d. (4) What is the chemical formula of calcium carbonate?

e. (4) Give the names of the elements with the following atomic symbols:

B:

S:

Fe:

Mg:

1. Indicate the numbers of protons, neutrons, and electrons in 10947 Ag
2. Write a balanced equation for the reaction of burning methanol (CH3OH) in oxygen:
3. Balance the following chemical equations:

a. Cl2O5 + H2O -----> HClO3

b. V2O5 + H2 ---> V2O3 + H2O

c. Al + O2 -----> Al2O3

d. MnO2 + HCl -----> MnCl2 + Cl2 + H2O

1. A fertilizer has mass percent composition 20.00 % C, 6.71 % H, 46.65 % N, and 26.64 % O. What is its empirical formula?
2. Write the name of each of the following ionic compounds:

a)CuCl \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b)MgSO3\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c)Ca(OH)2\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7. Write the formula of the following compounds

a)sodium chloride\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b)iron(III) sulfide\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c)potassium chlorate\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

8. How many protons, neutrons, and electrons are in each of the following atom or ion?

a)88Sr(strontium-88 atom)protons: \_\_\_\_\_\_\_\_\_\_,neutrons: \_\_\_\_\_\_\_\_\_\_, elecrons: \_\_\_\_\_\_\_\_\_\_

b)19F−(fluoride-19 anion)protons: \_\_\_\_\_\_\_\_\_\_,neutrons: \_\_\_\_\_\_\_\_\_\_, elecrons: \_\_\_\_\_\_\_\_\_\_

9. Carry out the following conversions:

a) 546 mm to meters

b) 46.3 L to m3

10. What is the molecular formula of xylene? Xylene is found in small amounts in gasoline. The

empirical formula is C4H5and the molecular mass is 106.16 u

11. Balance the following equations:

a) TiCl4+ H2O → TiO2+ HCl

b) Zn(OH)2+ H3PO4 → Zn3(PO4)2+ H2O

12. Perform the following conversion:

a) 2.8 km = \_\_\_\_\_\_\_\_\_\_\_\_ mm

b) 65.0 miles/h to km/h given: 1 mile = 1609.3 m

c) How many significant figures should the result in 12b have? \_\_\_\_\_