

PRACTICE EXAM #2

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Chem20, Elementary Chemistry

1.) Identify whether the following compounds are molecular or ionic and name them appropriately:

a.) $\text{Fe}_3(\text{PO}_4)_2$ _____

b.) N_4O_8 _____

c.) Cs_2S _____

d.) P_4O_{10} _____

2.) Perform the following conversions to correct significant figures:

a.) 4.37 mols Bi = ? atoms Bi

b.) 12.34 g Kr = ? mols Kr

c.) 25.316 g Si = ? atoms Si

3.) Give the charge-balanced formula units for the following ionic compounds:

- a.) ammonium carbonate _____
- b.) calcium bromide _____
- c.) sodium phosphate _____
- d.) magnesium oxide _____

4.) Thymine is one of the four components of DNA. Its chemical formula is $C_5H_6N_2O_2$.

a.) Calculate the molar mass for thymine.

b.) In a 35.6 g sample of thymine, how many grams of N are present?

c.) In the same 35.6 g sample of thymine, how many grams of H are present?

c.) A 423.12 g mixture from a worm was found to contain 25.3 g thymine. What is the mass percent of thymine in this mixture?

5.) Complete the following table.

Atomic Notation	Atomic Number (Z)	Mass Number (A)	Ionic Charge	Number of protons	Number of neutrons	Number of electrons
$^{197}_{79}\text{Au}$						78
$^{16}_8\text{O}^{2-}$					8	
	39	89				36
$^{131}_{54}\text{Xe}$				54		
		80	-1			36

6.) A second component of DNA is adenine, composed of only carbon, hydrogen, and nitrogen. The decomposition of this substance produced 3.158 g carbon, 0.2661 g hydrogen, and 3.685 g nitrogen. What is the empirical formula for adenine?