Date: _____ Name: _____

Isotopes and Mixtures of Isotopes

1. Complete the following table. Be sure to include the atomic number and atomic mass for the symbol.

Symbol	Atomic Mass	Atomic Number	Number of Protons	Number of neutrons	Number of electrons
	84	36			36
			35	45	35
		27		32	27
$^{112}_{48}Cd^{2+}$	112				
			38	50	36
X^{2-} =				75	54
X^{3+} =	103				42

2. The following mixtures of isotopes are found in nature. Calculate the expected mass (in amu) of a sample of each below.
   a. ^{107}Ag = 51.8%, ^{109}Ag = 48.2%

   b. ^{70}Ge = 20.5%, ^{72}Ge = 27.4%, ^{73}Ge = 7.8%, ^{74}Ge = 36.5%, ^{76}Ge = 7.8%

   c. ^{90}Zr = 51.5%, ^{91}Zr = 11.2%, ^{92}Zr = 17.1%, ^{94}Zr = 17.4%, ^{96}Zr = 2.8%

3. Naturally occurring silicon consists of 92.23% Si-28 (mass = 27.976 927 g), 4.67% Si-29 (mass = 28.976 495 g) and 3.10% Si-30 (mass = 29.973 770 g). What is the expected average mass (in amu) of sample of natural silicon? *Express your answer to 4 decimal places.*

Date: _____ Name: _____

Bohr Atoms

1. Fill in the following chart:

ELEMENT	SYMBOL	ATOMIC NUMBER	MASS NUMBER	$\#p^+$	$\#n^o$	$\#e^-$	CHARGE
		3	7				0
	Au						0
		28	59				0
	H		3				1+
			9			2	2+
						18	1–
			23		12		1+
phosphorous							3–
oxygen						10	
	Cu					27	

2. Draw the Bohr diagram for each of the following:

a) ${}^{3}_{1}H$:

b) ${}^{14}_{6}C$:

c) ${}^{27}_{13}Al$:

e) ${}^{23}_{11}Na^{1+}$: