In class Activity 8°- April 19-23th 2021

Exam preparation activities: Atomic theory, Isotopes and Classification of Matter

1. Answer if true or false.

a. In an atom electrons revolve around the nucleus in fixed orbits.
b. Isotopes of different elements have different atomic numbers.
c. Electrons have negligible mass.
d. The nucleus of an atom possesses three subatomic particles.
e. Calcium-40 and calcium-41 are examples of isotopes.
f. Isotopes with a huge number of neutrons are considered radioactive.
g. The atomic number stands for the number of neutrons.
h. Pure substances have definite chemical and physical properties.
i. Elements can exist as atoms (H) and molecules (H_2).
j. Molecules can only be separated with chemical means.
k. A chemical combination of two elements results in a compound.

2. Complete the following table. (use the periodic table)

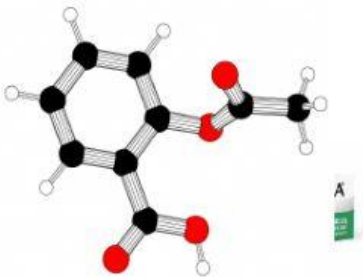
Element	Symbol	Z	A	#P	#E	#N
		9				10
		16				20
	Mo	42	96			
Francium			223			
				1	1	0

3. Match the following:

a) Dalton	Electrons orbit according to the uncertainty principle.
b) Thompson	First atomic theory, atoms are indivisible.
c) Rutherford	Different energy levels in which electrons spin.
d) Neils Bohr	Determines the existence of electrons using cathode rays.
e) Heisenberg	The existence of a nucleus with protons and neutrons.

4. Classify the following substances as:

Compound, homogeneous mixture, heterogeneous mixture, element.



5. Calculate the average atomic mass of the following element.

What is the atomic mass of hafnium if, out of every 100 atoms, 5% have a mass of 176, 19% have a mass of 177, 27% have a mass of 178, 14% have a mass of 179, and 35% have a mass of 180.0?

$$\frac{(5\ x) + (x\ 177) + (x) + (14\ x) + (x\ 180)}{100} =$$