Home performance (week 3)

Q1/ choose the correct answer:-

1- The empirical formula of the compound resulting from the combination of two elements (X, Z) and their respective masses (4g, 1.4g) is -----   [X=16 , Z= 14]
a) ZX_2 b) ZX   c) Z_2X_3 d) Z_2X_5

2- Two different compounds are ethanol (ethyl alcohol) and dimethyl ether, which have the same molecular formula C_2H_6O. However, they differ in their properties. Which formula should be used to distinguish between them?
a) The empirical formula   b) The molecular formula
c) The structural formula   d) The positive formula

3- If the molar mass of a compound is 78 g/mol and its empirical formula is CH, what is the molecular formula of the compound?   [C=12 , H=1]
a) C_2H_2 b) C_4H_4 c) C_6H_6 d) C_8H_8

4- Which of the following is true for a hydrocarbon compound containing 85.6% carbon and 14.4% hydrogen?
a) It has the empirical formula CH, molecular formula C_2H_2
b) It has the empirical formula CH_2, molecular formula C_3H_8
c) It has the empirical formula CH_4 and the molecular formula C_2H_8
d) It has the empirical formula CH_2 and the molecular formula C_4H_8

5- If you know that the empirical formula of a carbohydrate is CH_2O, which of the following could represent the molar mass of the compound?   [O=16, H=1, C=12]
a) 30 g/mol   b) 180 g/mol   c) 15 g/mol   d) 190 g/mol

6- A hydrocarbon compound has a mass percentage of carbon of 85.747%. Its molecular formula is -----   [The molar mass of the compound is 56g/mol]
[H=1, C=12]

a) C_2H_2 b) C_4H_4 c) C_6H_6 d) C_8H_8

7- 7 gm of metal (X) reacts completely with 4.67 gm of nitrogen gas to form a compound with the chemical formula.   [X=7 , N=14]
a) X_2N b) X_3N c) X_2N_3 d) XN_3

8- Chemical analysis has shown that acetic acid (vinegar) consists of 40% carbon, 6.67% hydrogen, and 53.33% oxygen by mass. If its molar mass is 60 gm, the molecular formula of the acid is ...   [O=16, H=1, C=12]

a) CH_2O b) C_2H_4O c) $C_2H_4O_2$ d) CH_4O_2

9- When 0.3 mol of element (X) combines with 0.2 mol of element (Y), a compound with the molecular formula ----- is formed.

a) X_2Y b) X_3Y c) X_2Y_3 d) X_3Y_2

10- The number of empirical formula units in glucose $C_6H_{12}O_6$ = ------

a) 6   b) 4   c) 3   d) 2