A.P. Chemistry

Unit 1 W.S. 1 **KEY**



**1)**  For every 1 mol of NH2(CH2)5NH2 (molar mass = 102.2 g/mol) you have: 5 mol of C atoms, 14 mol H atoms, 2 mol N atoms



**2) **

**3)**

 

**4)**  1.854 g / 0.01236 mol = 150 g/mol

 CH2O = 30.0 g/mol

 (30.0 g/mol)*n*= 150 g/mol *n*= 5 (CH2O)5 = **C5H10O5**

**5)** 36.8 g N (1 mol/ 14.0 g) = 2.63 mol N

 63.2 g O (1 mol/ 16.0 g) = 3.95 mol O

 3.95 mol O / 2.63 mol N = 1.5 mol O / mol N

 **N2O3**

**6)**

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 **empirical formula = C4H3Br2 =** 207.8 g/mol

 Given : molar mass = 421.7 g/mol, then

 (207.8 g/mol)n = 421.7 g/mol

n=2

 **molecular formula** = (C4H3Br2)2 = **C8H6Br4**

**7)** 19.9 g Cu*x*Cl*x* - 9.3 g Cu = 10.6 g Cl

 9.3 g Cu (1mol Cu/ 63.5 g) = 0.15 mol Cu / 0.15 = 1 Cu

 10.6 g Cl (1 mol/35.5 g Cl) = 0.30 mol Cl / 0.15 = 2 Cl

 **CuCl2**

**8)** 20.0 g Au (1 mol Au / 200. g) = 0.100 mol Au

 3.60 g Cl (1 mol / 35.5 g) = 0.101 mol Cl

 **AuCl**

**9)**

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 **C18H21NO3**

**10) a)**

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 **CH5N = 31.06 g/mol**

**b)**  (31.06 g/mol)n = 155.3 g/mol n= 5

 (CH5N)5 = C5H25N5

**11) ** ****

 **Na2CO3 7H2O**

 **12)**

 

 **Th(SO4)2 6 H2O**