

$$67 \text{ a) } C_3H_4O_2 \quad 3(12.01) + 4(1.01) + 2(32.00) = 72.06 \frac{g}{mol}$$

$$\% C = \frac{36.03}{72.06} \times 100 = 50.00\%$$

$$\% H = \frac{4.04}{72.06} \times 100 = 5.598\%$$

$$\% O = \frac{32.00}{72.06} \times 100 = 44.41\%$$

$$b) C_4H_6O_2 \quad 4(12.01) + 6(1.01) + 2(16.00) = 86.09 \frac{g}{mol}$$

$$\% C = \frac{48.04}{86.09} \times 100 = 55.80\%$$

$$\% H = \frac{6.06}{86.09} \times 100 = 7.028\%$$

$$\% O = \frac{32.00}{86.09} \times 100 = 37.18\%$$

$$c) C_3H_3N \quad 3(12.01) + 3(1.01) + 1(14.01) = 53.06 \frac{g}{mol}$$

$$\% C = \frac{36.03}{53.06} \times 100 = 67.90\%$$

$$\% H = \frac{3.03}{53.06} \times 100 = 5.699\%$$

$$\% N = \frac{14.01}{53.06} \times 100 = 26.40\%$$

$$b) a) NO: \%N = \frac{14.01}{30.01} \times 100 = 46.68\%$$

$$b) NO_2: \%N = \frac{14.01}{46.01} \times 100 = 30.45\%$$

$$c) N_2O_4: \%N = \frac{2(14.01)}{96.01} \times 100 = 29.07\%$$

$$d) N_2O: \%N = \frac{2(14.01)}{44.02} \times 100 = 63.65\%$$

7) assume 100% fungal laccase

$$0.390g Cu \quad \frac{1 \text{ mole } Cu}{63.55g Cu} \Bigg| \frac{1 \text{ mole fungal laccase}}{4 \text{ mole } Cu} = 1.53 \times 10^{-3} \text{ mol}$$

$$\frac{xg \text{ fungal laccase}}{\text{mole fungal laccase}} = \frac{100.000g}{1.53 \times 10^{-3} \text{ mol}}$$

$$\text{molar mass} = 6.54 \times 10^4 \frac{g}{\text{mol}}$$



77) assume 100g of compound

$$48.64g C \frac{1 \text{ mole } C}{12.01g} = \frac{4.050 \text{ mole } C}{2.700} = 1.50$$

$$8.16g H \frac{1 \text{ mole } H}{1.01g H} = \frac{8.08 \text{ mole } H}{2.700} = 3.00$$

$$43.20g O \frac{1 \text{ mole } O}{16.00g O} = \frac{2.700 \text{ mole } O}{2.700} = 1.00$$



7A) Compound 1

$$0.6018 \text{ g Hg} \frac{1 \text{ mol Hg}}{200.6 \text{ g Hg}} = 3.000 \times 10^{-3} \text{ mol Hg}$$

$$0.6498 - 0.6018 = 0.0480 \text{ g O}$$

$$0.0480 \text{ g O} \frac{1 \text{ mol O}}{16.00 \text{ g O}} = 3.00 \times 10^{-3} \text{ mol O}$$



Compound 2

$$0.4172 - 0.016 = 0.4012 \text{ g Hg}$$

$$0.4012 \text{ g Hg} \frac{1 \text{ mol Hg}}{200.6 \text{ g Hg}} = 2.00 \times 10^{-3} \text{ mol Hg}$$

$$0.016 \text{ g O} \frac{1 \text{ mol O}}{16.00 \text{ g O}} = 1.00 \times 10^{-3} \text{ mol O}$$



81) out of 100.0g

$$69.6g S \frac{1 \text{ mol } S}{32.07g S} = 2.17 \text{ mole } S$$

$$30.4g N \frac{1 \text{ mole } N}{14.01g N} = 2.17 \text{ mole } N$$

$$SN \approx 46 \frac{g}{\text{mol}} \quad \frac{184}{46} = 4$$



83) assume 100.0g

$$47.08g C \frac{1 \text{ mol}}{12.01g} = 3.920 \text{ mole } C \quad \frac{1.307}{1.307} = 2.999$$

$$6.59g H \frac{1 \text{ mol}}{1.01g} = 6.52 \text{ mole } H \quad \frac{1.307}{1.307} = 5.00$$

$$46.33g Cl \frac{1 \text{ mol } Cl}{35.45g Cl} = 1.307 \text{ mole } Cl \quad \frac{1.307}{1.307} = 1.000$$



$$\frac{153}{76.52} = 2$$

