

UNIT 2

ASSIGNMENT V2

____/16

Name: _____

1. Write the (**complete**) **ionic** and **net ionic** formulae for the following processes: [4 pt]



(ionic) _____

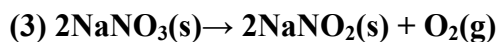
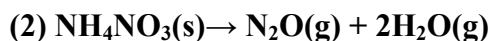
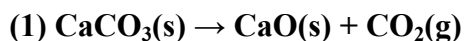
(net ionic) _____



(ionic) _____

(net ionic) _____

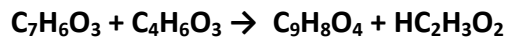
2. A mixture containing CaCO_3 , NH_4NO_3 , NaNO_3 and NaHCO_3 is heated. These compounds go under *thermal decomposition* and decompose based on the following equations:



A 50.0g sample is heated and the following products are recorded: 8.96g of CaO, 7.69g of N_2O , 10.71g of CO_2 and 1.13g of O_2 . What was the composition (by mass) of the sample? [4 pts]



3. Aspirin, $C_9H_8O_4$, is produced when salicylic acid ($C_7H_6O_3$) is reacted with acetic anhydride ($C_4H_6O_3$):



(a) How much salicylic acid is required to produce 1.5×10^2 kg of aspirin, assuming that all of the salicylic acid is converted to aspirin? [2 pts]

(b) How much salicylic acid would be required to produce 1.5×10^2 kg of aspirin if only **80%** of the salicylic acid was converted to aspirin? [1 pts]

(c) What is the theoretical yield of aspirin if 185 kg of salicylic acid is allowed to react with 125 kg of acetic anhydride? [1 pts]

(d) If the situation described in part (c) produces 182 kg of aspirin, what is the percent yield? [1 pts]

4. Balance the following in basic conditions:

[3 pts]

