QUIZ A
Aspirin Synthesis

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Name:__________________

CH 113A

1. (4 points) Write a balanced equation for the synthesis of aspirin. What is the catalyst (if any) in this process? What is the solvent?

2. (4) Circle the structures below which would give a positive FeCl₃ test:

   OH
   \[ \text{cyclohexene} \]
   OH
   \[ \text{benzene} \]
   CH₂OH
   \[ \text{phenol} \]

   COOH
   \[ \text{benzoic acid} \]
   HOOC
   \[ \text{acetic acid} \]

3. (3) There are two basic types of filtration in common use in the organic lab - vacuum filtration and gravity filtration. Briefly explain which is used under what circumstances; that is tell how you know whether to use gravity versus vacuum filtration.
4. (3) Suppose you begin with 29.5 g of salicylic acid and use an excess of acetic anhydride when performing the reaction of Problem 1 above. If you obtain 27.4 g of aspirin your percent yield is _______% (Write answer in blank and show your work below.) Assume the following: MW salicylic acid = 138 and the MW of aspirin is 180.

5. (6) Refer to the following equations in answering the questions below.
Suppose that you are using 12.0 g phthalic anhydride and 6.00 mL of methanol.
Assume At. Wts.: H=1; C=12; O=16.

\[
\text{phthalic anhydride} \quad \text{methyl alcohol} \quad \begin{cases} \text{dimethyl phthalate} \\ \text{MW} = \underline{32.0} \end{cases}
\]

(a - 1 pt) Balance the equation by filling in the box above.
(b - 1 pt) Calculate the molecular weight of dimethyl phthalate and enter this number in the space beneath the equation above.
(c - 2 pt) What is the limiting reagent? (Circle one):

\[
\text{phthalic anhydride} \quad \text{methanol}
\]

(d - 2 pt) What is the theoretical yield of dimethyl phthalate in grams?
Answer = _______ g.