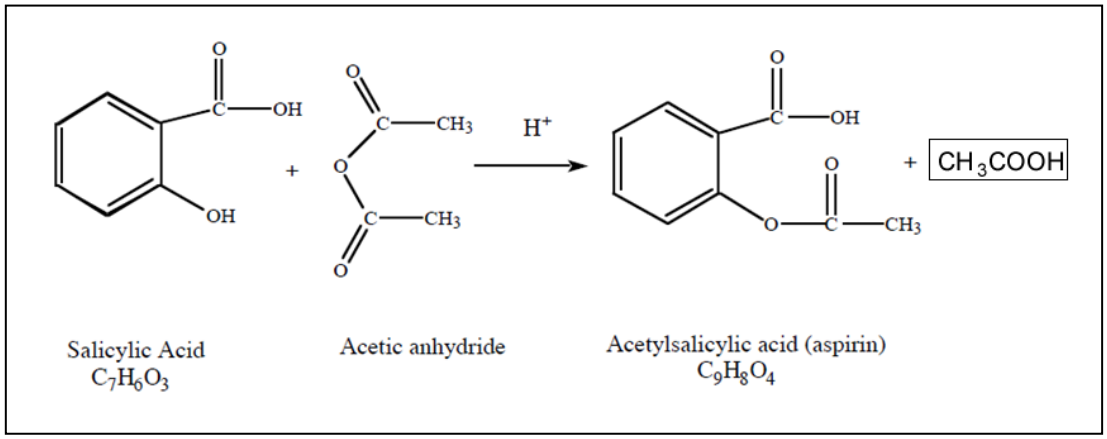
Friday Worksheet **Name: …….**

Analytical chemistry and organic 8

1) Aspirin can be made by reacting salicylic acid with acetic acid in the presence of an acid catalyst. The reaction between the phenol group (a hydroxyl group bonded directly to an aromatic reaction) and the acetic acid, however, is slow and has a relatively low yield. When acetic anhydride is used, in place of acetic acid, the reaction is much faster and has a higher yield.



a) Calculate the percentage yield for the above reaction if the amount of salicylic acid used was 2.34 g and 0.387 g of ethanoic acid was formed .
Molar mass of salicylic acid is 138.12 g/mol, aspirin 180.16 g/mol

b) Using semistructural formulae give two equations that show glycine acting as a buffer.

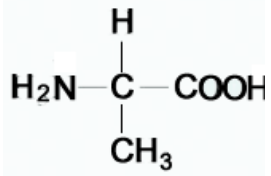
c) Give the systematic name for alanine

d) The isoelectric point of the amino acid shown on the right is 6.1. Give the semistructural formula of the molecule at a pH:

i. 6.1

ii. 3.0

iii. 10



6.1
3.0
10

e) A peptide chain is made up of two glycine molecules.

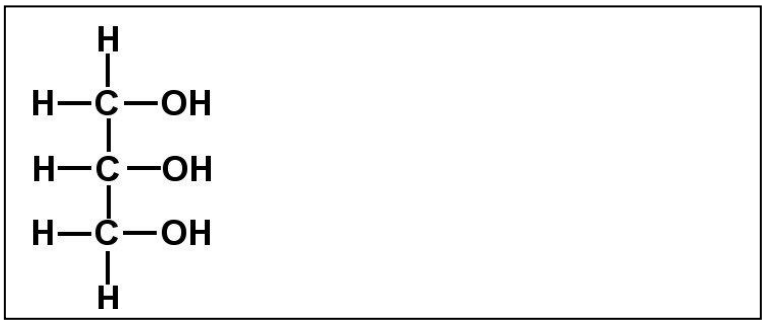
i. What is the molar mass of the peptide in g/mol.

ii. Draw the peptide and circle the amide bond

2) Palmitoleic acid has the following formula $C_{16}H_{30}O_2$.

a) Is this a saturated or unsaturated fatty acid? Give a reason

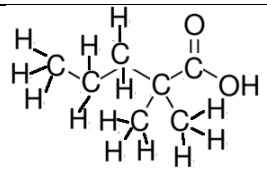
b) Glycerol is pictured below, complete the semistructural formula of the triglyceride formed from palmitoleic acid



c) Circle and name the functional groups present in the triglyceride

d) What type of reaction forms the triglyceride.

3) Complete the table below

Name	Structural formula	Semi-structural formula
2,4-dibromohexanamine		
		
		$HOOCCH(NH_2)CH_2CH_2CH_3$