CH1012 Tutorial 10 Answers

 Predict and name the organic product from each of the following reactions. Which mechanism is occurring:

 (i) (CH₃)₃CBr + CH₃C≡C:⁻ → (CH₃)₃CC≡CCH₃
 S_N1

4,4-dimethyl-2-pentyne

(ii) *n*-butanol + cHCl + ZnCl₂
$$\rightarrow$$
 n-butylchloride (1-chlorobutane) $S_N 2$

(iii)



sodium acetate + ethanol

This is base promoted hydrolysis of the ester and is irreversible as it uses stoichiometric amounts of the base. Often called **saponification** it is an **acyl substitution reaction**.

2. Provide a **detailed mechanism** for the reaction of *n*-propanol with sodium iodide in the presence of concentrated H_2SO_4 (reflux).

 $S_N 2$ reaction



3. Explain why **cyclohexanamine** has a pK_b of 3.36 and yet aniline ($C_6H_5NH_2$) has a pK_b of 9.42. How would this effect the water solubility of these amines.





Non water soluble as only a very small amount of the conjugate acid (RNH_3^+) forms

4. What is the product from the reaction between propanal and sodium hydroxide. Provide a **detailed mechanism**:



5. Provide a **detailed mechanism** for the following reaction. Indicate the **type of mechanism** and **name the product** that would be obtained.

