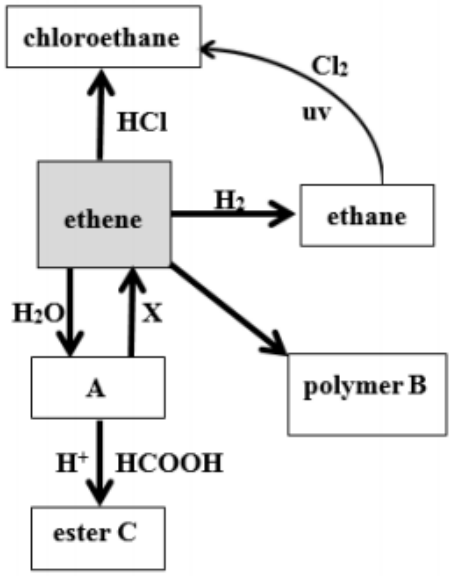
Types of Reactions in Organic Chemistry

2016

8. Consider the reaction scheme on the right.



(*a*) Name **A** and polymer **B**. (6)

(*b*) Identify substance **X** used in the conversion of **A** to ethene.

What organic reaction type is involved in this conversion?

How does the geometry around the carbon atoms change in this conversion? (9)

(*c*) What organic reaction type is involved in the conversion of ethane to chloroethane?

Describe in detail the mechanism for the reaction between ethane and chlorine in ultraviolet light to produce chloroethane.

Explain the effect of the presence of a little tetraethyllead, $Pb(C_2H_5)_4$, on this conversion. (21)

(*d*) Ester **C** is formed when **A** is heated with methanoic acid and a few drops of sulfuric acid acting as a catalyst.

Name **C** and draw its structure.

In your drawing, circle the carbonyl group of the ester.

What name is given to the type of reaction that occurs between sodium hydroxide and **C**? (14)