**CH1012** 

## **Tutorial 9**

## Name:

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



2. Carboxylic acids are stronger acids than alcohols. Using simple examples and chemical equations explain why this is the case.

- 3. The reaction of 2-methyl-2-bromoheptane with sodium hydroxide proceeds by an  $S_N1$  nucleophilic substitution mechanism.
  - Provide a detailed reaction mechanism and identify (name) the stereochemistry of the reactants and products.
  - How would you alter the reaction conditions to bring about the

4. Describe in detail the mechanism for the bromination of nitrobenzene in the presence of ferric bromide.

5. Give 2 examples of heterocyclic aromatic compounds and show how these obey the  $(4n + 2) \pi$  electron rule.

6. The nitration of phenol is a typical reaction of aromatic compounds with electrophilic reagents.

PhOH +  $NO_2^{\oplus} \rightarrow ortho-NO_2PhOH + para-NO_2PhOH$  (Ph =  $C_6H_5$ )

Explain why substitution occurs at the ortho and para positions rather than the meta position.