6. a) Explain 1,2-asymmetric induction with examples. What is Cram's rule? Describe with different models including Felkin-Anh model.
   5

   b) Describe the Sharpless asymmetric epoxidation.
   5

7. (a) Give the retrosynthetic analysis of the following compounds.

   (i) \[
   \begin{align*}
   &\text{H} \\
   &\text{C} \\
   &\text{C} \\
   &\text{C}
   \end{align*}
   \]

   (ii) \[
   \begin{align*}
   &\text{H} \\
   &\text{C} \\
   &\text{C} \\
   &\text{C}
   \end{align*}
   \]

   b) Explain the importance of order of events in organic synthesis.
   5

   OR

   c) Give the retrosynthetic analysis of the following compounds.
   5

   d) Describe the retrosynthetic analysis involving chemoselectivity.
   5

8. a) Write the products formed and mechanism involved in the following reactions.

   (i) \[
   \text{FeCl}_3 + \text{H}_2\text{O} \rightarrow ?
   \]

   (ii) \[
   \text{FeCl}_3 + \text{PhCO}_2\text{MgBr} \rightarrow ?
   \]

   b) How do you prepare pyrazole and pyrimidine starting from 1,3-diketone?
   5

   OR

   c) Give the synthesis of pyrimidine and explain its reactivity.
   5

   d) Complete the following reactions with mechanism.

   (iii) \[
   \text{Ph} + \text{CO}_2\text{H} \rightarrow ?
   \]

   (iv) \[
   \text{Ph} + \text{H}_2\text{CO}_2\text{H} \rightarrow ?
   \]

   (v) \[
   \text{Ph} + \text{H}_2\text{CO}_2\text{H} \rightarrow ?
   \]

   (vi) \[
   \text{Ph} + \text{H}_2\text{CO}_2\text{H} \rightarrow ?
   \]