

Daily Tutorial Sheet 1

JEE Advanced (Archive)

- $$\text{Cyclohexanone oxime} \xrightarrow{\text{H}^+} \text{Cyclohexanone} \xrightarrow{\text{Polymerization}} \left[\text{C}(\text{D})_n \right]$$

(C)
- $$\text{H}_2\text{N}-\underset{\text{CH}_3}{\text{CH}}-\text{COO}^- \xrightarrow{\text{pH}=10} \text{H}_2\text{N}-\underset{\text{CH}_3}{\text{CH}}-\text{COOH} \xrightarrow{\text{pH}=2} \text{H}_3\text{N}^+-\underset{\text{CH}_3}{\text{CH}}-\text{COOH}$$
- $$\text{Sucrose} \xrightarrow[\text{H}_2\text{O}]{\text{H}^+} \text{D-glucose} + \text{D-fructose}$$

$$\begin{array}{c} \text{CHO} \\ | \\ \text{H}-\text{C}-\text{OH} \\ | \\ \text{HO}-\text{C}-\text{H} \\ | \\ \text{H}-\text{C}-\text{OH} \\ | \\ \text{H}-\text{C}-\text{OH} \\ | \\ \text{CH}_2\text{OH} \\ \text{D-glucose} \end{array} + \begin{array}{c} \text{CHO} \\ | \\ \text{C}=\text{O} \\ | \\ \text{HO}-\text{C}-\text{H} \\ | \\ \text{H}-\text{C}-\text{OH} \\ | \\ \text{H}-\text{C}-\text{OH} \\ | \\ \text{CH}_2\text{OH} \end{array}$$
- $$\text{H}_2\text{N}-\underset{\text{CH}_2-\text{COOH}}{\text{CH}}-\overset{\text{O}}{\underset{||}{\text{C}}}-\text{NH}-\underset{\text{CH}_2\text{C}_6\text{H}_5}{\text{CH}}-\text{COOCH}_3$$

Aspartame

 - Aspartame has amine, acid, amide and ester groups.
 - $$\text{H}_3\text{N}^+-\underset{\text{CH}_2-\text{COO}^-}{\text{CH}}-\overset{\text{O}}{\underset{||}{\text{C}}}-\text{NH}-\underset{\text{CH}_2\text{C}_6\text{H}_5}{\text{CH}}-\text{COOCH}_3$$

Aspartame
 - $$\text{Aspartame} \xrightarrow[\text{H}_2\text{O}]{\text{H}^+} \text{H}_2\text{N}-\underset{\text{CH}_2\text{COOH}}{\text{CH}}-\text{COOH} + \underset{\text{H}_2\text{N}-\text{CH}-\text{COOH}}{\text{CH}_2\text{C}_6\text{H}_5} + \text{CH}_3\text{OH}$$

I II
 - II is more hydrophobic due to the presence of phenyl ring.
- Zeigler Natta Catalyst
- The dipeptides are

$$\text{HOOC}-(\text{CH}_2)_2-\underset{\text{NH}_3^+}{\text{CH}}-\text{CO}-\text{NH}-\underset{\text{COO}^-}{\text{CH}}-(\text{CH}_2)_4-\text{NH}_2$$

and

$$\text{HOOC}-(\text{CH}_2)_2-\underset{\text{COO}^-}{\text{CH}}-\text{NH}-\text{CO}-\underset{\text{NH}_3^+}{\text{CH}}-(\text{CH}_2)_4-\text{NH}_2$$

