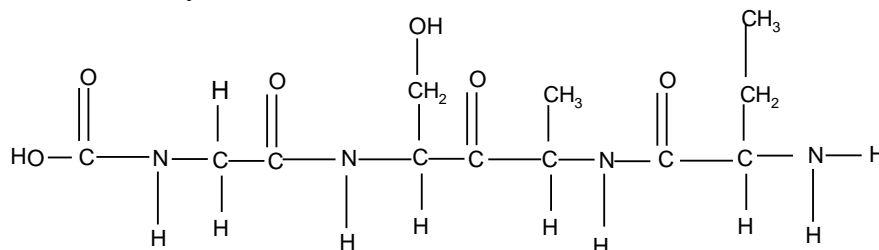


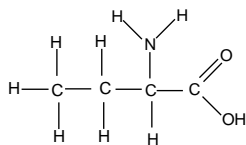
TOPIC 19 EXERCISE 1 – AMINO ACIDS

- Draw the structure of 2-aminobutanoic acid
 - Draw the two optical isomers of 2-aminobutanoic acid
 - Write equations to show the reaction of 2-aminobutanoic acid with
 - hydrochloric acid
 - sodium hydroxide
 - Draw the structure of the dipeptide formed by the condensation of
 - two molecules of 2-aminobutanoic acid
 - three molecules of 2-aminobutanoic acid
 - four molecules of 2-aminobutanoic acid
- Describe the shape of the protein molecule and explain why it has this shape.
 - Draw the organic products formed when the following protein is heated with concentrated hydrochloric acid:

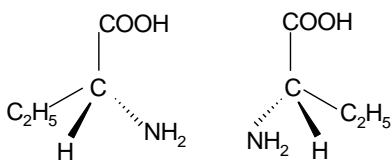


SOLUTIONS

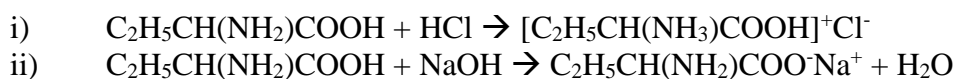
1. a)



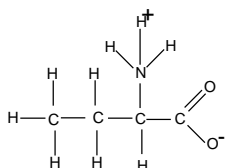
b)



c)

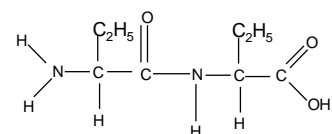


d)

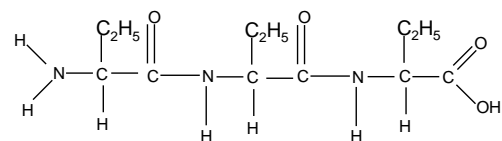


amino acids can form ionic bonds with each other in solid state
 strong electrostatic attraction leads to a high melting point

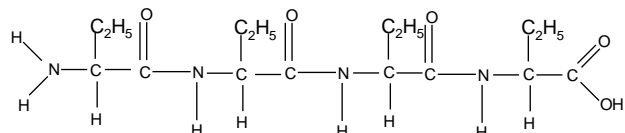
e) i)



ii)



iii)



2. a) It has a helical shape.
Attraction between the H attached to the N and the N or O atoms causes the molecule to bend, forming hydrogen bonds between different peptide links.

b)

