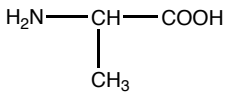
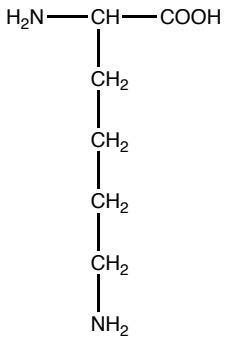
The structure of some amino acids are shown:

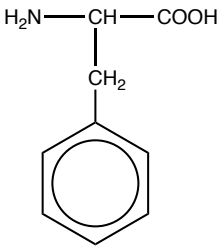
alanine



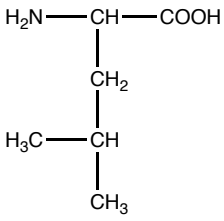
lysine



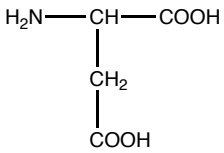
phenylalanine



leucine

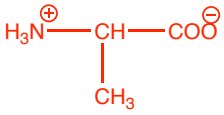


aspartic acid

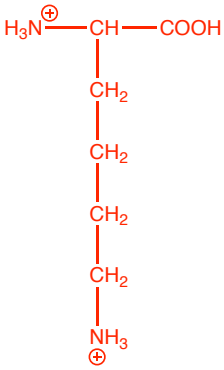


1 Draw the structure of the species formed from these amino acids at the pH shown.

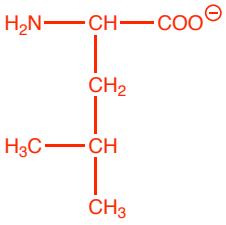
alanine
in pH 7 solution



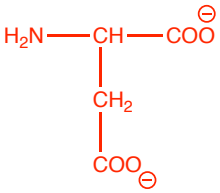
lysine
in pH 2 solution



leucine
in pH 12 solution

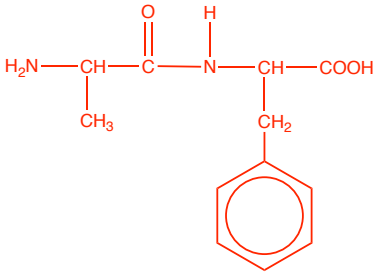


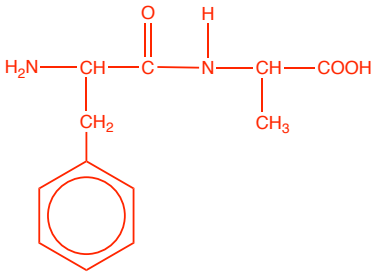
aspartic acid
in pH 12 solution



2 Give the IUPAC name for leucine. **2-amino-4-methylpentanoic acid**

3 Draw the structure of the two possible dipeptides formed when alanine combines with phenylalanine.





4 Alanine has a melting point of 258ºC. This is considerably higher than amines or carboxylic acids with similar relative molecular mass. Explain why the melting point of alanine is somewhat higher.

alanine consists of zwitterions

Ionic attraction between each alanine is stronger than the hydrogen bonding that exists between both carboxylic acids and amines