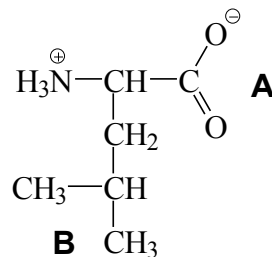
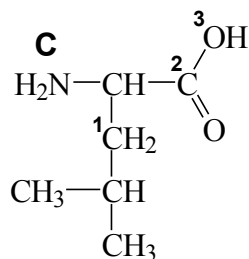


Marks
8

- Shown here are the classical and the zwitterionic forms of the amino acid leucine.



List the types of intermolecular interactions in which each of the indicated sites (**A**, **B** and **C**) in leucine could be involved.

A
B
C

Provide the requested information for each of the indicated atoms in leucine.

Atom	Geometric arrangement of the electron pairs around the atom	Hybridisation of the atom	Geometry/shape of σ -bonding electron pairs around the atom
¹ C			
² C			
³ O			

Given that the pK_a of the carboxylic acid group of leucine is 2.32 and the pK_b of the amine group is 4.24, do you expect the classical or the zwitterionic form to predominate when leucine is dissolved in water? In other words, does the following equilibrium lie to the right or left? Show your reasoning.

