

2024 Higher Chemistry Paper 1 - Q9

Section: Nature's Chemistry

Topic: Amino Acids

Question summary (Q9):

Some amino acids are called α -amino acids because the amino group is on the carbon atom next to the acid group. Which of the following is an α -amino acid?

Worked Solution:

- An α -amino acid has its -NH_2 group on the α -carbon, i.e. the carbon atom directly adjacent to the carboxyl group (-COOH).
- Option A has the amino group on a carbon further away \rightarrow not α .
- Option B has the amino group on the α -carbon (the correct structure).
- Options C and D place the amino group incorrectly, not adjacent to the carboxyl group.

Final Answer: B — α -amino acid

Revision Tips:

- In α -amino acids, the central carbon (α -carbon) is bonded to four groups: -COOH , -NH_2 , -H , and an R side chain.
- All naturally occurring amino acids (except glycine) are chiral at the α -carbon.
- Recognise α -, β -, γ - nomenclature: α is the first carbon after the carboxyl group, β the second, etc.