

- Glycine,  $\text{NH}_2\text{CH}_2\text{COOH}$ , the simplest of all naturally occurring amino acids, has a melting point of  $292\text{ }^\circ\text{C}$ . The  $\text{p}K_{\text{a}}$  of the acid group is 2.35 and the  $\text{p}K_{\text{a}}$  associated with the amino group is 9.78. Draw a Lewis structure that indicates the charges on the molecule at the physiological pH of 7.4.

Use your structure to illustrate the concept of resonance.

Describe the hybridisation of the two carbon atoms and the nitrogen atom in glycine and the molecular geometry of the atoms surrounding these three atoms.

Glycine has an unusually high melting point for a small molecule. Suggest a reason for this.

Do you expect glycine to be water soluble? Give a reason for your answer.