

1) Draw the structures of glycine, aspartic acid, and lysine structures that would be predominant at **pH = 7**.

glycine	aspartic acid	lysine
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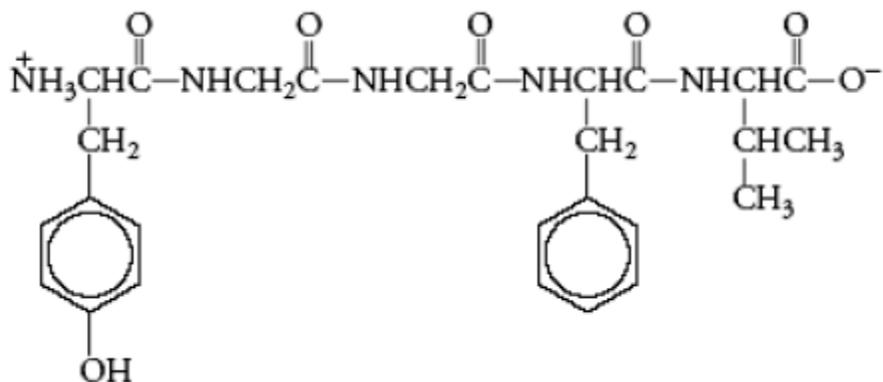
2) Draw the structures of glycine, aspartic acid, and lysine structures that would be predominant at **pH = 1**

glycine	aspartic acid	lysine
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3) Draw the structures of glycine, aspartic acid, and lysine structures that would be predominant at **pH = 14**

glycine	aspartic acid	lysine
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4. Circle the peptide bonds and draw a star above the chiral carbons in the peptide below:



5. Define the following:

- peptide
- peptide bond
- peptide group
- L-amino acid
- D-amino acid
- primary protein structure
- secondary protein structure
- tertiary protein structure
- quaternary protein structure
- enzyme
- enzyme specificity (list the different types of enzyme specificities)
- enzyme inhibition (compare and contrast reversible and irreversible inhibitors)
- enzyme activation
- active site

6. Draw the structures of peptide Val-Gly that would be predominant at pH = 1, 7, and 14.

**pH = 1**

**pH = 7**

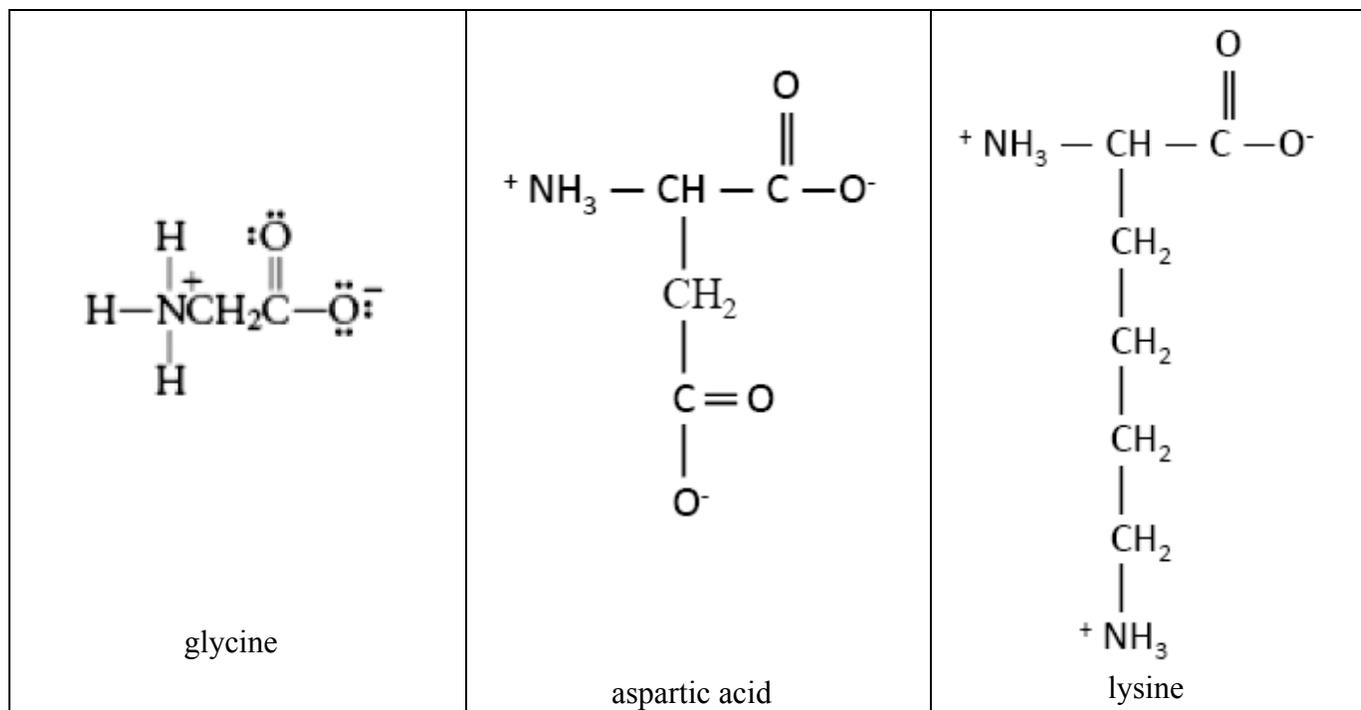
**pH = 14**

7. List the *attractive interactions* involved in secondary, tertiary, and quaternary protein structure.

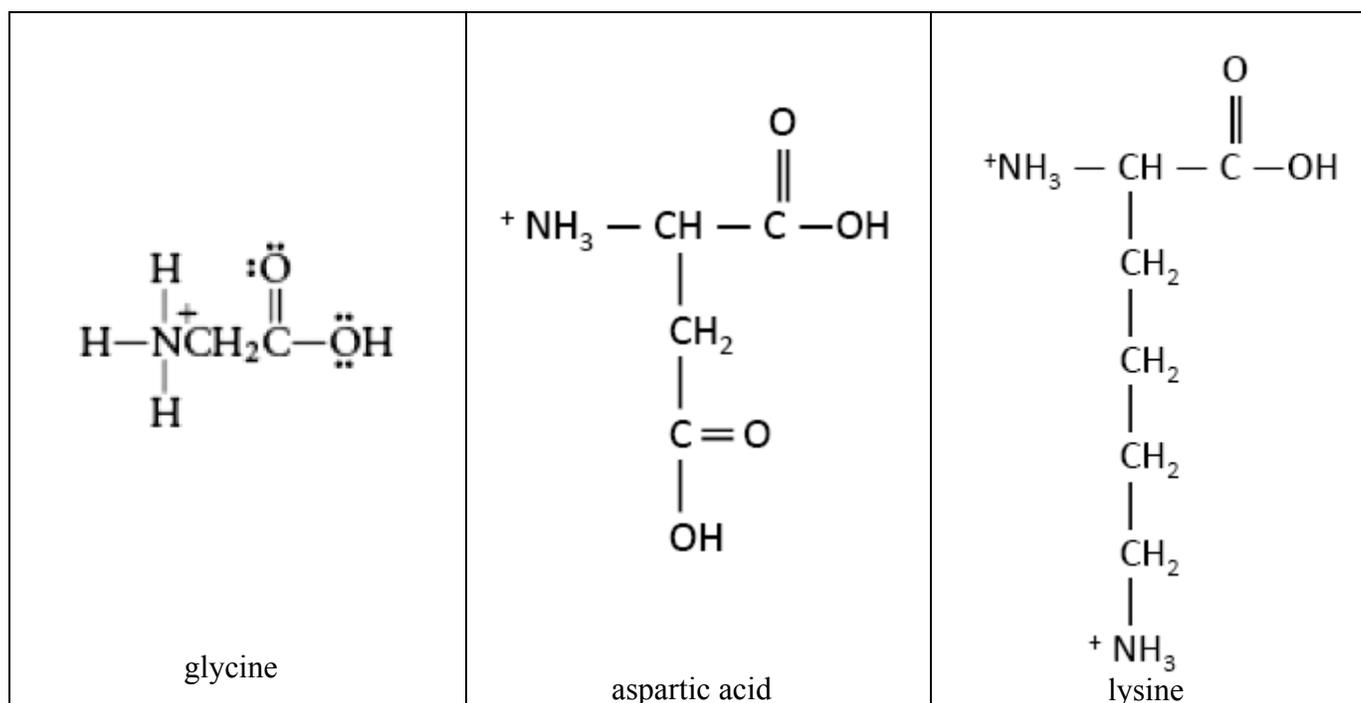
<b>Protein Structure</b>	<b>Attractive Interaction</b>
secondary	
tertiary	
quaternary	

**KEY**

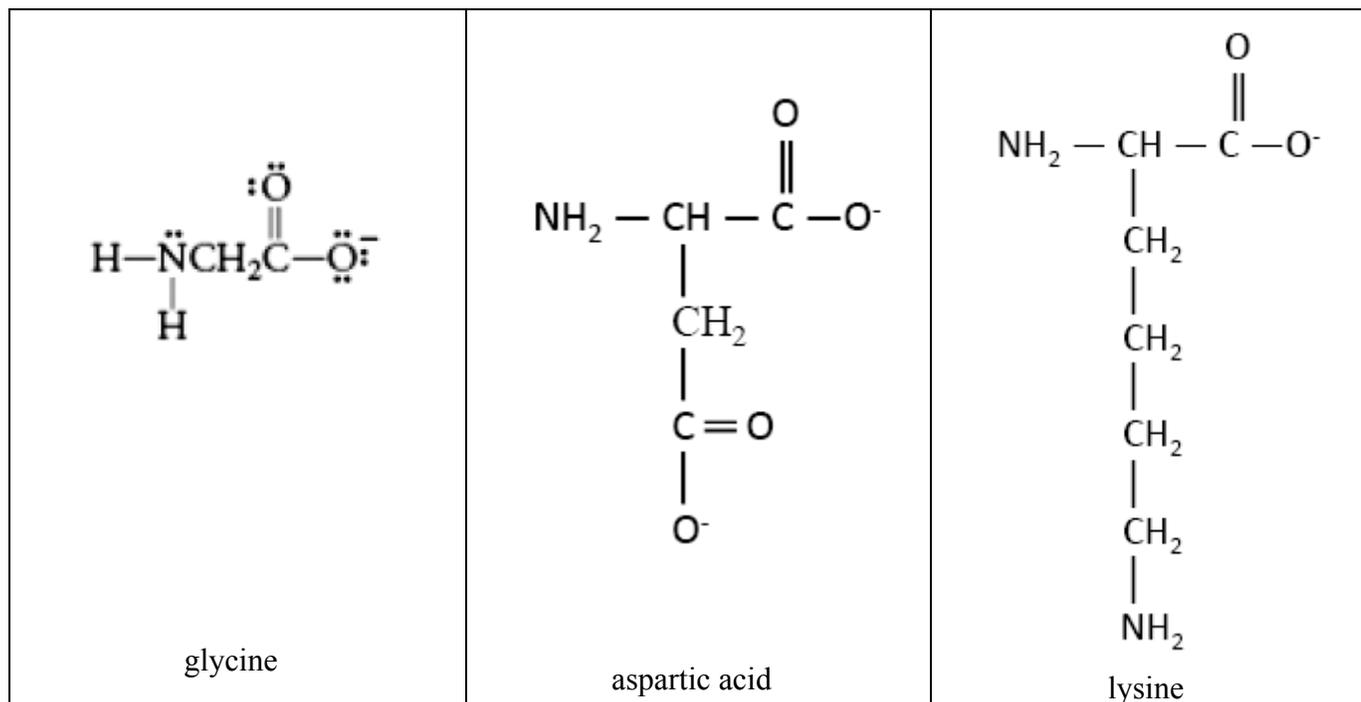
1) Draw the structures of glycine, aspartic acid, and lysine structures that would be predominant at **pH = 7**.



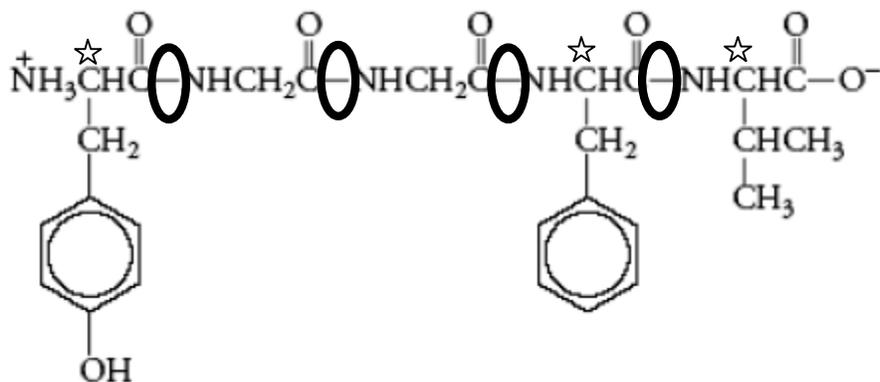
2) Draw the structures of glycine, aspartic acid, and lysine structures that would be predominant at **pH = 1**



3) Draw the structures of glycine, aspartic acid, and lysine structures that would be predominant at **pH = 14**



4. Circle the peptide bonds and draw a star above the chiral carbons in the peptide below:

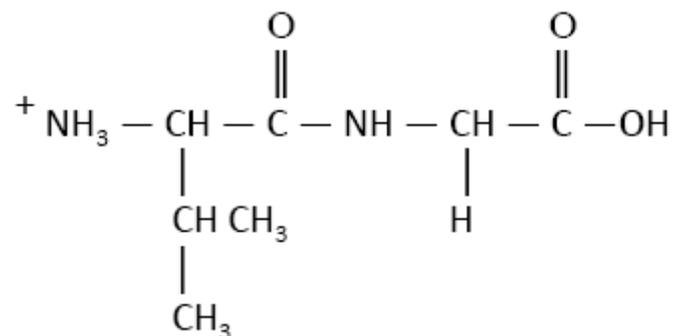


5. Define the following:

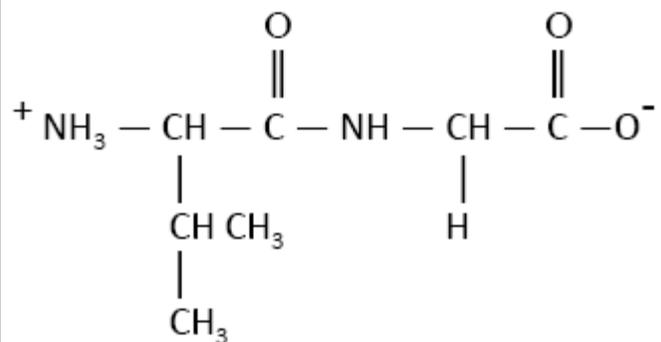
**SEE YOUR LECTURE NOTES AND/OR TEXTBOOK TO CHECK THE DEFINITIONS**

6. Draw the structure of peptide Val-Gly that would be predominant at pH = 1, 7, and 14.

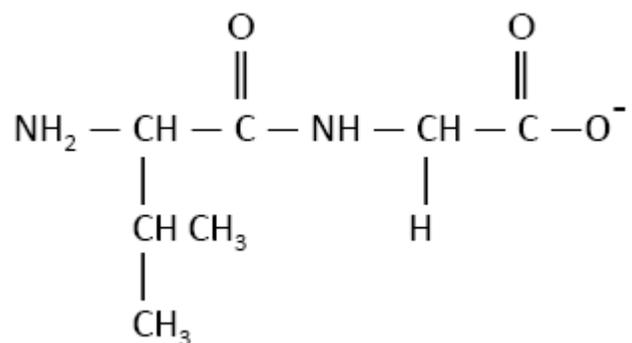
**pH = 1**



**pH = 7**



**pH = 14**



7. List the *attractive interactions* involved in secondary, tertiary, and quaternary protein structure.

<b>Protein Structure</b>	<b>Attractive Interaction</b>
secondary	hydrogen bonding
tertiary	hydrogen bonding, hydrophobic interactions, dipole-dipole, ion-dipole, disulfide bridges, and salt bridges
quaternary	same as tertiary: hydrogen bonding, hydrophobic interactions, dipole-dipole, ion-dipole, disulfide bridges, and salt bridges