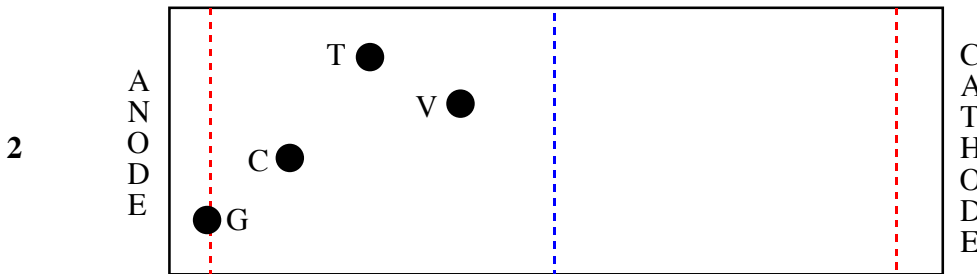


Chapter 25 Amino Acids

Solutions

- 1
- A. Serine (pI = 5.68): negatively charged; anode
 - B. Proline (pI = 6.30): positively charged; cathode
 - C. Alanine (pI = 6.01): negatively charged; anode
 - D. Aspartic Acid (pI = 2.77): negatively charged; anode
 - E. Histidine (pI = 7.59): positively charged; cathode

- if the pH of the solution is greater than the pI of the amino acid, the amino acid will be negatively charged and move towards the anode
- if the pH of the solution is less than the pI of the amino acid, the amino acid will be positively charged and move towards the cathode



- Cysteine (pI = 5.07)
- Glutamic Acid (pI = 3.22)
- Valine (pI = 5.96)
- Tyrosine (pI = 5.66)

- all of the amino acids have $pI < pH$, so they will all be negatively charged in a buffer of pH 7.02 and move towards the anode
- the greater the difference between pI and pH, the faster that amino acid will move
- Hence, glutamic acid will reach the red line first with an approximate distribution of the others as shown

- 3
- A-G-G
 - G-A-G
 - G-G-A
- 3 tripeptides are possible!

- 4 Ser-Cys-Thr-Thr-Pro-Asp-Pro-Thr-Ser

Hint: start with one of the amino acids for which there is only ONE available (e.g. the ASP) and build upon it