Achievable

MCAT DUMP SHEET

Chemistry: acids and bases

Acids and bases

pH = $-\log[H^+]$

pOH = $-\log[OH^-]$

pH + pOH = 14

$$K_a = \frac{[H^+][A^-]}{[HA]}$$

pKa = $-\log K_a$

$$K_a = \frac{[OH^+][HB^-]}{[B]}$$

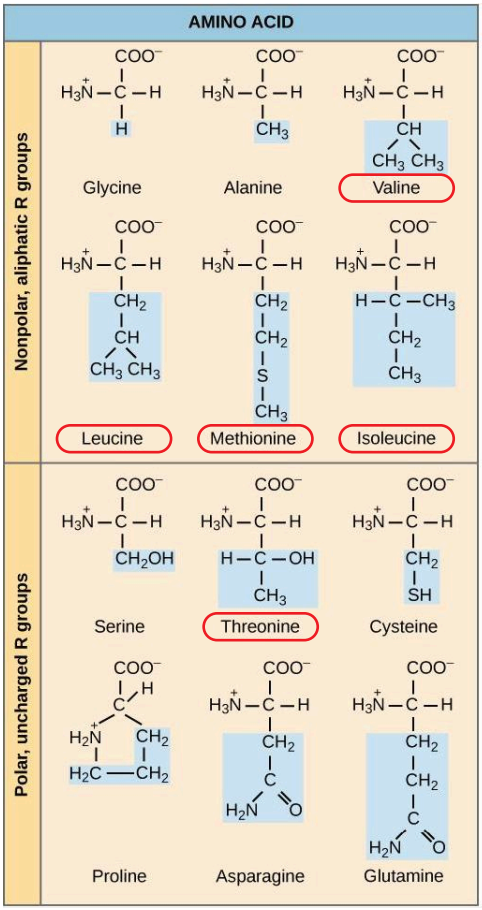
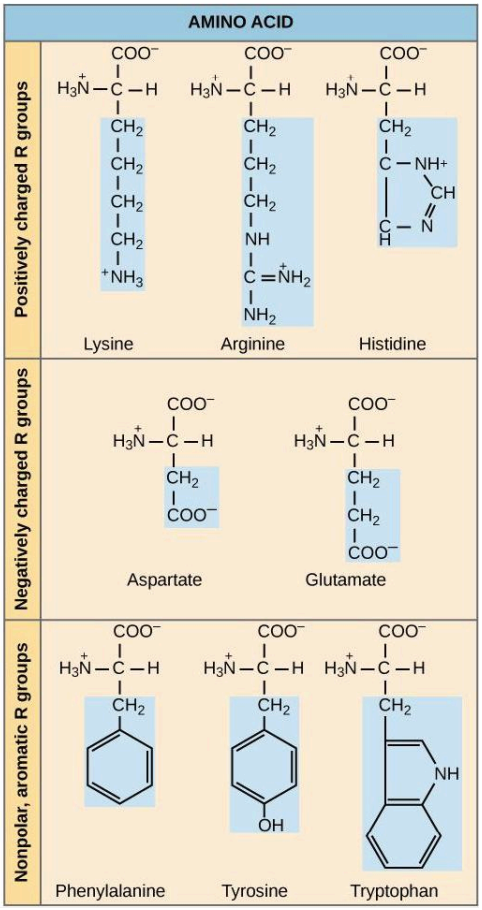
pKb = $-\log Kb$

Ka × Kb = $Kw = 1 \times 10^{-14}$

Kw = $[H^+][OH^-] = 1 \times 10^{-14}$ at 25°C

Henderson-Hasselbalch equation

$$pH = \frac{pK_a + \log [A^-]}{[HA]}$$

Structures of the 20 amino acids found in proteins are shown. Each amino acid is composed of an amino group (NH+3NH3+), a carboxyl group (COO-), and a side chain (blue). The side chain may be nonpolar, polar, or charged, as well as large or small. It is the variety of amino acid side chains that gives rise to the incredible variation of protein structure and function.

= indicates one of the 9 essential amino acids