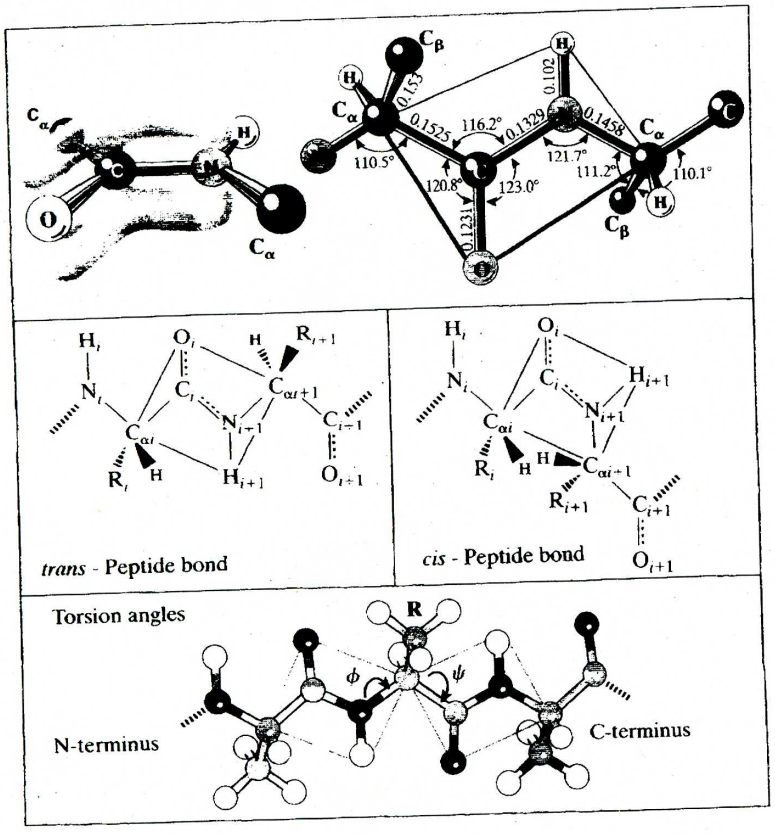

Figure 1.21 The peptide bond. The peptide bond that chemically links two amino acid residues along a polypeptide chain is a C—N bond of an amide linkage. The bond shows partial double-bond character, with the π-electrons distributed between the O—C—N atoms (top panel), and is not freely rotating [bond lengths and angles from Engh and Huber (1991), *Acta Crystrallogr. A* **47**: 392–400]. The bond is found predominantly in the *trans*-configuration, but could also adopt the *cis*-form (middle panel). The two freely rotating bonds on either side of the C_α-carbon thus define the torsion angles ϕ (for rotation about the N—C_α bond) and ψ (for rotation about the Ca—C bond).

VH