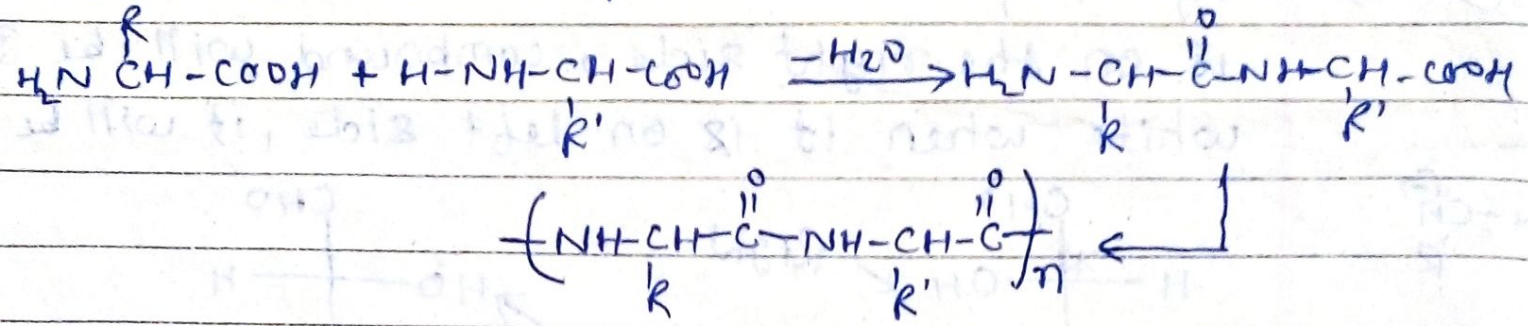


(new)

# Peptide Linkage

When two or more AA combine together via basic amino gr. & acidic carboxylic gr., amide linkage is formed. It is often referred as "peptide linkage" which is found in linear fashion. The linear combination of AA mols generate this linkage (Fischer & Hofmeister). In this way protein containing linear combination of AA can be written as -



Protein (polypeptides)

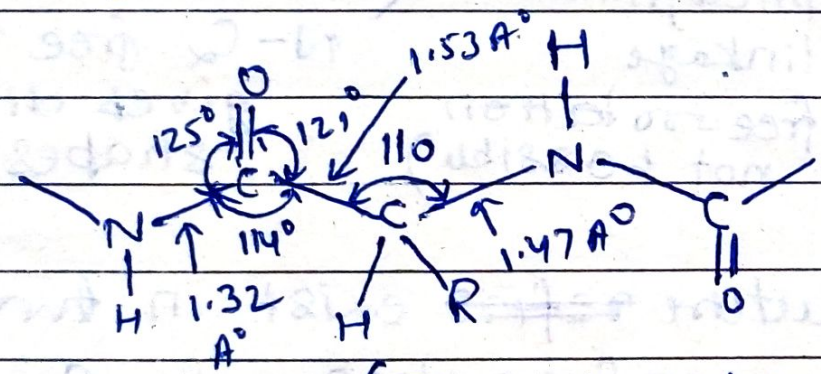
Combination of two AA, three AA & multi AA are known as dipeptides, tripeptides & polypeptides (m.w. up to  $10^4$ ). ~~Can~~ mol. with more mol. wt. are known as protein.

In IR analysis bands near 3300 & 3100  $\text{cm}^{-1}$  are obtained for polypeptides & proteins. These bands are showing that there is H-bond N-H gr.

of amide linkage. Since this amide linkage contains C=O gr. Thus stretching band near 1650 & 1550  $\text{cm}^{-1}$  was obtained.

In case of UV-study, spectra was observed b/w 180-220 nm.

A no. of crystalline peptides have been studied by X-ray (Pauling et al 1953) and following observation was found -



(Geometry of peptide linkage)

This structure shows that peptide linkage is flat. The shorter N-C bond (of amide linkage) than C-N (other than amide linkage) show partial double bond character.