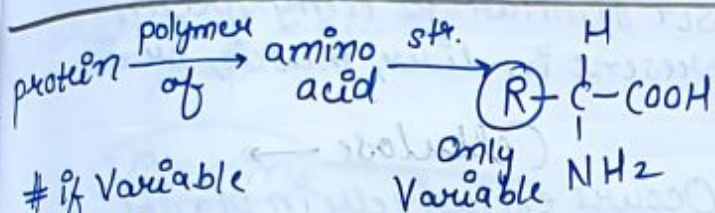
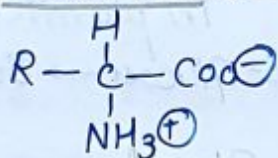


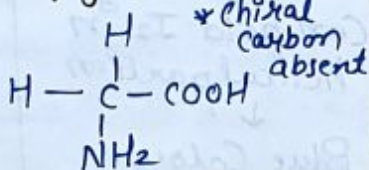
Biomolecules →



Zwitter Ion -



Glycine except



All amino-acids are optically active
 # Chiral

Amino acid $\left\{ \begin{array}{l} \text{essential - not synthesised by body} \\ \text{non-essential - can be synthesised by body} \end{array} \right.$

Amino Acid

Acidic

Basic

Neutral

more-COOH
 - Glutamic acid

more-NH₂
 - lysine

equal-NH₂,
 -COOH.
 - Valine

Aromatic Amino Acids →

Tyrosine, phenylalanine, Tryptophan

Polypeptide of >100 amino-acids
 M.wt > 10,000 u

> protein

- exception - Insulin is of 51 amino-acid.

Protein → physical temp/pH change

↓ cause

H-bonds gets & Globular & Helix
 disturbed unfold & uncoiled
 ↓ called

Denaturation of proteins.

proteins

Fibrous

polypeptide chains
 turns parallel
 Water insoluble
 Keratin, Myosin

Globular

polypeptide chains
 coils around.
 Water Soluble
 Insulin, Albumin

Structures of protein →

① 1° structure - One/more polypeptide chains.

② 2° structure - α Helix, β pleated.

polypeptide chain form all possible H-bonds.
 polypeptide chain extend max. side by side

③ 3° structure - Held together by intermolecular H-bonding
 Further folding of 2° structures.

Forces - H-bonding, Disulphide bonds, Vanderwaal, Electrostatic force.

④ Quaternary - structure - Spatial arrangement of proteins with respect to each other.

Note - almost all enzymes are globular proteins.

Carbohydrates →

Hydrolysis

Mono-Sacharide
 - Do not hydrolyse

Oligo-Sacharide
 - Hydrolyse into 2-10 units

Poly-Sacharide.
 - Hydrolyse into many units

Reducing Nature

Reducing

Reduce Tollen
and Fehling
Reagent

eg- All carbohydrates
(except Sucrose)

Non-Reducing

Can't reduce
Tollen and Fehling
Reagent

eg- Sucrose

Taste and Solubility

Sugar

Sweet in taste
Soluble in water
Monosaccharide,
Disaccharide

Non-Sugar

Not sweet
Non soluble
polysaccharide

Monosaccharide

Free aldehyde
grp.

Aldose (-ose)

- erythrose
- Ribose
- Glucose

Free ketone
grp.

Ketose (-ulose)

- erythrulose
- Ribulose
- Fructose

Polysaccharide

Homo

(same units)

- Cellulose - starch
- glycogen - chitin
- Inulin - Dextrin

Hetero

(diff units)

- Hyaluronic acid
- pectin - Heparin
- Hemicellulose

Starch

Amylose

Unbranched
polymer of
 α -Glucose

Form 15-20%
of starch

Amylopectin

Branched polymer
of α -glucose.

85% of starch

Glycogen →

- Animal starch.
- str. similar to Amylopectin.
- present in liver, muscle, brain.

Cellulose →

- Occurs exclusively in plants.
- Most abundant organic matter in plants.
- β -Glucose → Straight chain.

Starch

Form helical str.
↓
Can hold I_2 in
helical portion
↓
Blue Colour.

Cellulose

Doesn't contain
Helices
↓
Can't hold I_2

Linkage Configurations →

Maltose — α -Glucose

Lactose — β -Glucose + β -Galactose

Sucrose — α -Glucose + β -fructose

Starch → amylose — α -Glucoses

→ amylopectin — α -Glucoses

Cellulose — β -Glucoses

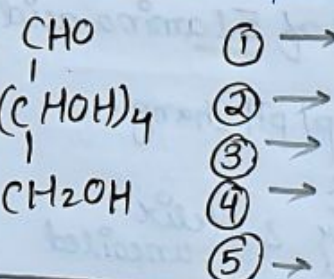
Glycogen — α -Glucoses

Bonds —

Carbohydrate — Glycosidic linkage

protein — peptide linkage

Nucleic acid — phosphodiester linkage



① 6 Carbon in straight chain — HI

② presence of >C=O — NH_2OH , HCN

③ Carbonyl compound is aldehydic-group — Br_2 , water

④ 5-OH group attached to diff. Carbon atom

Acetic Anhydride

⑤ presence of 1° alcoholic group

Oxidation of Nitric-acid.

Vitamins

Fat-Soluble

K, E, D, A

Water-Soluble

B(1, 2, 6, 12), C

A (retinal) - Xerophthalmia, N. Blindness

B₁ (thiamine) - Beri-Beri

B₂ (Riboflavin) - Cheilosis

B₆ (Pyridoxin) - Convulsions

B₁₂ (Cobalamin) - pernicious anaemia

C (Ascorbic a) - Scurvy (bleeding gums)

D (Calciferol) - Rickets

NEET SLAYER

