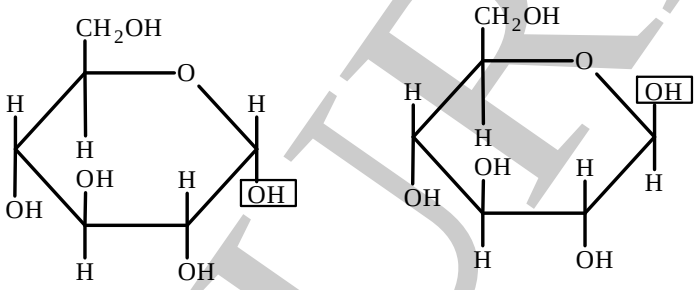
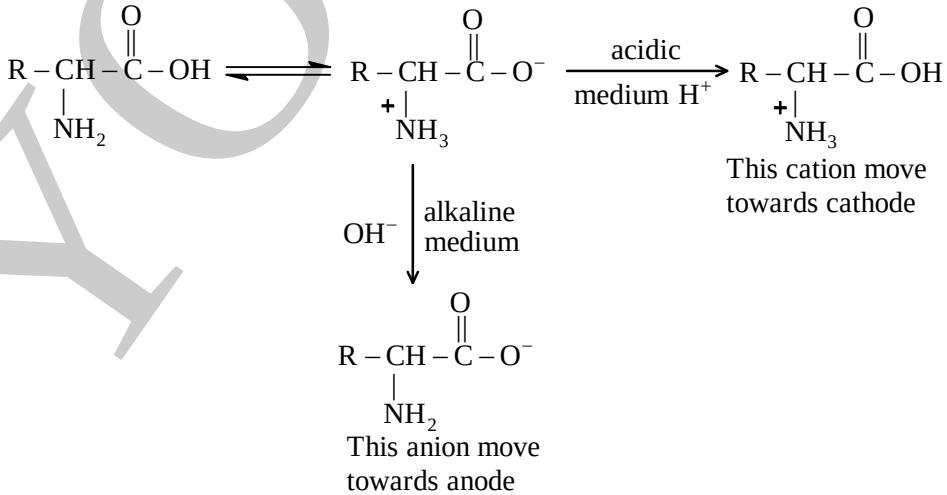
SOLUTION TEST-B

1. (i) Both are polysaccharides
   (iii) Disaccharide and polysaccharide
   (iv) disaccharide and monosaccharide
   The correct answer is (ii)
2. **The correct answer is (iv)**
3. At isoelectric point, amino acids have the least solubility in water due to the presence of **zwitterion**.
   The correct answer is (i)
4. Two strands of DNA are complimentary and not identical. There exist a specific base pairing. It we know the sequence of bases on one strand of DNA, we can write the sequence of bases on the second strand. A pair up with T and G pair up with C.
   The correct answer is (i)
5. The adrenal cortical hormones are steroid hormones.
   The correct answer is (iii)
6. β-D-glucose and β-D-glactose
7. Vitamin C cannot be stored in the body because vitamin C is water soluble and excreted through urine.
8. Two anomers of glucose are



   α-glucose on polymerisation gives starch.
9. (i) α-amino acids in aqueous solution exists as zwitterion.



   (ii) Amino acid have a high melting point and water soluble due to the presence of both acidic and basic functional group. There two functional groups neutralise each other and forms a zwitterion.

10. The amino acids which cannot be synthesised in the body and must be obtained through diet are known as **essential amino acids,** example: Leuncine, Isoleuncine. The amino acids which can be synthesised in the body are known as **nonessential amino acids**. Examples: Glycine, Alanine.

11. (i) n-hexane is obtained

$$HOCH_2-(CHOH)_4-CHO \xrightarrow{HI} \underset{n-hexane}{CH_3-CH_2-CH_2-CH_2-CH_2-CH_3}$$

(ii) Saccharic acid is formed

$$HOCH_2-(CHOH)_4-CHO \xrightarrow{conc.\ HNO_3} \underset{Saccharic\ acid}{HOOC-(CHOH)_4-COOH}$$

(iii) Silver mirror is obtained

$$HOCH_2-(CHOH)_4-CHO \xrightarrow[Tollen's\ reagent]{Ag_2O} \underset{Gluconic\ acid}{HOCH_2-(CHOH)_4-COOH} + \underset{\substack{silver\\mirror}}{2Ag}$$

12. (i) Two pyrimidine bases in DNA are Thymine and Cytosine.
Thymine is not present in RNA

(ii) Phosphodiester linkage

(iii) A unit formed by the attachment of a base to 1'-position of sugar is known as **nucleoside**. When nucleoside is linked to phosphoric acid at 5'-position of sugar moiety, then it gives **nucleotide**.

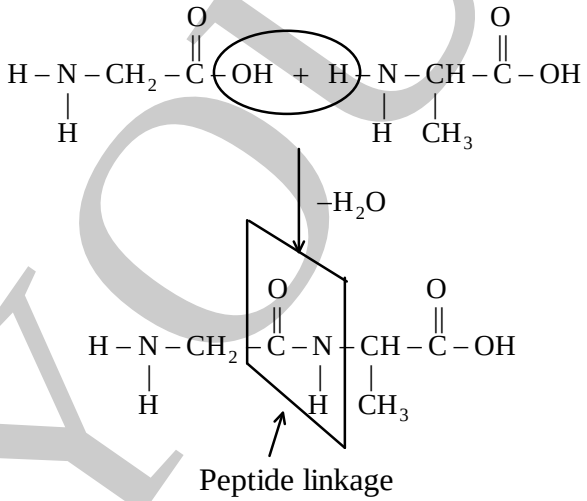
13. (i) The most stable state of protein at a given temperature and pH which determines biological activity of protein is called **native state of protein**.

(ii) The loss in biological activity of protein due to change in temperature and pH is called **denaturation of protein**. The denaturation breaks the secondary and tertiary structure of protein whereas primary structure of protein remains intact.

(iii) Hydrolysis of sugar to give glucose and fructose brings about a change in the sign of optical rotation, from detro (+) to laevo (–) and the product is named as **invert sugar.**

14. (i) There **are two types of secondary structures of protein**
(a) α-Helix and (b) β-pleated sheet like structure.

(ii)



15. (i) Vitamins are organic compounds required in small amounts in our diet but their deficiency causes specific diseases.

(ii) Water soluble vitamins: Vitamin-B and Vitamin C
Fat soluble vitamins: Vitamin-A and Vitamin-D

(iii) Vitamin-D $\rightarrow$ Rickets
Vitamin-K $\rightarrow$ Increased blood clotting time
Vitamin-C $\rightarrow$ Scurvy
Vitamin-B_{12} $\rightarrow$ Pernicious anemia

