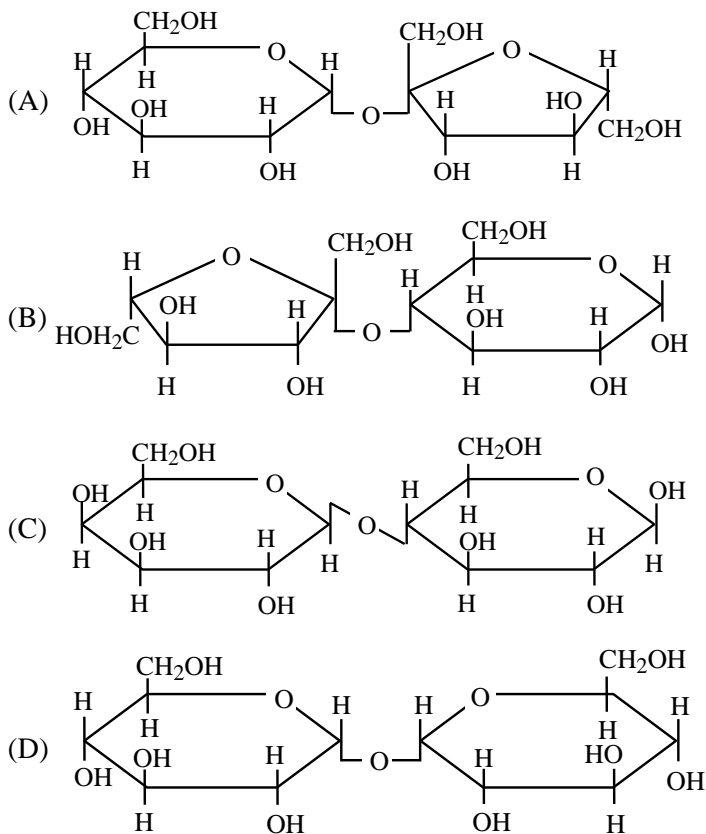


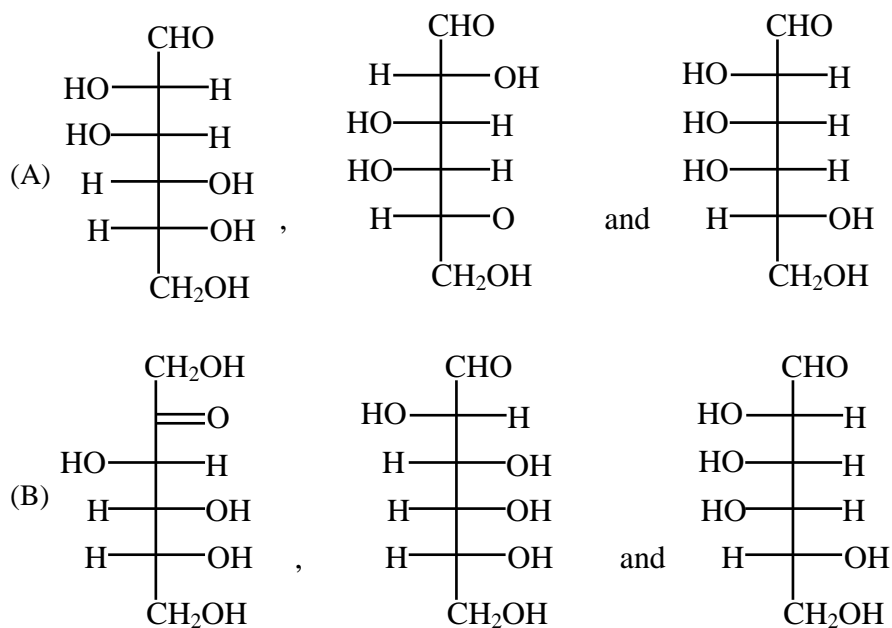
ORGANIC CHEMISTRY

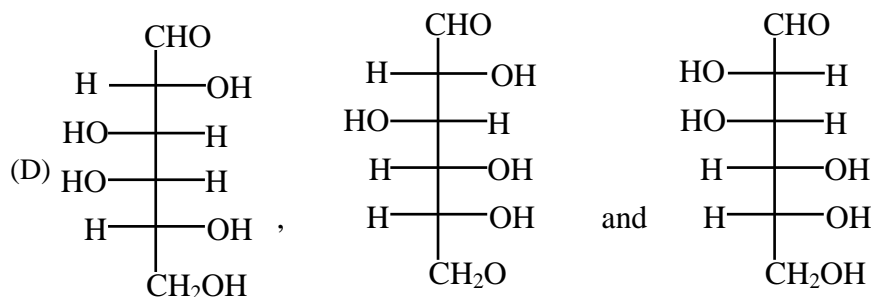
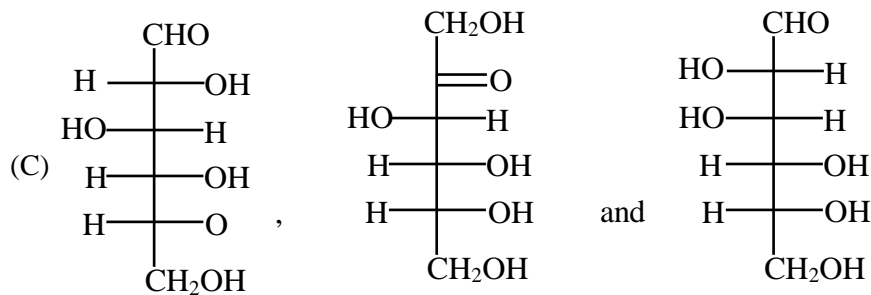
BIOMOLECULES

1. A disaccharide **X** cannot be oxidised by bromine water. The acid hydrolysis of **X** leads to a laevorotatory solution. The disaccharide **X** is [JEE(Advanced) 2023]

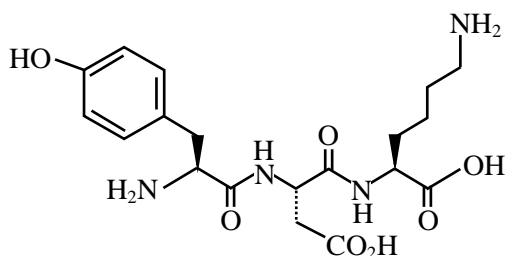


2. Treatment of D-glucose with aqueous NaOH results in a mixture of monosaccharides, which are [JEE(Advanced) 2022]





3. The structure of a peptide is given below



If the absolute values of the net charge of the peptide at pH = 2, pH = 6, and pH = 11 are $|z_1|$, $|z_2|$ and $|z_3|$, respectively, then what is $|z_1| + |z_2| + |z_3|$? [JEE(Advanced) 2020]

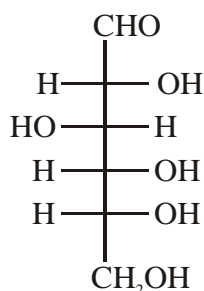
4. Which of the following statement(s) is(are) true? [JEE(Advanced) 2019]

- (A) Oxidation of glucose with bromine water gives glutamic acid
- (B) The two six-membered cyclic hemiacetal forms of D-(+)-glucose are called anomers
- (C) Hydrolysis of sucrose gives dextrorotatory glucose and laevorotatory fructose
- (D) Monosaccharides **cannot** be hydrolysed to give polyhydroxy aldehydes and ketones

5. Choose the correct option(s) from the following [JEE(Advanced) 2019]

- (A) Natural rubber is polyisoprene containing *trans* alkene units
- (B) Nylon-6 has amide linkages
- (C) Cellulose has only α -D-glucose units that are joined by glycosidic linkages
- (D) Teflon prepared by heating tetrafluoroethene in presence of a persulphate catalyst at high pressure

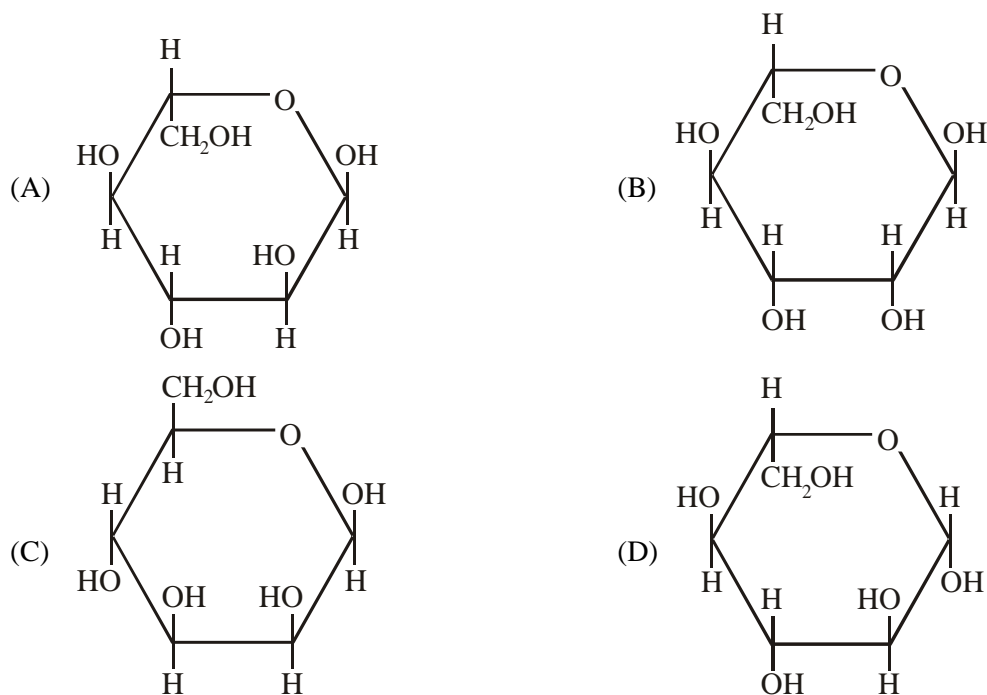
6. The Fischer presentation of D-glucose is given below.



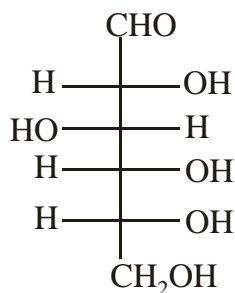
D-glucose

The correct structure(s) of β-L-glucopyranose is (are) :-

[JEE(Advanced) 2018]

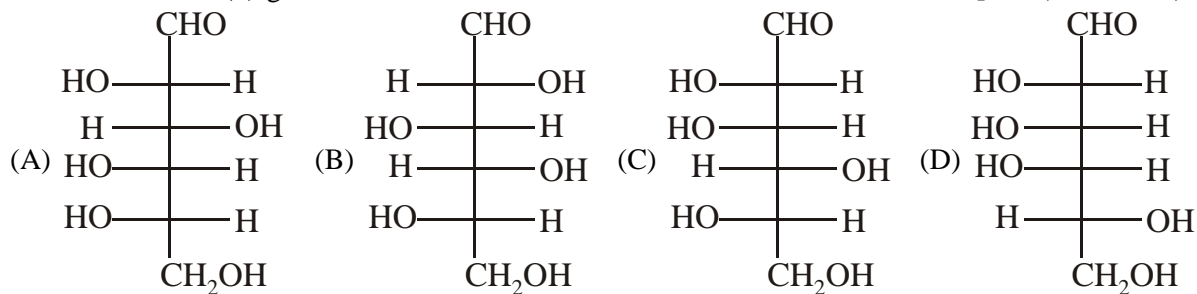


7. The structure of D-(+)-glucose is

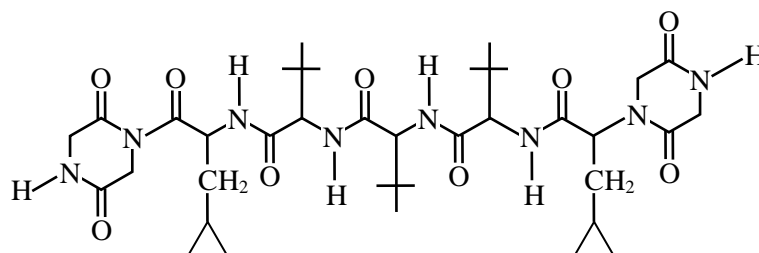


The structure of L(-)-glucose is

[JEE(Advanced) 2015]



8. The total number of distinct naturally occurring amino acids obtained by complete acidic hydrolysis of the peptide shown below is **[JEE(Advanced) 2014]**



SOLUTIONS

1. Ans. (A)

Sol. Sucrose $\xrightarrow{H_3O^+}$ Glucose + Fructose

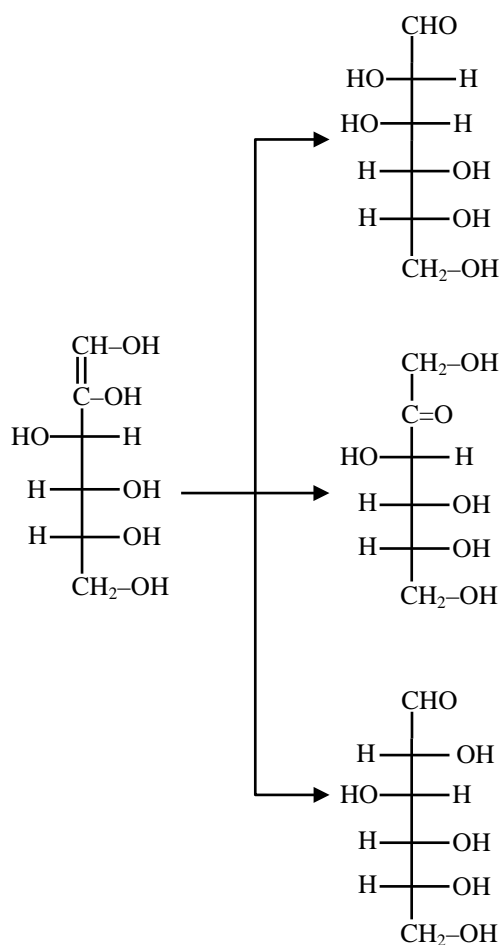
Specific rotation + 52.5° -92° (mixture of products is laevorotatory)

Sucrose $\xrightarrow{Br_2+H_2O}$ No reaction

BCD \Rightarrow reducing sugars, will get oxidized by $Br_2 + H_2O$

2. Ans. (C)

Sol. Basic catalyse tautomerism through enediol intermediate



3. Ans. (5)

Sol. $|z_1| + |z_2| + |z_3| = 5$

