

SHORT QUESTIONS

Q.1 What are biopolymers?

Ans. The macromolecules which are present in living things are called biopolymers. e.g., carbohydrates, proteins, fats, oils, etc.

Q.2 Which polymers are more hard, linear or cross-linked?

Ans. Cross-linked polymers are more hard due to networking of the straight chains. e.g., Bakelite is more hard than polyethylene.

Q.3 What is effect of polymerization on physical properties of a polymer?

Ans. The number of repeating units of a chain is called degree of polymerization. By increasing the degree of polymerization the molecular masses increase and as a result melting point, boiling point, and density also increases.

Q.4 What is difference between homopolymers and copolymers

Ans. In homopolymers same types of monomers are present while in copolymers two types of monomers are present polyethylene is a homopolymer while polyester is a copolymer.

Q.5 What is difference between thermoplastic and thermosetting plastic?

Ans. The plastics which can be softened repeatedly and can be moulded again and again is called thermoplastic. e.g., PVC, polyethene. The plastic which become hard on heating and cannot be moulded again and again is called thermosetting. e.g., Bakelite, epoxy resins.

Q.6 What is difference between additional and condensation polymers?

Ans. The polymers which are formed by the addition of unsaturated monomers are called additional polymers. e.g., polyethene, PVC, PVA. The polymers which are formed by the combination of monomers with the elimination of smaller molecules like water. e.g., Bakelite, nylon, melamine.

Q.7 What is difference between monosaccharides and oligosaccharides?

Ans. The carbohydrates which cannot be hydrolysed are called monosaccharides. e.g., glucose, fructose, mannose. The carbohydrates which on hydrolysis give two to nine monosaccharides are called oligosaccharides. e.g., sucrose, maltose.

Q.8 What is difference between peptide linkage and glycoside linkage?

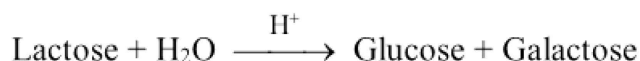
Ans. Linkage of similar or dissimilar monosaccharides with the elimination of water is called glycoside linkage. The linkage of amino acids to form polypeptides with the elimination of water is called peptide linkage.

Q.9 What is meant by plant starch and animal starch?

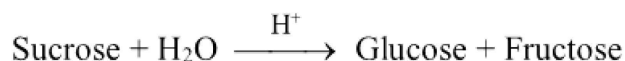
Ans. The mixture of amylase and amylopectin is called starch. The polysaccharide glycogen which is stored in animals is called animal starch.

Q.10 Which monomers are formed by the hydrolysis of lactose and sucrose?

Ans. Lactose on hydrolysis changed to glucose and galactose.



Sucrose on hydrolysis changes to fructose and glucose.

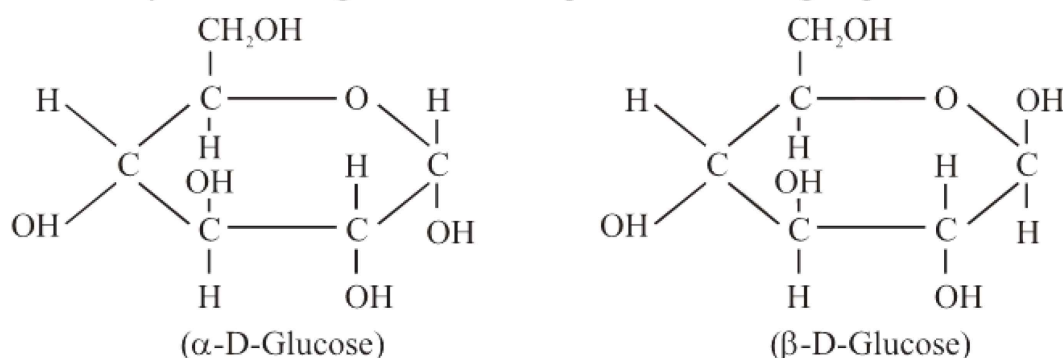


Q.11 What is difference between cellulose and starch?

Ans. Both cellulose and starch are polysaccharides. Both on hydrolysis give glucose. In cellulose monomers are β -D-glucose while in starch the monomer is α -D-glucose.

Q.12 What is difference between α -D-glucose and β -D-glucose?

Ans. Both are cyclic form of glucose. In both position of -OH group is different at carbon 1.



Q.13 Cellulose is not digested in human beings. What is its role in diet?

Ans. Cellulose is not digested by human beings. Its main role is that it provide fibrous material to the food. It satisfy the appetite and stimulate intestinal peristalsis.

Q.14 What is difference between simple proteins and compound proteins?

Ans. The proteins which give only amino acids on hydrolysis are called simple proteins. e.g., albumin, globulin. The protein which on hydrolysis give amino acids and some other non-protein portions are called compound proteins. e.g., phosoprotein, lipoproteins.

Q.15 What is denaturing of proteins?

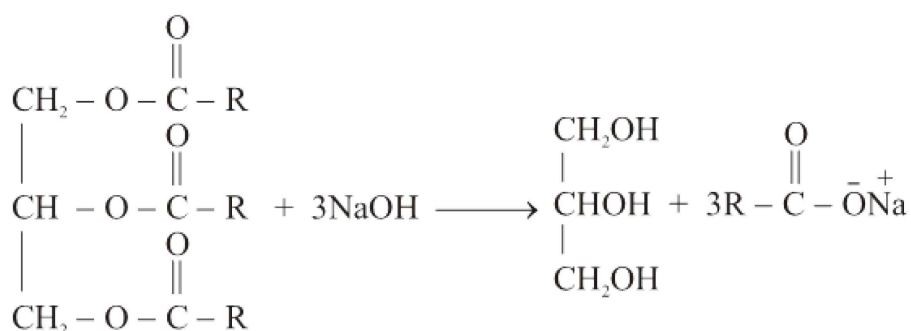
Ans. The change in the structure of proteins from normal pattern is called denaturing of protein. Denaturing of protein can takes place by heating, by adding some oxidizing or reducing agents. e.g., coagulation of albumin of egg on heating is denaturing process.

Q.16 What is rancidity of fats?

Ans. Giving off, bad smell by fats or oils is called rancidity. Rancidity of fats mainly takes place due to hydrolysis or oxidation reactions. Oil obtained from sea animals have greater speed of rancidity.

Q.17 Define saponification.

Ans. The reaction in which an alkali reacts with fats or oils to form soap and glycerol is called saponification.



Q.18 What is saponification number?

Ans. The number of milligrams of KOH required to saponify one gram of fat or oil is called saponification number. One mole of glycerol tripalmitate (806 g) require 168000 mg of KOH for saponification.

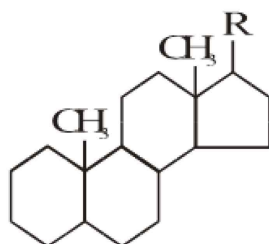
∴ One gram require 168000/806 mg of KOH. Hence saponification number of glycerol tripalmitate is 208.

Q.19 What is iodine number?

Ans. The number of grams of iodine which are required to react completely with 100g of fats or oils is called iodine number. Iodine number is used to determine the unsaturation of fats and oils.

Q.20 What is the basic skeleton present in steroids?

Ans. The parent nucleus of steroids consist of three six membered rings and one five membered ring. This cycle is named as perhydrocyclo-pentanophenanthrene.



Structure of steroid nucleus

Q.21 What is the effect of increased cholesterol in the blood?

Ans. Cholesterol is present in free and esterified form in the blood. If quantity of cholesterol increases it deposits inside the arteries and hinders the flow of blood. Increased value of cholesterol causes high blood pressure and some heart diseases.

Q.22 What is the chemical nature of enzymes?

Ans. Enzymes are either pure protein or contain protein as well as some non-protein portion essential for activity of enzyme. The protein component of enzyme is called apoenzyme and non-protein portion of enzyme is called co-factor or co-enzyme.

Q.23 What are the optimum condition of temperature and pH for activity of enzyme?

Ans. Enzyme reaction occur best at 37°C which is normal body temperature. Enzyme usually destroy at high temperature. Activity of enzyme is maximum in neutral, slightly acid or slightly basic medium. In highly acidic or highly basic medium their activity decreases. e.g., optimum pH for salivary amylase is 6.4 to 6.9.

Q.24 What is effect of radiation on the enzymes?

Ans. Generally enzymes are readily inactivated by exposure to ultraviolet light, Beta rays, gamma rays and X-rays.

Q.25 Which enzyme can be used for cancer treatment?

Ans. Many enzyme are used for the cancer treatment for example: L-asparaginase has proved very useful in the treatment of blood cancer in children.

Q.26 What is difference between ribose and deoxyribose sugar?

Ans. Ribose is a monosaccharide with five carbons in it. Deoxyribose has one less oxygen at carbon no 2.

Q.27 Which amine bases are present in RNA and DNA?

Ans. In DNA four amine bases cytosine, thymine, guanine and adenine are present. In RNA four bases cytosine, uracil, guanine and adenine are present.