

CBSE TEST PAPER-03
CLASS - XI BIOLOGY
(Digestion and Absorption)

General Instruction:

- All questions are compulsory.
 - Question No. 1 to 3 carry one marks each. Question No. 4 to 6 carry two marks each. Question No. 7 and 8 carry three marks each. Question No. 9 carry five marks.
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1. What is egestion?
2. What are micelles?
3. What are crypts of lieberkuhn?
4. If a major part of the small intestine of a mam al be removed, will this affect absorption of food?
5. What is the role of micelles in the fat absorption?
6. Differentiate chylomicron & micelles on the basis of their structural components.
7. Describe coagulation of milk in alimentary canal.
8. Name three enzymes secreted by pancreas specify the substance and the product of each.
9. Explain the absorption of digested products.

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[ANSWERS]

Ans 01. Passing out of undigested food from the body.

Ans 02. Monoglycerids, long chain fatty acids and digested fats unite with bile salts and form small spherical droplets known as micelles.

Ans 03. Pits into the sub mucosa of gastrointestinal tract wall.

Ans 04. The major part of the food is absorbed only in the small intestine, only some part of water is absorbed in the stomach. So, if the major part of the small intestine is removed it would seriously affect the absorption of digested food.

Ans 05. Fats are digested into monoglycerides, diglycerides and fatty acids, which are insoluble in water. These are first incorporated into small, spherical and water soluble droplets called micelles. Micelles help in the absorption of fatty acids, glycerols, sterols and fat soluble vitamins into the intestinal cells.

Ans 06.

	Chylomicrons	Micelles
1.	Protein coated water soluble fat droplets of about 150 nm released into the lymph.	It is formed by combination of fatty acids, mono acylglycerols and the bile salts.
2.	In this form fats / lipids are put into circulation.	In this form, digested fats are absorbed in intestinal cells in alimentary canal.

Ans 07. When the food or milk reaches the stomach, the protein digestion starts. Pepsin stimulates the digestion of proteins in milk (casein) HCl activates pepsinogen into pepsin. It hydrolyses soluble casein into paracasein which precipitates as calcium paracaseinate to make solid curd i.e., coagulation of milk. There is a milk – coagulating enzyme called rennin which is found in calf gastric juice. Rennin is secreted as pro-rennin (inactive form) but in

the presence of HCl, it is hydrolyses casein into paracasein leading to milk coagulation.

Ans 08. Pancreas is a composite gland. It has exocrine and endocrine parts. The exocrine parts secretes pancreatic juice. It contain trypsin, amylopsin and steapsin.

a) Trypin – It converts proteins, peptones and proteoses into amino acids.

b) Amylopsin – It acts upon starch and converts them into soluble sugars.

c) Steapsin or lipase – It emulsifies fats and converts them into fatty acid & glycerol.

Ans 09. Absorption of Digested products – The absorption is defined “as the process by which end products of digestion pass through the intestinal mucosa onto the blood or lymph” . The process of absorption is carried out by 3 mechanisms: by passive, active or transport mechanisms. The monosaceharides such as glucose, amino acids and certain electrolytes

e.g. chloride are mostly absorbed by the process of simple diffusion against the concentration gradient some substances e.g., fructose and some amino acids are absorbed the help of carries ions like Na⁺. It is known as facilitated transport.

The transport of water – It depends upon osmotic gradient. Active transport takes place against the concentration gradient and it needs energy. The amino acids, monosaccharides like Glucose, electrolytes like Na⁺ are absorbed into the blood by active transport.

The fatty acids and glycerol – These are insoluble and so cannot be absorbed into blood. They are incorporated into small droplets termed as micelles. They move into the intestinal mucosa. They again form very small protein – coated fat globules or the chylomicrons. The chylomicrons are transported into lymph vessel or lacteals found in the villi. They ultimately release absorbed substances into the blood.

The absorption of various substances occurs in various parts of alimentary canal, mouth, stomach, small intestine and large intestine. Maximum absorption takes place in small intestine. The small intestine contains villi for it.