

6.1 Digestion & Absorption

Question Paper

Course	DP IB Biology
Section	6. Human Physiology
Topic	6.1 Digestion & Absorption
Difficulty	Medium

Time allowed: 20
Score: /10
Percentage: /100

Question 1

Which statement best describes the action of peristalsis in the alimentary canal?

- A** Striated muscles contract to move the partially digested food in a wave-like movement along the alimentary canal.
- B** Circular muscles contract behind the partially digested food and the longitudinal muscles shorten.
- C** Skeletal muscle contractions force the food through the alimentary canal with valves preventing backflow.
- D** Longitudinal muscles contract behind the partially digested food and the circular muscles shorten.

[1 mark]

Question 2

Which is the correct reason that cellulose passes through the gut undigested?

- A** There are no enzymes present in the human digestive system capable of cellulose digestion.
- B** Cellulose is not a required nutrient of the human body.
- C** Cellulose provides bulk for effective peristalsis which forces the food through the alimentary canal.
- D** It takes too long for the glucose monomers in cellulose to be hydrolysed, so cellulose is egested before it can be digested.

[1 mark]

Question 3

Which row of the table correctly states the monomers which combine to form the disaccharide named?

	Disaccharide	Monomer 1	Monomer 2
A	Galactose	Lactose	α -Glucose
B	Maltose	α -Glucose	Fructose
C	Sucrose	α -Glucose	Fructose
D	Sucrose	β -Glucose	Fructose

[1 mark]

Question 4

Which of the following statements correctly describes the digestion of starch?

- I. Involves enzymes in cell-surface membranes.
- II. Occurs primarily in the small intestine.
- III. Requires amylase to hydrolyse the 1,6 glycosidic bonds in amylopectin.
- IV. Involves at least 3 different enzymes.

- A** I and II
- B** I, II and IV
- C** I, III and IV
- D** I, II, III, and IV

[1 mark]

Question 5

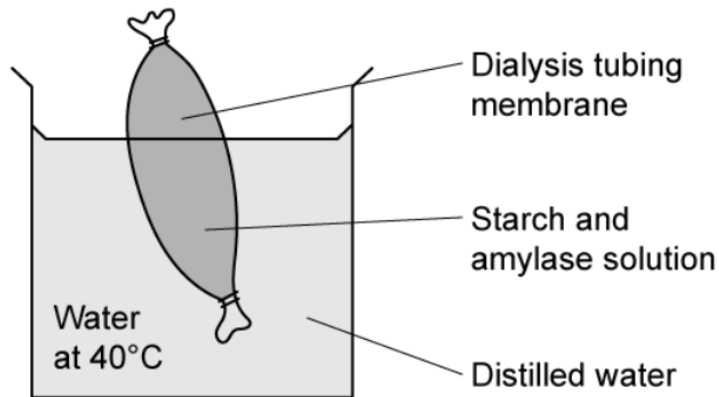
Which of the following is **not** a method of absorption in the small intestine?

- A** Simple diffusion of glucose across the plasma membrane into the cells lining the small intestine.
- B** Exocytosis of lipoproteins out of the epithelium cells and into the lacteal.
- C** Simple diffusion of fatty acids and glycerol into epithelium cells.
- D** Active transport of sodium from the cytoplasm of the epithelium cells to the inside of the villus.

[1 mark]

Question 6

In what way does the apparatus shown below provide an accurate model of digestion?



- A** The dialysis tubing represents the membrane of the stomach and shows how secretions can assist in the breakdown of food substances in the stomach.
- B** The dialysis tubing acts as a membrane to show how substances may be taken up by active transport in the small intestine.
- C** Passive movement of small particles through the partially permeable visking tubing mimics the absorption of nutrients in the small intestine.
- D** The large surface area of the intestine is replicated in the structure of the visking tubing.

[1 mark]

Question 7

Which combination of secretions are produced by the pancreas?

- A** Bile, amylase and maltase.
- B** Pepsin, amylase and lipase.
- C** Amylase, lipase and phospholipase.
- D** Lactase, sucrase and exopeptidases.

[1 mark]

Question 8

Which of the following is triggered by the release of hormones in response to ingestion of food.

- A** Production of insulin and glucagon by the pancreas.
- B** Synthesis and secretion of digestive enzymes by the pancreas.
- C** The reduced secretion of glucagon into the blood.
- D** Increased sensitivity of insulin receptors in the small intestine.

[1 mark]

Question 9

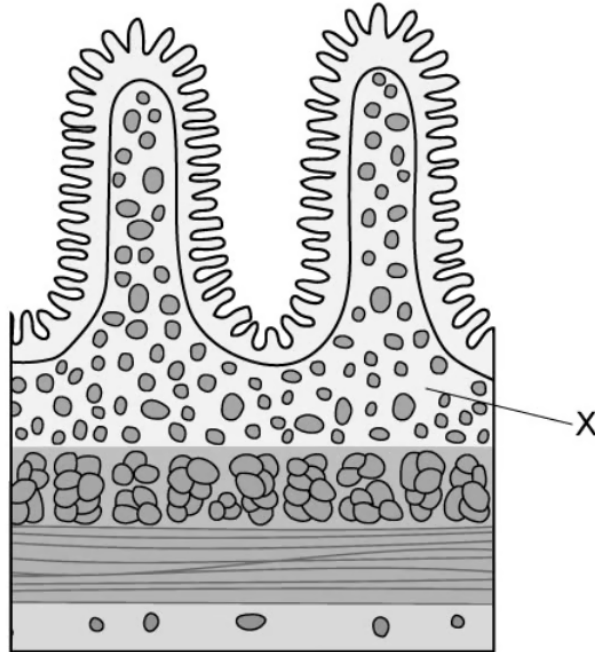
Which of the following parts of the digestive system produce and secrete protein-digesting enzymes into the alimentary canal?

	Stomach	Pancreas	Small intestine
A	Yes	No	Yes
B	No	Yes	Yes
C	Yes	Yes	No
D	Yes	Yes	Yes

[1 mark]

Question 10

What is 'X' on the diagram?



- A Longitudinal muscle
- B Circular muscle
- C Sub-mucosa
- D Serosa

[1 mark]