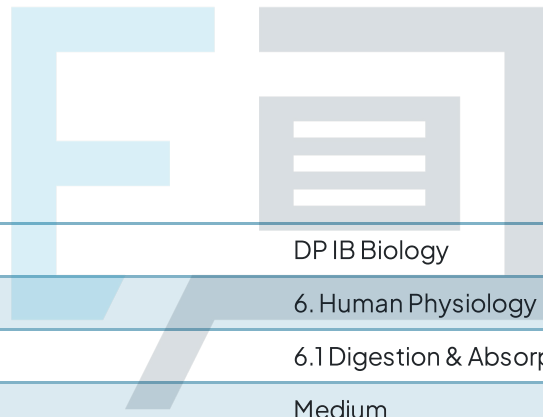




6.1 Digestion & Absorption

Question Paper



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

Exam Papers Practice

To be used by all students preparing for DP IB Biology HL
Students of other boards may also find this useful

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?

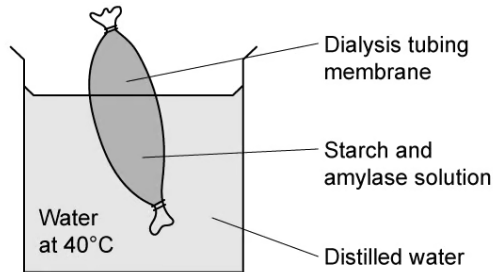
- A. Simple diffusion of glucose across the plasma membrane into the cells lining the small intestine.
- B. Exocytosis of lipoproteins out of the epithelium cells and into the lacteal.
- C. Simple diffusion of fatty acids and glycerol into epithelium cells.
- D. Active transport of sodium from the cytoplasm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

[1 mark]

Exam Papers Practice

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

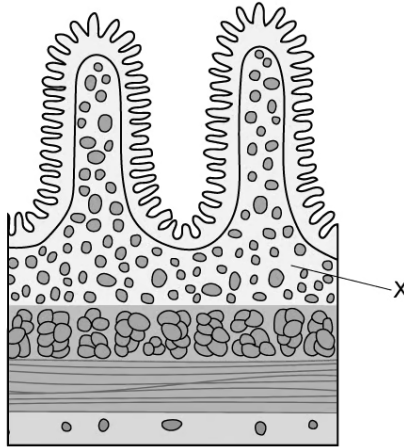
Which of the following parts of the digestive system produce and secrete protein-digesting enzymes into the alimentary canal?

| | 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]

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