

Answer 答案：

(a) 1, 2, 3 and 5

(b) 2, 4 and 5

(c) 3

(d) 12

Digestion 消化

Different types of digestion 不同類型的消化

Physical digestion 物理消化

Chewing in mouth cavity (teeth) 口腔內的咀嚼（牙齒）

Peristalsis 蠕動

Churning in stomach 胃的攪動

Emulsification of lipids 脂質的乳化

→ to increase surface areas of food 增加食物的表面積

Chemical digestion 化學消化

Achieved by digestive enzymes carbohydrase, protease and lipase

消化酶：碳水化合物酶、蛋白酶和脂肪酶

→ to breakdown large complex food substances into small simple molecules

把較大複雜的食物物質分解成細小簡單的分子

Digestion in different parts of alimentary canal

消化道內不同部分的消化過程

In mouth cavity 口腔

Salivary glands produce saliva that contains 唾腺分泌的唾液含有：

— Salivary amylase 唾液澱粉酶 → break down starch into maltose
把澱粉分解成麥芽糖

— Minerals salt and mucus 礦物質和黏液

In stomach 胃

Gastric glands produce gastric juice that contains 胃腺分泌的胃液含有

- Protease 蛋白酶 → break down protein into peptide 把蛋白質分解成肽
- Hydrochloric acid 氫氯酸
 - kill bacteria in food and provide acidic environment for protease
殺死食物中的細菌和提供酸性環境給蛋白酶

In small intestine (duodenum) 小腸 (十二指腸)

Bile 膽汁

Produced by the liver, stored in gall bladder, and it contains:

由肝分泌，儲存在膽囊中，含有：

- bile salt 膽鹽
 - emulsify lipids into small droplets, which increases surface area for the action of enzyme 把脂質乳化成小油滴，增加酶作用的表面積
- sodium hydrogencarbonate which is alkaline 鹼性的碳酸氫鈉
 - neutralizes the acidic chyme, provides an alkaline medium
中和酸性的食糜和提供鹼性的媒介
- bile pigment 膽色素

Pancreatic juice 胰液

Produced by pancreas and it contains 由胰分泌，含有：

- pancreatic amylase, **lipase** and protease (only juice that contains lipase)
胰澱粉酶、**脂肪酶**和蛋白酶 (唯一擁有脂肪酶的消化液)

Lipase 脂肪酶 → breakdown lipids into fatty acid and glycerol
把脂質分解成脂肪酸和甘油

Intestinal juice 腸液

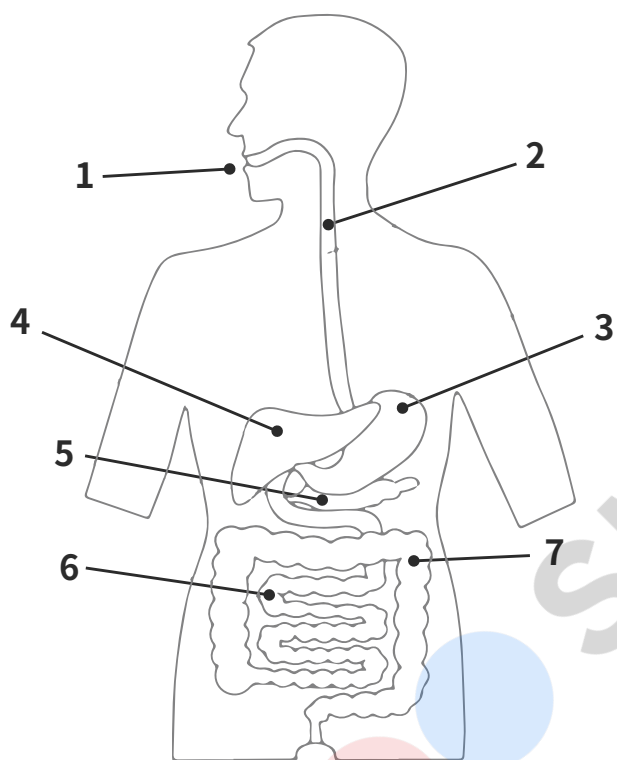
Produced by the glands in the wall of small intestine and it contains:

由小腸壁的腺分泌，含有：

- carbohydrase and protease 碳水化合物酶和蛋白酶

Q1. Which part of the human alimentary canal is the first part to digest the main food substance in egg chemically? 進食蛋後，人類的哪個部分是第一個進行化學消化？【Type 題型 1：Factual 事實】

Q2. The diagram below shows the human digestive system.
下圖顯示人類的消化系統。【Type 題型 3：Diagram type 圖示】



- (a) In which structure(s) do(es) chemical digestion of protein occur?
蛋白質的化學消化在哪個部分進行？
- (b) Which structure(s) produce secretion(s) that help the digestion of lipids?
哪個構造負責製造有助消化脂質的分泌物？
- (c) What is the consequence to digestion if the duct of structure 5 is blocked?
如果構造 5 的管閉塞，對消化作用有什麼可能的後果？
- (d) What is the consequence to digestion if part of structure 6 is being removed?
如果部分構造 6 被移除，對消化作用有什麼可能的後果？
- (e) What is the consequence to digestion if part of structure 7 is being removed?
如果部分構造 7 被移除，對消化作用有什麼可能的後果？