7. Human nutrition

7.2 Digestive system

Paper 3 and 4

Question Paper

Paper 3

Questions are applicable for both core and extended candidates

1 **(a)** Fig. 1.1 is a diagram of the digestive system.

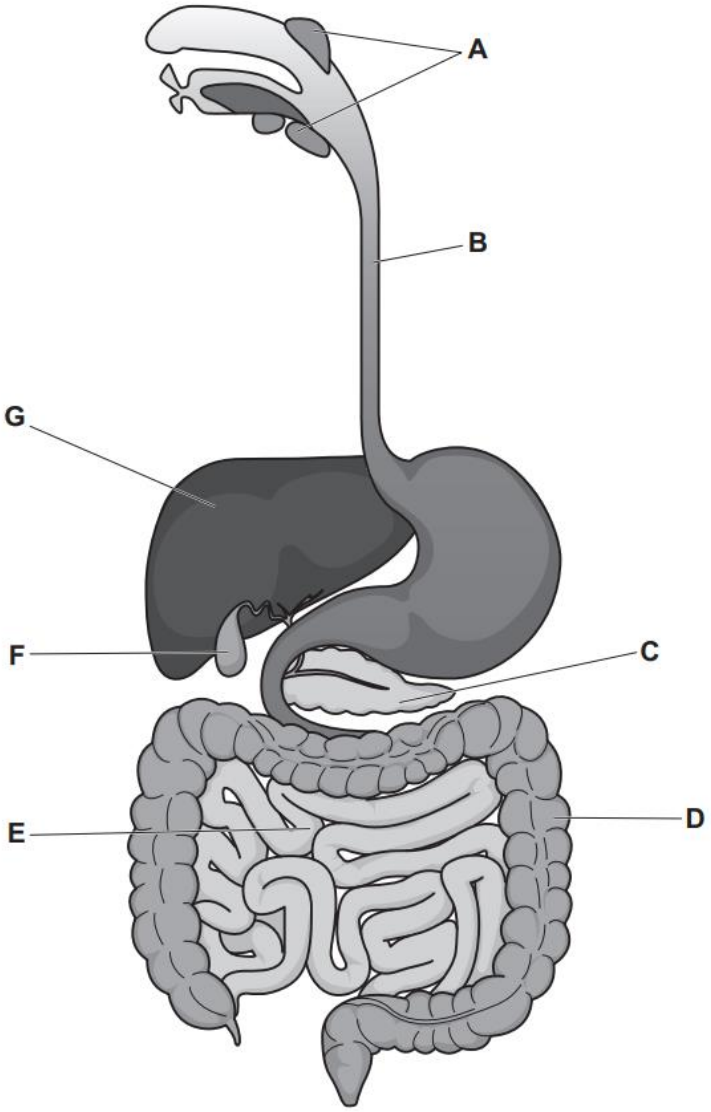


Fig. 1.1

(i) State the letter from Fig. 1.1 that represents:

where salivary amylase is produced .....

where insulin is produced .....

the liver .....

where protease acts. .....

[4]

(ii) State **one** function of the hydrochloric acid in the stomach.

.....

.....

..... [1]

2 Fig. 2.1 is a diagram of part of the human digestive system.

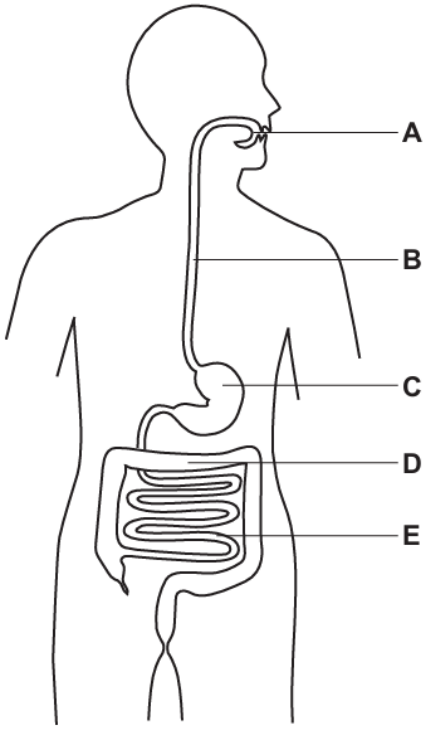


Fig. 2.1

(a) Using the information in Fig. 2.1, state the letters where:

chemical digestion of proteins begins .....

hydrochloric acid is produced .....

physical digestion of food occurs. ..... and .....

[4]

(b) State the names of **three** parts of the large intestine.

1 .....

2 .....

3 .....

[3]

(c) Many processes occur in the digestive system.

The boxes on the left show some of the processes.

The boxes on the right show descriptions of some processes.

Draw **one** line to link each process to its description.

Draw **four** lines.

process	description
	breakdown of food
absorption	
	movement of nutrients from the intestines into the blood
digestion	
	removal of undigested food from the body as faeces
egestion	
	taking substances into the body
ingestion	
	uptake and use of nutrients by cells

[4]

[Total: 11]

3 **(a)** Fig. 7.1 is a diagram of the human digestive system.

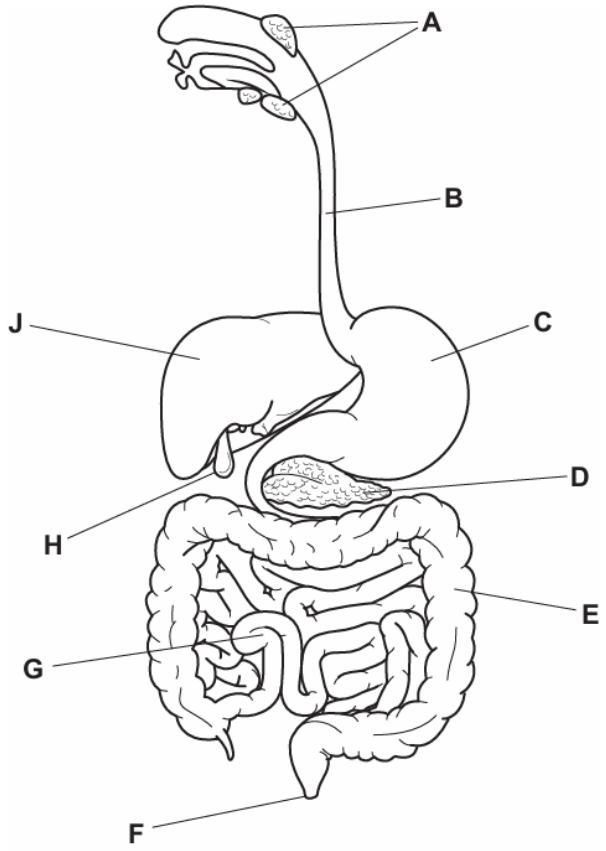


Fig. 7.1

State the letter in Fig. 7.1 that identifies:

the gall bladder .....

the organ that secretes salivary amylase .....

where egestion occurs .....

where most absorption occurs .....

where physical digestion occurs .....

where the pH is acidic .....

[6]

4 **(a)** Fig. 7.1 is a diagram showing some of the organs in the human body.

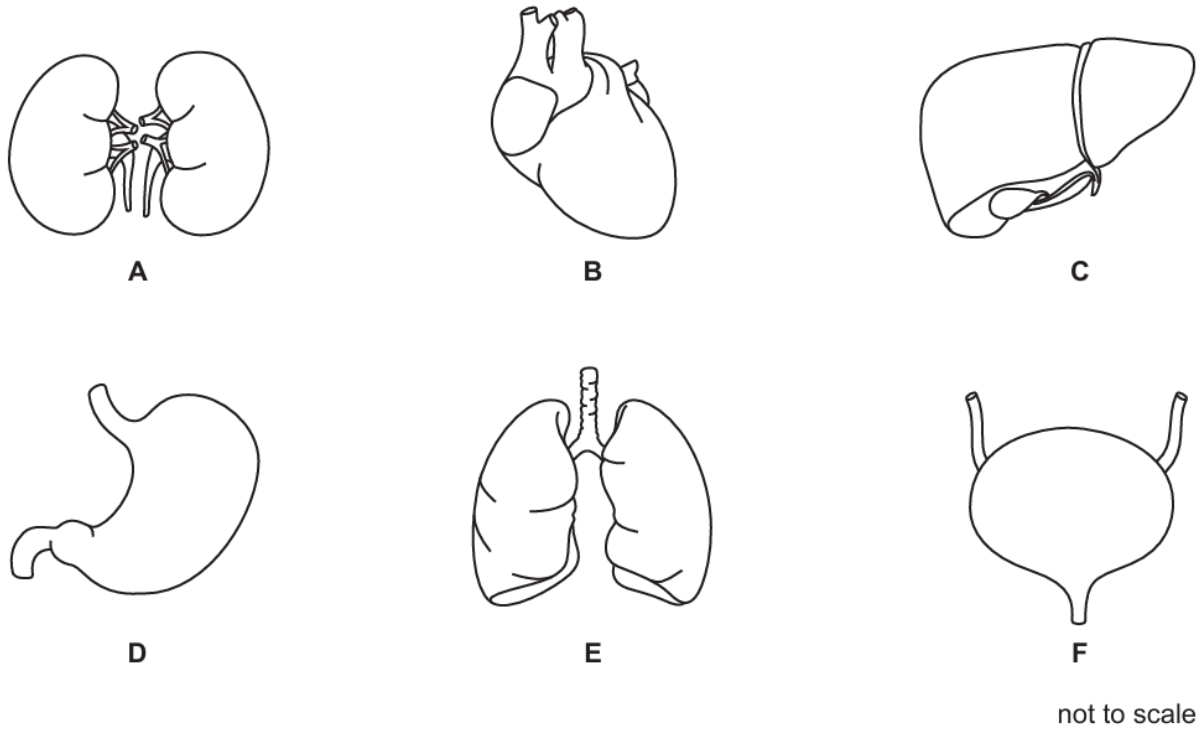


Fig. 7.1

Table 7.1 shows the names of some of the organs in Fig. 7.1, the identifying letters of some of these organs and their functions.

name	letter in Fig. 7.1	function
		excretes carbon dioxide from the body
heart	**B**	
	F	stores urine
		excretes urea, excess water and ions

[6]

5 **(d)** Fig. 4.1 is a diagram of part of the digestive system.

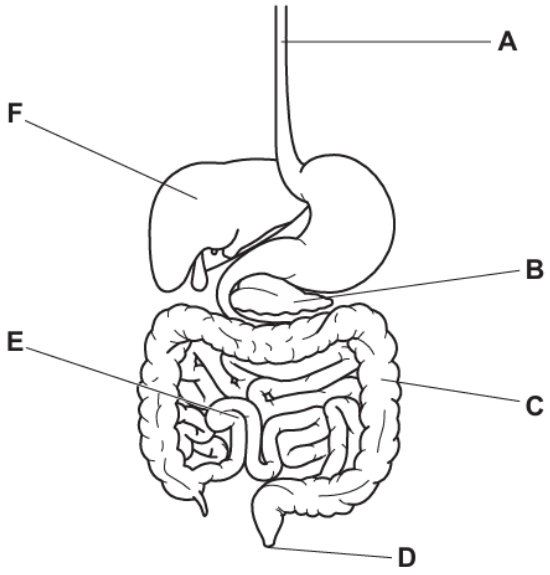


Fig. 4.1

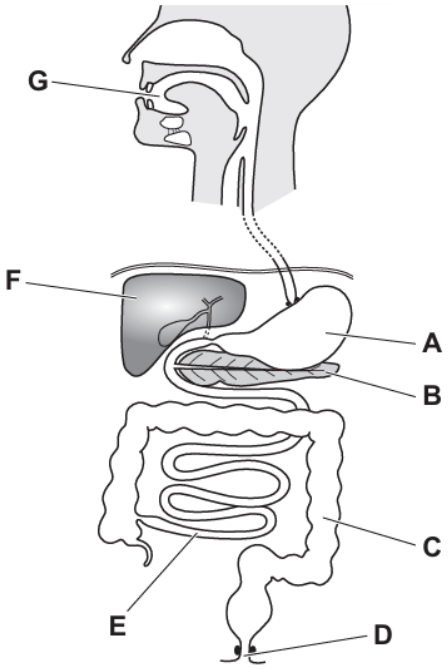
(i) State **one** letter, from Fig. 4.1, that labels the part of the digestive system where egestion occurs.

..... [1]

(ii) State the **two** letters from Fig. 4.1 that label the parts of the digestive system where water is absorbed.

..... and ..... [2]

6 **(a)** Fig. 3.1 is a diagram showing part of the human alimentary canal and associated organs.



not to scale

Fig. 3.1

(i) The boxes on the left show three letters from Fig. 3.1 that identify three different organs.

The boxes in the middle show the names of some of the organs in Fig. 3.1.

The boxes on the right show some functions of organs.

Draw **three** lines to link each letter to the name of the organ the letter identifies in Fig. 3.1.

Draw **three** more lines to link these organs to a correct function.

Draw a total of **six** lines.

letter from Fig. 3.1	name of the organ	function
	anus	absorption
D		
	ileum	assimilation
E		
	mouth	egestion
G		
	pancreas	ingestion

[6]

(ii) State the letter in Fig. 3.1 that identifies the liver **and** outline **one** function of the liver.

letter in Fig. 3.1 .....

function .....

.....

.....

[2]

7 Fig. 3.1 is a diagram of the alimentary canal and associated organs.

Some parts are identified by letters.

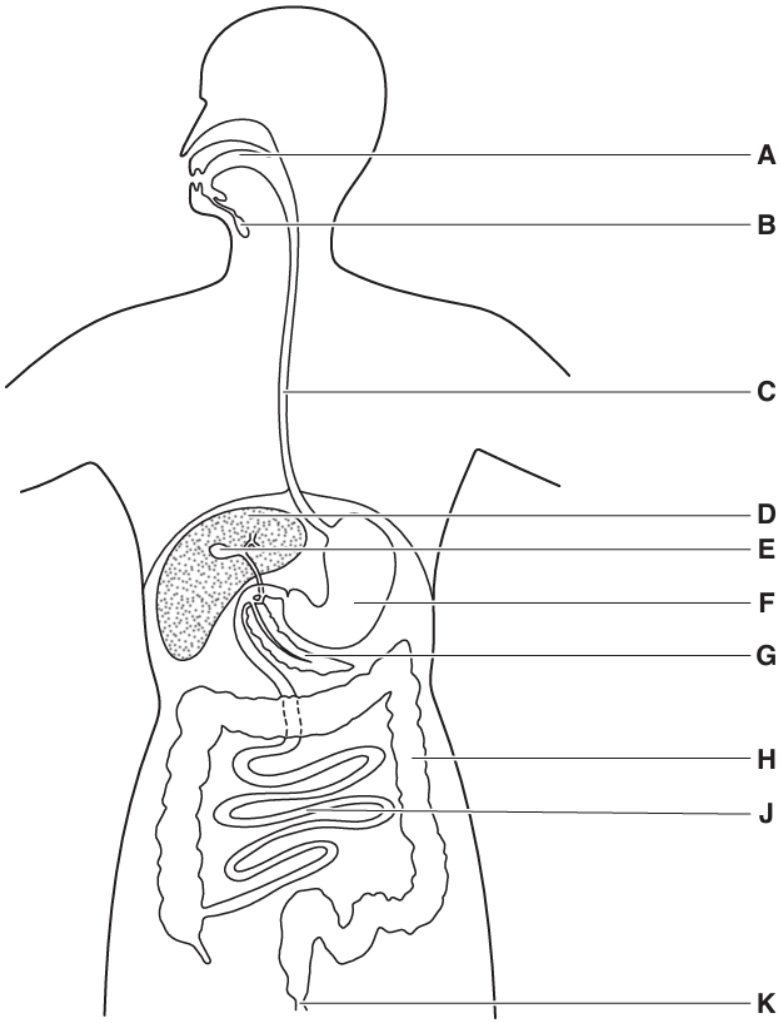


Fig. 3.1

(a) Complete Table 3.1 by inserting the letter from Fig. 3.1 which identifies the part that carries out the function described.

Table 3.1

description of function	letter in Fig. 3.1
where egestion takes place	
where lipase is made	
where mechanical digestion occurs	
where the **most** water is absorbed	

[4]

8 **(a)** Table 1.1 shows some of the structures and parts of the alimentary canal and associated organs.

Complete Table 1.1 by identifying the five missing structures and functions.

Table 1.1

structure	function
	where egestion occurs
gall bladder	
	where ingestion occurs
salivary glands	
	where most absorption occurs

[5]

9 **(a)** Fig. 5.1 shows a diagram of part of the alimentary canal and associated structures.

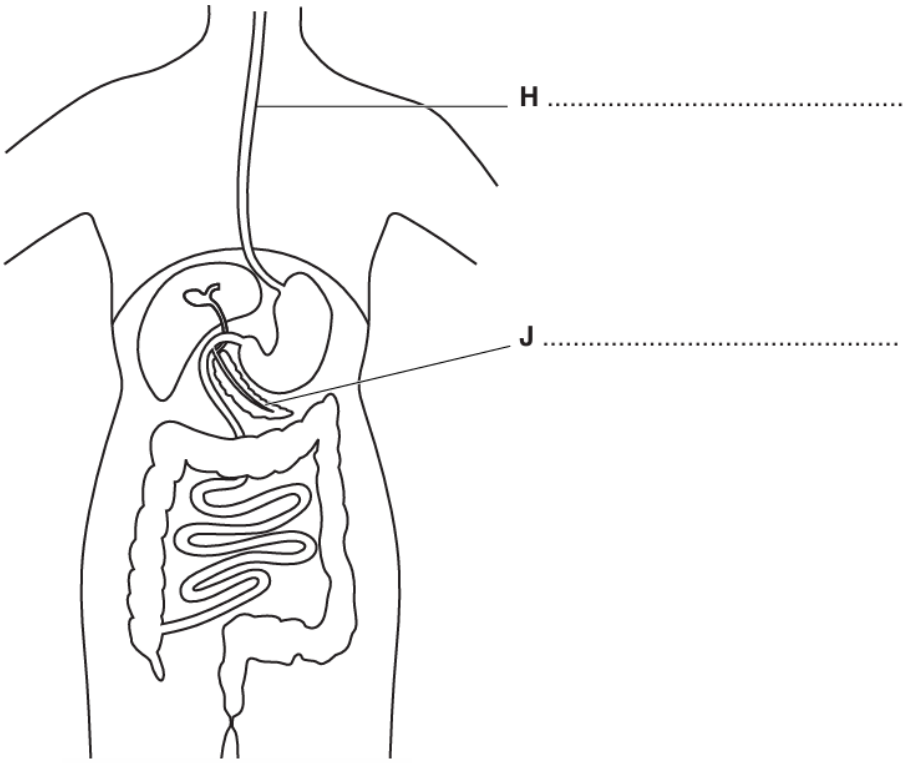


Fig. 5.1

(i) State the names of the structures labelled **H** and **J**.

Write your answers on Fig. 5.1. [2]

(ii) On Fig. 5.1 draw label lines with letters to show:

N where faeces are stored

P where **most** water is absorbed

R where digested food is absorbed.

[3]

(b) (i) State the name of the process that is defined as the movement of digested food molecules into the cells of the body where they are used, becoming part of the cells.

.....[1]

(ii) State the name of the process that removes faeces from the body.

.....[1]

Paper 4

Questions are applicable for both core and extended candidates

10 **(a)** Fig. 1.1 is a diagram of the digestive system.

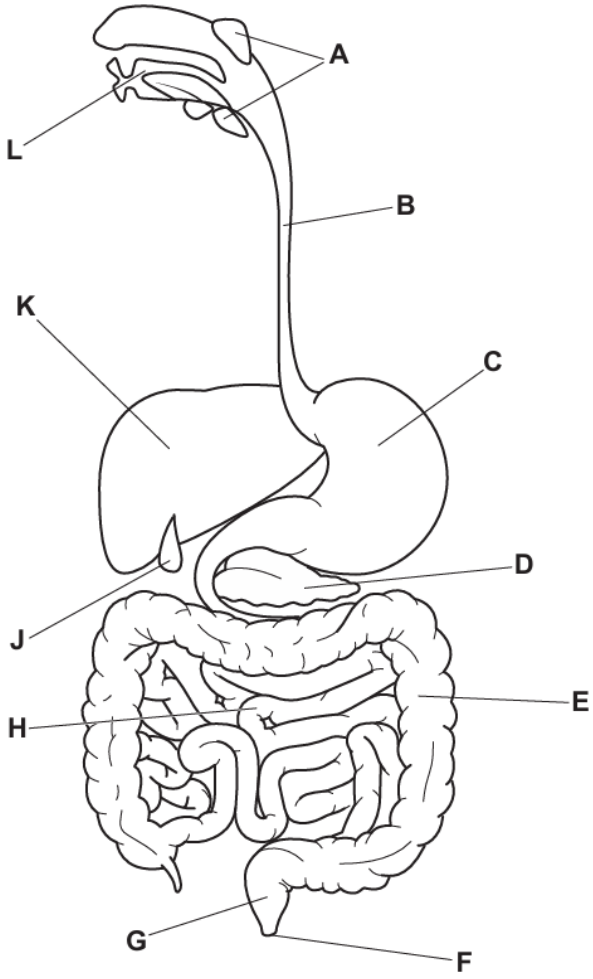


Fig. 1.1

Each letter may be used once, more than once or not at all.

State the letter of the part shown in Fig. 1.1:

that produces bile .....

that produces gastric juice .....

that produces urea .....

where maltose is digested .....

where trypsin acts. .....

[5]

11 Fig. 2.1 is a diagram of the human alimentary canal and associated organs.

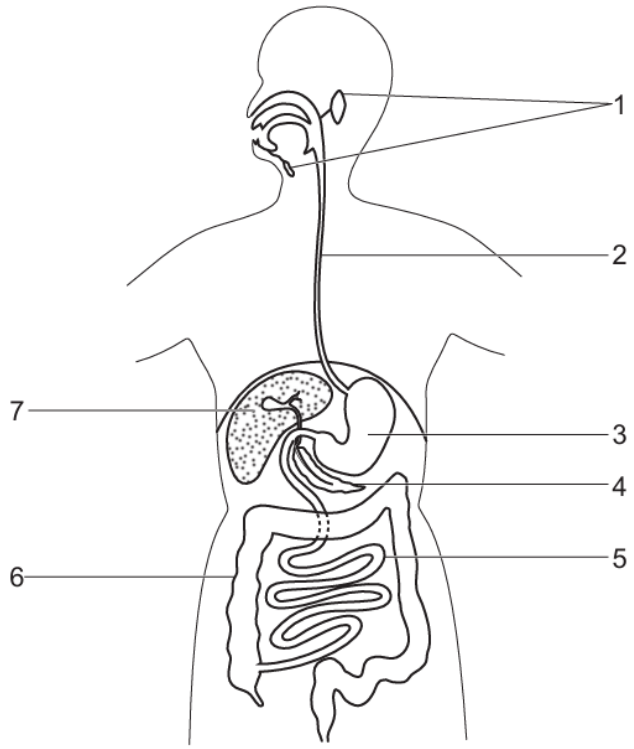


Fig. 2.1

(c) State a function of the region of the alimentary canal labelled 6 in Fig. 2.1.

.....

.....

..... [1]

12 The pancreas is an organ that has roles in the digestive and hormonal systems of humans.

Fig. 3.1 shows part of the alimentary canal and some of the associated organs.

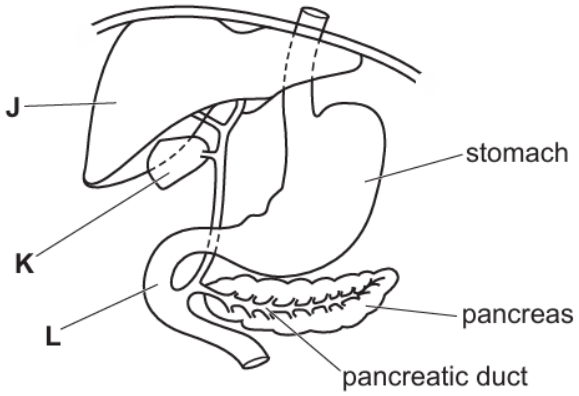


Fig. 3.1

(a) State the names of organs **J**, **K** and **L**.

J .....

K .....

L .....

[3]

13 Fig. 1.1 shows several villi from the ileum, which is part of the small intestine.

(a) State the name of **one** other part of the small intestine.

..... [1]

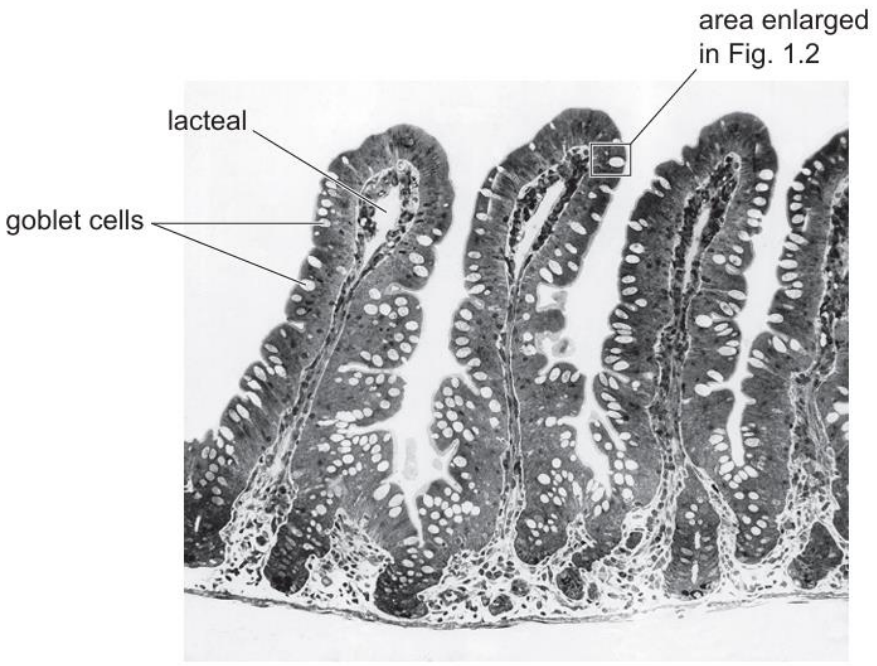


Fig. 1.1

(c) Goblet cells provide protection for the epithelial cells that line the intestine.

(i) State the name of the protective substance produced by goblet cells.

..... [1]

(ii) Suggest why a protective substance is necessary in the intestines.

.....

.....

.....

.....

..... [2]

14 **(b)** Lactose is found in cows' milk. Some people do not have the enzyme to digest lactose.

State the names of **two** organs, associated with the alimentary canal, that produce enzymes.

1 .....

2 .....

[2]

15 **(b)** Define the term *assimilation*.

.....

.....

.....

..... [2]

16 **(c)** Fig. 1.2 shows the human alimentary canal and associated organs.

The functions of some of these parts of the body are given in Table 1.1.

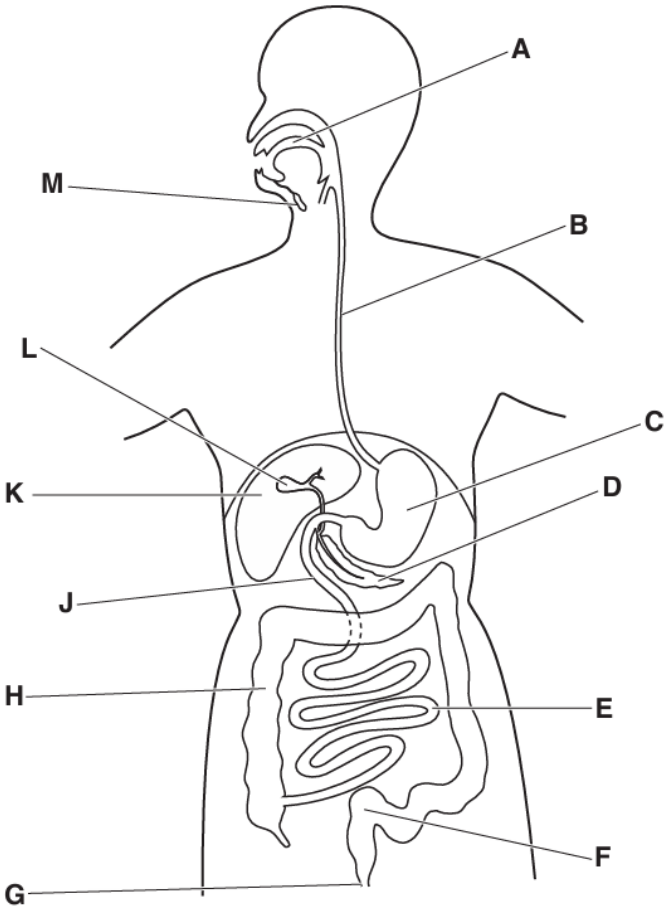


Fig. 1.2

Complete Table 1.1. One row has been done for you.

Table 1.1

function	letter from Fig. 1.2	name of structure
site of starch digestion		
reabsorption of water		
secretion of pepsin		
site of maltose digestion		
secretion of bile		
storage of faeces	**F**	rectum
secretion of lipase and trypsin		

[6]