

7. Human nutrition

7.3 Physical digestion

Paper 3 and 4

Question Paper

Paper 3

Questions are applicable for both core and extended candidates

1 (a) (i) Physical digestion by teeth breaks down food into smaller pieces.

Explain the importance of food being physically broken down into smaller pieces.

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.....

[3]

(ii) State the name of **one other** part of the digestive system where physical digestion occurs in humans.

..... [1]

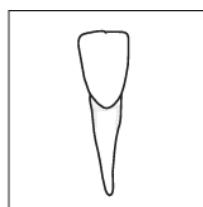
(b) (i) There are different types of human teeth.

The boxes on the left contain diagrams of different types of human teeth.

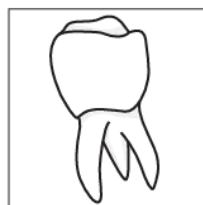
The boxes on the right contain the names of the types of human teeth.

Draw **one** straight line from each box on the left to a box on the right to match each tooth to its name.

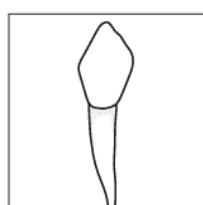
Draw **three** lines.



canine



incisor



molar

[2]

(ii) Describe the function of molar teeth.

.....
.....
.....

[1]

(c) Fig. 2.1 is a diagram of a human tooth.

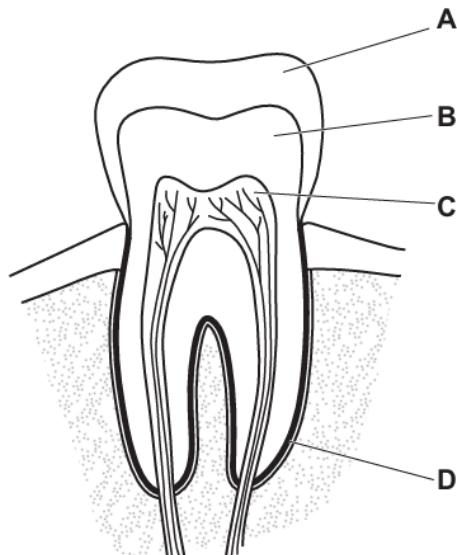


Fig. 2.1

State the names of the parts labelled **A**, **B**, **C** and **D** in Fig. 2.1.

A

B

C

D

[4]

2 (a) Fig. 2.1 is a diagram of a human tooth.

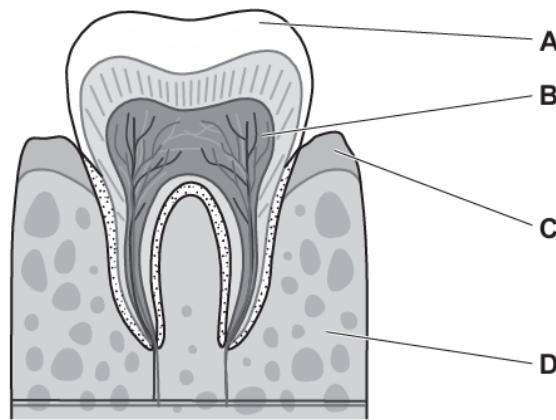


Fig. 2.1

The boxes on the left contain the letters identifying the parts in Fig. 2.1.

The boxes on the right contain the names of some parts shown in Fig. 2.1.

Draw lines to link each letter to its correct name.

Draw **four** lines.

letter in Fig. 2.1

name

A

bone

B

dentine

C

enamel

D

gum

pulp

[4]

(b) Complete the sentences to describe the role of teeth in digestion.

The teeth are needed for digestion.

They break down food into smaller

This increases the area of the food for the action of biological catalysts called

These biological catalysts are needed for digestion.

[5]

(c) State the names of **two** different types of human teeth.

1

2

[2]

[Total: 11]

3 (a) Fig. 4.1 shows the structure of a human tooth.

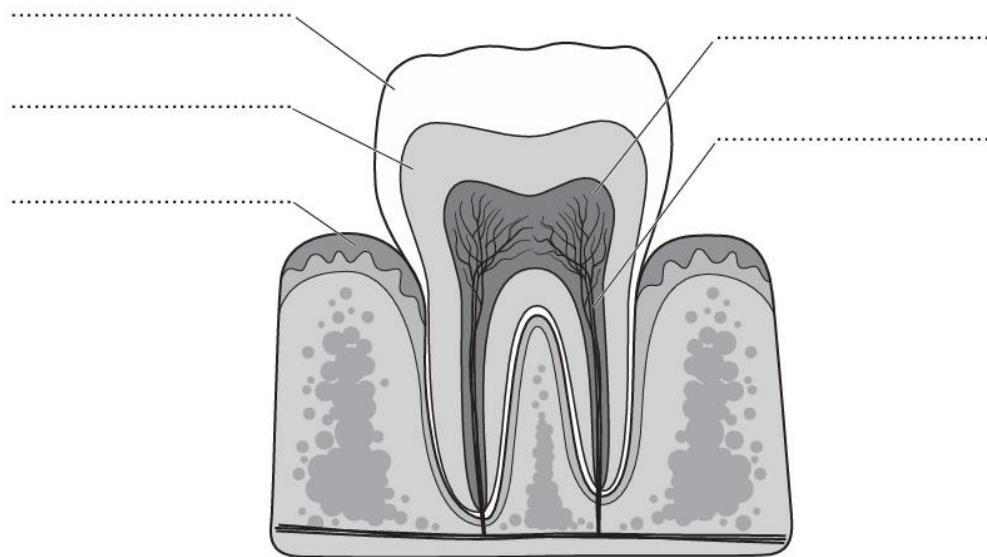


Fig. 4.1

Complete Fig. 4.1 by labelling the parts, in the spaces provided, using words from the list.

dentine enamel gum nerves pulp

[4]

(b) State the names of **two** types of human teeth.

1

2

[2]

(c) Describe the causes of dental decay.

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.....
.....
.....
.....

[3]

(d) Describe **two** ways of caring for teeth.

1

.....

.....

[2]

(e) State the type of digestion that teeth are involved in.

..... [1]

[Total: 12]

4 (a) Fig. 5.1 shows a section through a human molar tooth.

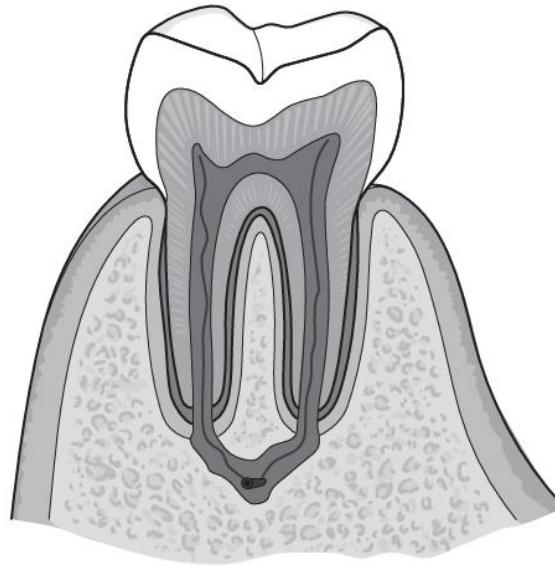


Fig. 5.1

(i) Use label lines and labels to identify these structures **on** Fig. 5.1:

- cement
- gum
- nerves.

[3]

(ii) State the function of the canine teeth in humans.

.....
.....
.....

[1]

(b) Sheep are herbivores. They do not have canine teeth, or teeth in the front upper jaw.

The other types of teeth in sheep are similar to humans.

Fig. 5.2 shows an x-ray of the teeth in the skull of a sheep.

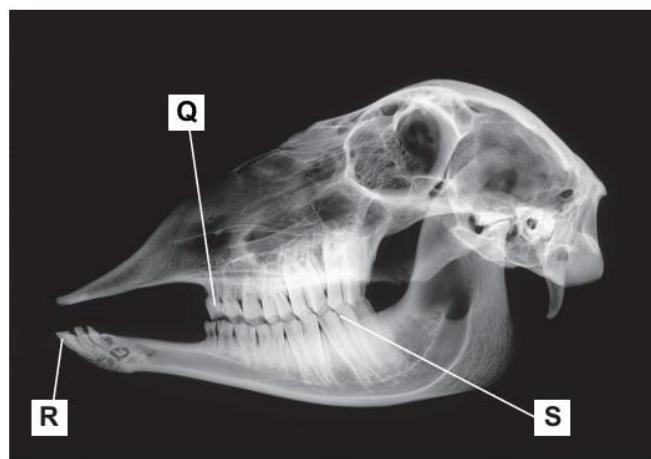


Fig. 5.2

The boxes on the left show a letter from Fig. 5.2.

The boxes in the middle show the name of a type of tooth shown in Fig. 5.2.

The boxes on the right show the function of each type of tooth.

Draw **one** line to link each letter from Fig. 5.2 to its correct name.

Draw **one** line to link each name to its correct function.

Draw a total of **six** lines.

letter from Fig. 5.2	name	function
Q	incisor	biting off pieces of food
R	molar	grinding food
S	premolar	

[5]

(c) State the type of digestion that breaks up large pieces of food.

[1]

(d) Fig. 5.3 is a diagram showing the stages of dental decay.

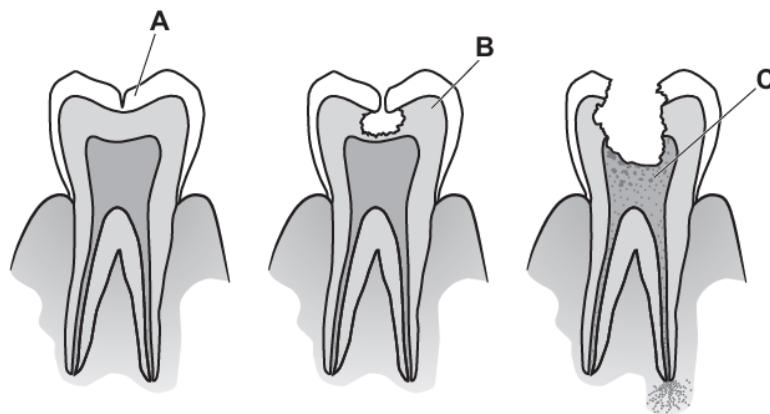


Fig. 5.3

(i) Describe the causes of dental decay.

Use the letters in Fig. 5.3 in your answer.

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[4]

(ii) Describe **one** way of preventing dental decay.

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.....
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[1]

[Total: 15]

5 (a) Fig. 4.1 shows the four different types of human teeth.

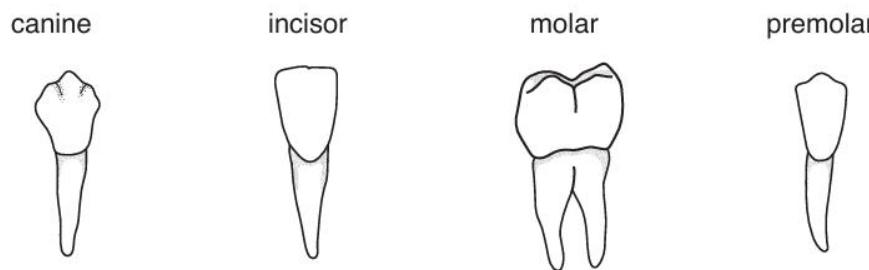


Fig. 4.1

Fig. 4.2 shows a diagram of the position of the different types of teeth in the mouth.

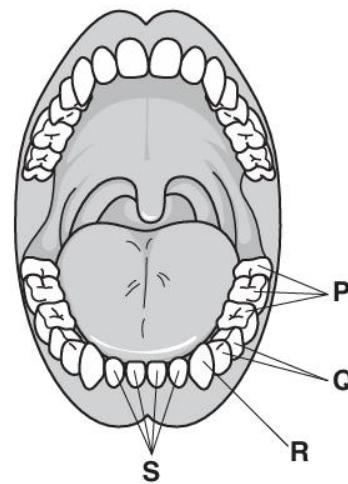


Fig. 4.2

Complete Table 4.1 by writing the names, positions and functions of the different types of teeth in the mouth shown in Fig. 4.2.

Table 4.1

name of type of tooth	letter on Fig. 4.2	function
	R	
incisor		
		grinding
premolar		tearing and grinding

[4]

(b) Teeth can develop dental decay.

(i) Explain how dental decay is caused.

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[4]

(ii) Describe **two** ways to avoid dental decay.

1

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2

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[2]

[Total: 10]

6 (a) Fig. 4.1 shows teeth in a human skull.



Fig. 4.1

Add label lines and labels to Fig. 4.1 to identify an incisor tooth and a molar tooth. [2]

(b) Fig. 4.2 represents the teeth of two adults, **D** and **E**. It shows the numbers of the types of teeth and the number of decayed teeth.

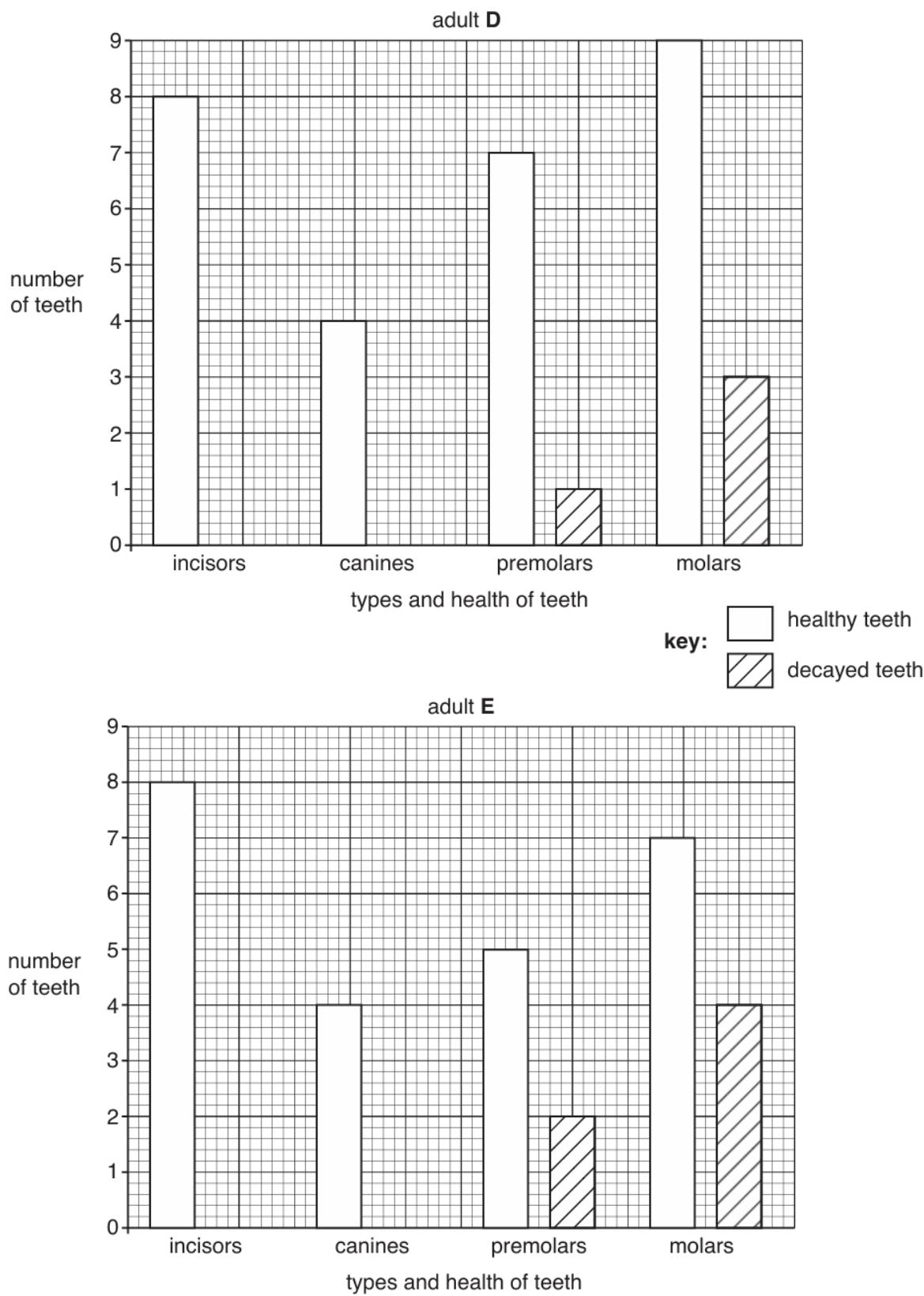


Fig. 4.2

A healthy adult human has **32** teeth.

(i) State the number of teeth **E** has lost.

..... [1]

(ii) State the number of decayed teeth present in **D**.

..... [1]

(iii) Suggest **two** reasons why **D** and **E** have different numbers of decayed teeth.

1

.....

2

.....

[2]

(iv) Identify the type of tooth that decays most frequently in Fig. 4.2.

..... [1]

(c) Describe how bacteria are involved in tooth decay.

.....

.....

.....

..... [2]

[Total: 9]

7 Fig. 6.1 shows a section through a tooth.

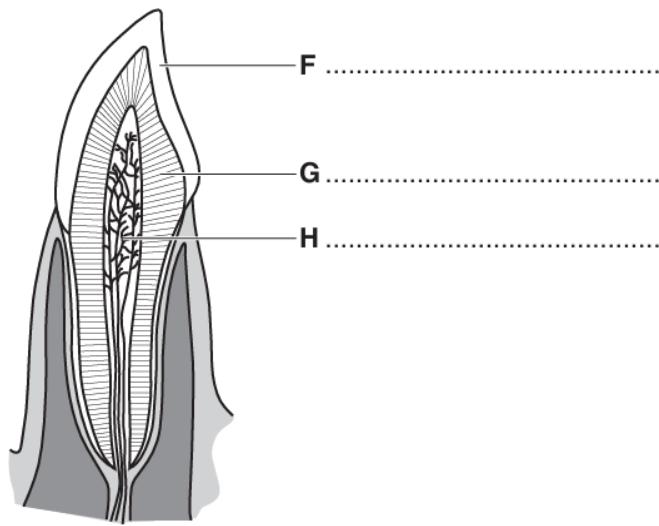


Fig. 6.1

(a) State the names of structures **F**, **G** and **H**.

Write your answers on Fig. 6.1.

[3]

(b) (i) State **two** functions of teeth.

1

.....

2

.....

[2]

(ii) Describe the importance of teeth in the digestion of food.

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.....

.....

[2]

[Total: 7]

Paper 4

Questions are applicable for both core and extended candidates

8 (a) Complete the sentences about human teeth.

The process of taking food into the mouth is called

Flat sharp-edged teeth at the front of the mouth, called,
are used for biting off pieces of food.

The and are the large teeth
towards the back of the mouth that are used for the food.

[4]

9 (a) Fig. 1.1 is a side view of a human skull indicating the four types of teeth and the jaws.

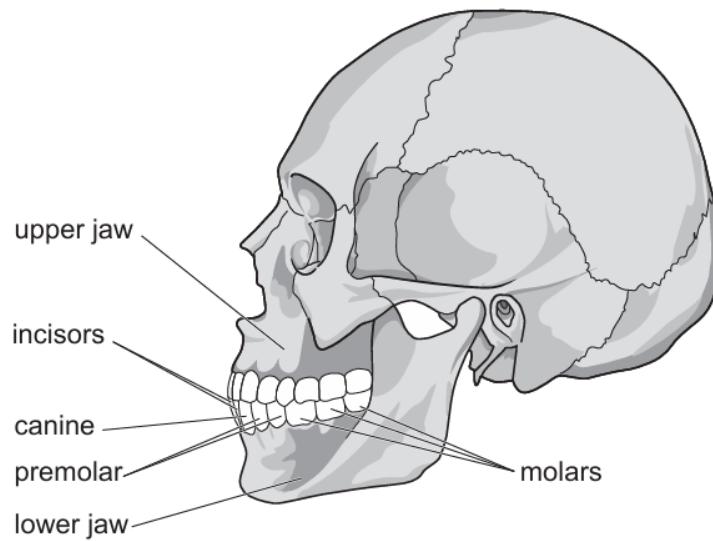


Fig. 1.1

(i) State the function of human teeth.

.....
.....
..... [1]

(ii) State the name of the visible outer layer of the teeth.

..... [1]

(iii) Explain the process of tooth decay in humans.

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..... [3]

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

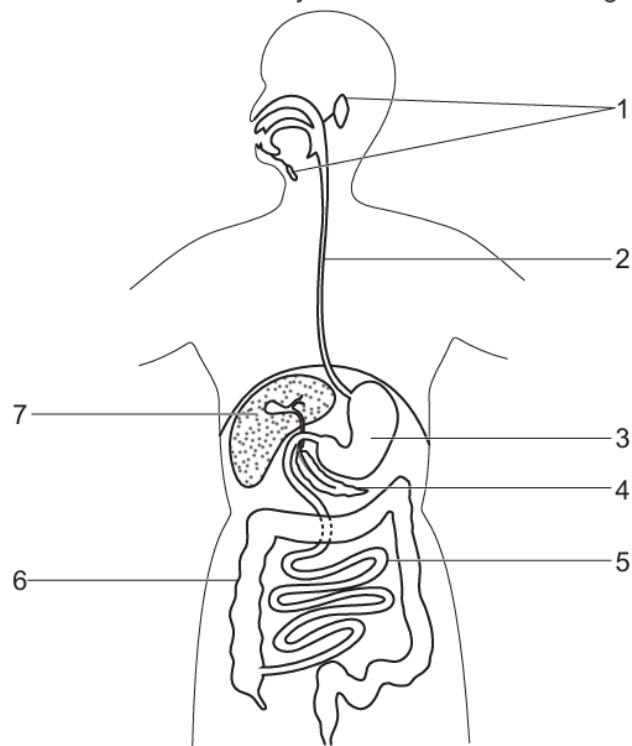


Fig. 2.1

(d) Describe how food eaten by humans is reduced to smaller pieces **and** explain how this makes chemical digestion more efficient.

You may refer to Fig. 2.1 in your answer.

[6]

11 Fig. 2.1 is a vertical section of a human molar tooth and surrounding structures.

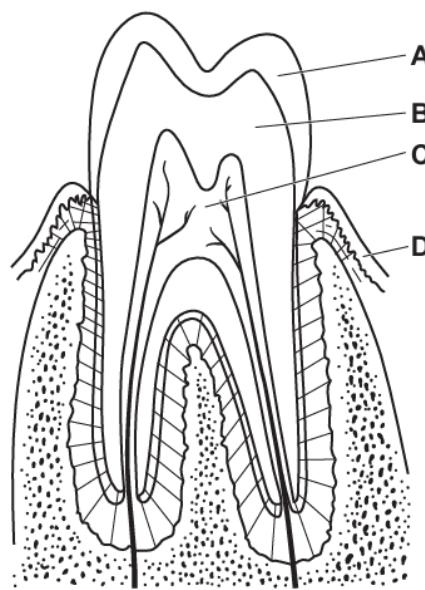


Fig. 2.1

(a) State the names of the parts labelled **A** to **D** on Fig. 2.1.

A

B

C

D

[4]

(b) Describe **and** explain the function of molar teeth.

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[3]

(c) Fig. 2.2 is an X-ray of decay in a molar tooth.

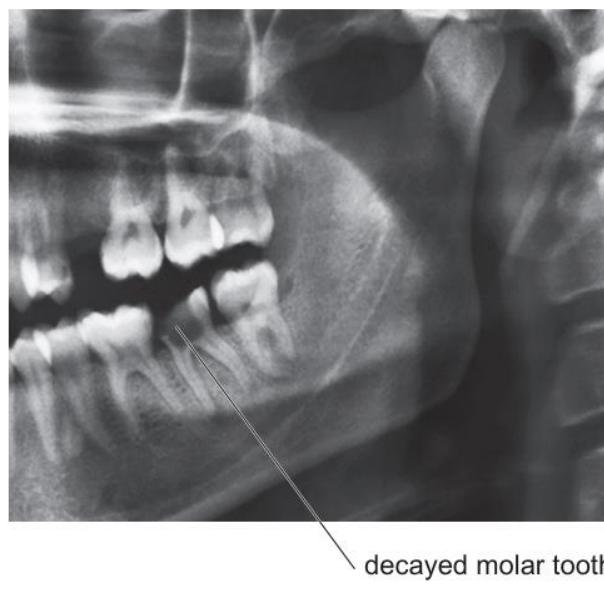


Fig. 2.2

Explain how tooth decay occurs.

[4]

12 (a) Red pandas, *Ailurus fulgens*, and humans have a similar arrangement of teeth.

Fig. 1.1 shows a section through one tooth of a red panda. Fig. 1.2 shows the side view of the lower jaw of a red panda.

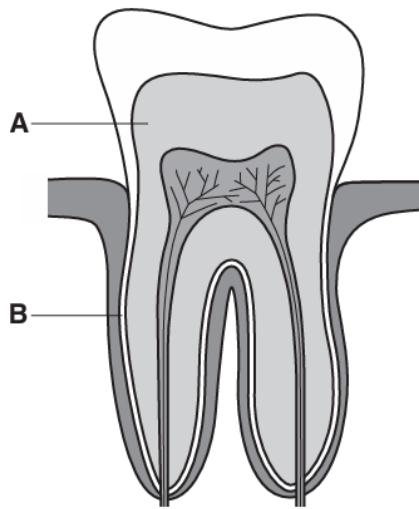


Fig. 1.1

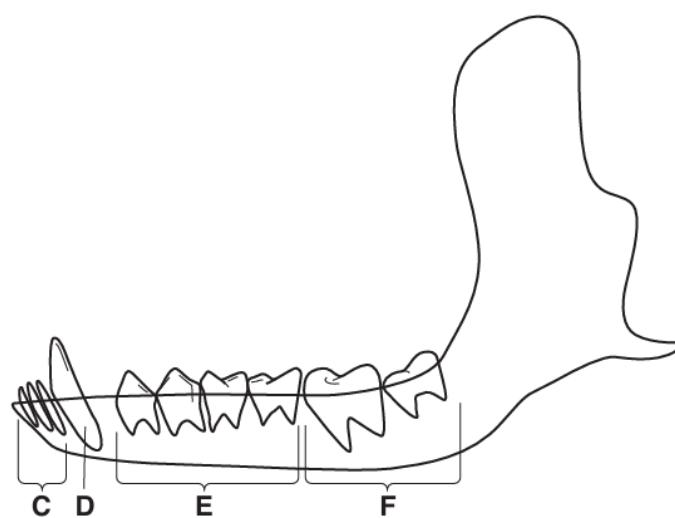


Fig. 1.2

(i) State the names of the structures labelled **A** to **F** in Fig. 1.1 and Fig. 1.2.

A

B

C

D

E

F

[3]

(ii) State the type of digestion that breaks down large pieces of food.

..... [1]

(b) Food that sticks to the teeth can be used by bacteria for anaerobic respiration.

This type of respiration releases a substance that can cause tooth decay.

(i) State the type of substance released by the bacteria, during respiration, that causes tooth decay.

..... [1]

(ii) State the names of the **two** parts of a tooth that are dissolved by the substance released by bacterial respiration.

1

2

[2]

(c) The teeth of red pandas do not decay as much as human teeth.

Suggest the component of a human diet that causes teeth to decay as a result of bacterial respiration.

..... [1]