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9368186008

BIOLOGY **0610/32**

Paper 3 Theory (Core) **October/November 2025**

1 hour 15 minutes

You must answer on the question paper.

No additional materials are needed.

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- You may use a calculator.
- You should show all your working and use appropriate units.

INFORMATION

- The total mark for this paper is 80.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **20** pages. Any blank pages are indicated.

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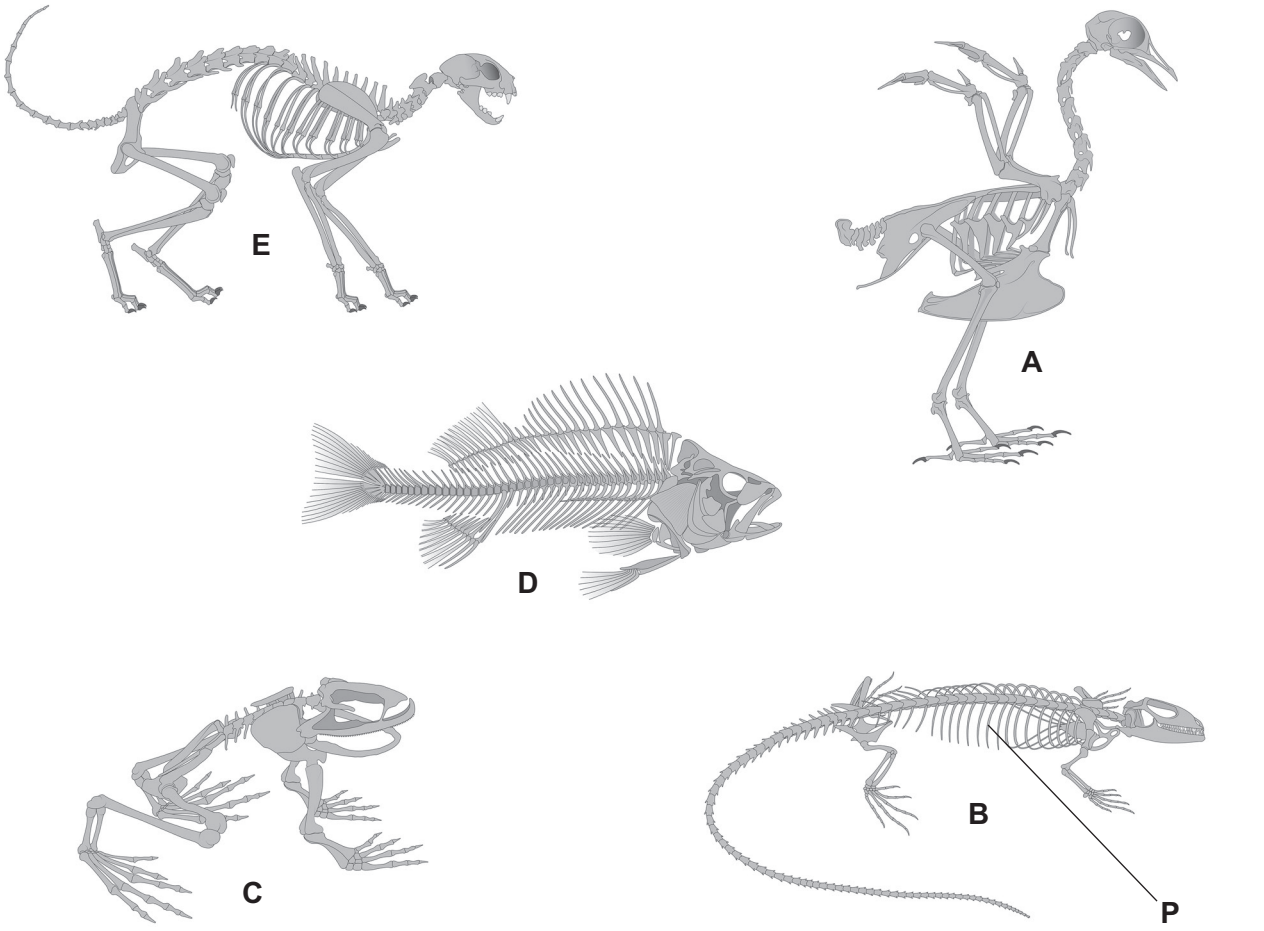
[Turn over

1 **(a)** Fig. 1.1 shows the skeletons of five organisms.



not to scale

Fig. 1.1

(i) State the name of the kingdom to which the organisms in Fig. 1.1 belong.

..... [1]

(ii) The organisms in Fig. 1.1 can be classified into a group because they have a common feature which is visible in the diagram.

State the name of this group.

..... [1]

(iii) State **one** feature, visible in Fig. 1.1, that identifies organism **D** as a fish.

..... [1]

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(iv) Organism **E** is a mammal.

State **two** features that are found in most mammals.

1 .....

2 .....

[2]

(v) State the name of the structure labelled **P** in Fig. 1.1.

..... [1]

(b) The scientific name for organism **A** in Fig. 1.1 is *Phasianus colchicus*.

(i) State the species name for organism **A**.

..... [1]

(ii) Describe what is meant by the term species.

.....

.....

..... [2]

[Total: 9]

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2 Fig. 2.1 shows red blood cells in three different concentrations of salt solution.

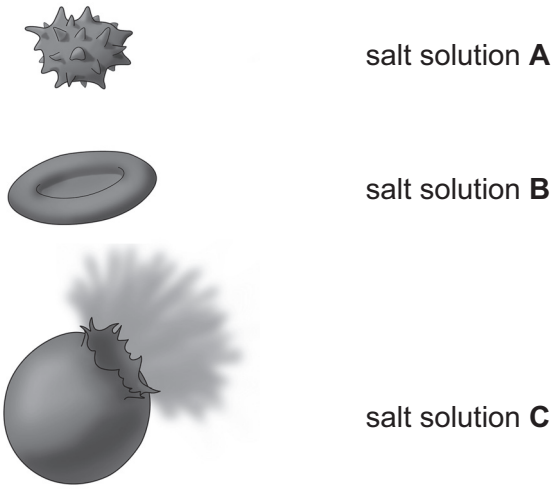

Fig. 2.1

(a) (i) Using the information in Fig. 2.1, state the letter of the salt solution that has a concentration similar to blood plasma.

Explain your choice.

salt solution .....

explanation .....

.....

.....

[2]

(ii) Using the information in Fig. 2.1, list the salt solutions, **A**, **B** and **C**, in order of **increasing** salt concentration.

lowest ⟶ highest

..... [1]

(b) State the names of **two** substances, other than blood cells, that are transported in blood plasma.

1 .....

2 .....

[2]

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(c) Plant tissues can be used to investigate osmosis.

Describe the appearance of a plant cell after being placed in distilled water for one hour.

.....

.....

.....

.....

..... [2]

(d) Table 2.1 contains statements about the movement of substances.

Place ticks (✓) in the rows to indicate if the statement is true for diffusion or osmosis or both.

Table 2.1

statement	diffusion	osmosis
happens in all living cells		
particles move randomly		
always involves a partially permeable membrane		
ions move down a concentration gradient		

[4]

(e) State the name of the type of movement of particles that uses energy from respiration.

..... [1]

[Total: 12]

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3 **(a)** Fig. 3.1 shows part of a tree that is infected with a pathogen.

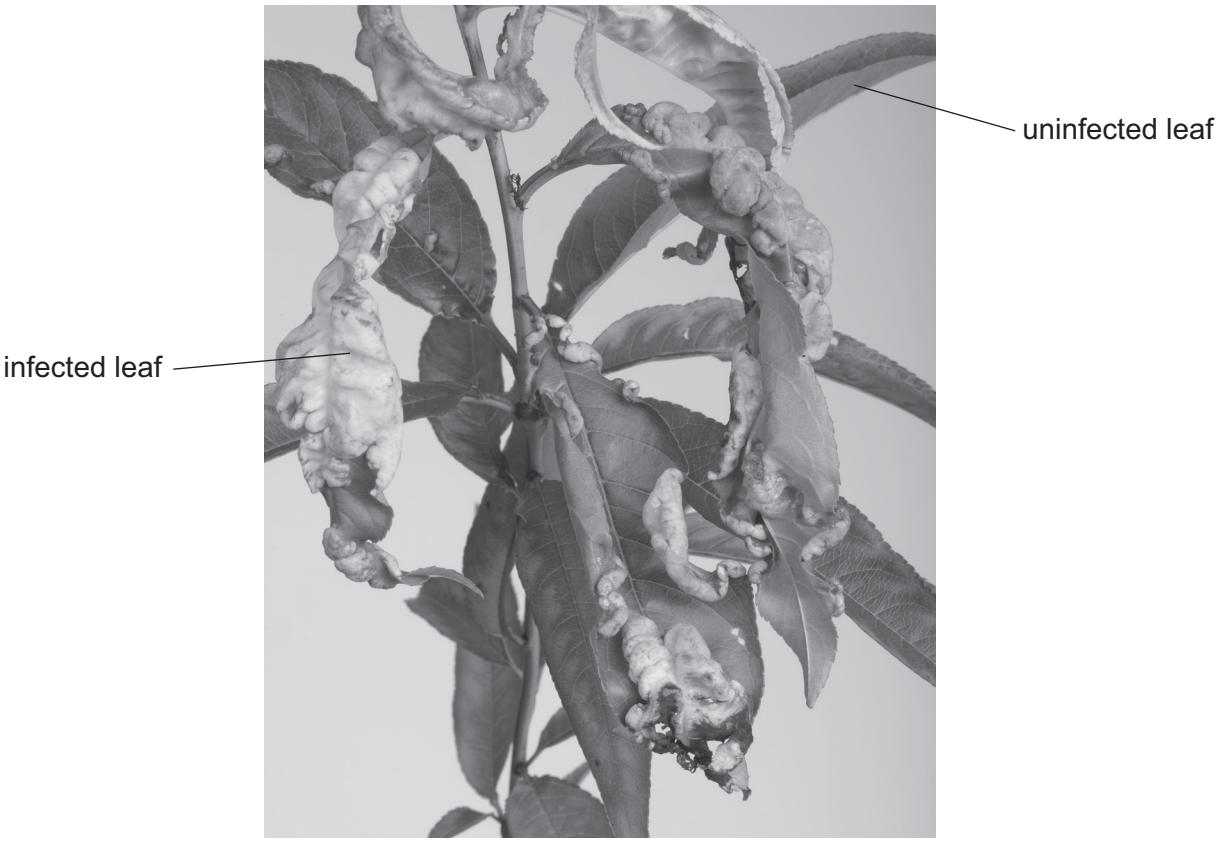

Fig. 3.1

(i) Suggest **two** processes that cannot occur in the infected leaf that can occur in the uninfected leaf in Fig. 3.1.

1 .....

.....

2 .....

.....

[2]

(ii) State the names of **two** types of pathogen.

1 .....

2 .....

[2]

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(iii) Suggest **two** ways that pathogens are transmitted between trees.

1 .....

.....

2 .....

.....

[2]

(b) Pathogens are one cause of deforestation.

Describe other causes of deforestation.

.....

.....

.....

.....

.....

.....

..... [3]

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(c) Fig. 3.2 shows the area of rainforest that was removed between 2004 and 2022 in one country.

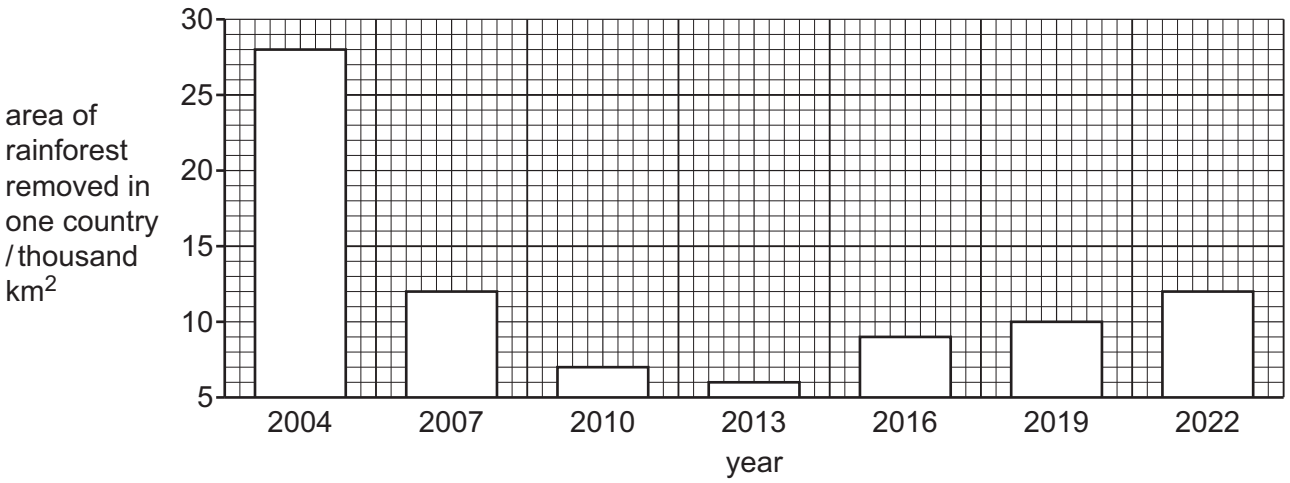

Fig. 3.2

Describe the data shown in Fig. 3.2.

.....

.....

.....

.....

.....

.....

..... [3]

(d) One undesirable effect of deforestation is a reduction in biodiversity.

(i) Describe what is meant by the term biodiversity.

.....

.....

..... [2]

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(ii) Describe undesirable effects of deforestation, **other than** reducing biodiversity.

.....

.....

.....

.....

.....

.....

..... [3]

[Total: 17]

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4 **(a)** Fig. 4.1 is a diagram of the female reproductive system.

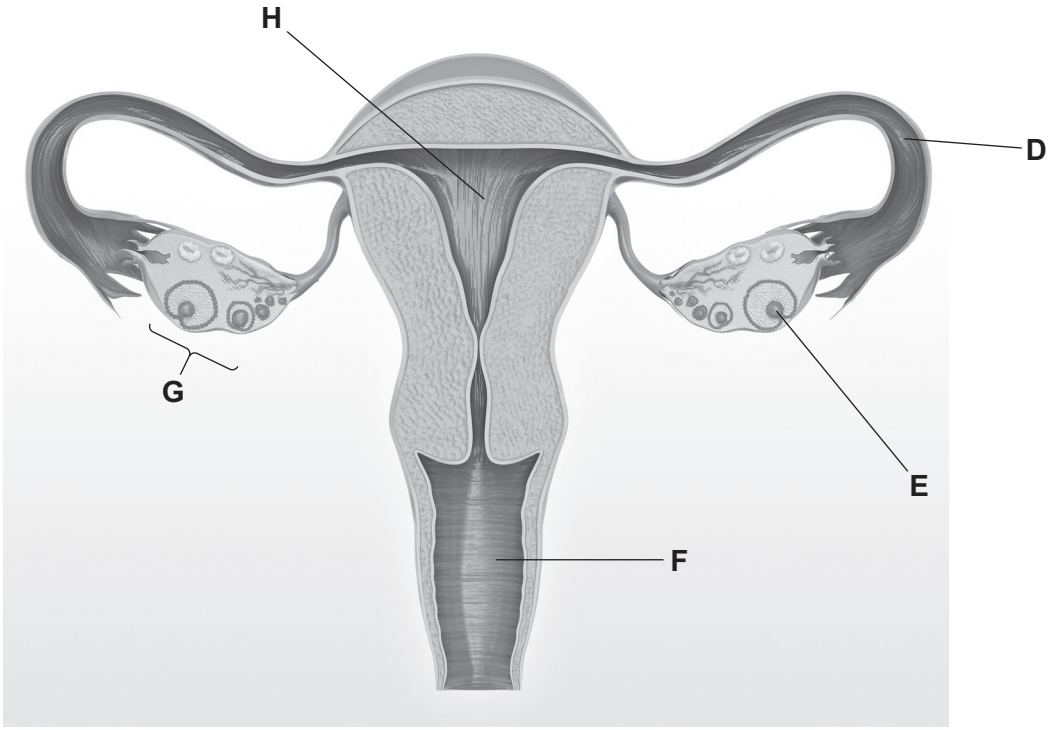

Fig. 4.1

(i) State the letter in Fig. 4.1 that identifies:

the vagina .....

an oviduct .....

an egg cell. .....

[3]

(ii) Draw a label line and the letter **X** on Fig. 4.1 to show where fertilisation normally occurs. [1]

(iii) State the name of the organ shown in Fig. 4.1 that produces a female reproductive hormone and state **one** function of the hormone.

organ .....

function .....

.....

.....

[2]

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(b) Complete the sentences about the endocrine system using words from the list.

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

digestion external glands glucose

homeostasis insulin internal

muscles neurones phagocytosis testosterone tissues

The endocrine system contains organs called ..... . These organs produce hormones.

Some hormones help to maintain a constant ..... environment. This is called ..... .

The pancreas produces a hormone called ..... that helps to control blood ..... concentration.

[5]

[Total: 11]

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5 Pea plants produce seeds in pods.

The colour of pea pods is controlled by a single gene.

Some pea pods are green and some are yellow.

The allele for green is dominant and is represented by the letter **G**.

The allele for yellow is recessive and is represented by the letter **g**.

(a) Describe what is meant by the term allele.

.....

..... [2]

(b) Fig. 5.1 is a pedigree diagram for the inheritance of pod colour in some pea plants.

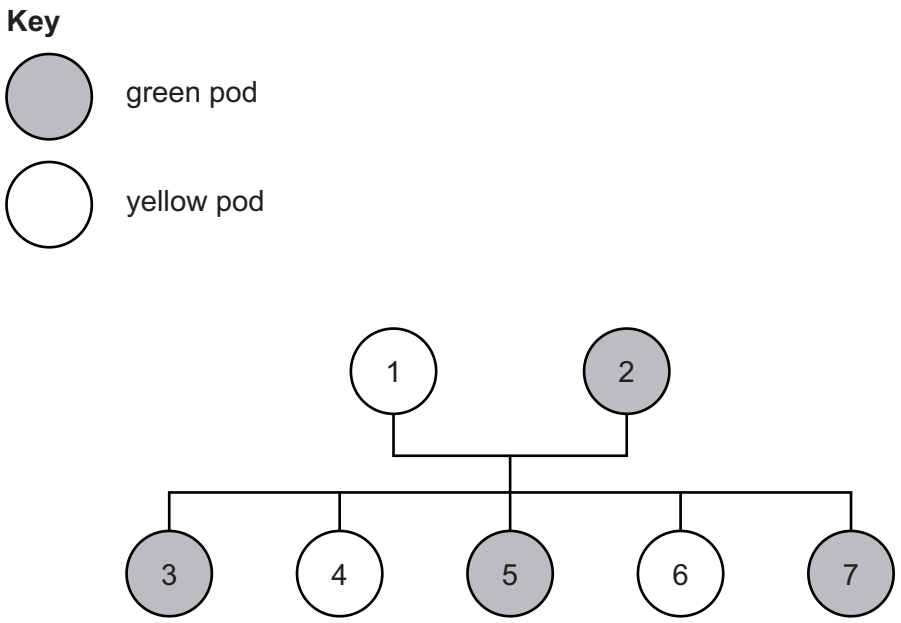

Fig. 5.1

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The possible genotypes for pea pod colour are **GG**, **Gg** and **gg**.

Determine the genotypes of individual 1 and individual 2 in Fig. 5.1.

Explain how you determined your answer for each individual.

individual 1 genotype .....

explanation .....

.....

.....

individual 2 genotype .....

explanation .....

.....

.....

[4]

(c) Two pea plants with the genotype **Gg** for pod colour are bred together.

Complete the Punnett square to determine the possible genotypes of the offspring and calculate the expected phenotypic ratio.

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

The expected phenotypic ratio of the offspring is ..... green pods : ..... yellow pods.

[3]

[Total: 9]

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6 **(a)** Fig. 6.1 is a diagram of a spongy mesophyll cell.

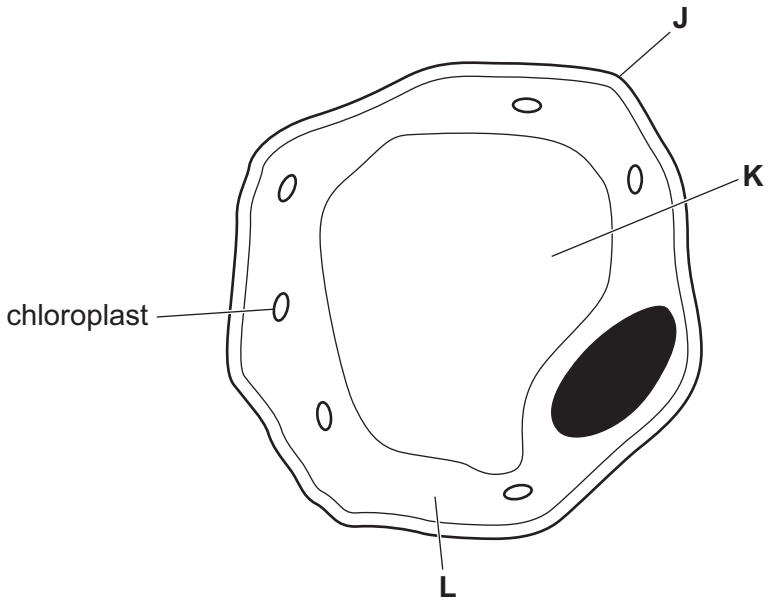

Fig. 6.1

(i) State the name of the organ that contains spongy mesophyll cells.

..... [1]

(ii) State the names of structures **J**, **K** and **L** in Fig. 6.1.

J .....

K .....

L .....

[3]

(iii) Describe **one** function of the nucleus.

.....

.....

..... [1]

(iv) Draw an **M** on Fig. 6.1 to show where mitochondria are found. [1]

(v) State the function of mitochondria.

.....

..... [1]

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(b) Explain how the spongy mesophyll **tissue** is adapted for photosynthesis.

.....

.....

.....

.....

.....

.....

..... [3]

[Total: 10]

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7 **(a)** The boxes on the left show the types of digestion.

The boxes on the right contain sentence endings.

Draw lines to make **four** correct sentences.

type of digestion	**sentence ending**
	breaks down food into smaller pieces.
Chemical digestion	breaks down food molecules.
	involves chemical changes.
Physical digestion	involves enzymes.

[4]

(b) Ingestion occurs in the mouth.

State the name of the part of the alimentary canal where egestion occurs.

..... [1]

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(c) Fig. 7.1 shows a section through a human tooth.

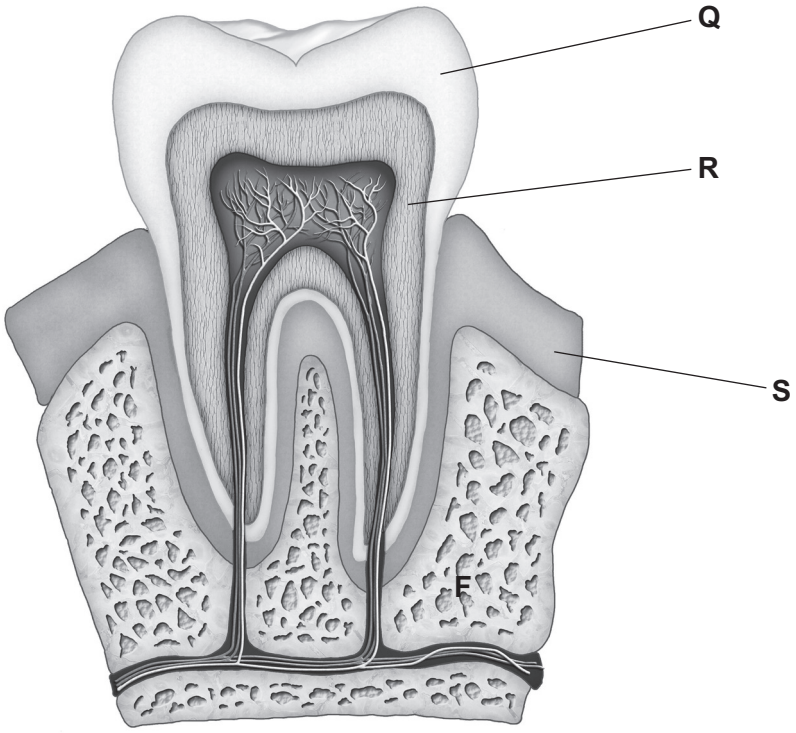

Fig. 7.1

(i) State the names of structures **Q**, **R** and **S** in Fig. 7.1.

Q .....

R .....

S .....

[3]

(ii) State the names of **two** structures found inside the pulp.

1 .....

2 .....

[2]

(iii) Identify the type of tooth shown in Fig. 7.1.

Explain how you made your choice.

type .....

explanation .....

.....

.....

[2]

[Total: 12]

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