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CANDIDATE NAME

CENTRE NUMBER

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* 7708769 *

BIOLOGY **0610/32**

Paper 3 Theory (Core) **February/March 2026**

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. Do **not** use correction fluid or tape.
- 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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1 **(a)** Figure 1.1 is a dichotomous key for identifying six species of bird. Each bird is identified by its name and a letter, **A**, **B**, **C**, **D**, **E** or **F**.

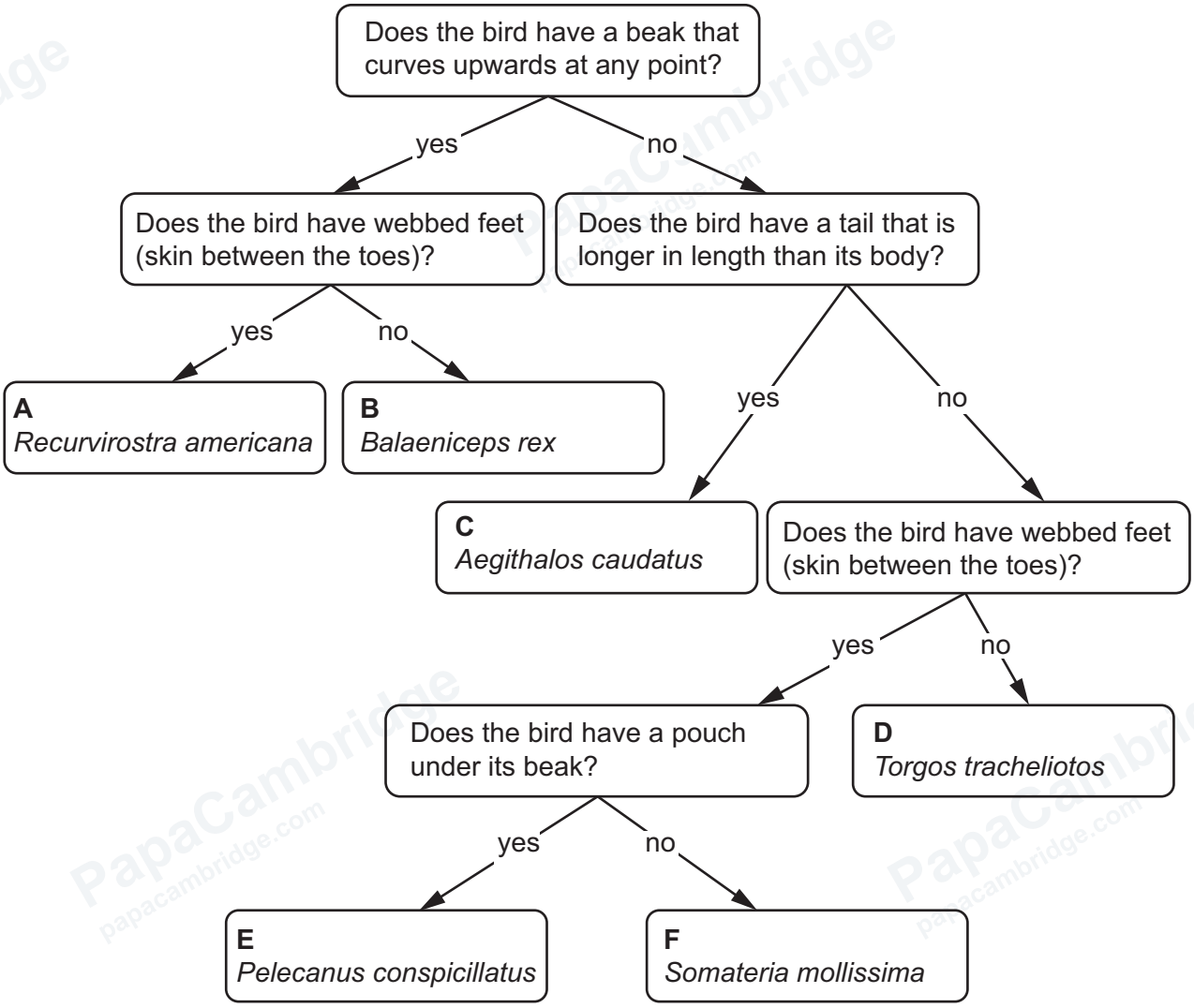

Figure 1.1

Figure 1.2 shows images of six different species of bird.

(i) Use Figure 1.1 to identify the six species of bird shown in Figure 1.2.

On Figure 1.2, write the correct letter, **A**, **B**, **C**, **D**, **E** or **F**, on the line underneath the image of the bird.

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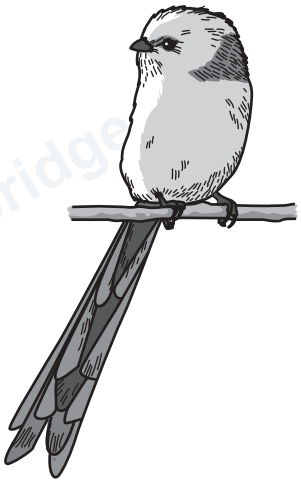

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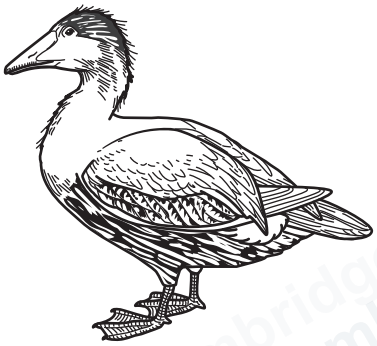

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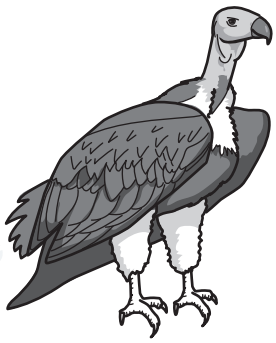

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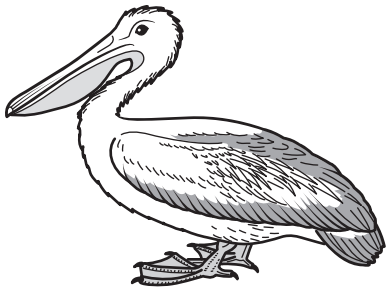

.....



.....

Figure 1.2 [5]

(ii) State **one** feature **visible** in Figure 1.2 that is **only** found in birds.

..... [1]

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(b) Birds are one group in the animal kingdom.

(i) State the name of **one** other kingdom.

..... [1]

(ii) Arachnids are also in the animal kingdom.

State **two** features of arachnids that are absent in birds.

1 .....

2 .....

[2]

(c) Use words from the list to complete the sentences about organisms in an ecosystem.

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

binomial **community** **environment** **genus**

kingdom **offspring** **species**

Each bird ..... is given a two-part scientific name using the

..... system. The second part of the name in this system is the

..... name.

Populations of different organisms form a ..... and these interact

with their ..... to form an ecosystem.

[5]

[Total: 14]

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2 **(a)** A student investigates the effect of temperature on the rate of photosynthesis in a leaf.

Figure 2.1 shows the results of the investigation.

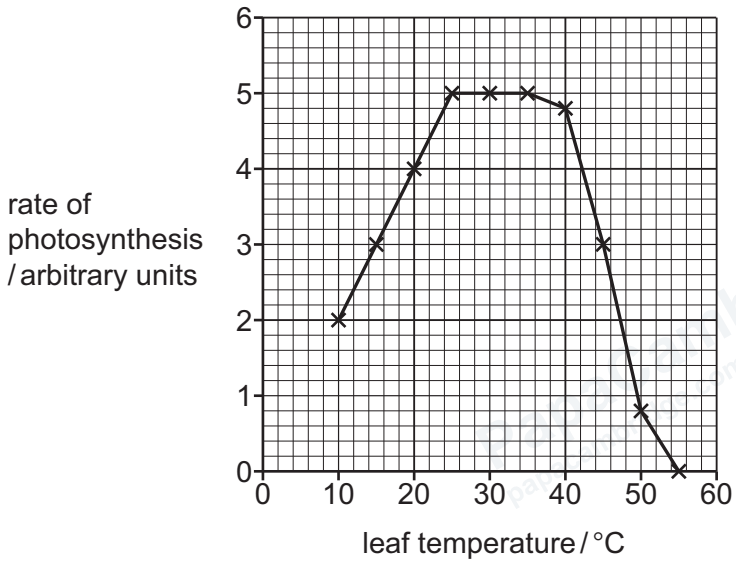

Figure 2.1

(i) Use Figure 2.1 to describe the effect of temperature on the rate of photosynthesis.

Use data from Figure 2.1 in your answer.

.....

.....

.....

.....

.....

.....

..... [3]

(ii) At 20 °C the rate of photosynthesis is 4 arbitrary units.

Use Figure 2.1 to determine **one** other temperature with a rate of photosynthesis of 4 arbitrary units.

..... °C [1]

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(b) Photosynthesis produces glucose.

(i) Complete the word equation for photosynthesis.

.....	+	.....	→	glucose	+	.....

[2]

(ii) State the name of a cell in a plant leaf that is adapted for photosynthesis.

..... [1]

(iii) Plants need chlorophyll to photosynthesise.

Describe the role of chlorophyll in photosynthesis.

.....

.....

..... [2]

(iv) Some of the glucose produced in photosynthesis is made into larger molecules.

The boxes on the left show some of these larger molecules.

The boxes on the right contain sentence endings.

Draw lines to make **four** correct sentences about these large molecules.

Draw **four** lines.

larger molecules	**sentence ending**
	gives a blue-black colour with iodine solution.
Cellulose	gives a violet colour with biuret solution.
	is transported in the phloem.
Starch	is used to build cell walls.
	is broken down by lipase.
Sucrose	is used as an energy store.

[4]

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(v) Name the process that releases energy using oxygen **and** state the name of the cell structure where this process occurs.

process .....

cell structure .....

[2]

[Total: 15]

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3 Figure 3.1 shows the human breathing system.

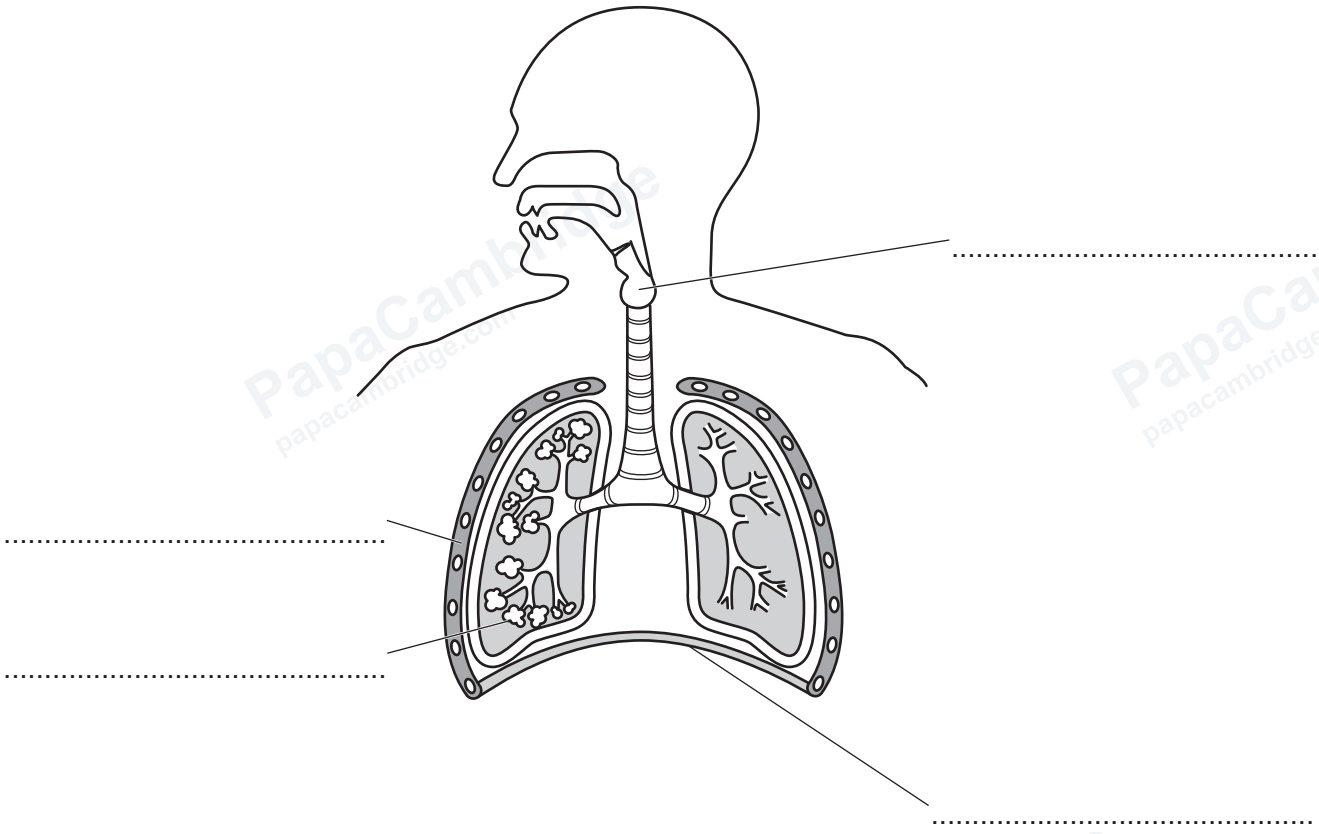

Figure 3.1

(a) Complete Figure 3.1 by labelling the structures in the spaces provided.

[4]

(b) The list contains three structures that form tubes in the human breathing system.

bronchiole **bronchus** **trachea**

List these structures in order of **decreasing** diameter.

decreasing diameter

.....

.....

.....

[1]

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(c) State **three** features of the gas exchange surfaces in the lungs that allow efficient gas exchange.

1 .....

.....

2 .....

.....

3 .....

..... [3]

(d) The gas exchange system contains specialised cells called ciliated cells.

(i) State **one** location of ciliated cells in the gas exchange system and describe their function.

location .....

function .....

.....

..... [2]

(ii) State the name for a group of identical cells that perform **one** function.

..... [1]

[Total: 11]

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4 A student places a maize seedling horizontally in a light-proof box.

The student measures the angle of the root and shoot every 2 hours.

Figure 4.1 shows the seedling at the start and after 12 hours.

key

°s = angle of shoot

°r = angle of root

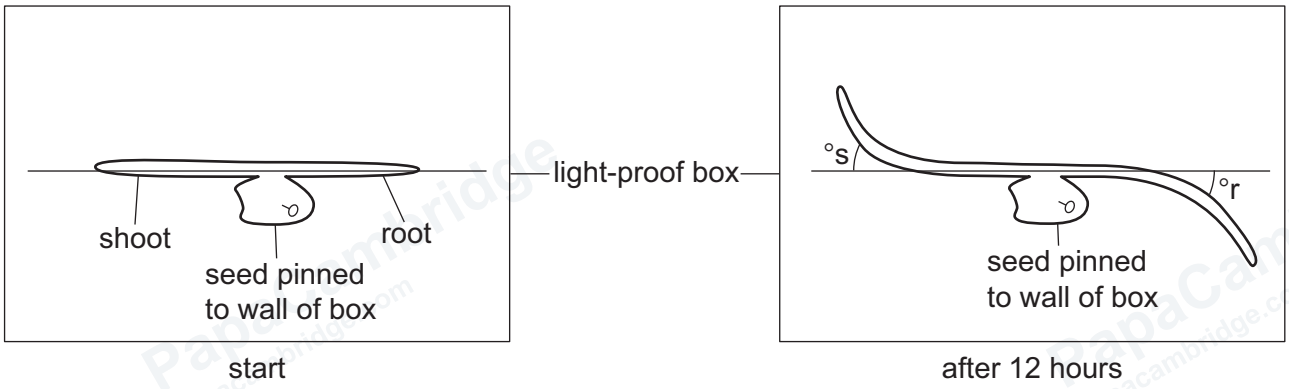

Figure 4.1

(a) Name the growth response shown by the seedling in Figure 4.1.

..... [1]

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(b) Figure 4.2 shows the results of the investigation.

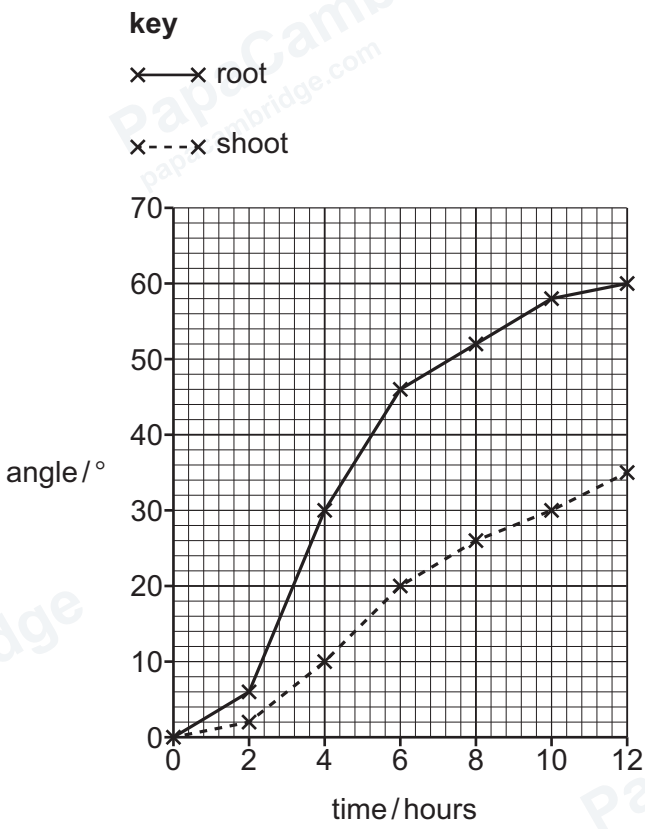

Figure 4.2

(i) Use the information in Figure 4.2 to calculate the increase in the angle of the **root** between 6 hours and 12 hours.

Space for working.

..... °

[2]

(ii) The student forms several conclusions.

Tick (✓) **all** the conclusions that are supported by the data shown in Figure 4.2.

The root starts to curve faster than the shoot.	
The root curves more than 60°.	
After 4 hours, the root has curved three times more than the shoot.	
After 24 hours, the angle of the shoots and roots will be the same.	

[2]

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(c) The student repeats the investigation with a maize seedling placed vertically in the light-proof box.

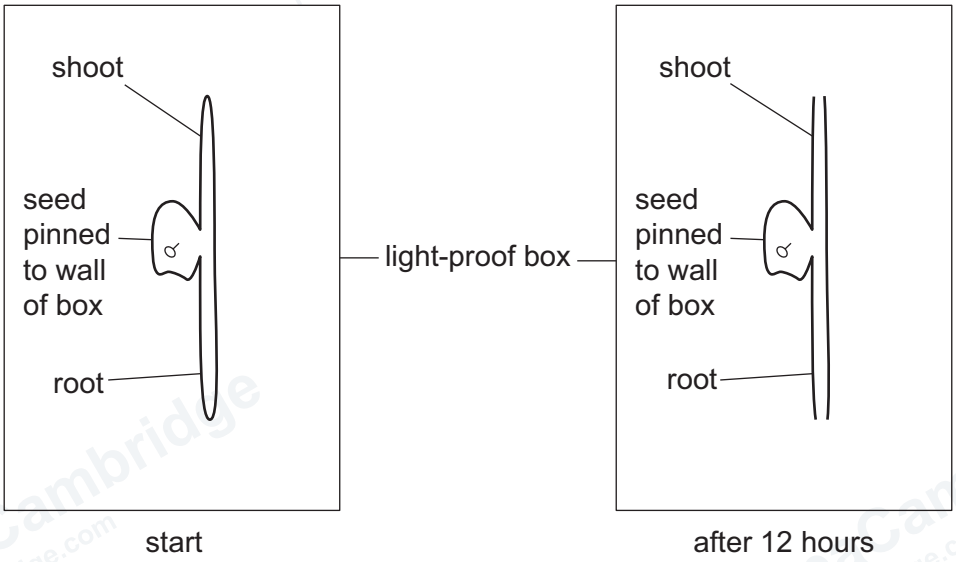

Figure 4.3

Complete Figure 4.3 to predict the growth of the seedling after 12 hours.

Explain your answer.

.....

.....

..... [2]

(d) State **two** environmental conditions that affect seed germination.

1 .....

2 .....

[2]

[Total: 9]

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5 **(a)** Figure 5.1 shows the human female reproductive system.

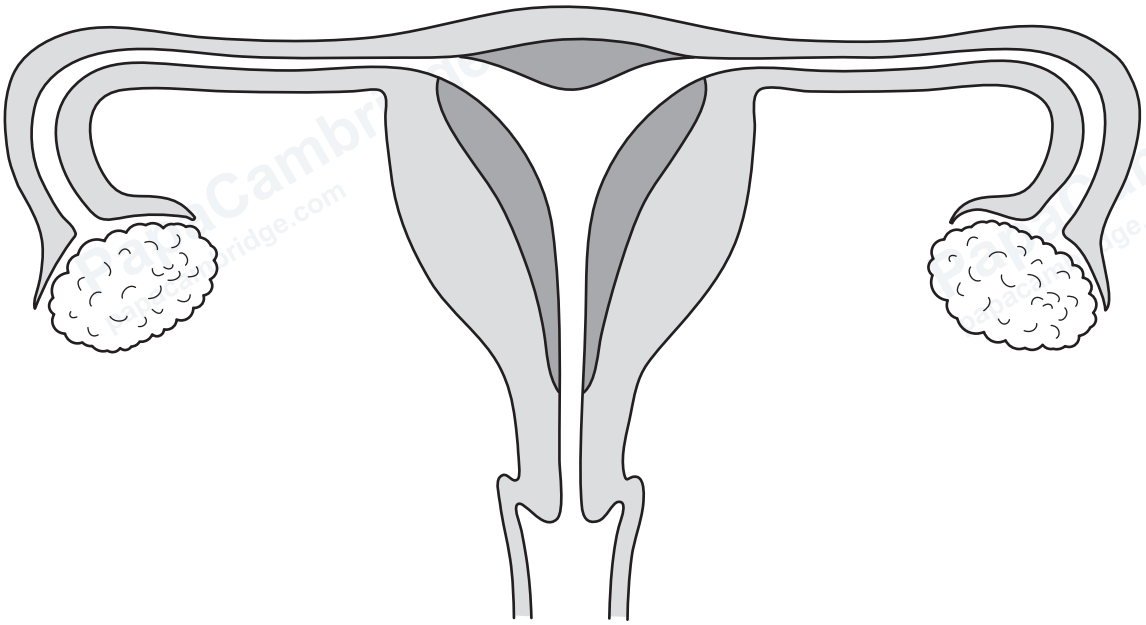

Figure 5.1

(i) On Figure 5.1, draw a label line and the letter **X** to show where fertilisation normally occurs. [1]

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

.....

.....

.....

..... [2]

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(b) After fertilisation a zygote forms. The zygote divides to form an embryo. The embryo implants into the lining of the uterus and develops into a fetus.

Figure 5.2 shows a fetus and part of the female reproductive system.

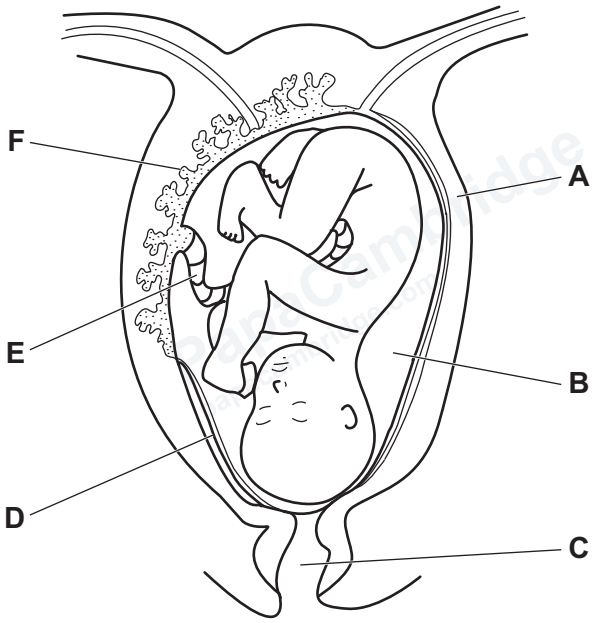

Figure 5.2

(i) State the letter shown in Figure 5.2 that identifies the placenta **and** describe the functions of the placenta.

letter .....

functions of the placenta .....

.....

.....

.....

.....

.....

..... [4]

(ii) State the name of structure **D** shown in Figure 5.2.

..... [1]

(iii) State the letter shown in Figure 5.2 that identifies a fluid that acts as a shock absorber and protects the fetus from injury.

letter ..... [1]

[Total: 9]

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6 Pea plants produce seeds.

The shape of pea seeds is controlled by a single gene.

Some pea seeds are round and some are wrinkled.

Figure 6.1 shows one round and one wrinkled pea seed.

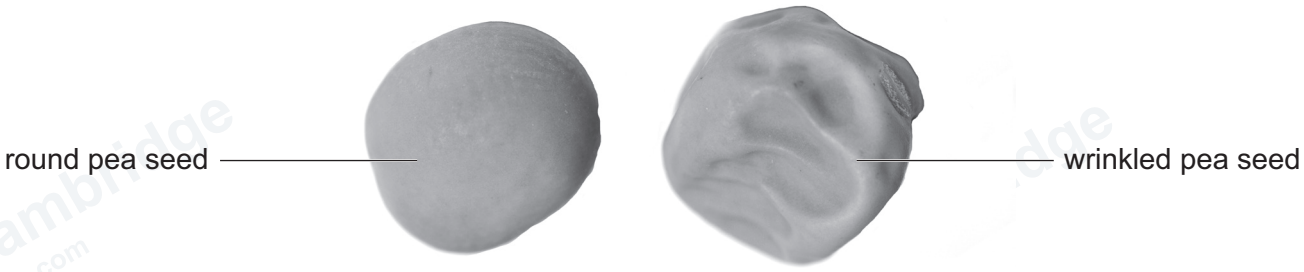

Figure 6.1

The allele for round is dominant and is represented by the letter **R**.

The allele for wrinkled is recessive and is represented by the letter **r**.

(a) (i) Two pea plants with the genotypes **Rr** and **rr** for seed shape are bred together.

Complete the Punnett square by writing in the genotypes of the gametes and the genotypes of the offspring for this cross.

Calculate the phenotypic ratio.

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

phenotypic ratio ..... round seeds : ..... wrinkled seeds.
[3]

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(ii) One of the parent pea plants has the genotype **Rr**.

State the term used to describe an individual with two different alleles for a gene.

..... [1]

(b) A farmer wants pure-breeding pea plants with round seeds.

The farmer says:

All pea plants with round seeds are pure-breeding.

Explain why the farmer's statement is **not** correct.

.....

.....

.....

.....

.....

.....

..... [3]

(c) Inheritance of features, such as round seeds in pea plants, is controlled by genes.

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

.....

.....

.....

..... [2]

(ii) State the name of the type of genetic variation that is usually caused by genes **only**.

..... [1]

(iii) State the name of the structure in plant cells that contains genes.

..... [1]

[Total: 11]

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7 Figure 7.1 shows a food web from a desert ecosystem.

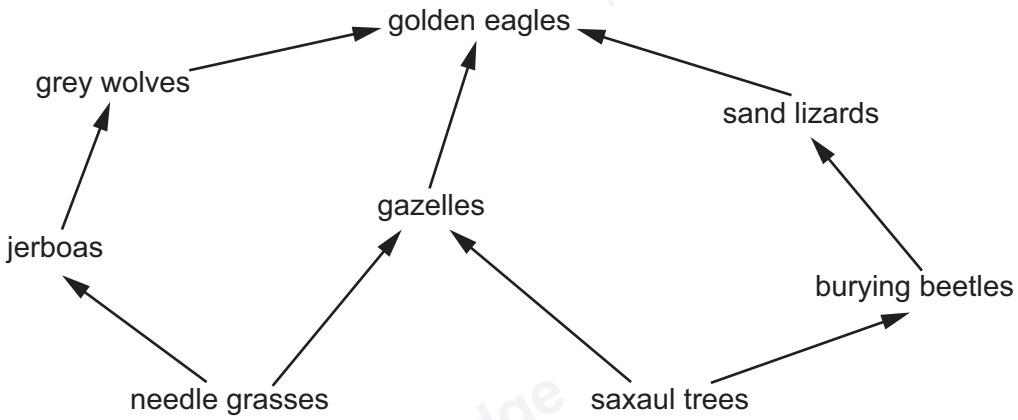

Figure 7.1

(a) Use Figure 7.1 to name an organism in this food web that is:

a herbivore .....

a secondary consumer .....

at both trophic level 3 **and** trophic level 4. .....

[3]

(b) State the source of energy for this food web.

..... [1]

(c) Use the information in Figure 7.1 to construct a food chain that contains **three** organisms and includes a golden eagle.

[2]

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(d) Figure 7.2 shows a pyramid of **numbers** for a food chain in the food web shown in Figure 7.1.

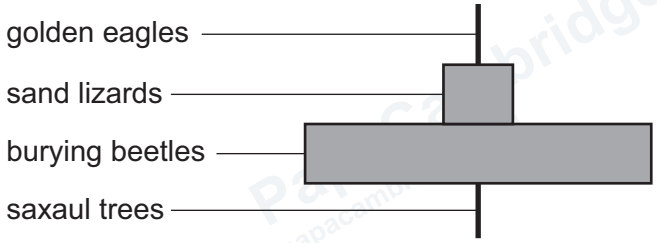

Figure 7.2

On the grid in Figure 7.3, draw a pyramid of **biomass** for the food chain shown in Figure 7.2.

Label each bar with the name of the organisms it represents.

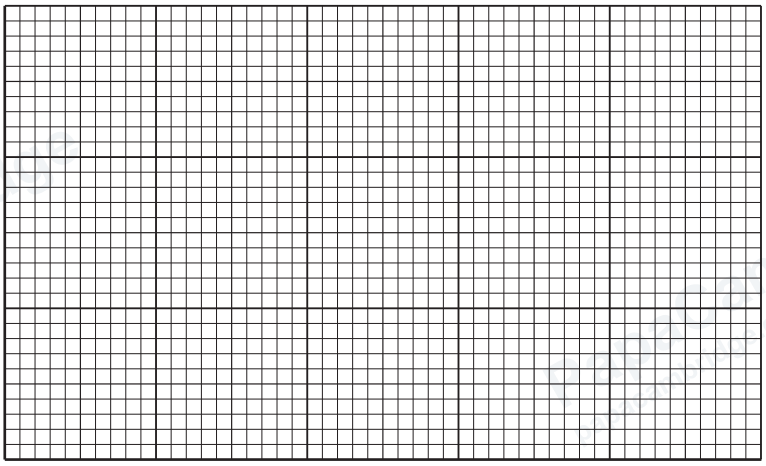

Figure 7.3 [2]

(e) The food web shown in Figure 7.1 does **not** include any decomposers.

(i) Describe what is meant by a decomposer.

.....

.....

..... [2]

(ii) Name **one** gas released by decomposers.

..... [1]

[Total: 11]

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