



General Certificate of Secondary Education

Centre Number

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Candidate Number

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# Double Award Science: Biology

Unit B1  
Foundation Tier

<b>ML</b>
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## [GDW11] Assessment

Assessment Level of Control Tick the relevant box (✓)

**TIME**

Controlled Conditions	
Other	

1 hour, plus your additional time allowance.

**INSTRUCTIONS TO CANDIDATES**

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.

**You must answer the questions in the spaces provided.**

**Do not write outside the boxed area on each page or on blank pages.**

Complete in black ink only. **Do not write with a gel pen.**

Answer **all seven** questions.

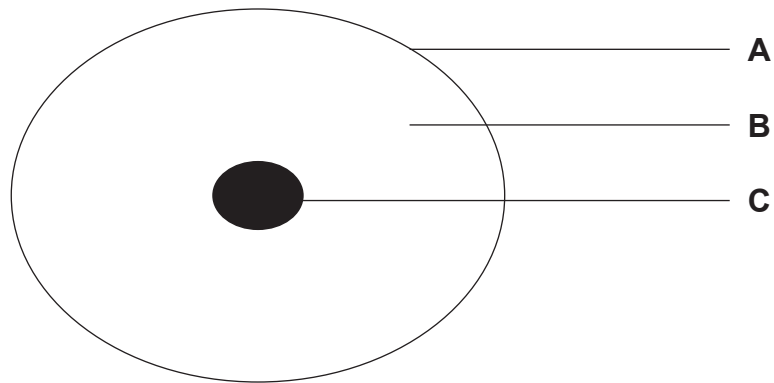
**INFORMATION FOR CANDIDATES**

The total mark for this paper is 60.

Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.

Quality of written communication will be assessed in Question **6(a)**.

1 (a) The diagram below shows an animal cell.



(i) Name parts **A**, **B** and **C**.

**A** \_\_\_\_\_

**B** \_\_\_\_\_

**C** \_\_\_\_\_

[3]

(ii) What is the function of part **C**?

\_\_\_\_\_

\_\_\_\_\_

[1]

A bacterial cell has some structures that are **not** found in an animal cell.

(b) Name **two** of these structures.

1. \_\_\_\_\_

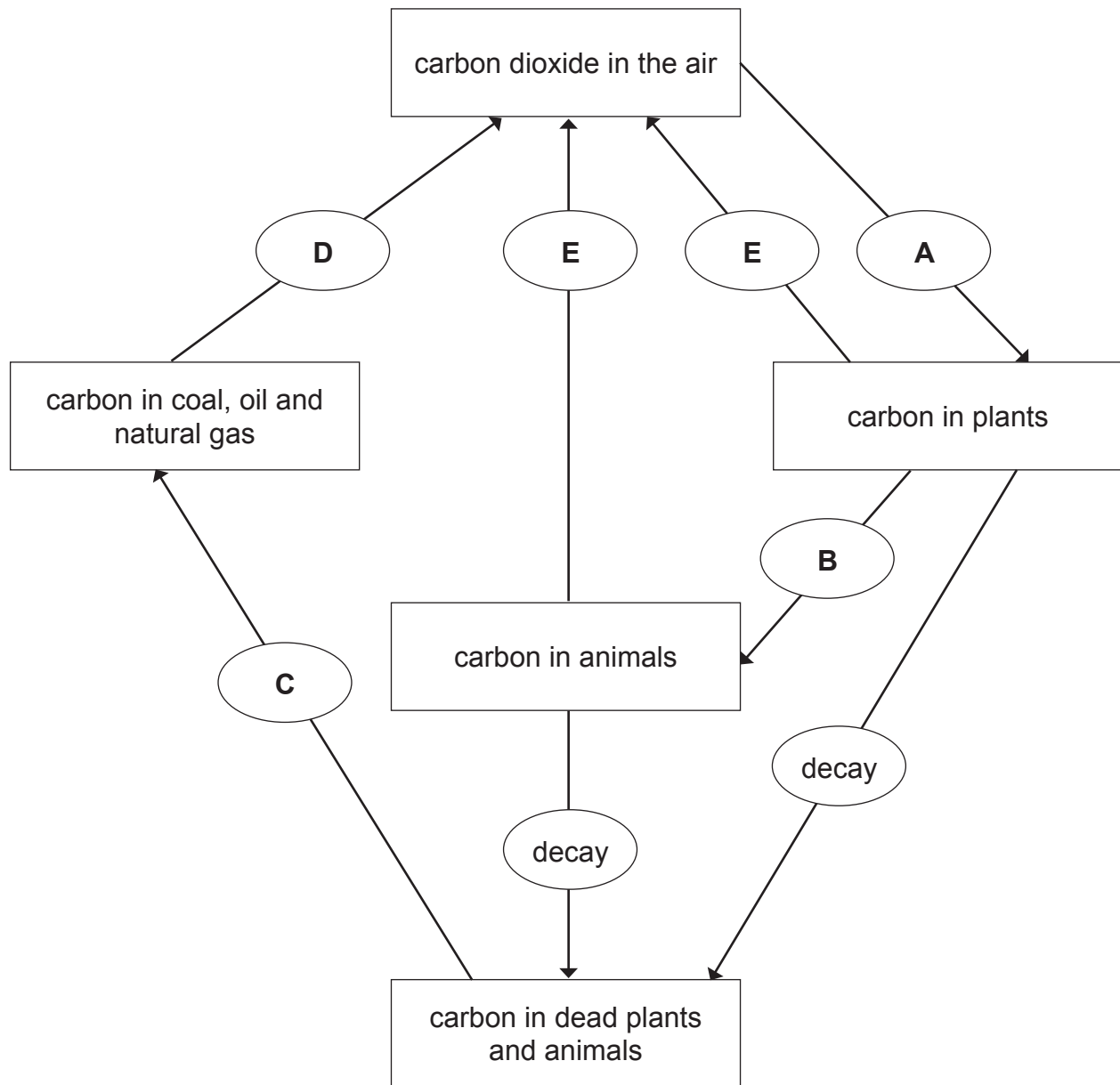
2. \_\_\_\_\_

[2]



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**(Questions continue overleaf)**

2 The diagram below shows the carbon cycle.



Source: Principal Examiner

(a) Name the **substance** in the leaves of plants which is needed for process **A**.

\_\_\_\_\_

[1]

(b) Name processes **B**, **C** and **D**.

**B** \_\_\_\_\_

**C** \_\_\_\_\_

**D** \_\_\_\_\_

[3]

(c) Process **E** is respiration.

(i) What is the biological molecule that has carbon in it and is used in respiration?

\_\_\_\_\_

[1]

(ii) Name the gas needed for aerobic respiration.

\_\_\_\_\_

[1]

3 Ten pupils investigated their reaction times.

A light was switched on and the time taken for each pupil to switch the light off was recorded as their reaction time.

The reaction times, in seconds, for these 10 pupils are shown below.

0.15	0.29	0.20	0.18	0.24	0.22	0.26	0.23	0.34	0.22
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(a) Complete the tally chart for the reaction times of the pupils. Write your answer in the empty boxes below.

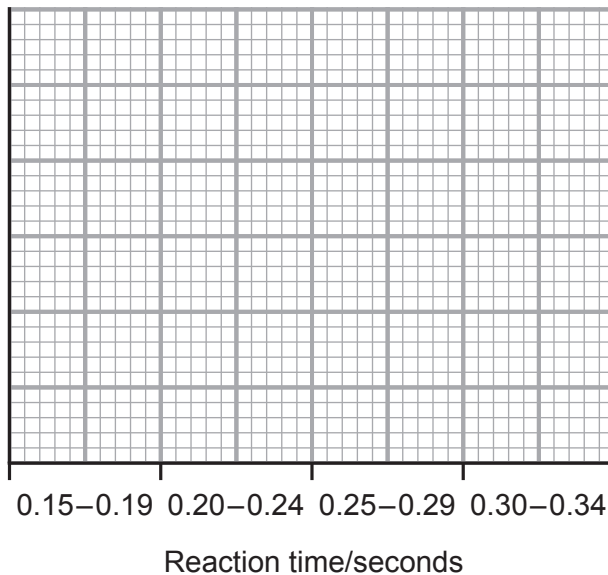
The first row in the tally chart has been done for you.

Reaction time/ seconds	Tally	Number of pupils
0.15–0.19		2
0.20–0.24		
0.25–0.29		
0.30–0.34		

[3]

(b) Use the results from the tally chart to draw a histogram on the grid below.

- Add a scale on the y axis.
- Label the y axis.
- Plot and **shade** the bars.



[3]

The reaction times for the pupils were the result of a voluntary action.

(c) How would the reaction times for the pupils differ if they were the result of a reflex action, and not a voluntary action?  
Explain your answer.

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[2]

[Turn over

4 (a) Complete the sentences below about the structure of the excretory system.

Choose your answers from the words in the box.

liver	kidney	urethra	pancreas
bladder	ureters	medulla	

The \_\_\_\_\_ is an organ that has an outer region called the cortex and an inner region called the \_\_\_\_\_.

Urine moves into the pelvis and is then carried down the

\_\_\_\_\_ to the

\_\_\_\_\_ where it is stored.

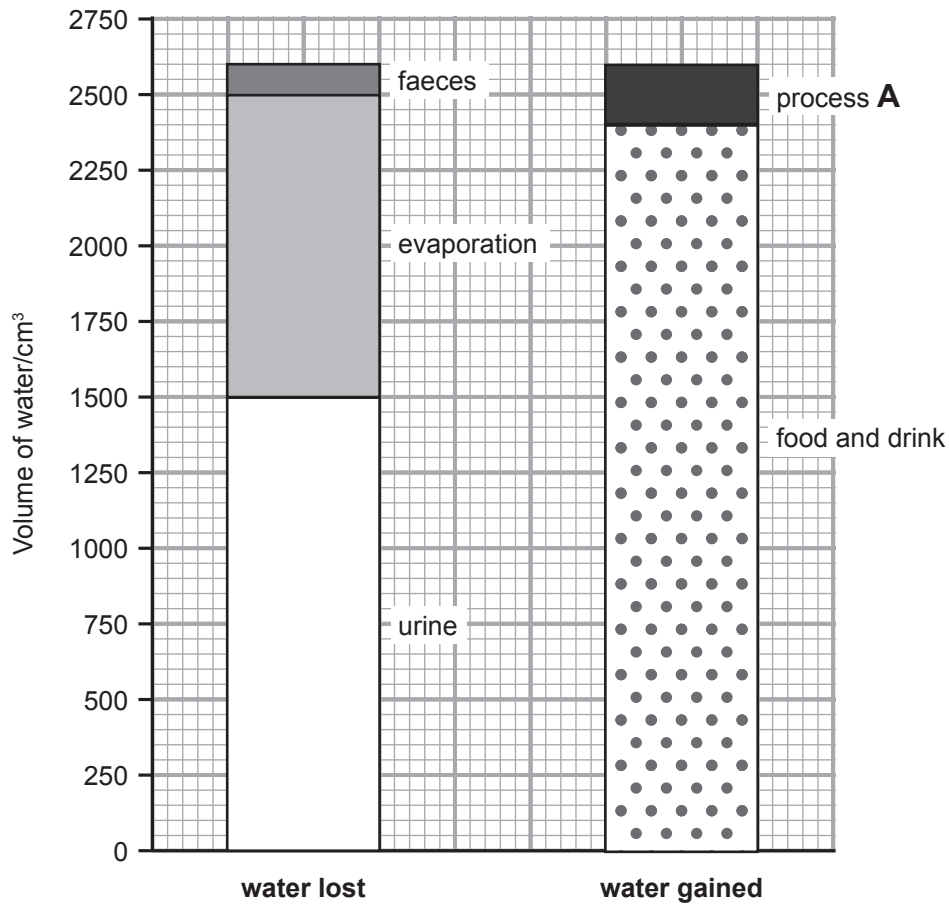
[4]





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(b) Look at the bar chart below. It shows water lost and water gained by a person during one day.



Source: Principal Examiner

(i) Write down **two** ways water is lost by evaporation from the body.

1. \_\_\_\_\_

2. \_\_\_\_\_

[2]

(ii) The body gains water from food and drink and one other process (**A**) shown on the bar chart.

Name process **A**.

\_\_\_\_\_

[1]

(iii) Use the information from the bar chart opposite to calculate the **simplest** ratio of water gained from food and drink compared to water gained by process A.

**Show your working.**

Simplest ratio \_\_\_\_\_ : \_\_\_\_\_ [3]

A woman is exercising very hard. She does not drink any water while exercising.

(c) Complete the sentences below to describe what happens in her kidneys during this exercise.

Choose from the words in the list.

decreases

stays the same

increases

The volume of water reabsorbed by the kidneys

\_\_\_\_\_.

The volume of urine produced

\_\_\_\_\_.

The concentration of urine produced

\_\_\_\_\_.

[3]

[Turn over

5 Four features of respiratory surfaces and their role in increasing gas exchange in animals are shown below.

(a) Draw a straight line to link each feature of a respiratory surface to its role in increasing gas exchange.

Feature	Role in increasing gas exchange
permeable cell membrane	maintains a diffusion gradient
good blood supply	allows gases to pass through
thin cells	increases the surface area
rounded shape of air sac	short diffusion distance

[3]

(b) (i) Name the small pores on the surface of a **leaf** that allow gases to enter.

\_\_\_\_\_

[1]

(ii) What is the function of the intercellular air spaces in a leaf?

\_\_\_\_\_

\_\_\_\_\_

[1]

(c) Spongy mesophyll cells have fewer chloroplasts than palisade mesophyll cells.

(i) Suggest why.

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[1]

(ii) Write down **one** difference between the shape of spongy mesophyll cells and palisade mesophyll cells.

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[1]

[Turn over



(b) What are **two** factors that affect the rate of enzyme activity?

1. \_\_\_\_\_

2. \_\_\_\_\_ [2]

[Turn over

7 Scotland has several national parks. These parks have habitats that have some rare species. Some rare species of animals are capercaillie and pine martens. There are also rare plants such as blaeberry.

The photographs below show a capercaillie and a pine marten.



© Andy Trowbridge / Nature Picture Library / Science Photo library

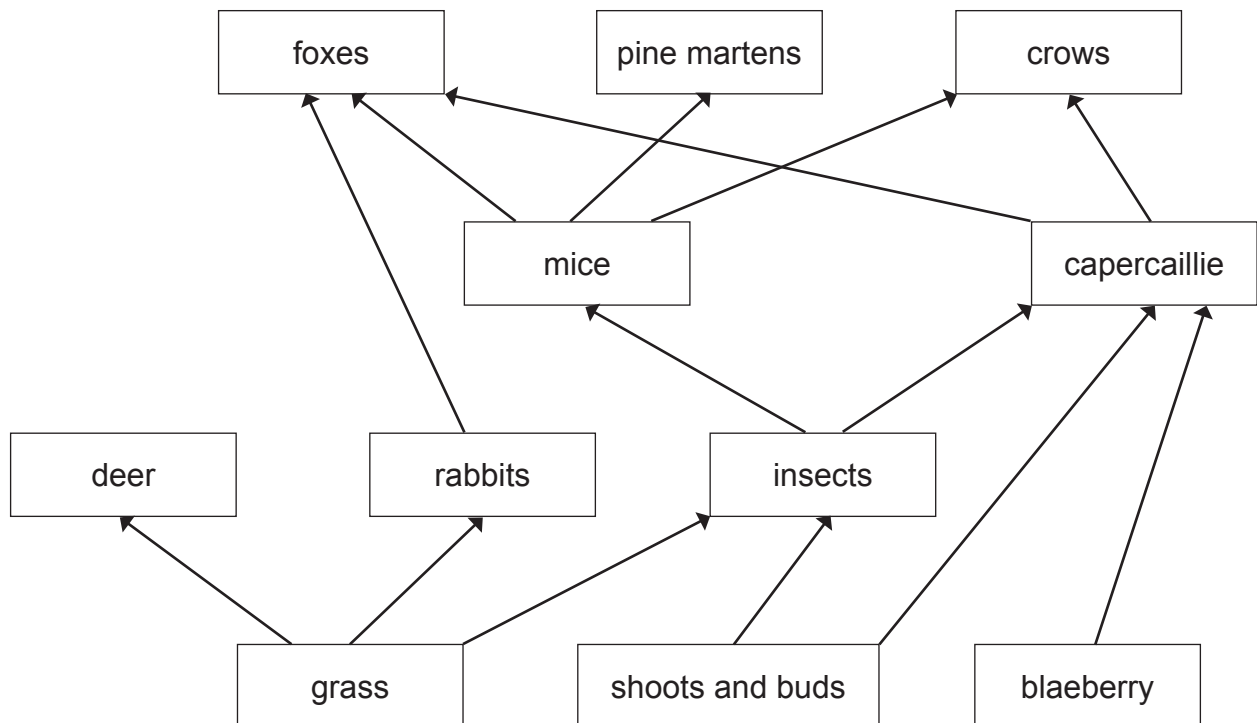
capercaillie



© Scotland The Big Picture / Nature Picture Library / Science photo Library

pine marten

(a) The diagram below shows part of a food web from a habitat in one of the national parks in Scotland.



Source: Principal Examiner



(i) What is the number of trophic levels in this food web?

\_\_\_\_\_

[1]

(ii) Use the food web name **three** species that feed on the same secondary consumer. Name this secondary consumer.

Secondary consumer \_\_\_\_\_

Species 1 \_\_\_\_\_

Species 2 \_\_\_\_\_

Species 3 \_\_\_\_\_

[2]

(iii) Use the food web to describe and explain what you would expect to happen to the number of pine martens if the numbers of shoots and buds decreased.

Description \_\_\_\_\_

Explanation \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

[3]

(iv) Use the food web to give **one** predator of the capercaillie.

\_\_\_\_\_

[1]

[Turn over

(b) In 2011, the population of capercaillie in Scotland was 1285.  
In 2017, the population of capercaillie in Scotland was 1114.

- (i) Calculate the percentage (%) decrease in the capercaillie population over this period.

**Show your working.**

Give your answer to **two** decimal places.

\_\_\_\_\_ % [3]

- (ii) Write down **two** reasons for the decrease in the capercaillie population.

1. \_\_\_\_\_

2. \_\_\_\_\_ [2]

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**THIS IS THE END OF THE QUESTION PAPER**

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For Examiner's use only	
Question Number	Marks
1	
2	
3	
4	
5	
6	
7	

<b>Total Marks</b>	
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Examiner Number

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