



General Certificate of Secondary Education
2025

Centre Number

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Candidate Number

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Biology

Unit 1

Foundation Tier

MV24

[GBL11]

TUESDAY 13 MAY, AFTERNOON

Time

1 hour 15 minutes, 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 on blank pages.

Complete questions in black ink and use a dark HB pencil for drawings and graphs.

Do not write with a gel pen.

Answer all eleven questions.

Information for Candidates

The total mark for this paper is **75**.

Figures in brackets printed at the end of each question indicate the marks awarded to each question or part question.

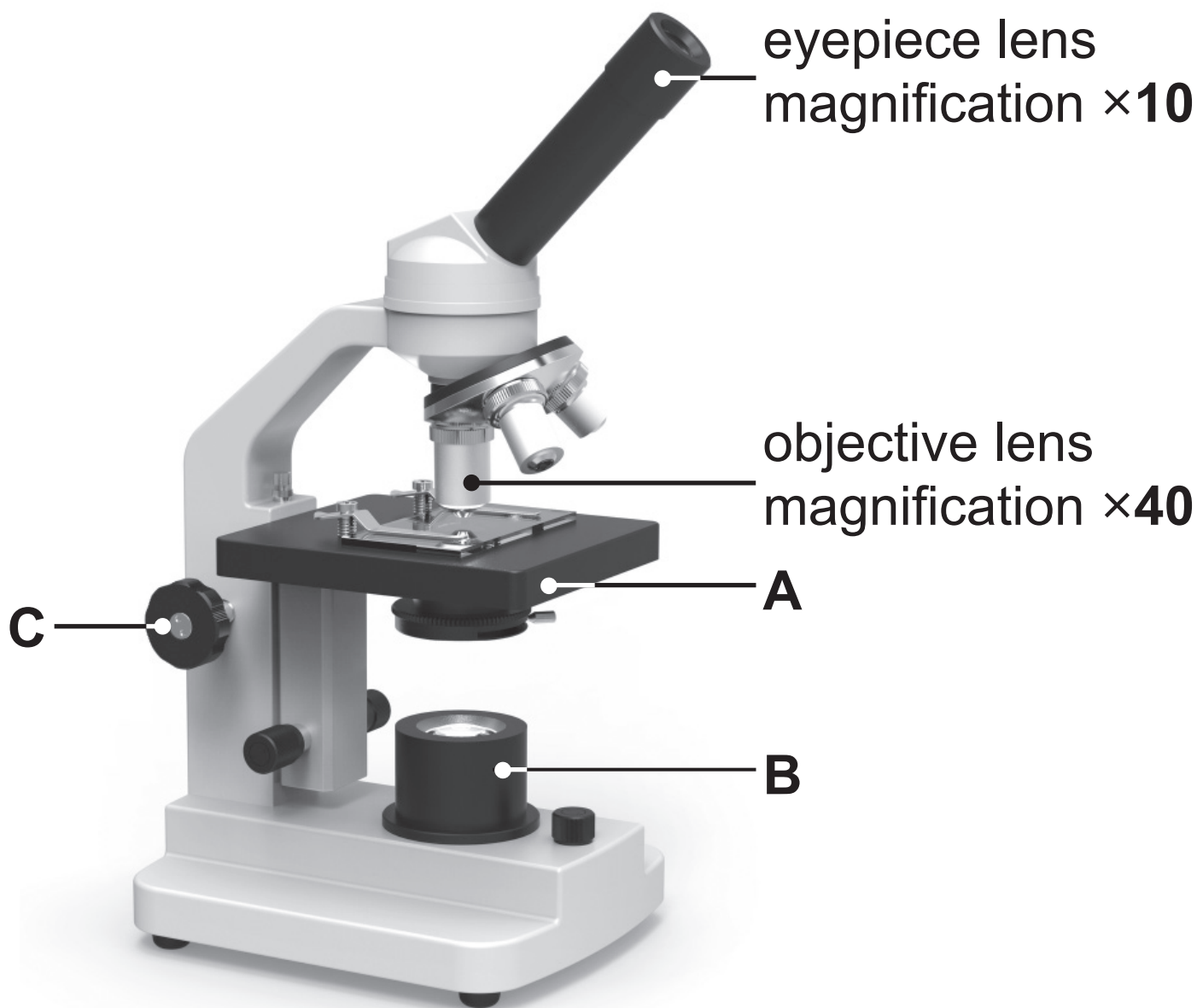
You may use a scientific calculator.

Quality of written communication will be assessed in Question **9(d)**.

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(Questions start overleaf)

- 1 The photograph shows a light microscope used by a student to view onion cells.



Look at the photograph.

(a) Name parts **A** and **B**. [2 marks]

A _____

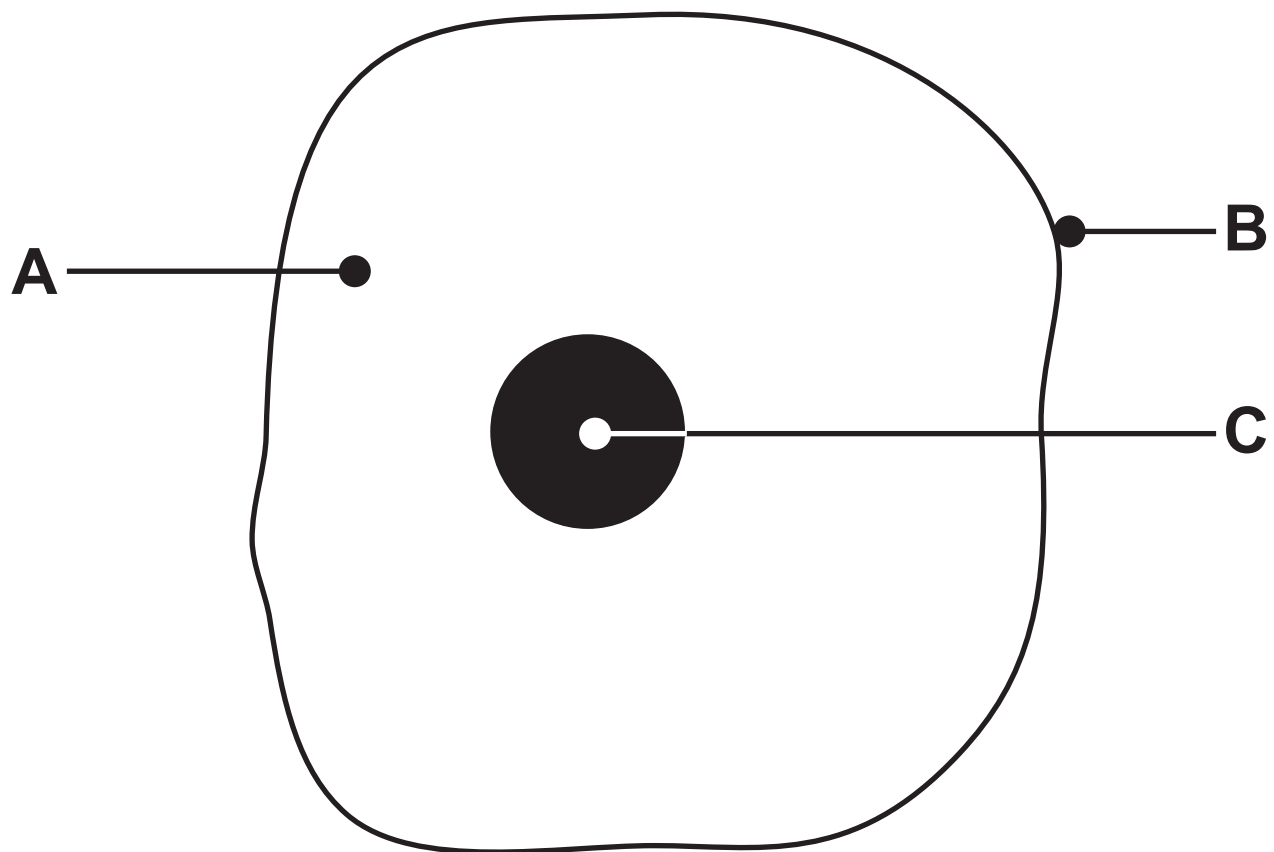
B _____

(b) Give the function of part **C**. [1 mark]

(c) Calculate the **overall** magnification used by the student to view these onion cells. [2 marks]

Show your working.

2 (a) The diagram shows an animal cell.



(i) Name parts **A** and **B**. [2 marks]

A _____

B _____

(ii) Give the function of part **C**.

[1 mark]

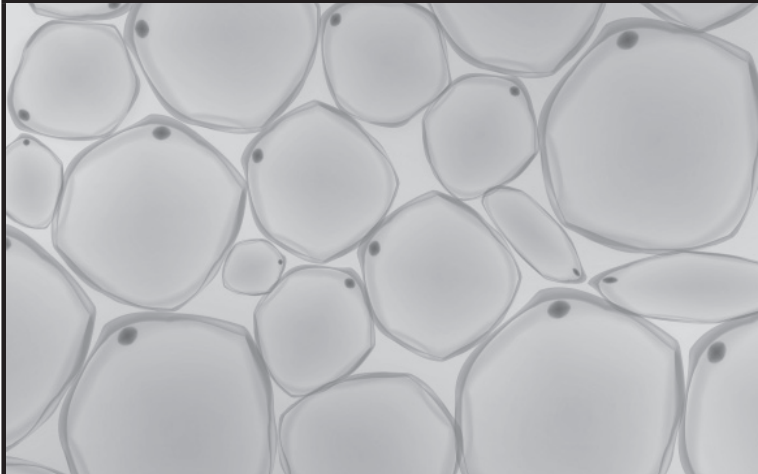

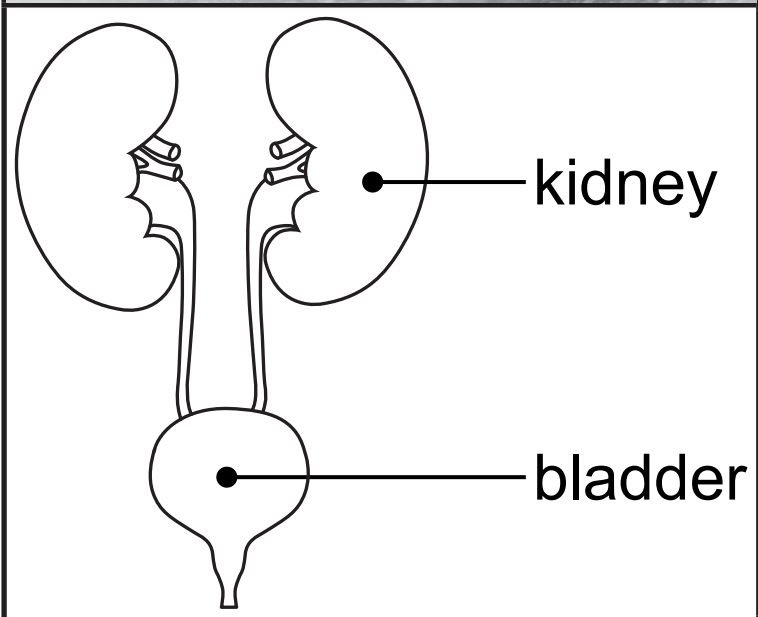
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(Questions continue overleaf)

Animals are made up of many cells.

These cells have different levels of organisation in the animal.

(b) Complete the table opposite to show which level of organisation describes each example shown. [2 marks]

Example	Level of organisation
	<p>tissue</p>
	
	

3 Some ecological terms are given below.

Draw a straight line to link the ecological term to the correct description. [5 marks]

Ecological term

Description

habitat

the interactions between organisms and their environment

ecosystem

the place where an organism lives

population

an environmental factor, e.g. light

biodiversity

the variety of organisms in an area

competition

the number of organisms of the same species living in an area

the struggle between organisms for limited resources

4 Carbohydrates are important biological molecules.

Complete the table to identify the carbohydrates from the descriptions given.
[4 marks]

Description	Carbohydrate	Where it is found
simple sugar	lactose	
complex carbohydrate	cellulose	
complex storage carbohydrate		plant cells
complex storage carbohydrate		animal cells

5 Diagrams **A** and **B** show changes to some parts of the respiratory system during breathing.

Diagram A

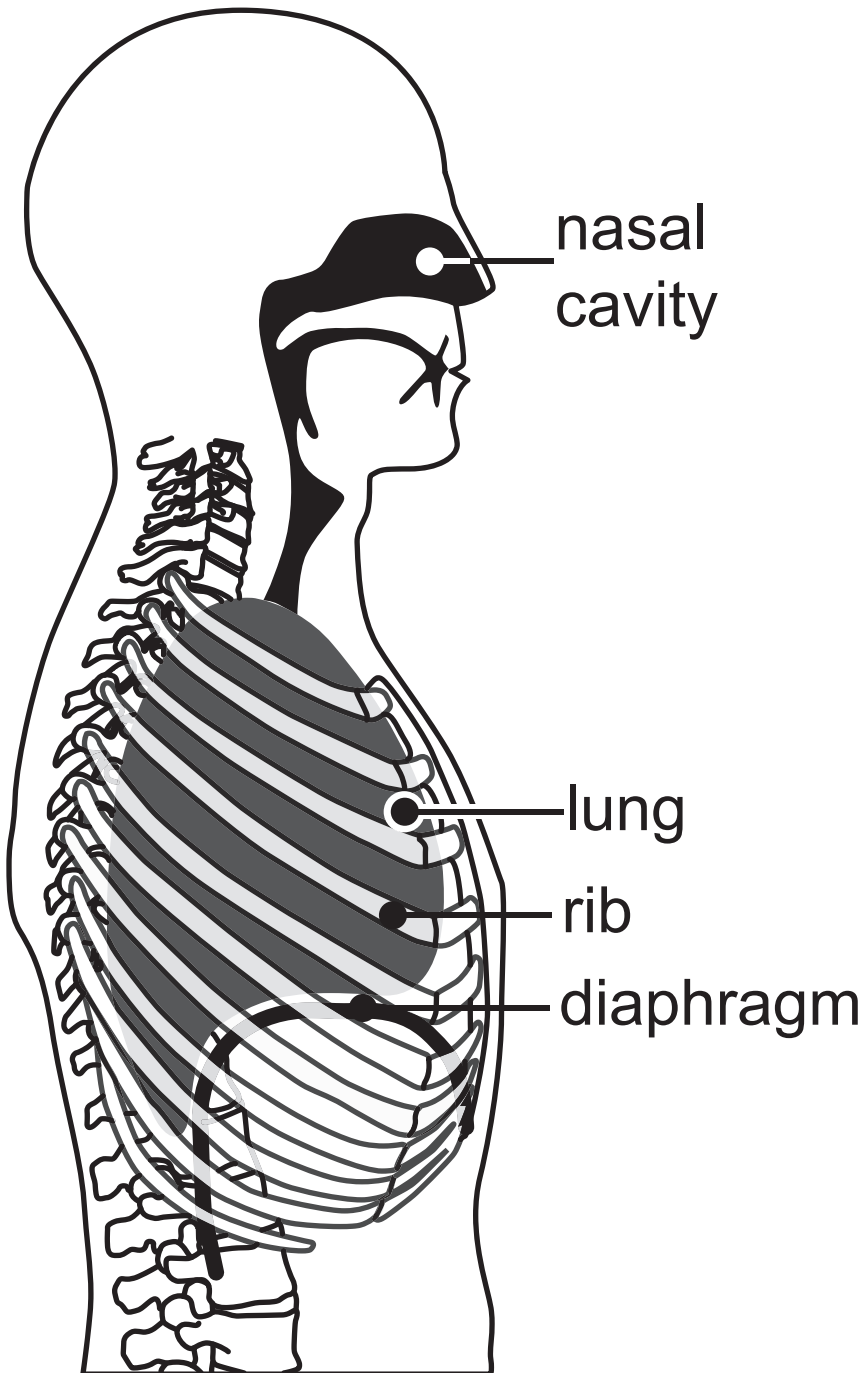
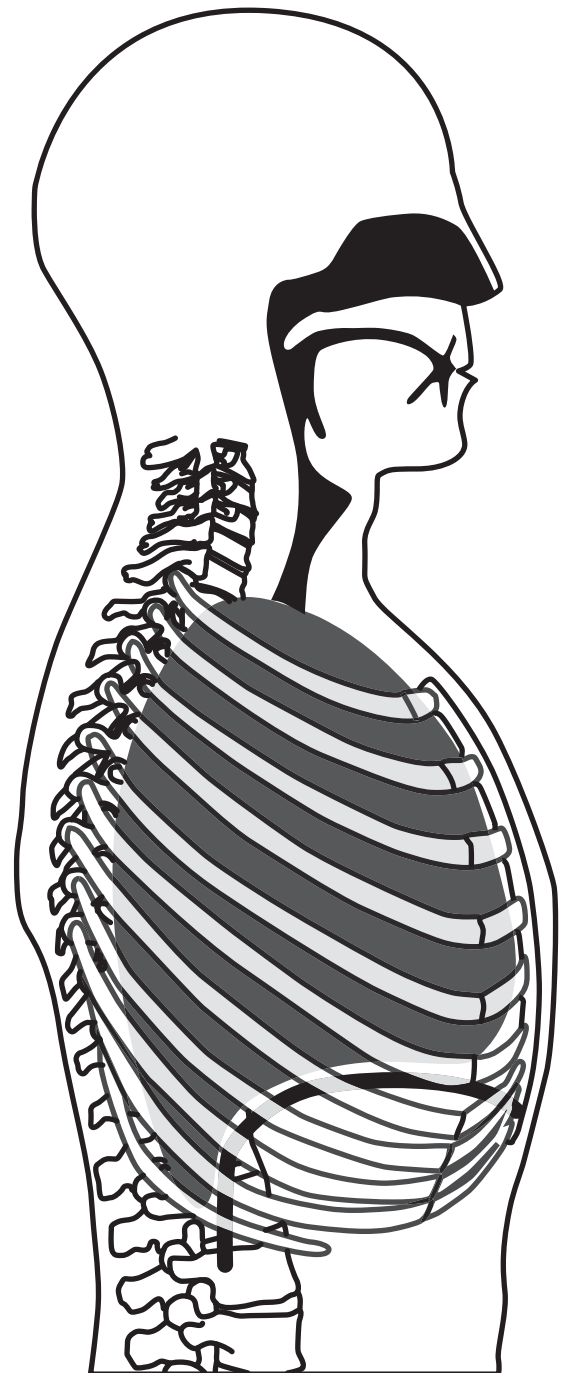


Diagram B



Look at the diagrams.

Diagram **B** shows **breathing in**.

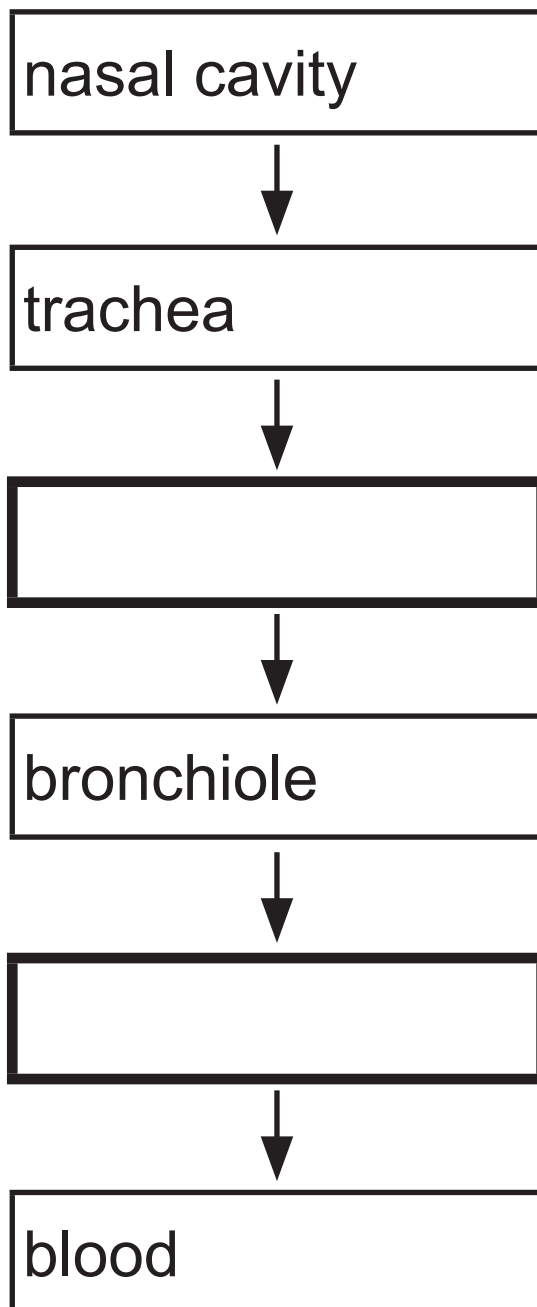
(a) Give **two** pieces of evidence to support this statement. [2 marks]

1. _____

2. _____

During breathing in, oxygen travels through the respiratory system and is absorbed into the blood.

(b) Complete the diagram to show the parts of the respiratory system that oxygen travels through, before it is absorbed into the blood. [2 marks]



(c) Name the muscles, found between the ribs, which are involved in breathing.
[1 mark]

6 Enzymes are needed to help digest food.

(a) What is digestion? [3 marks]

(b) Complete the **five** boxes in the table which describe the digestion of some food molecules by enzymes. [5 marks]

Enzyme	Food molecule being digested	Product(s) of digestion
	starch	
		amino acids
lipase	fat	fatty acids and _____

(c) The ileum has structures which increase the surface area for the absorption of the products of digestion.

Name these structures. [1 mark]

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7 Diabetes is a condition where the body does not produce enough hormone to keep blood glucose levels normal.

(a) Name this hormone. [1 mark]

Lethargy is one symptom of diabetes.

(b) Give **two other** symptoms of diabetes.
[2 marks]

1. _____

2. _____

(c) The table shows the number of people with diabetes in Northern Ireland from 2016 to 2019.

Year	Number of people with diabetes
2016	88 305
2017	92 480
2018	96 114
2019	99 833

Look at the table.

- (i) Calculate the percentage **increase** in the number of people with diabetes from **2016** to **2019**. [4 marks]

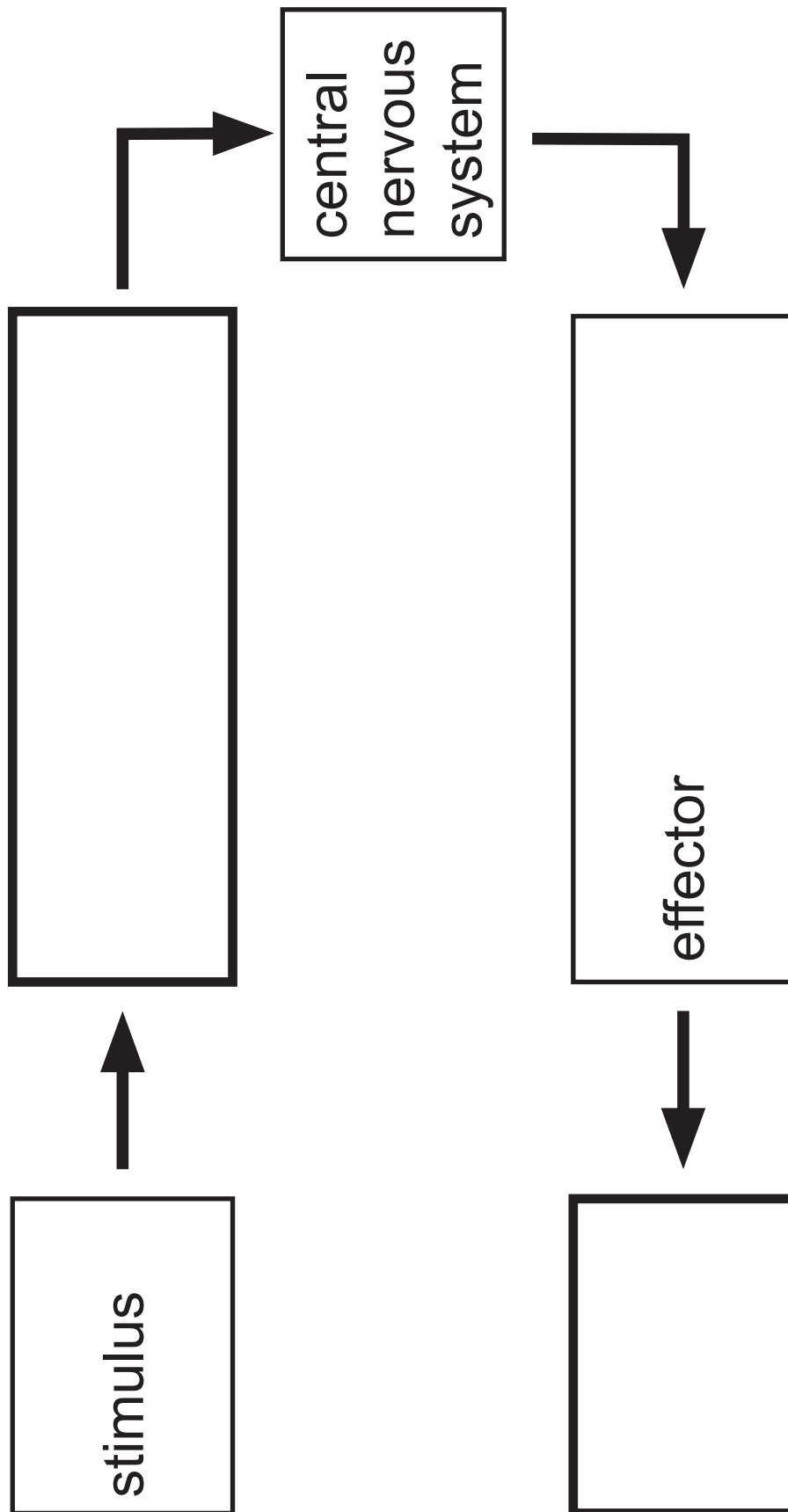
Show your working.

Give your answer to **one decimal place**.

_____ %

- (ii) Suggest **one** reason for the increase in the number of people with diabetes. [1 mark]

- 8 (a) The diagram shows the role of the central nervous system in co-ordination in the body.



Look at the diagram.

(i) Complete the diagram by filling in the boxes. [2 marks]

(ii) Name the **two parts of the body** which make up the central nervous system. [2 marks]

1. _____

2. _____

A response can be a voluntary action or a reflex action.

(iii) Give **two** ways a voluntary action and a reflex action differ. [2 marks]

1. _____

2. _____

Another communication system in the body is the hormonal system.

(b) What is a hormone? [2 marks]

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(Questions continue overleaf)

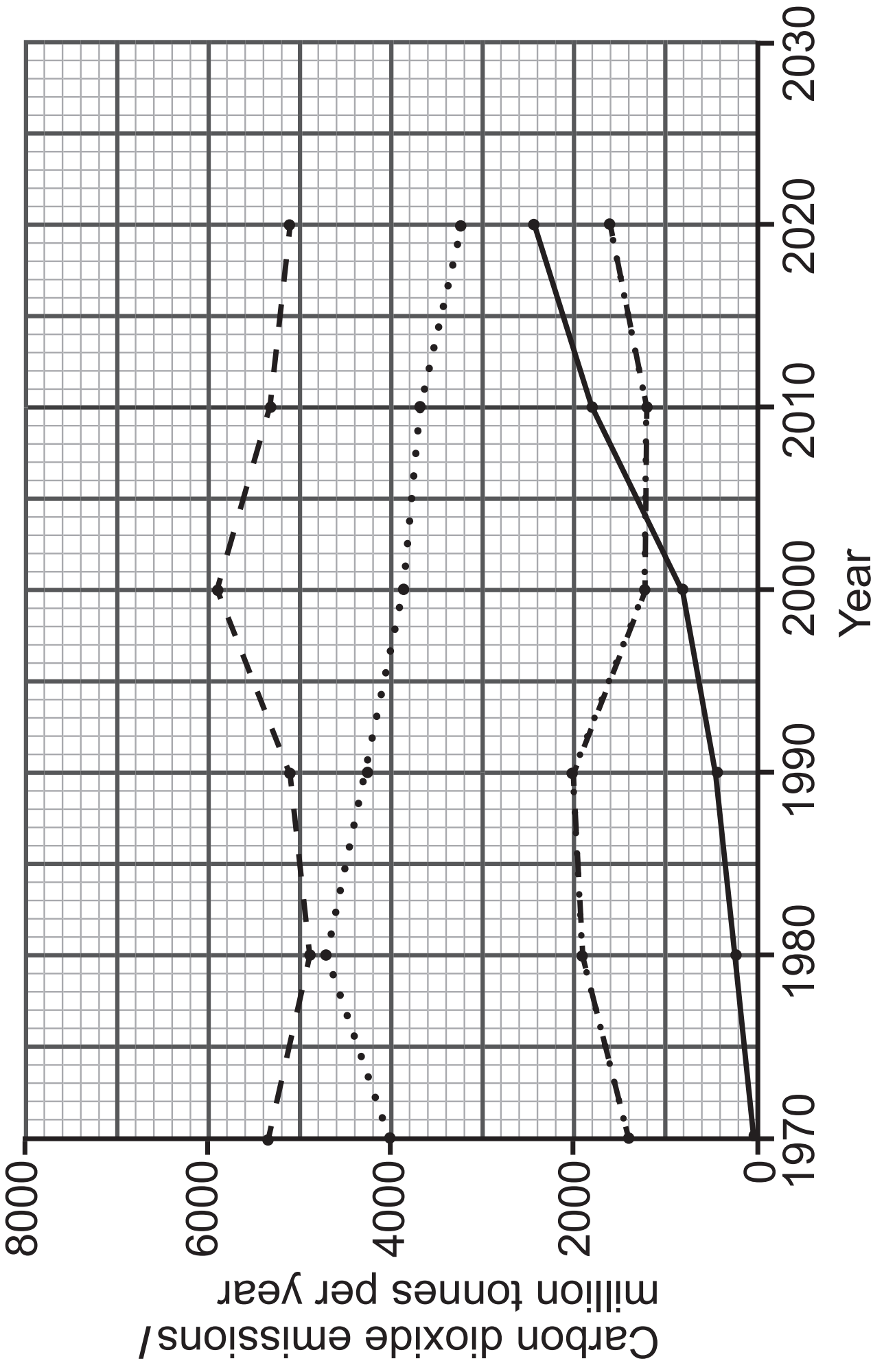
9 The graph opposite shows the carbon dioxide emissions from fossil fuels in four world regions from 1970 to 2020.

Look at the graph.

(a) Which world region had the **greatest** change in carbon dioxide emissions **between 2000 and 2020**? [1 mark]

No data is required in your answer.

Key: USA -- Europe ... Russia -.- India —



(b) Calculate the decrease in carbon dioxide emissions per year in Russia from **1990** to **2000**. [2 marks]

Show your working.

_____ million tonnes per year

(c) Use a ruler to extend the **2010** to **2020** line for Europe to **2030**.

Use this line to predict how much carbon dioxide might be emitted by Europe in **2025**. [2 marks]

_____ million tonnes per year

10 (a) Complete the word equation for aerobic respiration. [3 marks]

energy

+

+

↑

+

glucose

At rest, human muscles carry out aerobic respiration.

During strenuous exercise, the muscles can also carry out anaerobic respiration.

(b) Give **three** differences between aerobic respiration and anaerobic respiration in muscles. [3 marks]

1. _____

2. _____

3. _____

Anaerobic respiration also takes place in yeast.

(c) Give **two** differences between **anaerobic respiration** in muscles and in yeast.

[2 marks]

1. _____

2. _____

11 Zoysia grass is found in many gardens in the USA.

It grows rapidly during the spring but does not grow during the winter.

The photographs show the appearance of the same area of Zoysia grass during the spring and winter.

Spring



Winter



(a) Use evidence from the photographs to explain why Zoysia grass does not grow during the winter. [2 marks]

During the winter, Zoysia grass stores minerals.

Three minerals needed by plants are nitrate, calcium and magnesium.

(b) Give the function of each of these minerals in plants. [3 marks]

Nitrate _____

Calcium _____

Magnesium _____

During the winter, Zoysia grass also stores water so it can start growing again the following spring.

(c) Describe the change in **two other** abiotic factors which may cause Zoysia grass to start growing. [2 marks]

1. _____

2. _____

SOURCES

Q1 © Getty Images

Q2(a) . . © Chief Examiner

Q2(b) . . © Getty Images

Q5 © Getty Images

Q7(c) . . © www.diabetes.org.uk/statistics/diabetes-prevalence

Q9 Adapted from edgar.jrc.ec.europa.eu/report_2022. © European Union, 1995-2025. Licensed under the Creative Commons Attribution 4.0 International (CC BY 4.0) licence

Q11 . . . © Chief Examiner

This is the end of the question paper

For Examiner's use only	
Question Number	Marks
1	
2	
3	
4	
5	
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7	
8	
9	
10	
11	
Total Marks	

Examiner Number

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