



General Certificate of Secondary Education
2025

Centre Number

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Candidate Number

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Agriculture and Land Use

Unit 1

Soils, Crops and Habitats

MV24

[GAU11]

WEDNESDAY 28 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 in black ink only.

Do not write with a gel pen.

Answer **all nine** 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.

Quality of written communication will be assessed in Questions **7** and **9**.

1 The photographs show plant species used in hedging in Northern Ireland.

Use a ruler to draw a line to match the photograph of each plant to its name.

[4 marks]



Rowan



Hazel



Dog rose



Oak

Holly

2 Farmers have a role in improving biodiversity.

(a) Define the term biodiversity. [1 mark]

(b) The table opposite shows actions that farmers can undertake which will impact biodiversity on their land.

(i) Complete the table by putting a tick (✓) in the correct box to show whether the action increases or decreases biodiversity on their land.
[5 marks]

Action	Impact on biodiversity	
	Increase	Decrease
Plant hedges		
Use herbicides on crops		
Prevent soil erosion		
Intensive grazing		
Grow the same crop on a large scale		

(ii) Suggest **two** disadvantages to the farmer of increasing biodiversity on their land. [2 marks]

1. _____

2. _____

(c) Name an agency or charity that helps to promote biodiversity. [1 mark]

3 Water is one condition needed for seed germination.

(a) Name **two other** conditions needed for seed germination. [2 marks]

1. _____

2. _____

(b) The flow chart opposite describes the stages involved in the germination of a seed.

(i) Complete the blank spaces in the boxes to describe the stages in germination. [3 marks]

Seed absorbs water.



_____ emerges.



Development of root hairs.



_____ emerges.

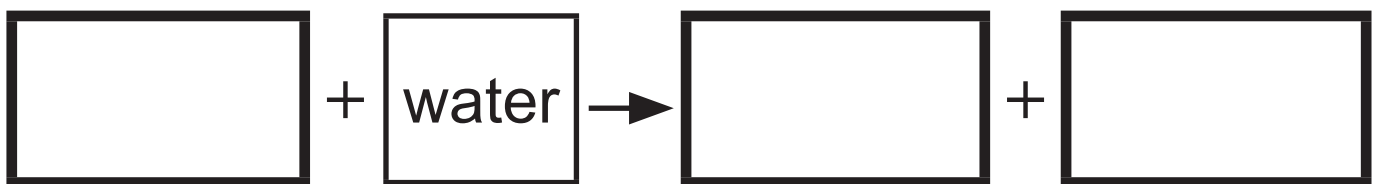


First _____ appear and the plant starts to photosynthesise.

(ii) Describe the function of the cotyledon in the seed. [1 mark]

(c) (i) After germination has occurred, the plant starts to photosynthesise.

Complete the word equation for photosynthesis by writing in the empty boxes. [3 marks]

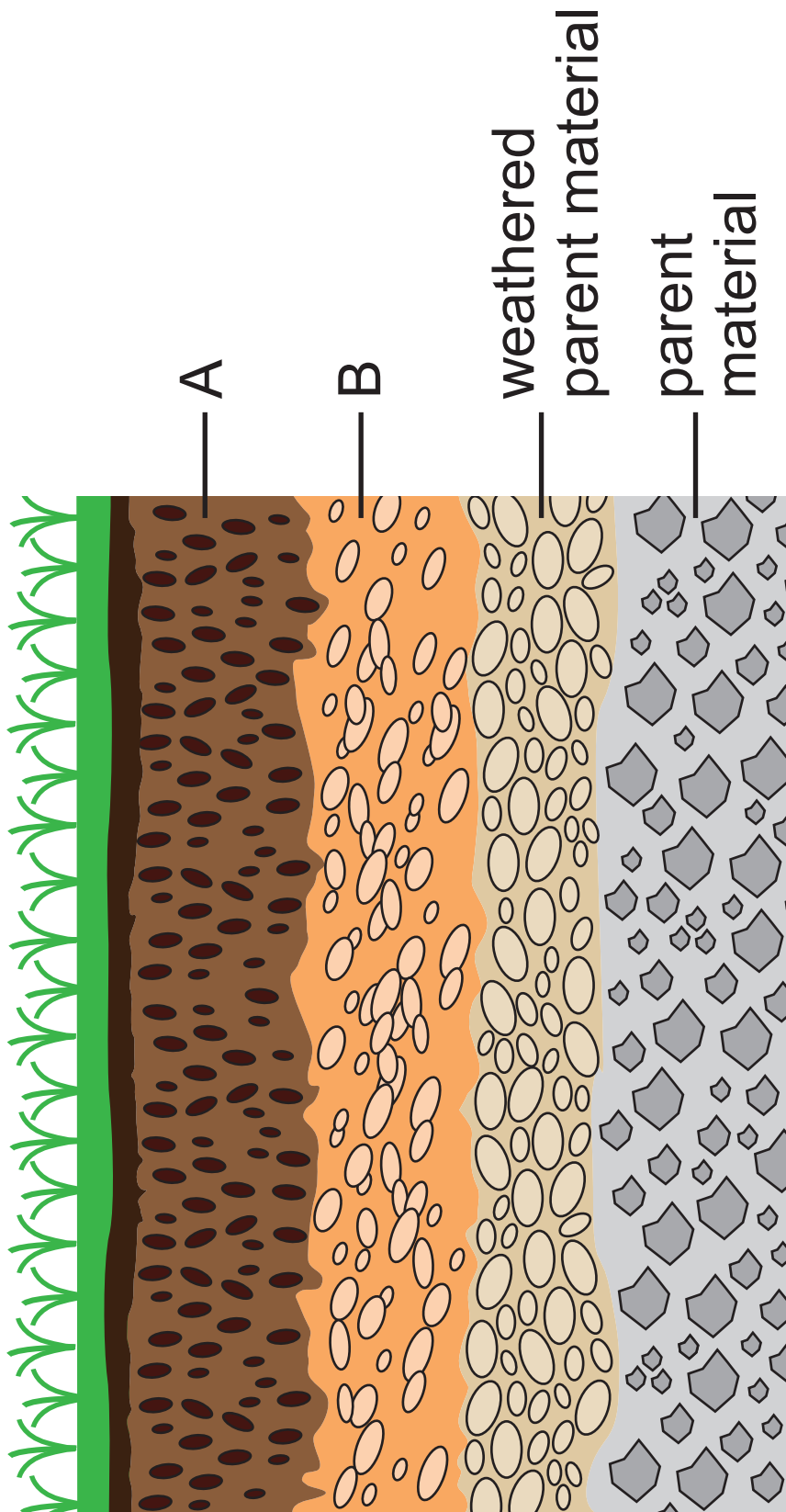


(ii) Where does the energy for photosynthesis come from? [1 mark]

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(Questions continue overleaf)

4 The diagram shows a soil profile.



(a) (i) Identify the layers A and B in the soil profile. [2 marks]

A _____

B _____

(ii) Adding fertilisers to layer A can provide plants with essential elements.

Explain how each of the following essential elements promote healthy growth in plants. [1 mark for each]

Nitrogen (N) _____

Phosphorus (P) _____

Potassium (K) _____

(b) Adding compost to soil has many environmental advantages, including improving soil fertility.

(i) Give **two other** environmental advantages of adding compost to soil.
[2 marks]

1. _____
2. _____

(ii) Suggest **one** way the farmer can save money by composting.
[1 mark]

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(Questions continue overleaf)

5 Genetically modified (GM) crops are used for feeding farm animals around the world.

(a) Define what is meant by GM crops.
[2 marks]

The table shows the area of GM crops in some countries in 2019.

Country	Area of GM crops / million hectares
United States	71.5
Brazil	52.8
Argentina	24.0

(b) The total area of GM crops worldwide in 2019 was **190.4** million hectares.

Calculate the percentage contribution of the **United States** to the total worldwide area of GM crops in 2019. [3 marks]

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

Show your working out.

_____ %

(c) (i) Give **two** advantages of growing GM crops. [2 marks]

1. _____

2. _____

(ii) GM crops are not grown commercially in the UK and Ireland. Suggest a reason why. [1 mark]

6 Northern Ireland is recognised as a good crop production area. There are many stages required for a farmer to produce a good crop.

(a) Preparing a seed bed is one stage in crop production. This involves the use of a tractor and other machinery.

(i) Give **three other** types of machinery used in preparing a seed bed.

[3 marks]

1. _____

2. _____

3. _____

(ii) Apart from the cost of machinery, give **one other** cost associated with preparing a seed bed. [1 mark]

(b) The photograph shows a young potato crop in the field.



Use your knowledge of the production of a common farm crop to answer the following questions.

(i) Suggest why it is important to plant seed potatoes at least 30 cm apart.
[1 mark]

Another important stage in potato crop production is the application of fertiliser.

(ii) Give **two** reasons why a farmer needs to apply the **correct amount** of fertiliser to the potato crop.

[2 marks]

1. _____

2. _____

Following harvesting, it is important that a farmer stores the potato crop in the correct conditions.

(c) Give **two** storage conditions that would help prevent the loss of the potato crop.

[2 marks]

1. _____

2. _____

7 Agriculture both contributes to climate change and is affected by climate change.

Discuss how climate change affects agriculture in Northern Ireland and ways farmers can reduce their carbon footprint.
[9 marks]

In your answer you should include:

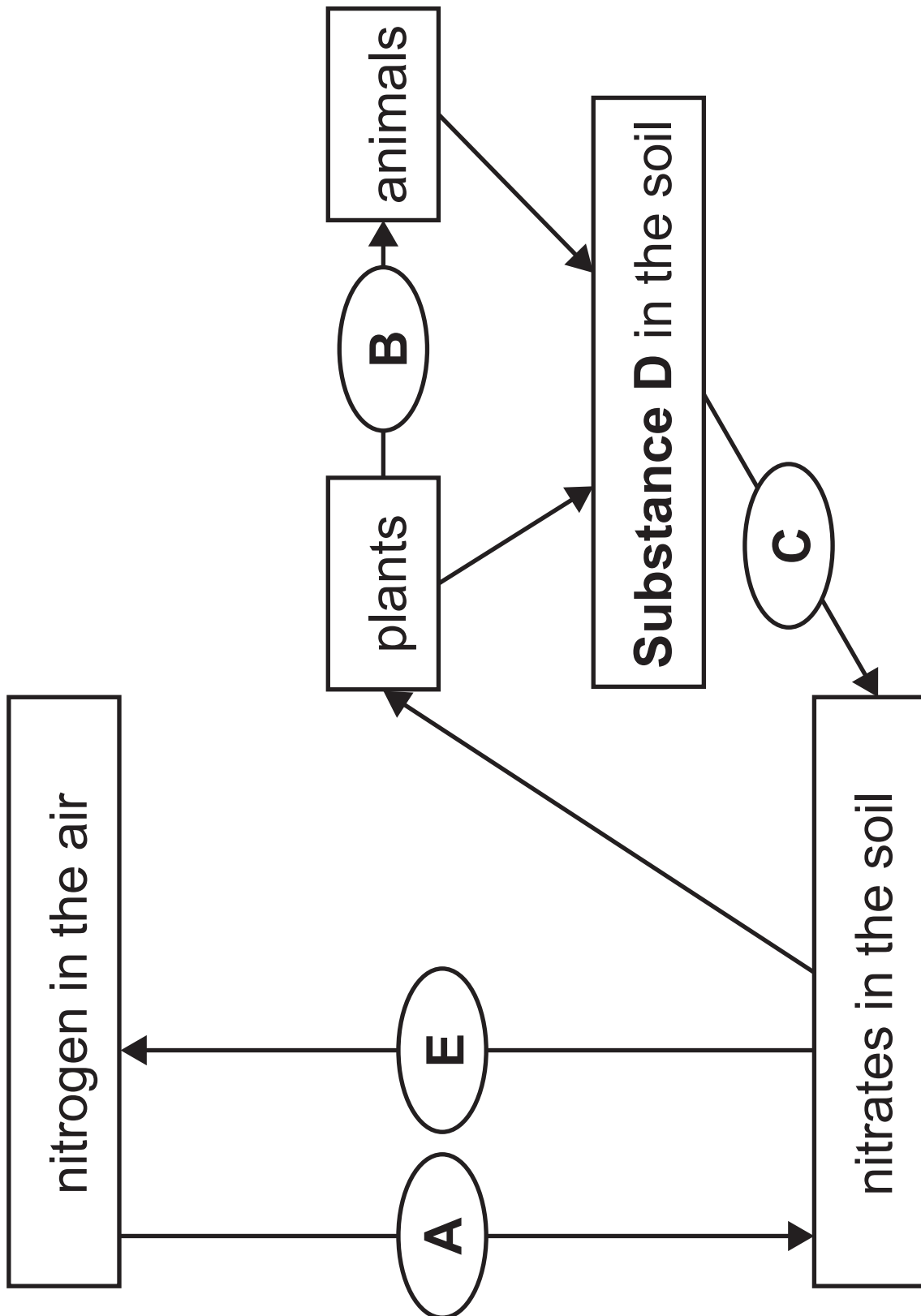
- **two** effects of climate change on weather patterns
- **three** effects of climate change on crop production
- **three** ways farmers can reduce their carbon footprint

In this question you will be assessed on your written communication skills, including the use of specialist scientific terms.

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(Questions continue overleaf)

8 The diagram shows the nitrogen cycle.



(a) (i) Name substance **D**. [1 mark]

(ii) Name the processes **A**, **B** and **C**.
[3 marks]

A. _____

B. _____

C. _____

(b) (i) Name the type of nitrogen bacteria that carry out process **E**. [1 mark]

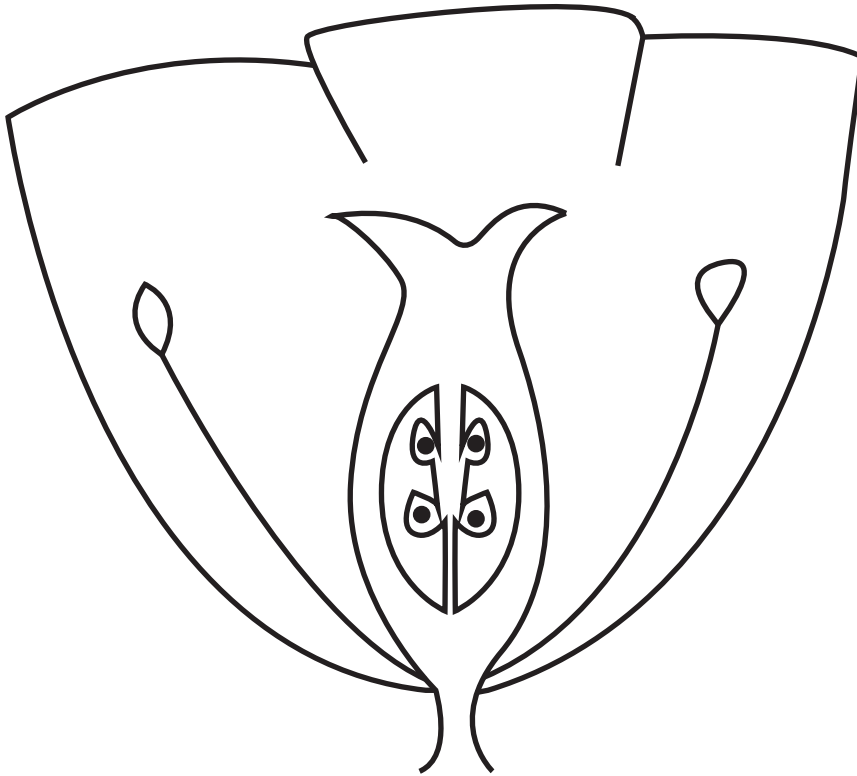
(ii) Use the diagram opposite and your knowledge to describe and explain the effect of process **E** on crop yield. [1 mark for description, 2 marks for explanation]

Description _____

Explanation _____

(iii) Name **one** soil condition that increases process **E**. [1 mark]

9 The diagram shows an insect-pollinated flower.



Use the diagram and your knowledge to describe pollination in an insect-pollinated flower. [9 marks]

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question paper**

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SOURCES

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Question Number	Marks
1	
2	
3	
4	
5	
6	
7	
8	
9	
Total Marks	

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