



General Certificate of Secondary Education
2019

Centre Number

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Candidate Number

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Agriculture and Land Use

Unit 1
Soils, Crops and Habitats



GAR11

[GAR11]

FRIDAY 31 MAY, AFTERNOON

TIME

1 hour 15 minutes.

INSTRUCTIONS TO CANDIDATES

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

Write your answers in the spaces provided in this question paper.

Answer **all nine** questions.

INFORMATION FOR CANDIDATES

The total mark for this paper is 75.

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 Questions **6(b)** and **9**.

For Examiner's use only	
Question Number	Marks
1	
2	
3	
4	
5	
6	
7	
8	
9	

Total Marks	
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1 (a) Look at the photographs below of common weeds found on farmland.

Draw a line to match the photograph of each weed to its name.



© Alessandro Stefanoni / iStock / Thinkstock

Nettle



Source: Chief Examiner

Chickweed



© matricul / iStock / Thinkstock

Thistle



© Lusyaya / iStock / Thinkstock

Docks

Creeping Buttercup

[4]

Examiner Only	
Marks	Remark

- 2 The picture below shows an anaerobic digester which breaks down organic matter such as biomass crops and waste substances to produce fertiliser and gas for energy.



Source: Chief Examiner

- (a) Suggest two **waste** substances which can be fed into a biodigester.

1. _____

2. _____

[2]

- (b) Apart from using waste, describe **three** advantages of using a biodigester to produce energy in Northern Ireland.

1. _____

2. _____

3. _____

[3]

Examiner Only

Marks

Remark

(c) The gas produced is usually burned to produce electricity which can be used on the farm.

Give **two** other ways of producing electricity on the farm.

1. _____

2. _____

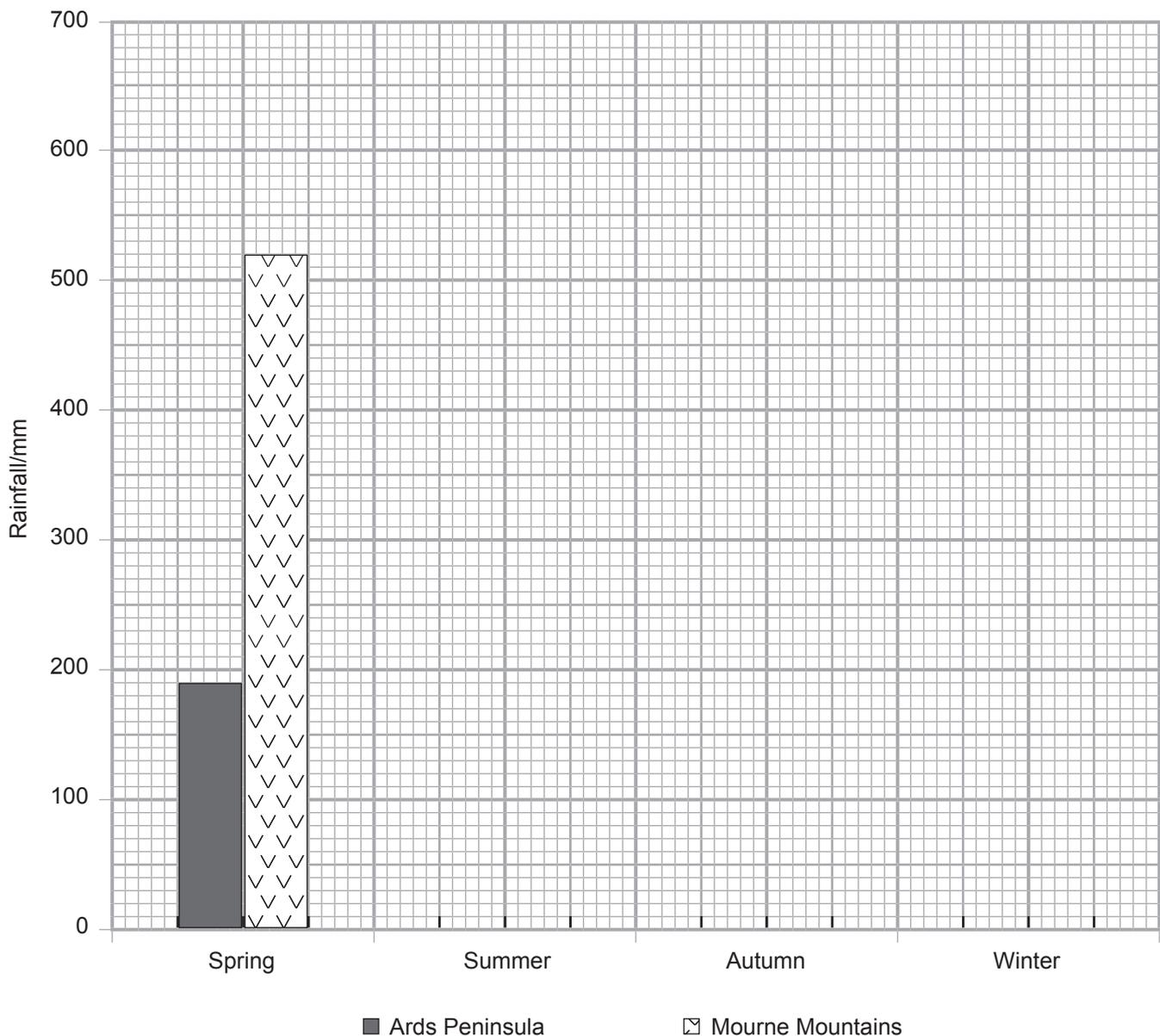
[2]

Examiner Only	
Marks	Remark

- 3 The rainfall levels in Northern Ireland vary depending on many factors. In 2015 the rainfall was recorded in the Ards Peninsula and in the Mourne Mountains. The results from the study are shown in the table below.

Season	Total rainfall/mm/season	
	Ards Peninsula	Mourne Mountains
Spring	190	520
Summer	210	480
Autumn	240	490
Winter	310	670

- (a) Below is an incomplete bar chart showing the rainfall in the two areas.



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- 4 (a) Silage is an important winter feed produced on many farms in Northern Ireland. Mowing the grass is the first stage of harvesting silage.

Describe **two** factors the farmer must consider before mowing the grass for silage.

1. _____

2. _____
 _____ [2]

- (b) After the grass is mowed it is collected and stored.



Source: Chief Examiner

- (i) State **two** ways grass can be **stored** to make into silage.

1. _____
 2. _____ [2]

- (ii) Fungus or mould growing on silage may be a sign of poor quality.

State **two** other indicators a farmer can use to assess silage quality.

1. _____
 2. _____ [2]

Examiner Only

Marks Remark

5 (a) In Northern Ireland there is a range of soil types.

Using your knowledge, complete the sentences below.

Choose words from the list.

silt
loam
sand
clay
agronomy
hydroponics

Soil which contains a mixture of sand, silt and clay is known as

a _____ soil.

_____ soil is very slow to drain.

Root vegetables grow well in a fast draining soil which would mostly contain _____ particles.

_____ involves growing plants in the absence of soil.

[4]

(b) (i) Which soil type has the smallest particle size?

[1]

(ii) Name the equipment used to determine soil particle size.

[1]

Examiner Only	
Marks	Remark

7 Genetically Modified (GM) crops are fed to many farm animals around the world. However, they are still not grown commercially in the UK and Ireland.

(a) The stages of producing a GM crop are listed below.

- A Remove the desired gene from the organism
- B Find the desired gene in an organism
- C Test the modified plants
- D Produce large quantities of seed for commercial growing
- E Insert the desired gene into a plant's DNA

Place these stages in order. The **first** answer has been done for you.

 B _____ _____ _____ _____ [2]

(b) (i) Higher yield is a common reason for producing a GM crop. Suggest **two** other traits that could be selected when creating a new GM crop.

1. _____

2. _____ [2]

(ii) Describe how growing GM crops could be harmful to the environment.

_____ [2]

(iii) Suggest **one** way GM crops could be beneficial to the environment.

_____ [1]

Examiner Only	
Marks	Remark

- 8 (a) Northern Ireland has a wide range of habitats, one of which is shown in the photograph below.



Source: Chief Examiner

- (i) Name the type of habitat shown.

_____ [1]

- (ii) Name **one** priority species that you would expect to find in this habitat.

_____ [1]

- (b) Describe **two** ways farmers could minimise their impact on this habitat.

1. _____

2. _____

_____ [2]

Examiner Only

Marks Remark

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