



Rewarding Learning

General Certificate of Secondary Education  
2018

Centre Number

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Candidate Number

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# Agriculture and Land Use

Unit 1  
Soils, Crops and Habitats



GAR11

[GAR11]  
TUESDAY 29 MAY, MORNING

## 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 eight** 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** and **8**.

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

<b>Total Marks</b>	
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1 Look at the photographs below of priority species in Northern Ireland. Identify the bird shown in each photograph.

(a) Draw a line to match the photograph of each bird to its name.



© Pedrosanmar / iStock / Thinkstock

Yellowhammer



© Pedrosanmar / iStock / Thinkstock

Curlew



© CreativeNature\_nl / iStock / Thinkstock

Barn owl



© Denja1 / iStock / Thinkstock

Lapwing

Red kite

[4]

Examiner Only	
Marks	Remark

(b) What is a priority species?

\_\_\_\_\_ [1]

\_\_\_\_\_

(c) Name a suitable habitat for a barn owl.

\_\_\_\_\_ [1]

Examiner Only	
Marks	Remark

- 2 (a) The pie chart below shows the relative proportions of the main components of soil.

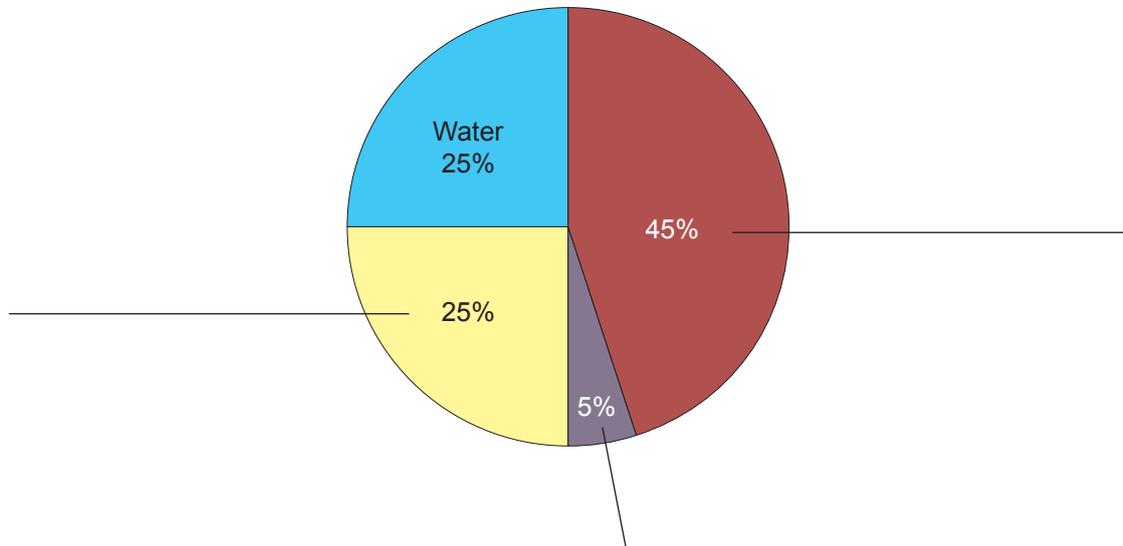
Choose words from the list to label the pie chart.

**Organic matter**

**Rock particles**

**Nitrates**

**Air**



Source: Chief Examiner

[3]

- (b) A sample of dry soil was passed through soil sieves. The results are shown below.

Particle type	Mass/g	Percentage (%) mass
Sand	11.4	_____
Silt	5.2	_____
Clay	3.4	17
Total mass	_____	

- (i) Calculate the total mass of the soil.

\_\_\_\_\_ g [1]

(ii) Complete the table opposite to show the percentage (%) mass of sand and silt.

Show your working.

[2]

(c) Northern Ireland has mostly clay soil. Describe **three** physical properties of a clay soil.

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

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

3. \_\_\_\_\_ [3]

(d) The percentage (%) organic matter is a useful measure of a soil's quality.

Describe an experiment to measure the % organic matter present in a fresh soil sample.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ [4]

Examiner Only	
Marks	Remark

3 (a) Barley seeds require water to germinate.

(i) State the other **two** conditions required for germination to occur.

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

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

[2]

(ii) The stages of germination are listed below.

A Plumule emerges

B Development of root hairs

C Radicle emerges

D Seed absorbs water

E First true leaves emerge

Place these stages in order. The **third** one has been done for you.

\_\_\_\_\_     B     \_\_\_\_\_

[2]

(iii) Seeds must be planted at the correct depth in the soil.

Suggest **two** reasons why seeds **not** sown at the correct depth may die.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

[2]

Examiner Only	
Marks	Remark

(b) Describe how a crop grown in Northern Ireland is stored, processed and distributed from farm to the supermarket.

Crop chosen \_\_\_\_\_

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[3]

Examiner Only	
Marks	Remark

4 The 'Common' or 'Spear' thistle is a biennial weed.



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(a) List **two** other common weeds.

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

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

(b) Explain what is meant by a biennial plant.

\_\_\_\_\_

\_\_\_\_\_ [1]

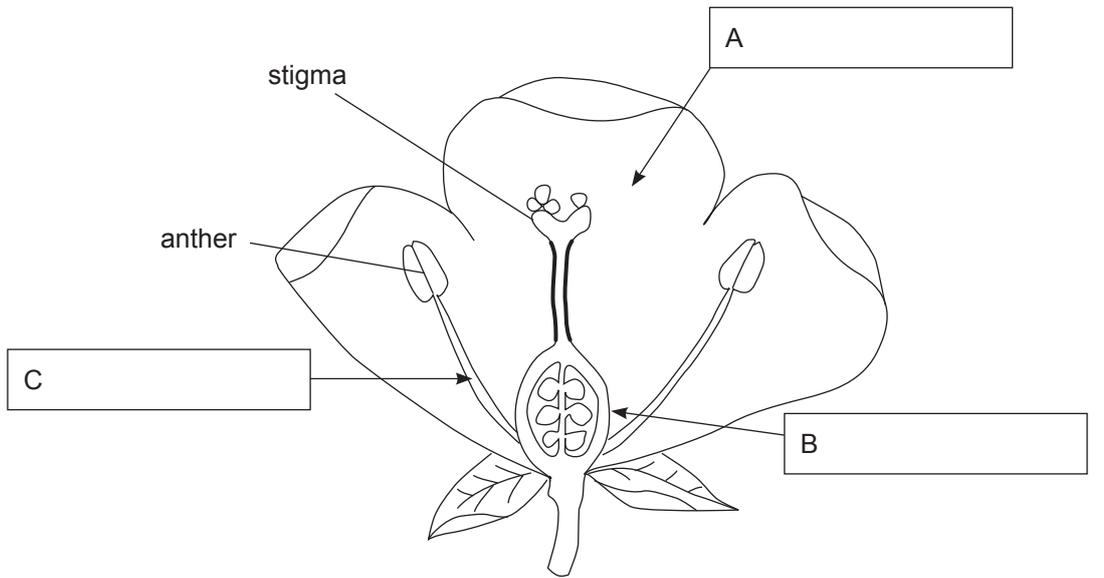
Examiner Only

Marks

Remark

(c) Pollination is the process of moving pollen from the anther to the stigma.

(i) Label the parts A, B and C of the flower.



[3]

(ii) Thistles are pollinated by insects and grasses are pollinated by the wind.

Describe **three** ways that some flowers are adapted for insect pollination.

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_  
\_\_\_\_\_

[3]

(d) The next stage is fertilisation, which forms a seed.

List **two** pieces of machinery that could be attached to a tractor to help prepare the ground for sowing the seed.

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

[2]

Examiner Only	
Marks	Remark

5 The boxes below describe the symptoms of plants with different mineral deficiencies.

(a) Draw a line to link the symptoms of the plant with the mineral it is deficient in.

Purple leaves and a poor root system

Stunted plant growth and yellow leaves

Yellow leaves with dead spots and poor fruit development

Nitrogen (N)      Phosphate (P)      Carbon (C)      Potassium (K) [3]

(b) Choosing the correct fertiliser and sowing it at the correct amount is very important.

(i) What is the job title of a person who advises farmers on fertiliser use?

\_\_\_\_\_ [1]

(ii) Describe **two** disadvantages of not sowing the correct amount of fertiliser.

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

\_\_\_\_\_

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

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

Examiner Only

Marks Remark

(iii) Peas are legumes which are nitrogen-fixing plants.

Jacob is growing peas and is not sure which fertiliser to use.

Choose the most suitable fertiliser and explain why you have chosen it.



Fertiliser chosen \_\_\_\_\_ [1]

Explanation \_\_\_\_\_

\_\_\_\_\_

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

(c) Crop rotation is another way of improving crop yield.

Describe **what** crop rotation is and give **one** advantage and **one** disadvantage of crop rotation.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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

Examiner Only	
Marks	Remark





- 7 Grass is the main crop grown in Northern Ireland. It forms the bulk of sheep and cattle's diet.



Source: Chief Examiner

- (a) Outline a method to estimate the amount of grass in a field.

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[3]

- (b) Suggest **two** reasons why a farmer would want to estimate the amount of grass in a field.

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

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

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[2]

Examiner Only	
Marks	Remark











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