Cambridge
O Level

Cambridge Assessment International Education
Cambridge Ordinary Level

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

8296109026

AGRICULTURE **5038/12**

Paper 1 **October/November 2019**

1 hour 45 minutes

Additional Materials: Answer Booklet/Paper

READ THESE INSTRUCTIONS FIRST

Write your centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Section A
Answer **all** questions.
Electronic calculators may be used.
Write your answers in the spaces provided on the Question Paper.
You are advised to spend no longer than 1 hour on Section A.

Section B
Answer any **two** questions.
Write your answers on the Answer Booklet/Paper provided.
Enter the numbers of the Section B questions you have answered in the grid.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

For Examiner's Use	
Section A	
1	
2	
3	
4	
5	
6	
7	
8	
9	
Section B	
Total	

This document consists of **16** printed pages.

Section A

Answer **all** the questions in the spaces provided.

1 **(a)** Soil is created by the process of weathering.

Which statement is an example of the biological weathering of rocks?

A action of acid rain

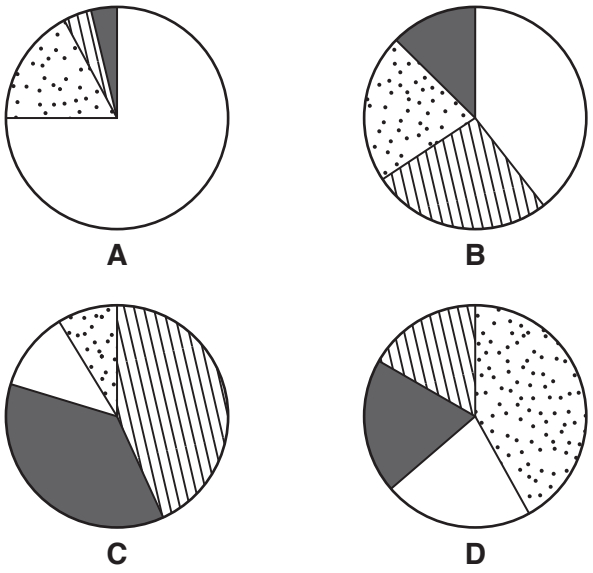
B freezing and thawing

C root growth

D volcanic action

Answer **A**, **B**, **C** or **D** ..... [1]

(b) The pie charts show the composition of four different soils **A**, **B**, **C** and **D**.



(i) Which soil contains the most clay?

Answer **A**, **B**, **C** or **D** ..... [1]

(ii) Which soil has the best drainage?

Answer **A**, **B**, **C** or **D** ..... [1]

(c) Soil also contains living organisms.

(i) Name **one** type of soil organism.

..... [1]

(ii) Describe **two** effects of poor drainage on the soil organisms.

1 .....

.....

.....

2 .....

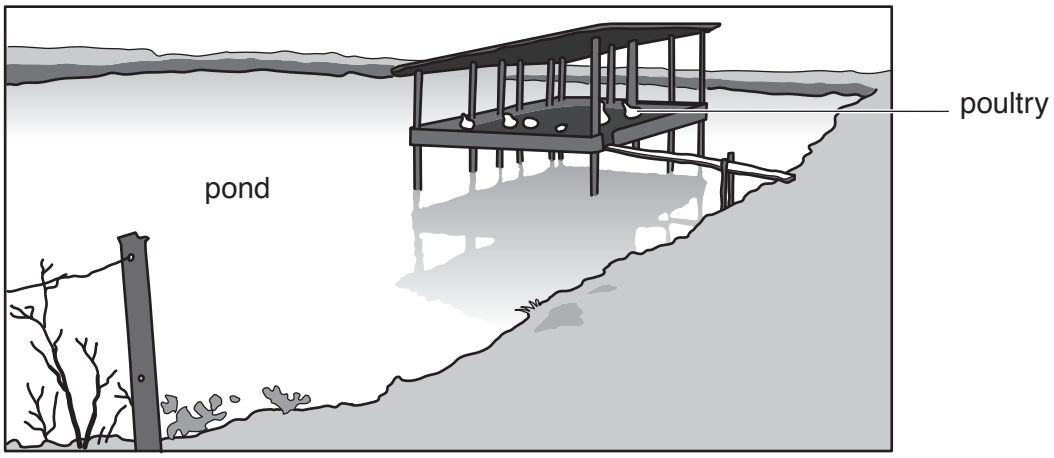
.....

.....

[2]

[Total: 6]

2 The diagram shows a pond used for an aquaculture enterprise where poultry are housed above a pond.



(a) State what is meant by the term *aquaculture*.

.....

..... [1]

(b) Explain **one** benefit and **one** problem of combining the process of aquaculture with livestock production as shown in the diagram.

benefit .....

.....

.....

.....

problem .....

.....

.....

.....

[4]

(c) Explain what is meant by the principle of *supply and demand*.

.....

.....

.....

..... [2]

[Total: 7]

3 **(a)** The diagram shows an equation for photosynthesis.

$$\mathbf{A} + \text{carbon dioxide} \xrightarrow[\mathbf{B}]{\text{light}} \mathbf{C} + \mathbf{D}$$

Which letter on the diagram represents water?

Answer **A**, **B**, **C** or **D** ..... [1]

(b) Describe the process of translocation in plants.

.....

.....

.....

.....

.....

..... [3]

(c) Explain how the carbohydrate produced during photosynthesis can be stored in plants.

.....

.....

.....

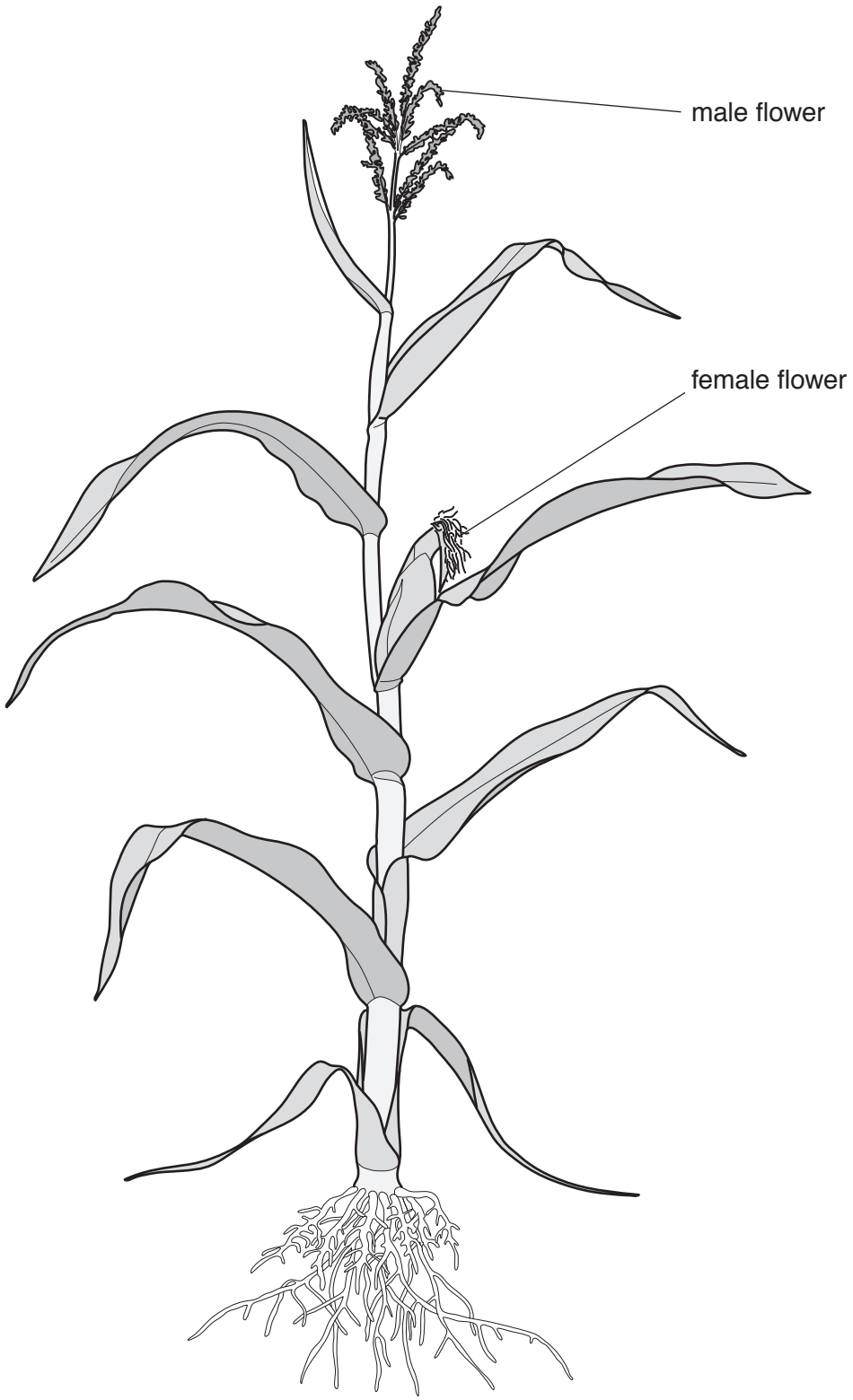
.....

.....

..... [3]

[Total: 7]

4 The diagram shows a maize plant with male and female flowers labelled.



(a) Describe how the flowers of a maize plant are adapted for wind pollination.

.....

.....

.....

.....

.....

.....

.....

..... [4]

(b) State what is meant by the term *pollination*.

.....

..... [1]

(c) Describe the process of fertilisation in a flowering plant.

.....

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.....

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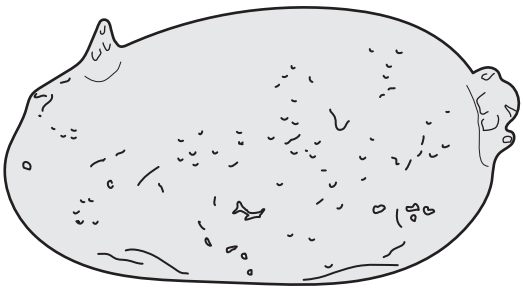
..... [3]

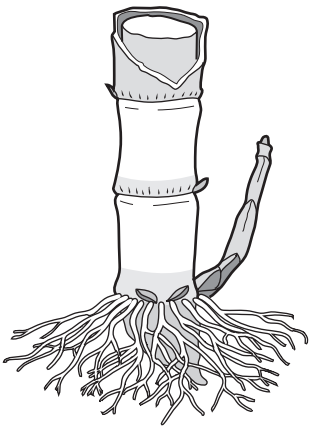
[Total: 8]

[Turn over

5 **(a)** The diagrams show two crops that can reproduce asexually.



Irish potato



sugar cane

Describe the planting methods used to grow **one** of these crops.

crop .....

description .....

.....

.....

.....

.....

.....

.....

.....

[4]

(b) Describe how plants produced asexually differ from plants produced by sexual reproduction.

.....

.....

.....

..... [2]

(c) Explain why it is important to control weeds in the seed-bed of newly planted crops.

.....

.....

.....

..... [2]

[Total: 8]

6 It is important to use farm chemicals safely. The diagram shows a container of farm insecticide.

(a) State **two** safety precautions needed:

(i) when storing the insecticide

1 .....

.....

2 .....

..... [2]

(ii) after applying the insecticide.

1 .....

.....

2 .....

..... [2]

(b) Explain how to avoid environmental pollution when applying insecticides.

.....

.....

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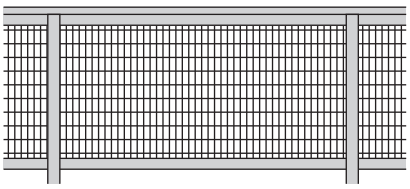
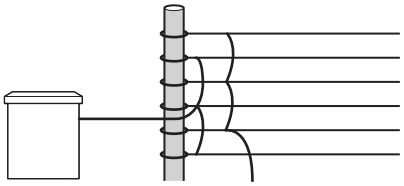
..... [4]

[Total: 8]

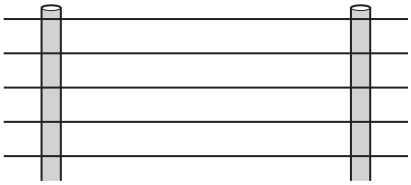
7 The diagrams and table show some different types of wire fence and the cost of 1320 metres of wire for each type of fence.



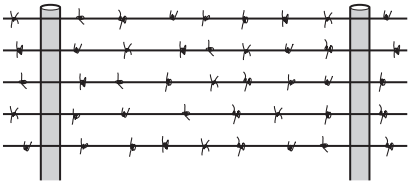
wire netting



electric wire



high-tension wire



barbed wire

type of wire fence	cost of 1320 metres of wire / $
wire netting	434
electric wire	88
high-tension wire	212
barbed wire	331

(a) Calculate the cost of 1 metre of wire for a fence made of high-tension wire.

cost ..... $ [1]

(b) Suggest why the costs of different types of wire fence vary.

.....

.....

.....

..... [2]

(c) Name **two** hand tools needed to build a wooden fence.

1 .....

2 .....
[2]

(d) Explain why wooden fence posts are often replaced with steel fence posts.

.....

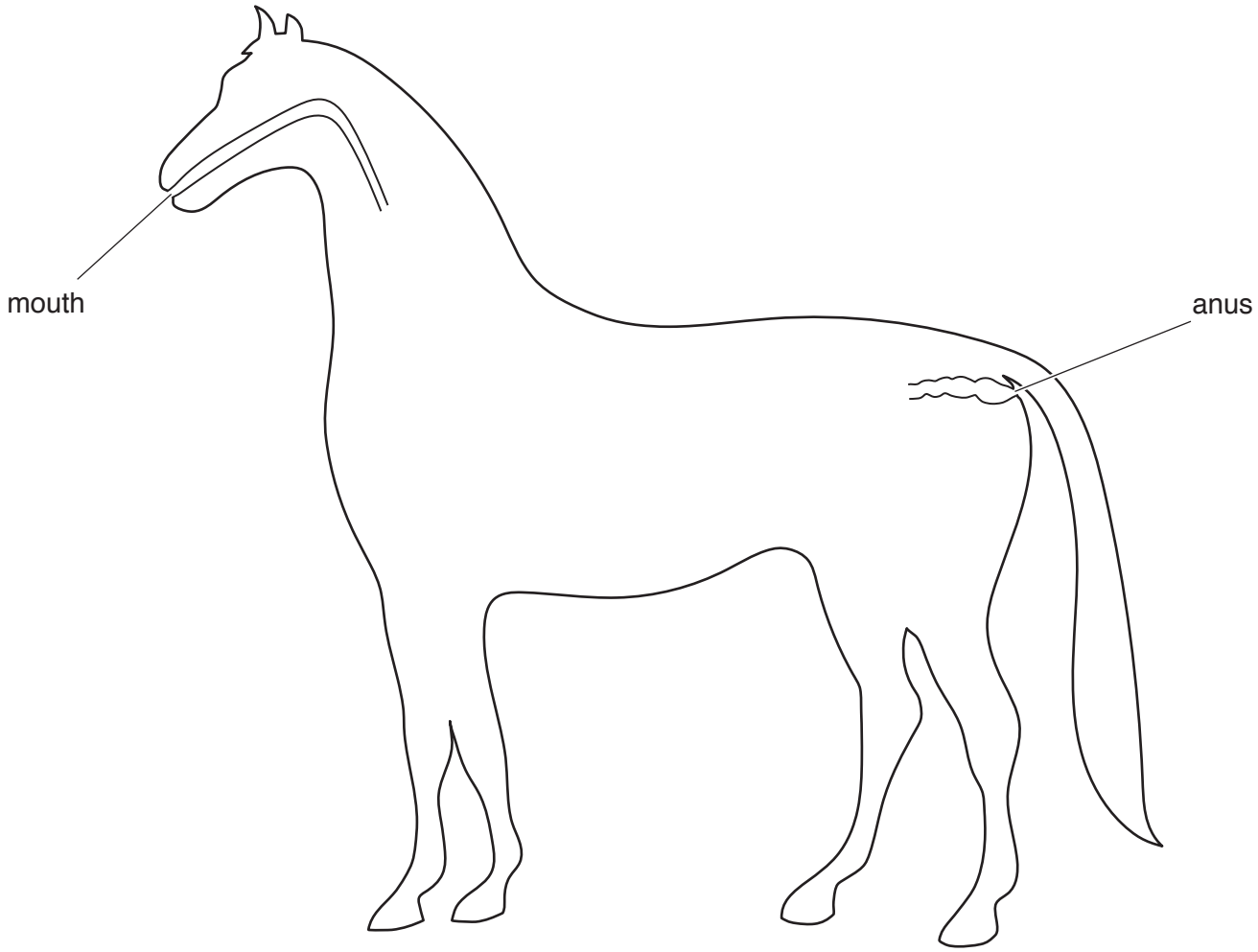
.....

.....

..... [2]

[Total: 7]

8 **(a)** The diagram shows the body outline of a non-ruminant animal. The mouth and anus are labelled.



(i) Draw and label the following **four** organs of the non-ruminant digestive system on the diagram:

caecum **large intestine** **small intestine** **stomach**.

[4]

(ii) Name the organ where most water is absorbed.

..... [1]

(b) Describe how food is mechanically digested in the non-ruminant digestive system.

.....

.....

.....

.....

.....

..... [3]

(c) Explain how enzymes assist the process of digestion.

.....

..... [1]

[Total: 9]

9 In a crop of pea plants the allele for green pods, **G**, is dominant and the allele for yellow pods, **g**, is recessive.

(a) State what is meant by each of the following terms:

dominant .....

.....

allele. .....

.....

[2]

(b) **(i)** Show that the expected ratio of offspring that have yellow pea pods to offspring that have green pea pods is 1 : 3 when both parents are heterozygous.

[4]

(ii) Suggest why a farmer may wish to produce yellow pea pods.

.....

..... [1]

(c) (i) Describe a technique that could be used to grow pea plants that have pods of a colour that does **not** occur naturally in peas.

.....

.....

.....

..... [2]

(ii) Suggest why a farmer may be reluctant to use this technique.

.....

..... [1]

[Total: 10]

Section B

Answer any **two** questions.

Write your answers on the separate paper provided.

10 **(a)** Describe the features of intensive grazing. [4]

(b) Describe how water can be collected and supplied to a pasture. [6]

(c) Explain how rotational grazing can increase the maximum stocking rate of a pasture. [5]

[Total: 15]

11 **(a)** Describe how systemic pesticides work. [3]

(b) Describe the effect on a crop of a named piercing and sucking crop pest. [6]

(c) Explain how pests can be controlled without the use of chemicals. [6]

[Total: 15]

12 **(a)** Describe what is meant by the term *soil erosion*. [3]

(b) Describe how waterlogged land can be drained. [6]

(c) Explain how a shortage of water can affect farming businesses. [6]

[Total: 15]

13 **(a)** Explain how methods of plant breeding can be used to control plant diseases. [4]

(b) Describe how crops are affected by fungal disease. [5]

(c) Explain how a named plant fungal disease could be prevented or controlled. [6]

[Total: 15]

14 **(a)** Describe what is meant by the term *mixed farming*. [3]

(b) Describe the advantages and disadvantages of monoculture compared with mixed farming. [6]

(c) Explain how compost can affect soil structure and fertility. [6]

[Total: 15]