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Cambridge IGCSE

Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

3777386033

AGRICULTURE **0600/13**

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.

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Section A

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

1 Monoculture is an example of a farming practice.

(a) Describe what is meant by the term *monoculture*.

.....

.....

.....

..... [2]

(b) **(i)** State **two** benefits of monoculture.

1 .....

.....

2 .....

.....

[2]

(ii) State **two** problems caused by monoculture.

1 .....

.....

2 .....

.....

[2]

[Total: 6]

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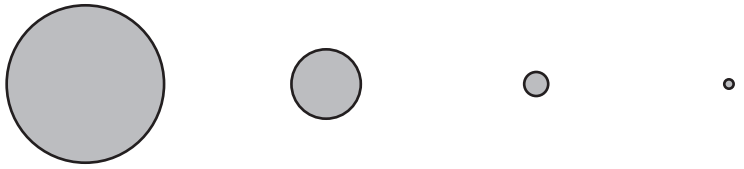
2 **(a)** The diagram represents the order by size of clay, coarse sand, fine sand and silt particles.



Which letter represents a silt particle?

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

(b) The table compares the properties of four soils **A**, **B**, **C** and **D**.

soil	**A**	**B**	**C**	**D**
water-holding capacity	medium	high	very high	very low
percentage of organic matter	4.5	8.0	7.5	2.0
rate of drainage	high	medium	low	very high
percentage of air	30	25	15	40

Only one of the soils is a sandy soil.

Which soil is the sandy soil?

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

(c) **(i)** Describe how excess heat could affect the growth of seedlings in sandy soils.

.....

.....

.....

..... [2]

(ii) Explain **one** way seedlings could be protected from the effects of excess heat.

.....

.....

.....

..... [2]

(d) Suggest how frost damages crops.

.....

..... [1]

[Total: 7]

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3 **(a)** Complete the paragraph using some of the following terms:

atmosphere **root hairs** **stomata** **vascular tissue**.

Water is absorbed from the soil through the ..... . It then moves up through the plant in the ..... before leaving the plant through the ..... .

[3]

(b) Explain the effects of each of the following on the rate of transpiration:

humidity .....

.....

.....

.....

wind speed. .....

.....

.....

.....

[4]

(c) Describe how poor drainage affects plant roots.

.....

.....

.....

..... [2]

[Total: 9]

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4 **(a)** The photograph shows a forested area. The land must be prepared for the cultivation of a cash crop.



Describe how to clear and prepare this land to plant a cash crop.

.....

.....

.....

.....

.....

..... [3]

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(b) Name a crop.

.....

(i) Describe **two** signs that this crop is ready to be harvested.

1 .....

.....

2 .....

.....

[2]

(ii) Explain why a harvested crop should be kept in cool and dry conditions.

cool .....

.....

dry .....

.....

[2]

(c) Bread is an example of a product made from wheat.

State an example of a different product made from a named crop.

crop .....

product .....

[1]

[Total: 8]

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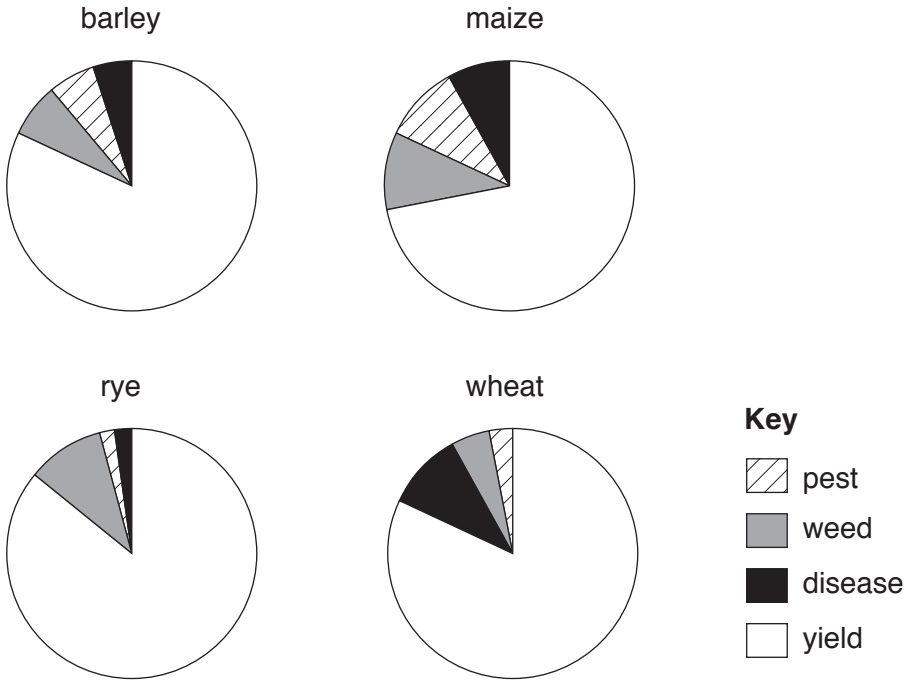
5 Pests have a major impact in reducing crop growth and yield.

(a) The pie charts show the estimated annual percentage yield and loss for four cereal crops worldwide. This loss is caused by pests, weeds and disease.



Use the pie charts to answer the following questions.

(i) Which crop suffered the largest percentage of pest damage?

A barley
B maize
C rye
D wheat

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

(ii) Which crop has the highest percentage total loss?

A barley
B maize
C rye
D wheat

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

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(b) (i) Name **one** boring pest.

..... [1]

(ii) Explain why boring pests reduce crop yields.

.....

.....

.....

.....

.....

..... [3]

(c) Suggest why some farmers do **not** use chemical methods of pest control.

.....

.....

.....

..... [2]

[Total: 8]

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6 **(a)** Some crops are grown in a rotation.

Describe an example of a four-year crop rotation.

.....

.....

.....

..... [2]

(b) Explain, using an example, what is meant by the term *compound fertiliser*.

.....

.....

.....

..... [2]

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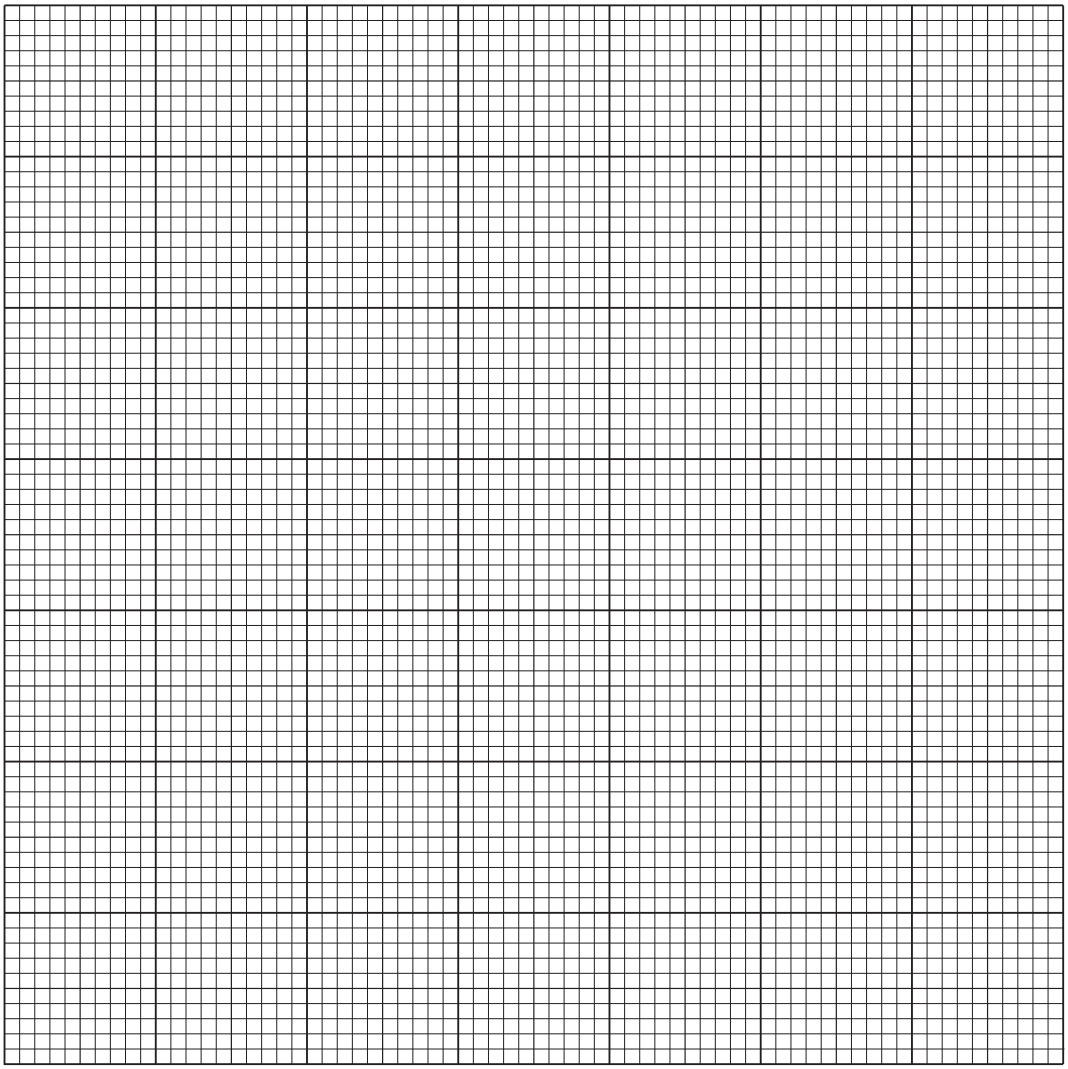
(c) The table shows production records from a field in a farm that grew rice as a single, continuous crop.

year	rice yield per year /t
1	3.1
2	2.5
3	2.6
4	1.5
5	1.2

Draw a line graph to show the information from the table. Draw a line of best fit.



[3]

[Total: 7]

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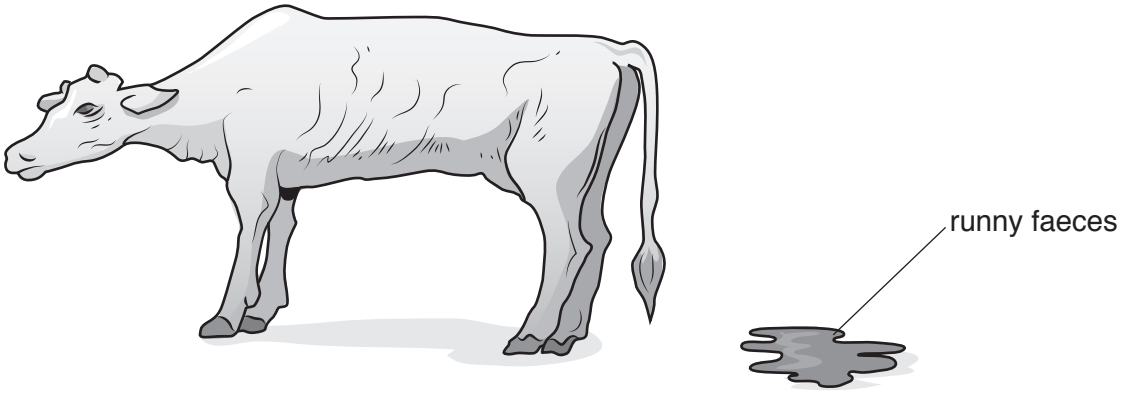
7 **(a)** An important part of good stockmanship is noticing signs that animals may be unwell.

The diagram shows a farm animal and one labelled sign of ill-health.



Describe **three** other possible signs of ill-health in livestock.

1 .....

.....

2 .....

.....

3 .....

.....

[3]

(b) Describe **two** ways diseases are spread between farm animals.

1 .....

.....

2 .....

.....

[2]

(c) State what is meant by the term *notifiable disease*.

.....

..... [1]

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(d) Describe **three** ways to maintain good livestock hygiene.

1 .....

.....

2 .....

.....

3 .....

.....

[3]

[Total: 9]

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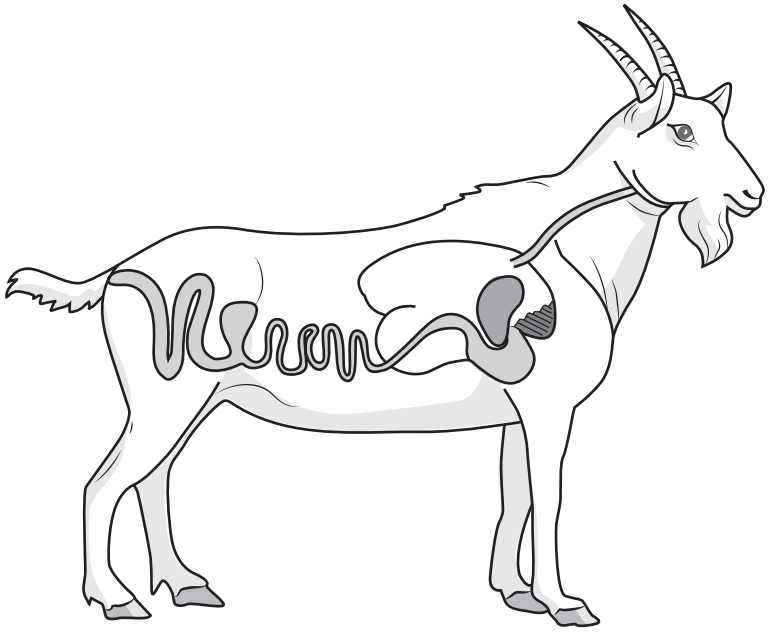
8 The diagram shows part of the digestive system of a ruminant.

(a) Label each of the following on the diagram:

caecum **large intestine** **rumen** **small intestine**.



[4]

(b) Describe the function of each of the following parts of the ruminant digestive system:

caecum .....

.....

large intestine .....

.....

rumen .....

.....

small intestine. .....

.....

[4]

[Total: 8]

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9 Resistance to plant viruses has been bred into crop species.
The recessive allele **r** gives resistance to one damaging virus in rice.

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

..... [1]

(b) **(i)** Show that the expected ratio of offspring that are resistant to the virus to offspring that are **not** resistant to the virus is 1 : 3 from a cross between heterozygous parents.

genotypes of parents

gametes of parents

offspring genotypes and phenotypes

[3]

(ii) A homozygous recessive plant is crossed with a heterozygous plant.
What is the expected ratio of offspring that are resistant to the virus to offspring that are **not** resistant to the virus?

A 1 : 1
B 1 : 2
C 1 : 3
D 1 : 4

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

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(c) Suggest how growing plants that are resistant to the virus could affect farm profits.

.....

..... [1]

(d) Explain what is meant by the term *selective breeding*.

.....

.....

.....

..... [2]

[Total: 8]

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Section B

Answer any **two** questions.

Write your answers on the separate paper provided.

10 **(a)** Describe how climate and topography affect the choice of farming practice. [4]

(b) Describe how population growth can impact on land use in farming. [4]

(c) Explain how to minimise soil erosion on sloping land. [7]

[Total: 15]

11 **(a)** Describe what is meant by the term *photosynthesis*. [3]

(b) Outline the process of gas exchange in leaves. [5]

(c) Describe how plants transport and store food. [7]

[Total: 15]

12 **(a)** Describe reasons why a soil may become acidic. [3]

(b) Describe how the soil pH of a farm should be tested. [5]

(c) Explain how crops absorb mineral salts from the soil. [7]

[Total: 15]

13 **(a)** State what is meant by the term *sexual reproduction*. [3]

(b) Name the parts of a bean plant flower and describe the function of each part. [7]

(c) Explain the advantages of sexual reproduction compared to asexual reproduction in crops. [5]

[Total: 15]

14 **(a)** Describe the reproductive system of a female mammalian farm animal. [4]

(b) Describe the process of birth for a named mammalian farm animal. [5]

(c) Explain the care needed for the mammalian farm animal in **(b)** from birth until weaning. [6]

[Total: 15]

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