Cambridge Assessment International Education

Cambridge IGCSE™

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

4699987633 8

AGRICULTURE **0600/12**

Paper 1 Theory **October/November 2020**

1 hour 45 minutes

You must answer **Section A** on the question paper and **Section B** on the answer booklet/paper you have been given.

You will need: Answer booklet/paper

INSTRUCTIONS

- Section A: answer **all** questions. Write your answer to each question in the space provided on the question paper.
- Section B: answer **two** questions. Write your answer on the separate answer booklet/paper provided.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- You may use a calculator.
- You should show all your working and use appropriate units.
- At the end of the examination, fasten all your work together. Do **not** use staples, paper clips or glue.

INFORMATION

- The total mark for this paper is 100.
- The number of marks for each question or part question is shown in brackets [ ].

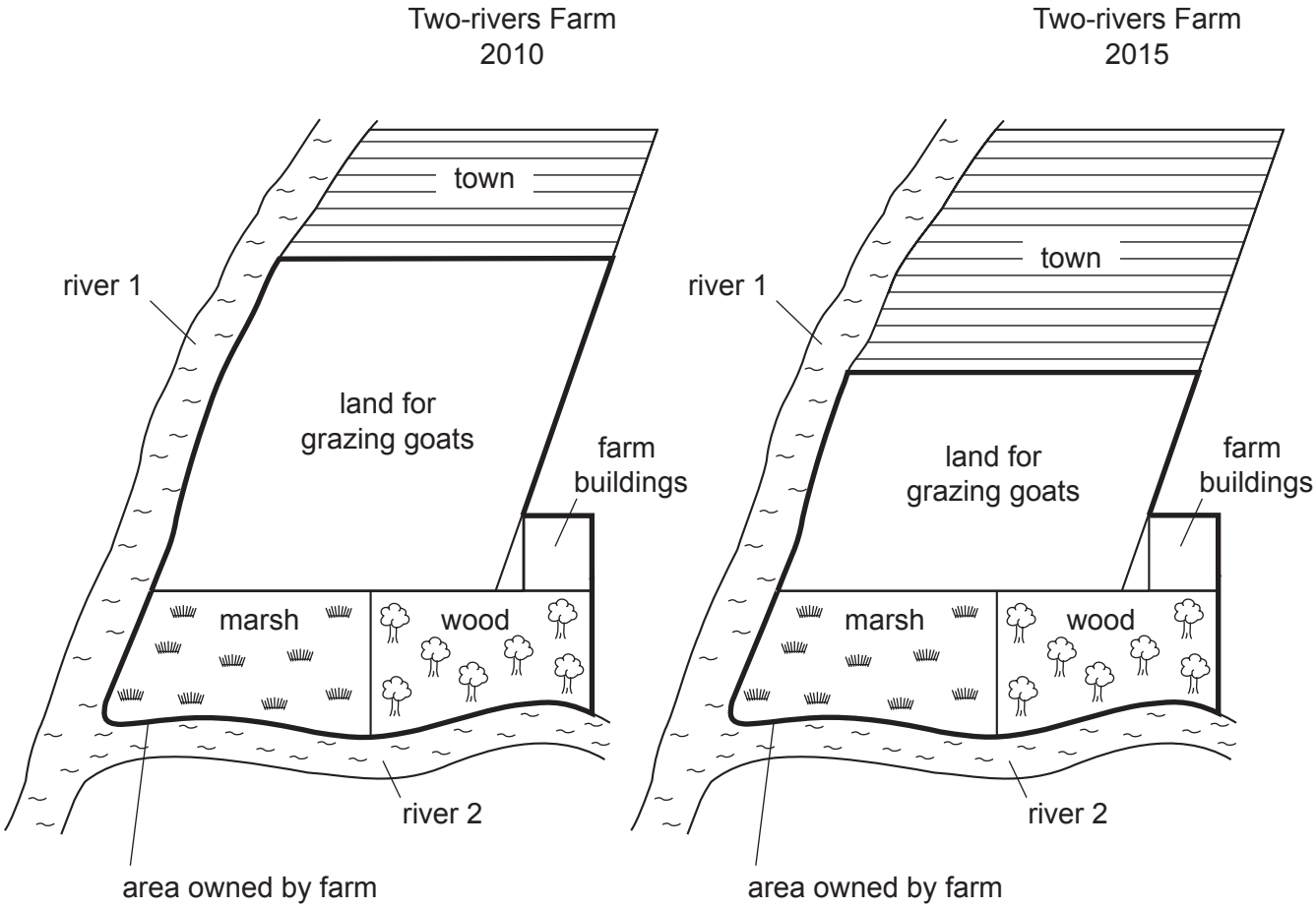
For Examiner's use	
Section A	
1	
2	
3	
4	
5	
6	
7	
8	
9	
Section B	
Total	

This document has **16** pages. Blank pages are indicated.

Section A

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

1 The diagram shows how the size of a town has increased between the years 2010 and 2015.



(a) (i) State how growth of the town has changed the area of land for grazing goats available to the Two-rivers Farm between 2010 and 2015.

.....

..... [1]

(ii) Other than changes in the area of land available, describe **two** benefits and **two** potential problems of this town growth for the Two-rivers Farm.

benefit 1 .....

.....

benefit 2 .....

.....

potential problem 1 .....

.....

potential problem 2 .....

.....

[4]

(b) The Two-rivers Farm received less income from selling goats in 2015 than in 2010.

Suggest **three** ways that the Two-rivers Farm enterprise could change their business to increase farm income.

1 .....

.....

2 .....

.....

3 .....

.....

[3]

[Total: 8]

2 **(a)** **(i)** State what is meant by the term *drainage*.

.....

..... [1]

(ii) Describe **one** method of draining waterlogged land.

.....

..... [1]

(b) Explain **one** negative effect of poor drainage on plant growth.

.....

.....

.....

..... [2]

(c) **(i)** Suggest how water could be supplied from a local river to irrigate a crop.

.....

.....

.....

.....

.....

..... [3]

(ii) Explain why a crop growing on sandy soil is more likely to need irrigating than a crop growing on clay soil.

.....

.....

.....

..... [2]

[Total: 9]

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

.....

.....

.....

..... [2]

(b) The table lists four environmental factors.

Complete the table to state the effect of each environmental factor on the rate of transpiration.

environmental factor	effect on rate of transpiration
high humidity	
high wind speed	
low light intensity	
low temperature	

[4]

[Total: 6]

4 **(a)** Describe what is meant by the term *extensive grazing*.

.....

.....

.....

..... [2]

(b) State **two** ways that the carrying capacity of a grazing system could be increased.

1 .....

.....

2 .....

.....

[2]

(c) Explain **two** problems that may occur if an intensive grazing system is used.

problem 1 .....

.....

.....

.....

problem 2 .....

.....

.....

.....

[4]

[Total: 8]

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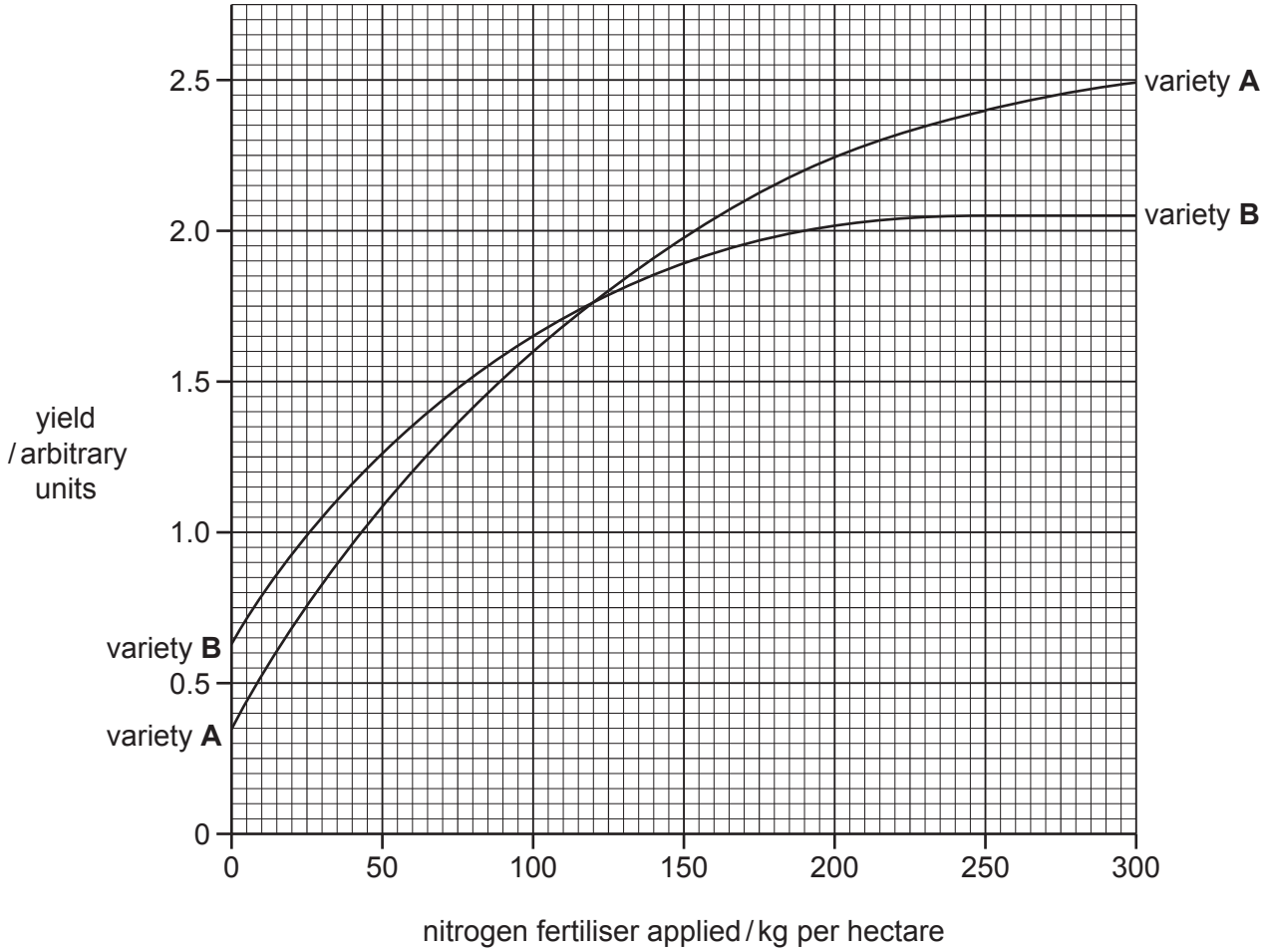
5 The graph shows how the yield of two varieties of the same crop changed with the mass of nitrogen fertiliser applied per hectare.



(a) (i) Use the graph to identify the mass of nitrogen fertiliser applied per hectare to produce a yield of 0.75 arbitrary units from variety **A**.

..... [1]

(ii) State the mass of nitrogen fertiliser applied per hectare when the yield from variety **A** and the yield from variety **B** are equal.

..... [1]

(iii) Calculate the difference in yield between variety **A** and variety **B** when 190 kg per hectare of nitrogen fertiliser is applied.

..... [1]

(b) Explain, using the graph, why next year the farmer should add a maximum of approximately 250 kg of nitrogen fertiliser per hectare to crops of variety **B** but should continue to add more nitrogen fertiliser to crops of variety **A**.

.....

.....

.....

..... [2]

(c) Suggest **three** possible disadvantages of using a high application of nitrogen fertiliser.

1 .....

2 .....

3 .....

[3]

[Total: 8]

6 **(a)** **(i)** State **three** signs of ill-health in livestock.

1 .....

2 .....

3 .....

[3]

(ii) Describe **one** way that diseases can spread between livestock other than by parasites. Describe **two** methods to reduce this spread.

way diseases can spread .....

.....

method 1 .....

.....

method 2 .....

.....

[3]

(b) Parasites can affect farm livestock.

Explain **two** different problems, other than disease spread, that could be caused by livestock parasites.

1 .....

.....

.....

.....

2 .....

.....

.....

.....

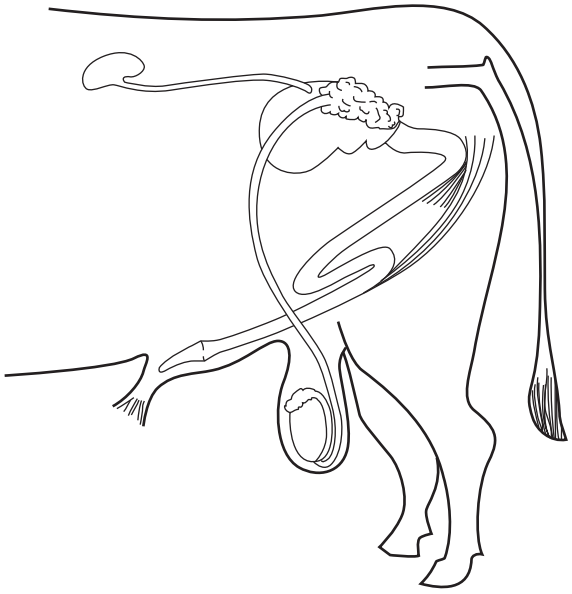
[4]

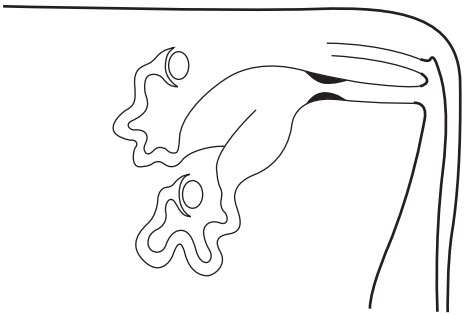
[Total: 10]

7 **(a)** The diagrams show cross-sections of part of a male and female mammal.

Use the words from the list to correctly label the diagrams.

penis **uterus** **testicle** **ovary**





[4]

(b) Suggest **two** qualities farmers would look for when choosing animals for selective breeding.

1 .....

.....

2 .....

.....

[2]

(c) Suggest **two** ways that artificial insemination protects animal health.

1 .....

.....

2 .....

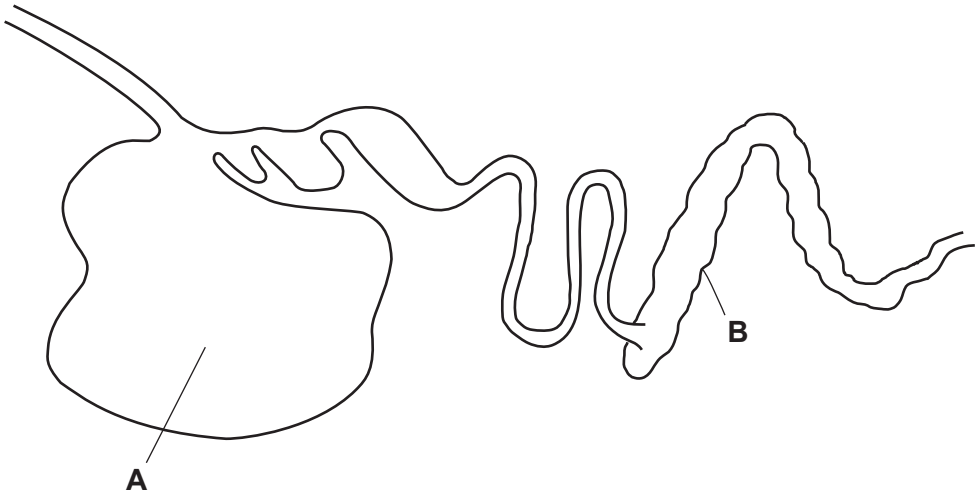
.....

[2]

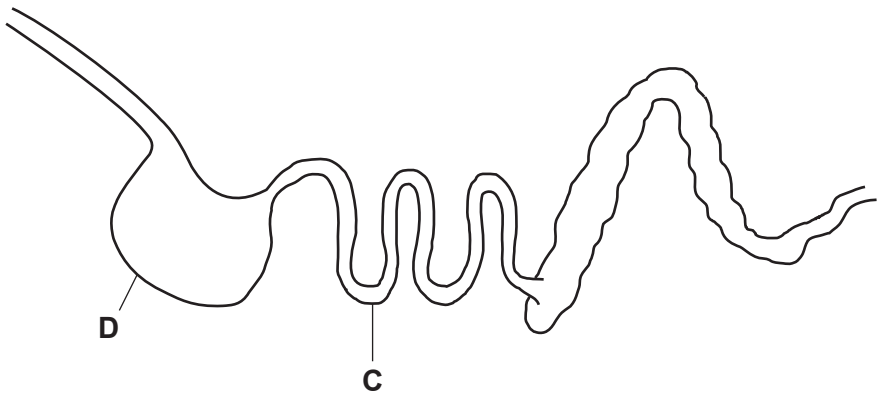
[Total: 8]

8 **(a)** The diagrams show part of two different digestive systems of farm animals.

animal 1



animal 2



Identify the following digestive system structures from the diagrams:

(i) the rumen

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

(ii) the stomach

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

(iii) the large intestine.

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

(b) Describe the role of each of the following:

the small intestine .....

.....

the large intestine. .....

.....

[2]

(c) Explain **one** advantage of a farm animal having a rumen.

.....

.....

.....

..... [2]

[Total: 7]

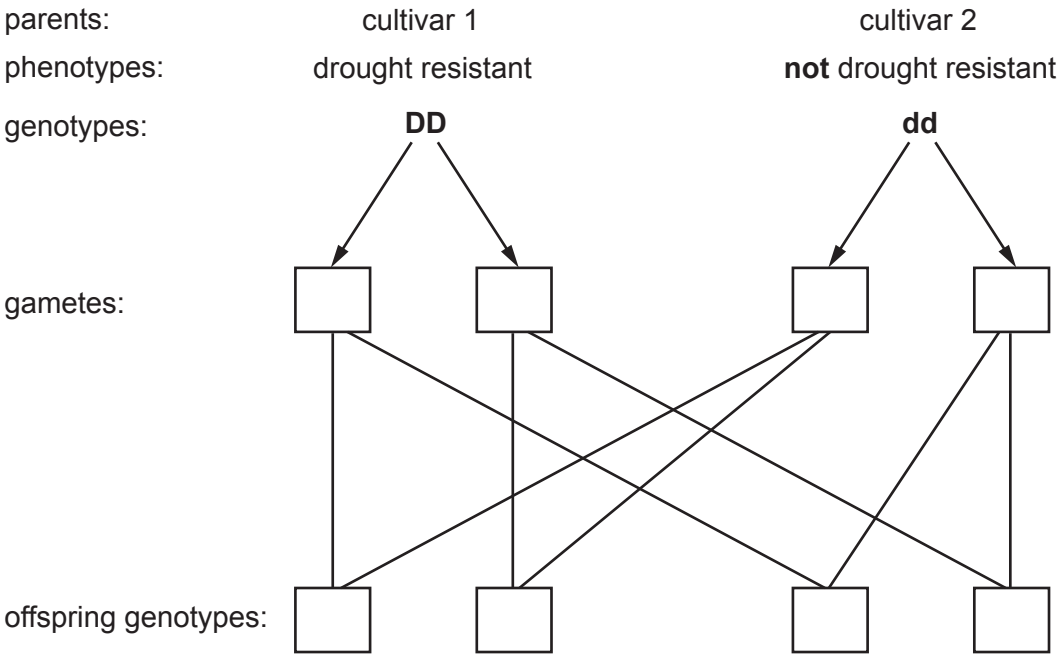
9 A single gene gives drought resistance in a crop species. The dominant allele, **D**, gives resistance to drought.

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

.....

..... [1]

(b) **(i)** Complete the diagram to show the gametes present and the expected offspring genotypes produced in this cross.



[2]

(ii) Explain why all of the resulting offspring would be expected to be drought resistant.

.....

.....

.....

..... [2]

(c) Suggest why there is increasing demand for drought-resistant crops.

.....

..... [1]

[Total: 6]

Section B

Answer any **two** questions.

Write your answers on the separate paper provided.

10 **(a)** State what is meant by the term *compound fertiliser* and give **one** example of a compound fertiliser. [2]

(b) Describe the nitrogen cycle and its importance to soil fertility. [7]

(c) Explain how organic fertilisers improve soils. [6]

[Total: 15]

11 **(a)** Describe how **one** method of biological pest control works. [3]

(b) Describe how crop pests can be controlled by cultural methods. [6]

(c) Explain how to store and use farm chemicals safely. [6]

[Total: 15]

12 **(a)** Describe how weeds can spread within and between crops. [4]

(b) Describe how weeds can be controlled in crops without the use of chemicals. [6]

(c) Explain the problems caused by weeds in crops. [5]

[Total: 15]

13 **(a)** Describe the properties of a loam soil. [4]

(b) Describe how to test the soil pH of a field. [5]

(c) Explain the dangers of excessive heat and frost to some crops. [6]

[Total: 15]

14 **(a)** **(i)** Describe how a mouldboard plough, cultivator and harrow should be used to create a seedbed. [4]

(ii) State the names of **two** other tools used for cultivation and describe how they should be maintained. [6]

(b) Explain the advantages and disadvantages of farm mechanisation. [5]

[Total: 15]

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