Cambridge IGCSE

Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME	
CENTRE NUMBER	
CANDIDATE NUMBER	

8316489059

AGRICULTURE **0600/13**

Paper 1 **October/November 2017**

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	

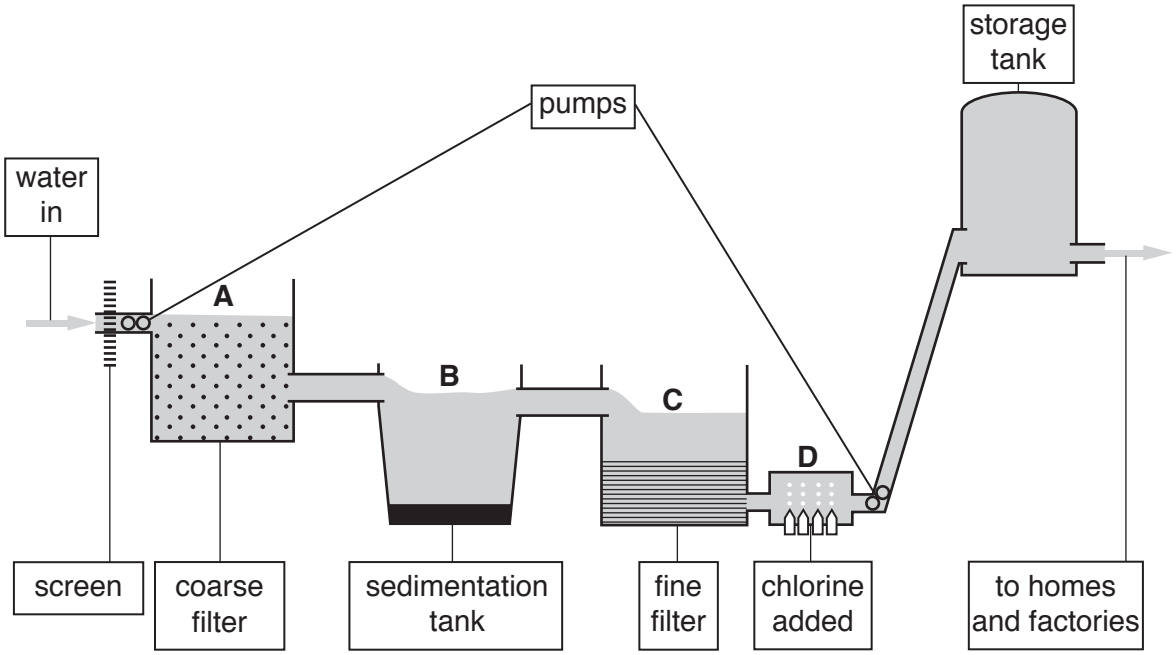
This document consists of **14** printed pages and **2** blank pages.

CAMBRIDGE International Examinations

Section A

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

1 The diagram shows water from a muddy lake passing through a series of tanks.



(a) (i) State **one** function of the screen.

.....

.....[1]

(ii) Describe **one** difference between the water at **C** and the water at **A**.

.....

.....[1]

(iii) Explain why the water from **B** is passed through a second filter layer at **C**.

.....

.....

.....

.....[2]

(iv) Explain why clay should **not** be used as a filter at **C**.

.....

.....

.....

.....[2]

(v) Suggest why chlorine is added to the water at **D**.

.....

.....[1]

(b) Explain why a pump is needed between **D** and the storage tank.

.....

.....

.....

.....[2]

[Total: 9]

[Turn over

2 The photograph shows a forest being cleared for growing crops.

(a) Describe how a forest should be cleared and the ground prepared for growing crops.

.....

.....

.....

.....

.....

.....[3]

(b) State **two** soil problems that could result from clearing a forest.

1 .....

.....

2 .....

.....

[2]

(c) Explain how the effect of the problems in **(b)** could be reduced.

.....

.....

.....

.....

.....

.....[2]

[Total: 7]

3 **(a)** State a product or use of a named root crop.

name of root crop .....

product or use .....

[2]

(b) The table shows the stages involved in growing a root crop and some of the jobs a farmer would need to carry out.

Complete the table to show other jobs that a farmer needs to carry out at each stage.

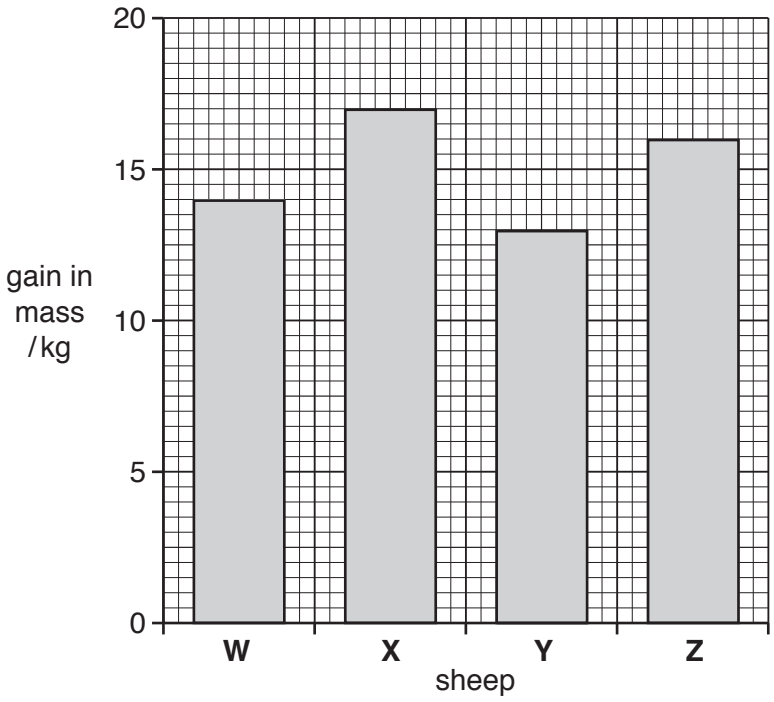
stage	jobs	
preparation of seed-bed	remove stones	.....
sowing or planting	.....	cover to protect from birds
growing stage	water/irrigate	.....
storage of harvested crop	.....	.....

[5]

[Total: 7]

4 A farmer recorded the mass of four sheep, **W** to **Z**.

The bar chart shows the gain in mass of each sheep from birth to 140 days old.



(a) Suggest **two** reasons why there are differences in the growth rates of the sheep.

1 .....

.....

2 .....

.....

[2]

(b) Explain how selective breeding could be used to improve growth rates in sheep.

.....

.....

.....

.....[2]

(c) **(i)** State **two** reasons newborn mammals need colostrum.

1 .....

2 .....

[2]

(ii) Define the term *weaning*.

.....

.....[1]

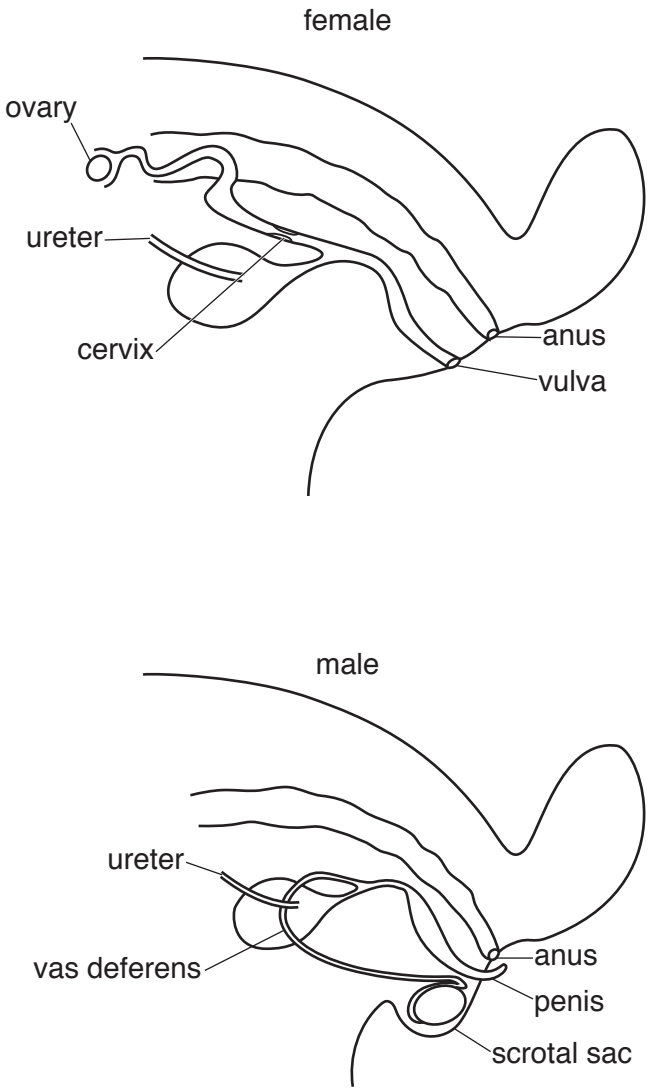
[Total: 7]

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

(i) Label the diagrams using the following words.

Use each word only once.

oviduct **testicle** **uterus** **vagina**



[4]

(ii) State **one** product released from an ovary.

.....[1]

(b) (i) State where sperm production takes place in mammals.

.....[1]

(ii) State the function of the cervix.

.....

.....[1]

(c) Describe the process of fertilisation in mammals.

.....

.....

.....

.....

.....

.....[3]

(d) Suggest why some female mammals do **not** become pregnant following mating.

.....

.....[1]

[Total: 11]

6 Plant diseases can significantly reduce crop yields.

One crop was grown on four farms, **A** to **D**, with similar growing conditions.

The table shows crop yield information for each farm.

farm	crop area /ha	total crop yield /t
A	5	10
B	10	25
C	15	25
D	20	40

(a) (i) Calculate the crop yield per hectare on farm **C**.

Give your answer to 2 decimal places and include a unit.

.....[2]

(ii) State which farm is most likely to be suffering from a plant disease.

Give the reason for your answer.

farm .....

reason .....

.....

.....
[2]

(b) Describe **two** ways in which plant diseases are spread.

1 .....

.....

2 .....

.....
[2]

[Total: 6]

7 The table shows part of a budget for a poultry meat enterprise.

(a) Complete the missing values in the table.

output / kg	19.0
value of output / $ per kg	1.5
total value of output / $	.....
feed cost / $	9.9
cost due to poultry deaths / $	6.0
variable costs / $	4.7
total costs / $	.....
profit / $	.....

[3]

(b) Suggest **two** examples of variable costs.

1 .....

2 .....

[2]

(c) Describe **two** ways a farmer could reduce livestock deaths.

1 .....

.....

2 .....

.....

[2]

[Total: 7]

8 The pictures show two phenotypes of the same breed of sheep.

(a) State the meaning of the term *phenotype*.

.....

.....[1]

(b) The allele for having no horns, H, is dominant. The allele for having horns is h.

(i) Complete the diagram to show the alleles in the cross between heterozygous parents.

parents ..... × .....

gametes .... × ....

offspring ....

[3]

(ii) What is the expected ratio of the number of offspring having horns to the number of offspring having no horns if both parents are heterozygous?

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

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

(c) Suggest **one** advantage and **one** disadvantage of sheep having horns.

advantage.....

.....

disadvantage .....

.....

[2]

[Total: 7]

9 **(a)** The table shows some management records from four farms, **P** to **S**.

farm	grazing area /ha	number of grazing animals
P	10	10
Q	15	30
R	20	30
S	25	30

(i) State which farm is most likely to use an extensive grazing system. Explain your answer.

farm .....

explanation .....

.....
[2]

(ii) Describe how the carrying capacity of the farms could be increased.

.....

.....

.....

.....[2]

(b) Explain what is meant by the term *zero grazing*.

.....

.....

.....

.....[2]

(c) Suggest **three** possible problems of overstocking in a grazing system.

1 .....

.....

2 .....

.....

3 .....

.....
[3]
[Total: 9]

Section B

Answer any **two** questions.

Write your answers on the separate paper provided.

10 **(a)** State what is meant by the term *maintenance ration*. [2]

(b) Describe how the structure of the ruminant digestive system differs from the digestive system of a non-ruminant. [5]

(c) Explain the roles of the different parts of the digestive system of a named non-ruminant. [8]

11 **(a)** Describe the nitrogen cycle. [5]

(b) Describe how a compound fertiliser can affect soil fertility. [4]

(c) Explain how legumes and organic fertilisers affect soil structure and fertility. [6]

12 **(a)** Name a biting and chewing crop pest and describe its effect on a crop. [4]

(b) Describe how the pest in **(a)** could be controlled without using chemicals. [5]

(c) Explain how growing genetically modified (GM) crops could improve farm profits. [6]

13 **(a)** Describe how livestock housing can increase the number of livestock that can be kept on a farm. [6]

(b) A system of pumps and a tank supplies water to livestock housing.

Describe how water can be supplied from the tank to the livestock. [3]

(c) Explain the disadvantages of permanently housing livestock indoors. [6]

14 **(a)** State the differences between contact and systemic pesticides. [4]

(b) Describe how to safely store and use farm chemicals. [5]

(c) Explain the advantages and disadvantages of biological methods of controlling pests compared with chemical methods. [6]

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