Cambridge Assessment International Education

Cambridge IGCSE™

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

7057551364

AGRICULTURE **0600/12**

Paper 1 Theory **October/November 2021**

1 hour 45 minutes

You must answer on the question paper.

No additional materials are needed.

INSTRUCTIONS

- Section A: answer **all** questions.
- Section B: answer **two** questions.
- 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.
- Write your answer to each question in the space provided.
- 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.

INFORMATION

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

This document has **24** pages. Any blank pages are indicated.

[Turn over

Section A

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

1 **(a)** The statements, **A** to **D**, describe four different farming practices.

A growing fish in ponds

B growing plants in water

C growing the same crop in the same field every year

D growing trees to produce timber

Identify the statement that best links to each of the following:

(i) forestry Answer **A**, **B**, **C** or **D** ..... [1]

(ii) hydroponics Answer **A**, **B**, **C** or **D** ..... [1]

(iii) monoculture. Answer **A**, **B**, **C** or **D** ..... [1]

(b) Describe **two** possible problems resulting from using monoculture.

1 .....

.....

2 .....

.....

[2]

(c) Explain how local population growth could affect the profitability of farming.

.....

.....

.....

..... [2]

(d) Suggest **two** economic reasons why many farmers choose to use a mixed farming system.

1 .....

.....

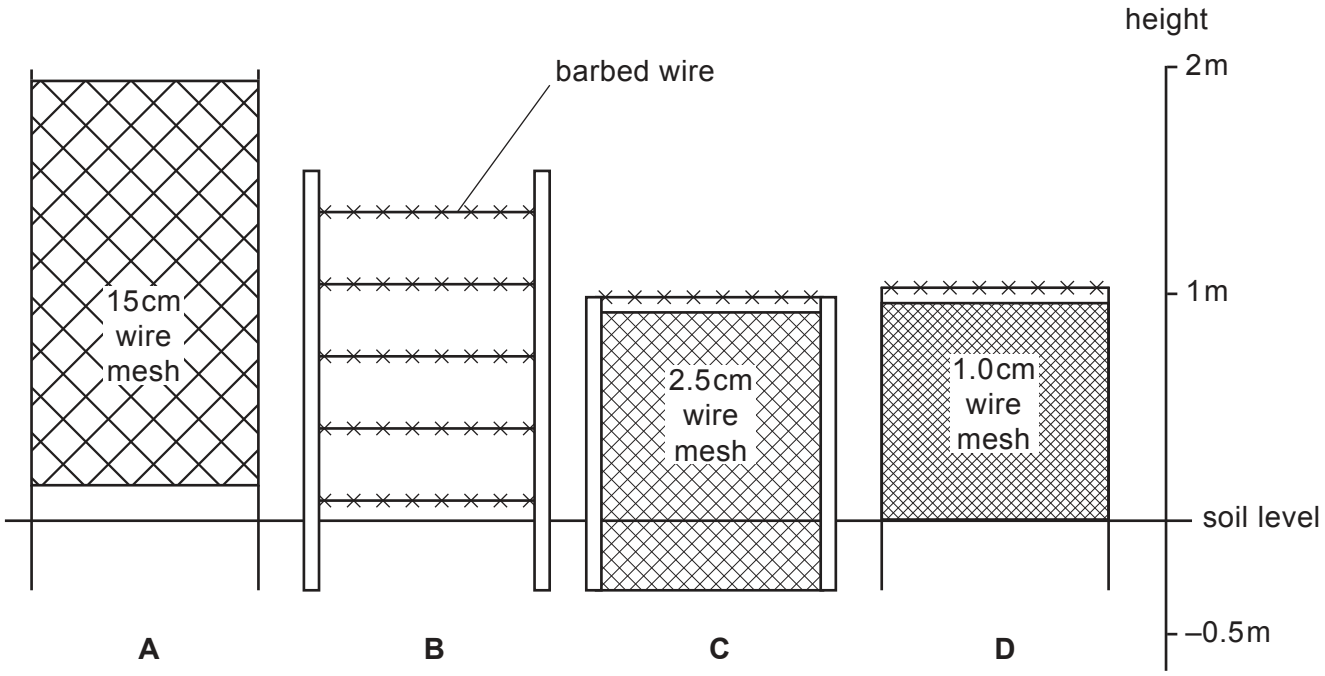
2 .....

.....

[2]

[Total: 9]

2 **(a)** The diagram shows four types of fence made of posts and wire.



(i) Use the letter **A**, **B**, **C** or **D** to identify which type of fence would be most suitable for cattle.

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

(ii) Complete the table to state the names of **three** hand tools that could be used in the construction of a fence. For each hand tool, describe how it could be used to construct a fence.

hand tool name	description of how it could be used to construct a fence
1	
2	
3	

[6]

(b) Suggest how mechanised tools could speed up the construction of a fence.

.....

.....

.....

..... [2]

(c) Mechanised tools can also be used in crop cultivation.

The table shows the number of days needed to complete tasks using hand tools compared with using mechanised tools.

tasks	number of days	
	hand tools	mechanised tools
cultivation and addition of fertiliser	25	2
seedbed preparation and sowing	5	1
maintaining the growing crop	30	6
harvesting the crop	40	30

(i) When using mechanised tools rather than hand tools, state for which task the lowest number of days are saved.

..... [1]

(ii) Calculate the total number of days saved by using mechanised tools for all tasks.

..... days [1]

[Total: 11]

3 **(a)** A farmer has taken multiple random soil samples and mixed them.

(i) Describe **three** other steps the farmer should carry out when testing soil pH.

1 .....

.....

2 .....

.....

3 .....

.....

[3]

(ii) Explain why it is necessary to take:

random samples .....

.....

.....

.....

multiple samples. .....

.....

.....

.....

[2]

(b) **(i)** Identify **one** way of increasing soil pH.

.....

..... [1]

(ii) Suggest **two** farming practices that could increase the acidity of soil.

1 .....

.....

2 .....

.....

[2]

[Total: 8]

4 Plants are able to make their own food by using the process of photosynthesis.

(a) Describe the process of photosynthesis.

.....

.....

.....

.....

.....

.....

.....

..... [4]

(b) Explain how the following affect the rate of transpiration:

increased light intensity .....

.....

increased wind speed. .....

.....

[4]

(c) Describe why water is important in helping plants to absorb and move their requirements for growth from the soil.

.....

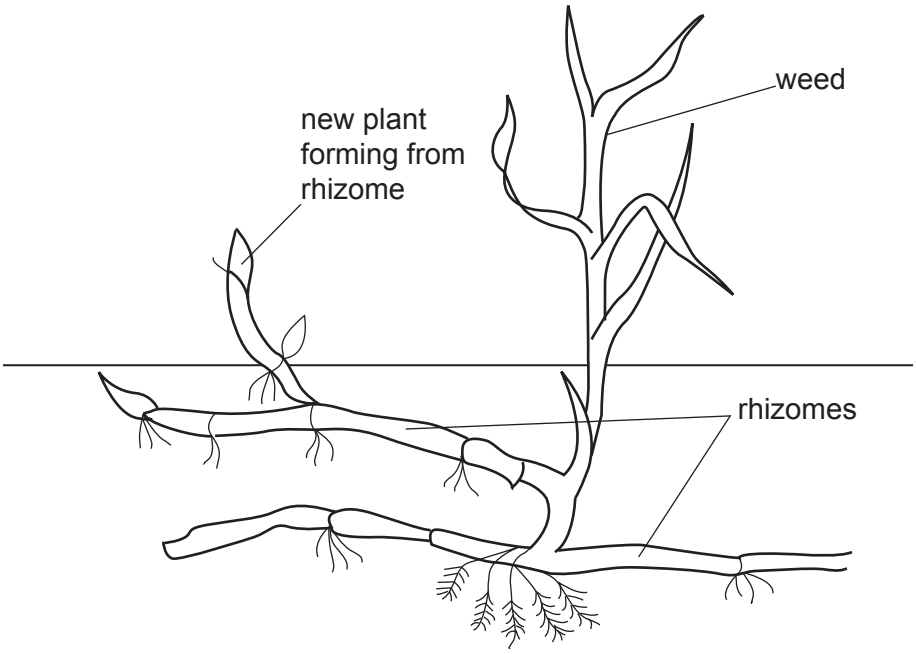
.....

.....

..... [2]

[Total: 10]

5 The diagram shows a weed with an underground stem known as a rhizome.



(a) Describe **three** possible harmful effects of this weed on crops.

1 .....

.....

2 .....

.....

3 .....

.....

[3]

(b) Farmers attempt to control this weed using different control methods.

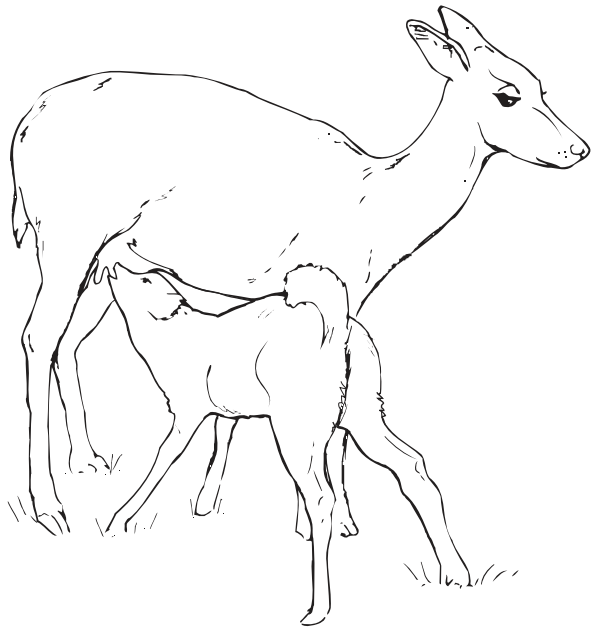
Complete the table to explain the effectiveness of each control method for this weed.

control method	effectiveness	explanation
crop rotation	low	
digging out rhizomes	high	
cut off at soil level	low	
spraying systemic herbicide	high	

[4]

[Total: 7]

6 The diagram shows a mother animal feeding her offspring.



(a) (i) State what is meant by:

lactation .....

.....

weaning. .....

.....

[2]

(ii) Give **two** reasons why it is very important for young mammals to drink colostrum shortly after birth.

1 .....

.....

2 .....

.....

[2]

(b) The table shows nutrient requirements for a mother and her offspring.

For each nutrient requirement in the table give a different reason why it is needed.

nutrient requirement	reason
increased protein for mother	
increased water for mother	
solid food and roughage for offspring	
vitamins and minerals for offspring	

[4]

[Total: 8]

7 **(a)** The diagram shows part of the digestive system of a ruminant farm animal.

Label the following parts of the ruminant digestive system on the diagram.

large intestine **oesophagus** **caecum** [3]

(b) Describe the main role of each of the following parts of the digestive system:

small intestine .....

.....

large intestine. .....

.....

[2]

(c) Suggest how having a rumen improves the process of digestion in a farm animal.

.....

.....

.....

..... [2]

[Total: 7]

8 Some large animals are kept in farm buildings.

(a) Explain different reasons why each of the following are important in farm buildings:

suitable bedding .....

.....

.....

.....

good ventilation. .....

.....

.....

.....

[4]

(b) Suggest **two** other features of farm buildings that help keep animals healthy.

1 .....

.....

2 .....

.....

[2]

[Total: 6]

9 The photographs show two tomatoes. One has a round-shaped phenotype and one has a plum-shaped phenotype.

round-shaped phenotype

plum-shaped phenotype

Assume the plum-shaped phenotype is caused by a single gene and that the allele for this, **r**, is recessive.

(a) A homozygous recessive tomato plant and a homozygous dominant tomato plant are crossed.

State the following genotypes in this cross:

(i) the genotype of the homozygous recessive parent

..... [1]

(ii) the genotype of the homozygous dominant parent

..... [1]

(iii) the genotype of the offspring.

..... [1]

(b) State the phenotype of the offspring tomato plants from the cross in **(a)**.

..... [1]

[Total: 4]

BLANK PAGE

Section B

Answer any **two** questions.

Write the question numbers you have chosen here: .....

10 **(a)** Describe what is meant by intensive grazing. [4]

(b) Explain how rotational grazing increases the carrying capacity of a pasture. [5]

(c) Discuss how overstocking causes problems for animal health. [6]

[Total: 15]

11 **(a)** State the name of a piercing and sucking crop pest. Describe how the actions of this pest can reduce crop yield. [4]

(b) Describe how chemicals can be used to control insect crop pests. [5]

(c) Discuss, using examples, why a farmer might choose to control insect crop pests without using chemicals. [6]

[Total: 15]

12 **(a)** Describe the properties of a loam soil. [3]

(b) Describe what is meant by soil erosion. Suggest reasons why soil erosion may be more of a problem on a sandy soil than on a loam soil. [6]

(c) Other than soil erosion, explain why crop yields are likely to be low when growing crops in a sandy soil. [6]

[Total: 15]

13 **(a)** Describe what is meant by organic farming. [4]

(b) Discuss how organic farming could affect farm profits. [6]

(c) Explain why a farmer may choose to grow a genetically modified (GM) crop, even though the seeds are more expensive than the seeds of a non-GM crop. [5]

[Total: 15]

14 **(a)** Describe signs of ill-health in farm livestock. [5]

(b) Describe the information that should be recorded as part of good stockmanship. [5]

(c) Discuss how livestock breeding could be used to minimise disease in livestock. [5]

[Total: 15]

BLANK PAGE

BLANK PAGE

BLANK PAGE