| Centre Number | Candidate Number | Name |
|---|---|---|
| | | |

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

**AGRICULTURE** **0600/02**

Paper 2

October/November 2005

**1 hour 15 minutes**

Candidates answer on the Question Paper.
No additional materials are required.

**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 in the spaces provided on the Question Paper.
You may use a soft pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **all** questions.
The number of marks is given in brackets [ ] at the end of each question or part question.

| For Examiner's Use | |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| 7 | |
| 8 | |
| 9 | |
| Total | |

This document consists of **16** printed pages and **4** blank pages.

**1** Fig. 1.1 shows the expected population for a developing country where shifting cultivation is the main system of agriculture.
Dates when vital resources are expected to run out are given.

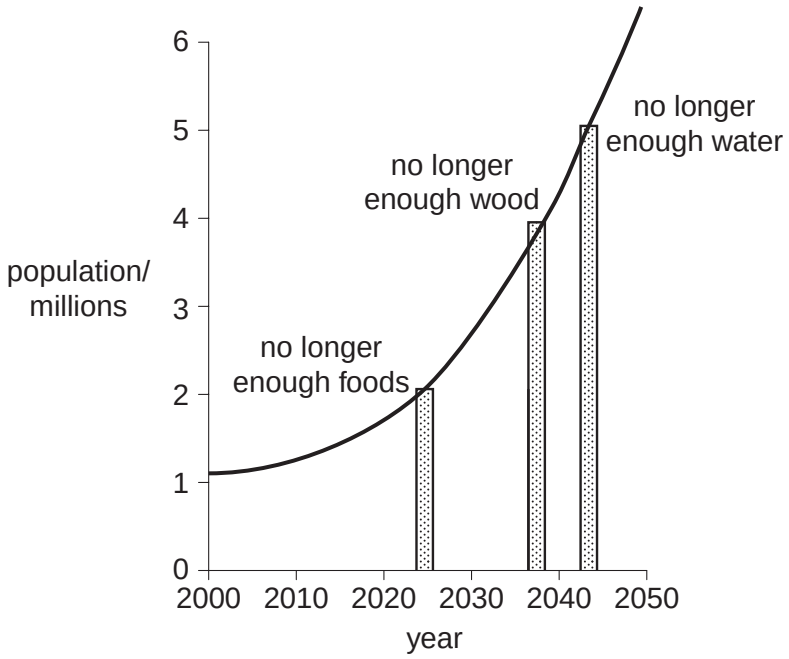



**Fig. 1.1**

**(a)** What is the population when there is no longer enough wood?

.....[1]

**(b)** State **one** alternative to wood for either enclosing homesteads or for fencing paddocks.

.....[1]

**(c)** State **two** ways water may be stored on a farm.

1. .....

2. .....[2]

Different systems of farming would allow the country to produce more food.

**(d)** Choose **two** different systems of farming that would result in improved production and explain why they are more efficient than shifting cultivation.

farming system .....

explanation .....

.....

.....

farming system .....

explanation .....

.....

.....[4]

**(e)** Suggest **one** reason why the projected population growth might not occur.

.....[1]

[Total : 9]

**2** Fig. 2.1 shows the water cycle in an area.

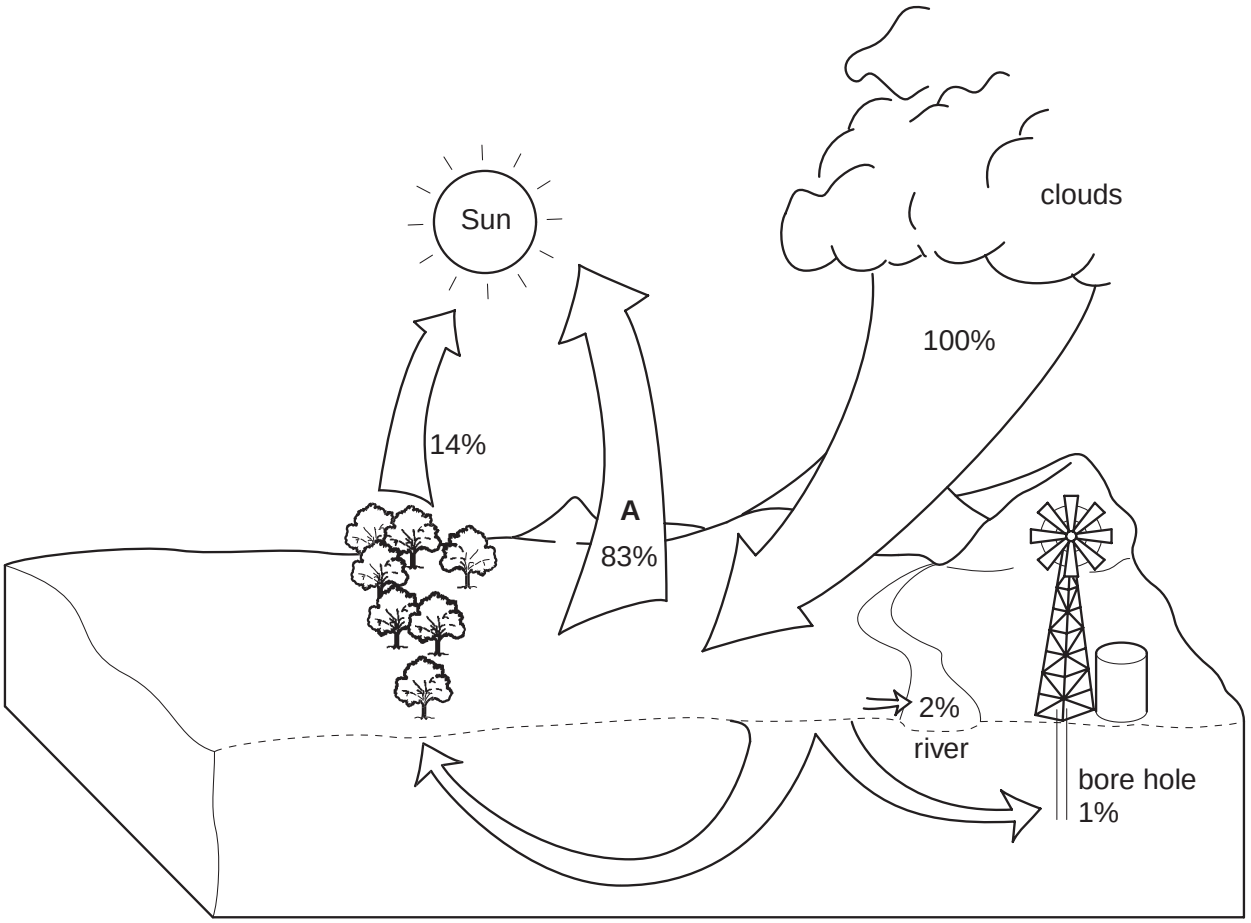



**Fig. 2.1**

**(a)** Name process **A**. .....[1]

**(b)** List **two** types of soil erosion caused by rain.

1. .....

2. .....[2]

**(c)** Name **two** farming practices that are carried out to prevent soil erosion.

1. .....

2. .....[2]

**(d)** Describe how rivers cause the physical weathering of rocks.

.....

.....

.....

.....[2]

**(e)** Explain how rain causes the chemical weathering of rocks.

.....

.....

.....

.....[2]

**(f)** In choosing a suitable crop to grow in the area shown in Fig. 2.1, a farmer needs to consider the climatic requirements of the crop.

Suggest, with a reason, the climatic conditions in this area.

.....

.....[1]

[Total : 10]

**3** **(a)** For a **named** cereal crop state the following requirements.

crop ……..

**(i)** soil type.....

**(ii)** soil pH.....

**(iii)** fertiliser .....[3]

**(b)** Describe how to create a seed bed in a garden plot that has been cleared of vegetation.

.....

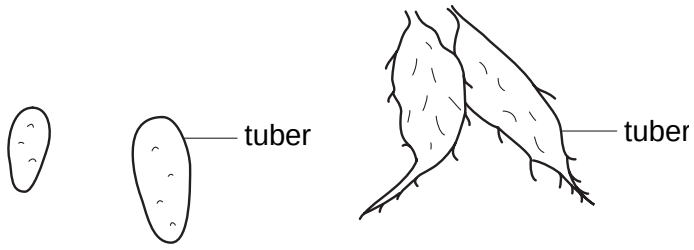
.....

.....

.....

.....[3]

**(c)** Fig. 3.1 shows the tubers of the Irish and sweet potato.




Irish potato sweet potato

**Fig. 3.1**

Suggest **two** ways the bed for planting these tubers would differ from that needed for planting cereals.

.....

.....

.....[2]

[Total : 8]

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**Turn to page 8 for Question 4.**

**4** Fig. 4.1 shows the digestive system of a non-ruminant.

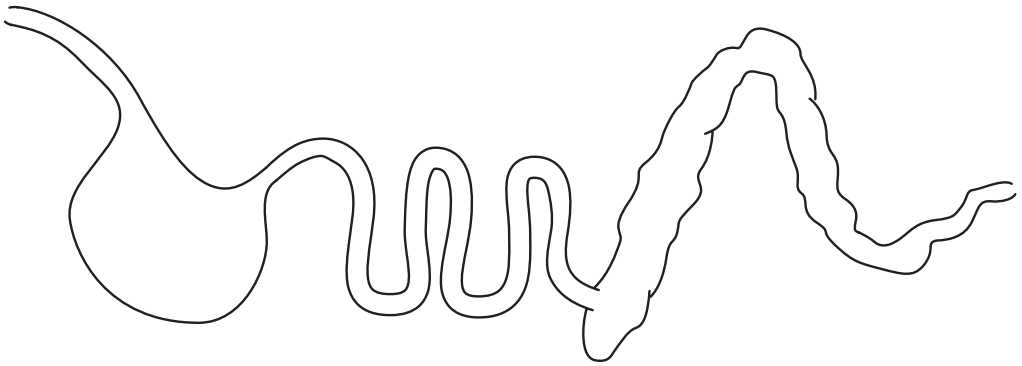

**Fig. 4.1**

**(a)** Label on the diagram

the duodenum with **D**,
the rectum with **R**,
and the area where most digested food is absorbed with **F**. [3]

**(b)** State **two** ways in which the nutrient content of a production ration may differ from a maintenance ration.

1. .....

2. .....[2]

Table 4.1 shows the amounts of calcium and phosphorus needed by chicks, growers and laying hens.

**Table 4.1**

| recommended % levels of calcium and phosphorus (minerals) for poultry feeds | | | |
|---|---|---|---|
| minerals | chicks' feed | growers' feed | layers' feed |
| calcium | 0.8 | 1.1 | 4.0 |
| phosphorus | 0.45 | 0.4 | 0.32 |

**(c)** What does the information in Table 4.1 tell you about the needs of the poultry for

1 calcium, .....

.....

2 phosphorus? .....

.....[2]

**(d)** Poor diet in poultry and ruminants can result in ill health.

**(i)** Name **one** such condition.

.....[1]

**(ii)** State its symptoms.

.....

.....[1]

**(iii)** Suggest **two** observations that would point to ill health being the result of infection rather than a poor diet.

.....

.....

.....

.....[2]

[Total : 11]

**5** **(a)** Grass is a crop.

**(i)** Where does the energy come from to make grass grow?

.....[1]

**(ii)** Name the raw materials grass use to make carbohydrates.

.....[2]

**(iii)** What else is needed for grass to make proteins?

.....[1]

**(b)** **(i)** Name a grass planted for grazing.

.....

**(ii)** Name a legume planted for grazing.

.....[2]

**(c)** As the grass grows, its dry matter (fibre) increases.
Fig. 5.1 compares the food value of grass with its age and stage of development.

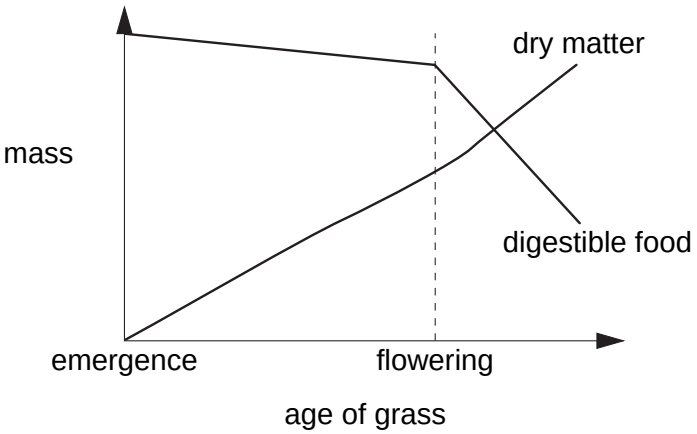


**Fig. 5.1**

Place an **H** on the graph when it would be best to harvest the grass for a zero grazing system. [1]

**(d)** Suggest **two** actions that should be done to a paddock to enable several cuts of grass to be taken in a season.

.....

.....

.....[2]

[Total : 9]

**6** **(a)** **(i)** Name a local weed.

.....[1]

**(ii)** State **two** ways this weed could affect the growth of a crop.

1. .....

2. .....[2]

Chemicals can be used to control weeds.

**(b)** **(i)** Name **one** item of protective clothing that should be worn when spraying.

.....[1]

**(ii)** Describe a precaution that should be taken when applying the chemical spray.

.....

.....[1]

Fig. 6.1 shows part of a leaf attacked by a pest.

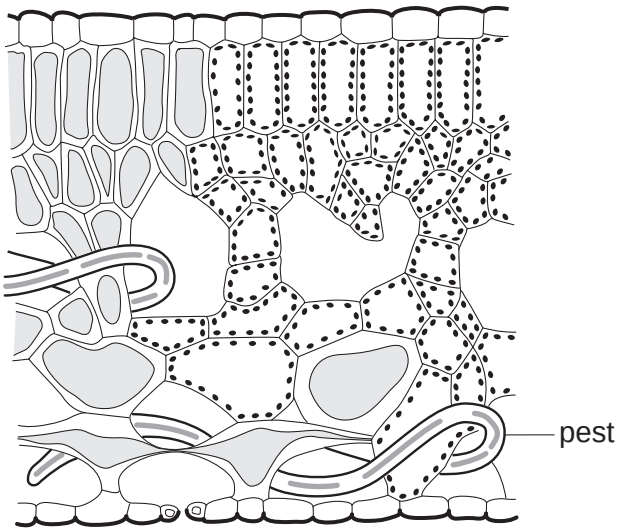


**Fig. 6.1**

**(c)** **(i)** What kind of pest is shown in Fig. 6.1?

.....[1]

**(ii)** Explain why crop rotation would help control pests like the one in Fig. 6.1.

.....

.....

.....[2]

[Total : 8]

**7** **(a)** Name the process taking place in Fig. 7.1.

.....[1]

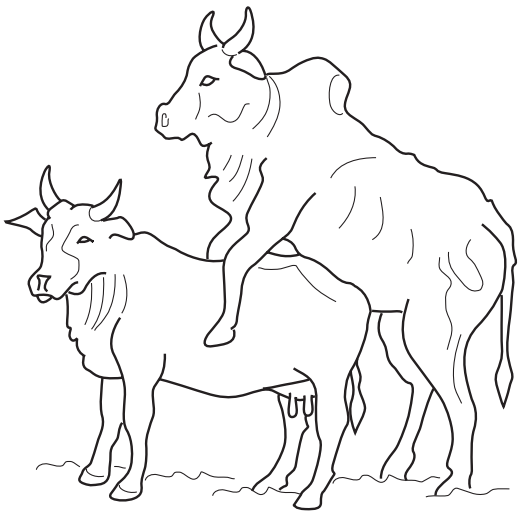

**Fig. 7.1**

**(b)** **(i)** Describe the process of birth in a farm animal.

.....

.....

.....

.....

.....[3]

**(ii)** State **two** tasks a farmer might carry out immediately after the birth to ensure the survival of the young.

1. .....

2. .....[2]

**(c)** In rabbits the allele for black hair (**B**) is dominant to the allele for white hair (**b**). Two heterozygous (**Bb**) rabbits are crossed.

Complete the following genetic diagram to represent this cross.

parents – alleles **Bb** **Bb**

gametes

offspring – alleles

offspring – colour _____ _____ _____ _____

[3]

[Total : 9]

**8** **(a)** Fig. 8.1 shows a post and wire fence with a space for a gate.


**Fig. 8.1**

**(i)** List **three** tools needed for the building of this fence and state their use.

1 tool ..... use.....

.....

2 tool ..... use.....

.....

3 tool ..... use.....

.....[3]

**(ii)** Draw in the space on Fig. 8.1 a gate suitable for containing livestock. [2]

**(iii)** State how the gate would be hung (attached).

.....

.....[1]

**(iv)** State how the gate would be fastened.

.....

.....[1]

Table 8.1 describes three types of fence, stating **one** advantage for each and describing **one** way that they should be maintained.

**(b)** Complete Table 8.1.

**Table 8.1**

| fence type | advantage | maintenance of fence |
|---|---|---|
| hedge | locally available | |
| post and wire | | creosote the posts |
| electric wire | animals do not touch the fence | |

[3]

[Total : 10]





[Turn over

**9** Fig. 9.1 shows the breeding record for a dairy cow.

| sire no. | dam no. | sire breed | date of service | expected date of calving | date calved | no. of gestations | sex of calf | birth weight | calf no. | next heat | remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *14* | *29* | *Friesian* | *5/12/03* | *5/9/04* | *6/9/04* | *2* | *Female* | *35 kg* | *61* | *26/9/04* | |

**Fig. 9.1**

**(a)** State **two** other records that could be kept for this cow.

1. .....

2. .....[2]

**(b)** State **two** reasons for keeping farm records.

1. .....

2. .....[2]

Fig. 9.2 shows some financial records for a mixed farm.

| Purchases and expenditure | | | Sales and receipts | |
|---|---|---|---|---|
| | $ | | | $ |
| cattle | 210,0 | | cattle | 175,0 |
| fertilisers | 25,0 | | milk | 350,0 |
| feeds | 75,0 | | cabbages | 112,0 |
| wages | 197,0 | | beans | 100,0 |
| rent | 10,0 | | eggs | 171,0 |
| drugs | 96,0 | | | |
| poultry | 87,0 | | | |
| seeds | 50,0 | | | |
| total | 750,0 | | total | 908,0 |
| profit | | 158,0 | | |

**Fig. 9.2**

It is forecast that over the next five years the demand for meat will decrease while the demand for vegetables and eggs will increase.
The cost of fertiliser and feed is set to rise.

**(c)** Suggest **one** change in production you would make on this farm to stay in profit over the next five years.

Give a reason for your answer.

.....

.....

.....[2]

[Total : 6]

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