UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER			

* 1 3 8 5 5 0 9 2 7 8 *

AGRICULTURE **0600/03**

Paper 3 **October/November 2008**

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.
You may use a soft pencil for any diagrams or graphs.
Do not use staples, paper clips, highlighters, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Answer **all** questions.

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	
1	
2	
3	
4	
5	
6	
7	
8	
9	
Total	

This document consists of **12** printed pages.

1 Fig. 1.1 shows a garden plot.

For Examiner's Use

Fig. 1.1

(a) Cereals are grown in this garden plot, under the tree.

Explain how the tree might affect:

(i) photosynthesis in the cereal plants; .....

.....

(ii) transpiration in the cereal plants. .....

..... [2]

For Examiner's Use

(b) Fig. 1.2 represents leaves from the same plant species found growing in different amounts of light.

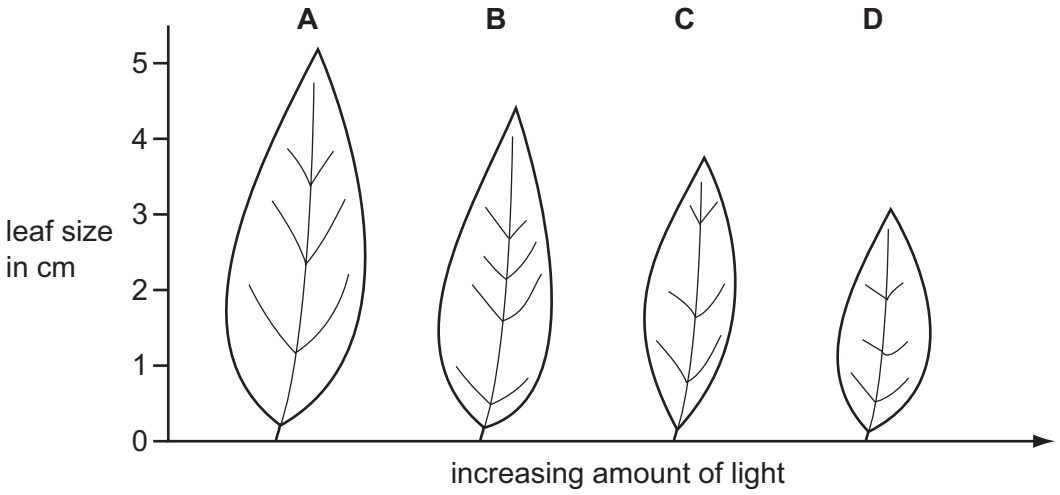

Fig. 1.2

(i) Which condition produced the smallest leaf?

..... [1]

(ii) Name **two** conditions, other than light, that are essential for photosynthesis.

1 .....

2 ..... [2]

(iii) Name the main product of photosynthesis.

..... [1]

For Examiner's Use

(c) (i) Name **two** main areas within a plant to which the product of photosynthesis may move for storage or use.

1 .....

2 ..... [2]

(ii) For a named crop, state the part of the plant which is eaten.

Name of crop .....

Part of plant eaten ..... [1]

(iii) Describe **two** uses, other than food, to which some crop plants can be put.

.....

.....

.....

.....

..... [2]

[Total: 11]

For Examiner's Use

2 **(a)** Briefly describe a test to find the pH of a soil.

.....

.....

.....

.....

..... [3]

(b) The table 2.1 shows the changes in pH from a field intensively grazed and used for cutting hay over 6 years.

Table 2.1

years	2001	2002	2003	2004	2005	2006
soil pH	5.0	7.5	7.0	6.0	5.5	5.25

(i) What might have been added to the soil to raise the pH in 2002?

..... [1]

(ii) Between which **two** years did the pH change most?

..... [1]

(iii) Give a reason that is not linked to a farming practice that might account for the change in pH between the years given in **(ii)**.

..... [1]

(iv) Briefly suggest how farming the land might cause the fall in pH between 2002 and 2006.

.....

.....

..... [2]

(c) Outline **three** ways that increasing the pH of the soil might improve its productivity.

.....

.....

.....

.....

.....

..... [3]

[Total: 11]

For Examiner's Use

3 **(a)** Name a local weed and explain how it spreads in a crop or pasture.

weed .....

spread .....

..... [2]

(b) Suggest why the plant you have named in **3(a)** is a successful weed.

.....

..... [2]

(c) Explain why weeds should not be sprayed with herbicide:

(i) just before rain;

.....

(ii) in windy weather.

..... [2]

(d) How does planting crops with the correct spacing reduce the number of weeds found growing between the plants in the field?

.....

.....

.....

..... [2]

(e) Glyphosphate is a systemic herbicide (weed killer).

(i) Outline what you understand by the term *systemic*.

.....

..... [2]

(ii) What precautions should be taken when considering the use of a systemic pesticide on food crops?

.....

..... [2]

[Total: 12]

For Examiner's Use

4 Fig. 4.1 shows two types of potato plant.

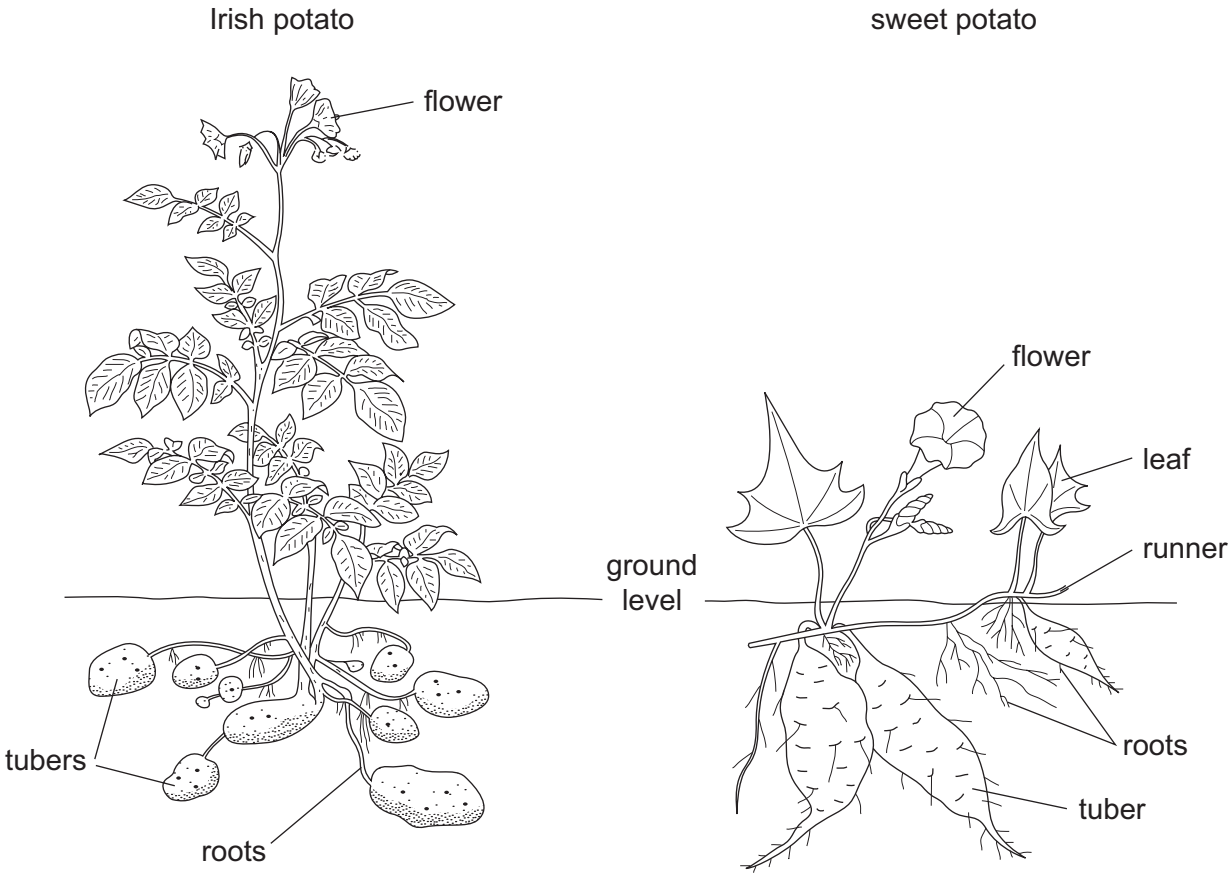

Fig. 4.1

(a) Choose **one** of the potato plants and explain how it reproduces asexually under natural conditions.

Potato chosen .....

.....

..... [2]

(b) The Irish potato can be infected by a fungus.

State the weather conditions which would encourage infection and the spread of fungus disease.

.....

.....

..... [2]

[Total: 4]

For Examiner's Use

5 **(a)** As the human population increases, more food is needed but less land is available for farming.

(i) Name a type of livestock that does not require a lot of land to live off.

..... [1]

(ii) Suggest **two** reasons why this animal is well suited to providing meat.

.....

.....

..... [2]

(b) Fig. 5.1 shows some land in Africa that has suffered from the effects of soil erosion.

Fig. 5.1

Briefly describe **two** possible causes of such erosion.

1 .....

.....

.....

2 .....

.....

..... [4]

[Total: 7]

For Examiner's Use

6 Fig. 6.1 shows how the production of soyabean has changed since 1950.

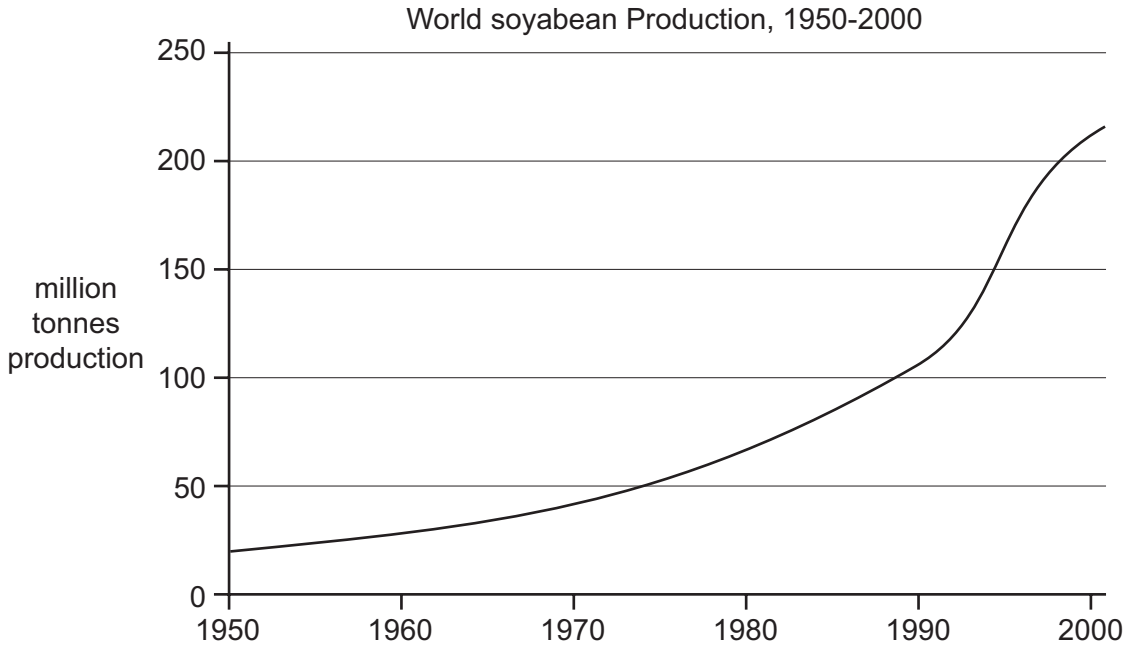

Fig. 6.1

(a) During which ten year period was the growth in soyabean production greatest?

.....[1]

(b) Soyabeans can be grown under a system of *monoculture*.

Explain what is meant by the term *monoculture*.

.....

.....

.....

.....[2]

(c) Briefly outline **one** possible harmful effect, other than soil erosion, from the increased use of intensive agriculture.

.....

.....

.....

.....[2]

[Total: 5]

For Examiner's Use

7 Fig. 7.1 shows a water catchment area.

Fig. 7.1

(a) Explain the term *water catchment area*.

.....

..... [2]

(b) Suggest how the following techniques might help to conserve ground water.

(i) mulching .....

.....

(ii) minimum tillage .....

..... [2]

(c) Explain the roles of the following in water treatment.

(i) settlement .....

.....

.....

(ii) having a covered dark holding tank in a high position .....

.....

.....

..... [4]

[Total: 8]

For Examiner's Use

8 **(a)** For a named type of animal you have studied, state **three** characteristics that you would select for when breeding to get improved offspring.

name of animal .....

1 .....

2 .....

3 ..... [3]

(b) Farmers frequently use artificial insemination (A.I.) on their livestock.

(i) Give **two** advantages of A.I. to the livestock farmer.

1 .....

.....

2 .....

..... [2]

(ii) Briefly explain the terms:

genotype; .....

.....

phenotype. .....

..... [2]

(c) Many farm animals and crop plants give high yields but have poor disease resistance. For a named animal or crop plant describe how a breeding programme could be used to improve the disease resistance.

name of crop or livestock .....

outline breeding programme .....

.....

.....

.....

.....

.....

..... [4]

[Total: 11]

For Examiner's Use

9 **(a)** The owner of mixed farm has money to spend on fencing.

The choices are:
1. fence around the vegetable garden;
2. fence around a paddock for goats.

Discuss the **economic** factors that need to be considered in making a decision between choices 1 and 2.

.....

.....

.....

.....

..... [3]

(b) Farms **X** and **Y** cover the same area of similar farmland.

Farm **X** had an input of US$ 20,000 and a profit of US$ 1500.

Farm **Y** had an input of US$ 100,000 and a profit of US$ 6000.

Which farm would you expect to be intensive?
Give a reason for your answer.

.....

..... [2]

(c) Which farm made most profit per US$ 100 of input? (Show your workings).

.....

..... [2]

(d) Give **two** reasons why, when considering the purchase of a farm, you should look at more than one year's input and profit.

.....

.....

.....

..... [4]

[Total: 11]