

Centre Number	Candidate Number	Name
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UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

AGRICULTURE

0600/03

Paper 3

October/November 2004

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.

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	
TOTAL	

If you have been given a label, look at the details. If any details are incorrect or missing, please fill in your correct details in the space given at the top of this page.

Stick your personal label here, if provided.



- 1 (a) Table 1.1 lists three causes of poor health in animals. Complete Table 1.1 so that for each cause there is an example and a method of prevention.

Table 1.1

cause	example	method of prevention
infectious disease	vaccination
inherited genetic defect	undershot jaw
stress	provide good living conditions

[3]

- (b) Explain the difference between the use of antibiotics and antiseptics to control disease.

.....

 [2]

- (c) Describe your local veterinary services.

.....

 [2]

- (d) Explain how laws may be useful in preventing the spread of diseases in livestock.

.....

 [3]

[Total : 10]

2 Fig. 2.1 is a photograph of leaves damaged by a pest.



Fig. 2.1

(a) (i) Name a pest that could have chewed the leaves.

.....[1]

(ii) Suggest two reasons why such damage to a leaf would reduce the growth of the plant.

- 1.
-
- 2.
-[2]



(b) Fig. 2.2 is a label from a container of pesticide.

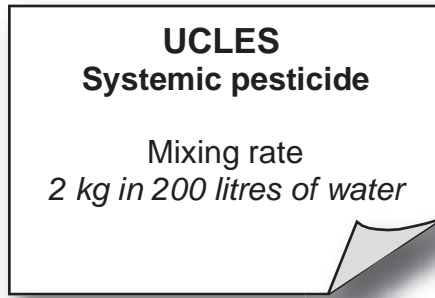


Fig. 2.2

(i) How much of this pesticide should be used for a 15 litres knapsack sprayer? Show your working.

answer[2]

(ii) Describe how a systemic pesticide reduces the number of pests on a crop.

.....

.....

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.....

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.....

.....

.....[4]

[Total : 9]

3 (a) (i) State the role of light in photosynthesis.

.....

(ii) During photosynthesis carbon dioxide enters the leaf by diffusion.

What is meant by *diffusion*?

.....

.....[2]

(b) Water is brought to the leaf by the transpiration stream.

(i) Describe how water is moved from the soil to the leaf.

.....

.....

.....

.....

.....

.....[5]

(ii) Explain how stomata control the loss of water vapour from the leaf.

.....

.....

.....

.....

.....

.....[3]

[Total : 11]

4

Fig. 4.1 shows part of the nitrogen cycle

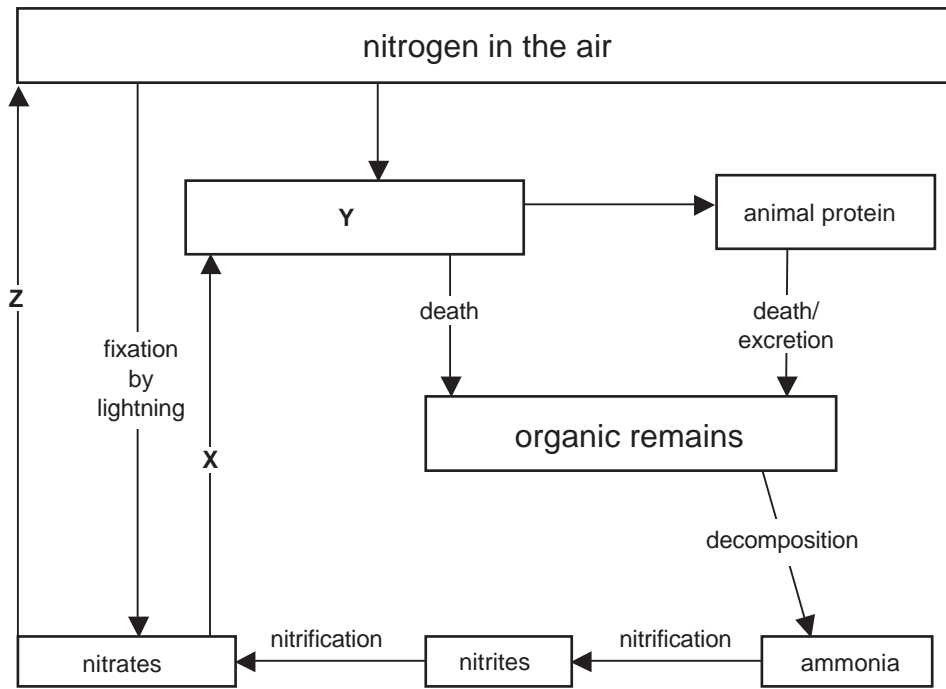


Fig. 4.1

- (a) Name process X
- Name component Y
- Name process Z [3]

(b) Table 4.1 shows the percentage composition of six fertilisers.

Table 4.1

fertiliser	percentage of			
	nitrogen	phosphorus	potassium	organic matter
cow manure	0.7	0.2	0.5	30
pig manure	1.0	0.3	0.7	30
sheep manure	2.0	0.5	2.3	60
chicken manure	1.6	0.6	1.6	50
seaweed (kelp)	0.2	0.05	0.5	80
straw	0.6	0.1	1.05	80

(i) Which of these fertilisers contains the greatest percentage of nitrogen?

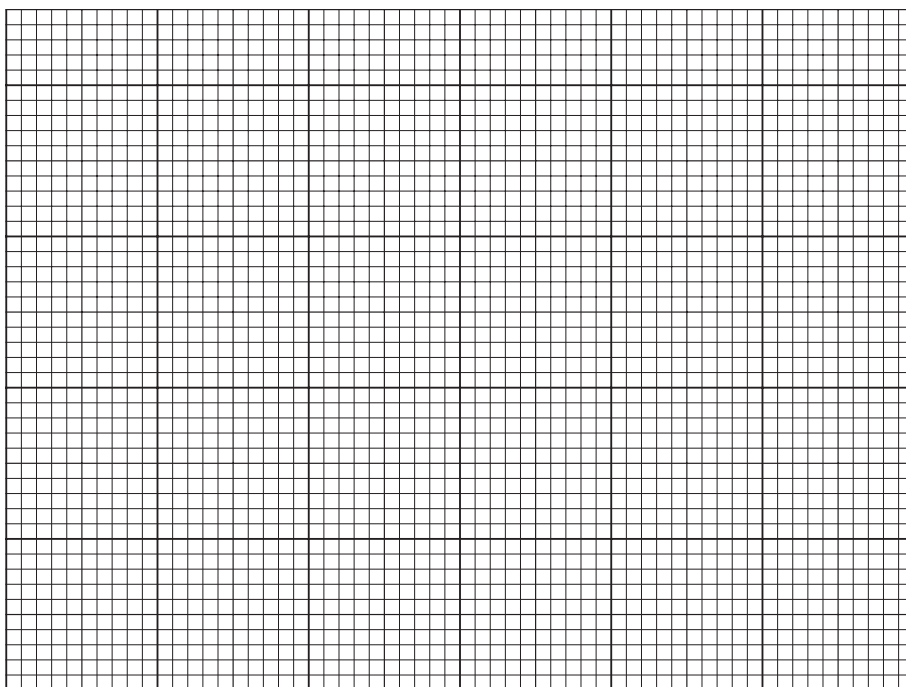
.....[1]

(ii) Describe how nitrogen compounds are leached from a soil.

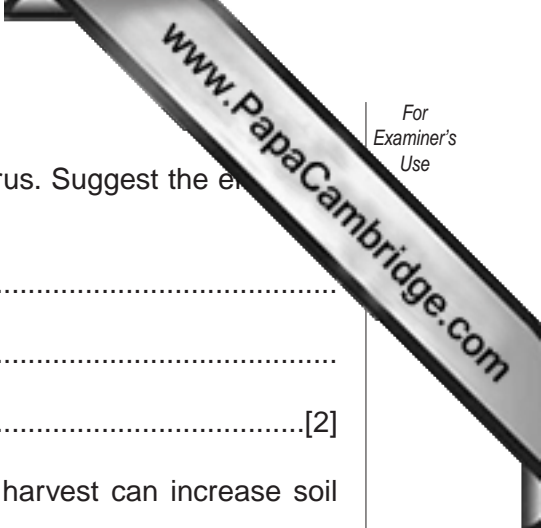
.....

[2]

(iii) Using the data in Table 4.1, plot a bar chart of the percentage organic matter against each fertiliser.



[4]



(iv) Some of these fertilisers contain high levels of phosphorus. Suggest the effects of the excess use of these fertilisers.

.....
.....
.....[2]

(v) Describe how the ploughing in of a legume crop after harvest can increase soil fertility.

.....
.....
.....
.....
.....
.....[3]

[Total : 15]

5 (a) (i) Describe the process of fertilisation (not mating) in a named farm animal.

farm animal

.....

[3]

(ii) State three advantages to a farmer of using artificial insemination for livestock instead of natural methods.

1.
2.
3.[3]

(b) Table 5.1 describes the average daily water consumption of different classes of cattle.

Table 5.1

class	average daily water consumption litres/ day
cow not milking	65
cow during lactation	80
bull	85
calf 200 kg	40
calf 225 kg	46
calf 250 kg	52

(i) Suggest the average daily consumption of water by a young cow weighing 300kg.

.....[1]

(ii) Explain why cows need more water when they are lactating.

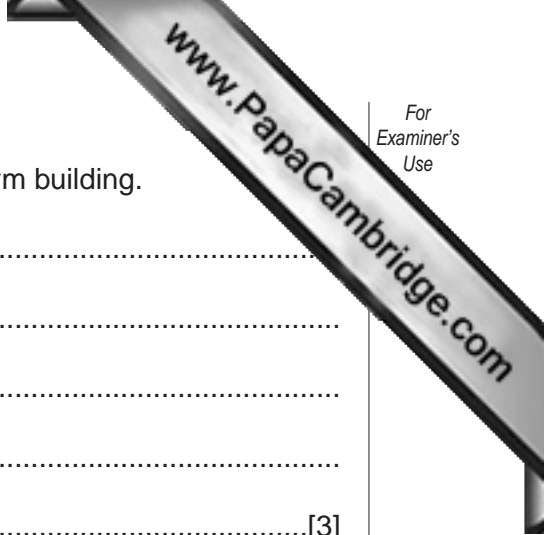
.....[1]

(iii) State what cows produce only at the start of lactation.

.....[1]

(iv) Explain why this is important.

.....
[2]



6 (a) Describe the construction of a concrete floor suitable for a farm building.

.....
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.....[3]

(b) Discuss **three** factors to be considered when deciding on the site of a new farm building.

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.....
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.....
.....
.....[5]

[Total : 8]

- 7 Fig. 7.1 shows the results of growing three plots of a cereal crop for five seasons. No mulch was used on the first plot, "living mulch" was used on the second plot and straw mulch was used on the third plot.

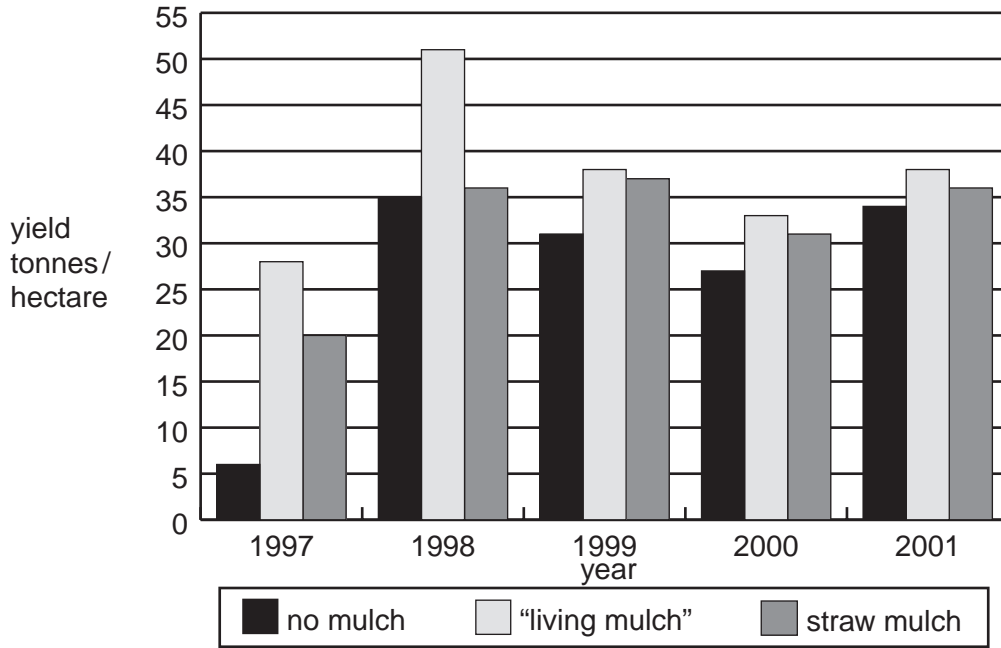


Fig. 7.1

- (a) (i) Using the data in Fig. 7.1 complete the table below.

	yield tonnes/ hectare				
	1997	1998	1999	2000	2001
no mulch	6	35	31		
"living mulch"	28	51	38		
straw mulch	20	36	37		

[2]

- (ii) Suggest which year had the greatest rainfall in this area.
- (iii) Give a reason for your answer.

.....

.....

[2]

(b) (i) Explain why mulches can be used in the production of cereal crops.

.....
.....
.....[2]

(ii) Suggest what is meant by "living mulch".

.....[1]

[Total : 7]

8 (a) Name a root crop.

(i) State what factors should be considered when choosing a cultivar of this root crop.

.....
.....
.....[3]

(ii) Give two important steps in the preparation of a bed for the named root crop.

1.
2.
.....[2]

(iii) Describe how this root crop is stored after harvest.

.....
.....[2]

(b) Explain how the farmer can determine if a profit has been made from this crop.

.....
.....
.....
.....[2]

[Total : 9]

Copyright Acknowledgements:

Question 2 Fig. 2.1 <http://pdc.unl.edu/soybeqn/BPMV/images/beanleafbeetledamage.jpg>

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