



General Certificate of Secondary Education
2016

Centre Number

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Candidate Number

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Agriculture and Land Use

Unit 2

Animals on the Land

[GAL21]

WEDNESDAY 8 JUNE, AFTERNOON



GAL21

TIME

1 hour 15 minutes.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.
Write your answers in the spaces provided in this question paper.
Answer **all eight** questions.

INFORMATION FOR CANDIDATES

The total mark for this paper is 75.
Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.
Quality of written communication will be assessed in questions **6(c)** and **8(b)**.

For Examiner's use only	
Question Number	Marks
1	
2	
3	
4	
5	
6	
7	
8	
Total Marks	

- (ii) Which of these feed types **A**, **B** or **C** would you include in the daily ration for the following animals when housed during winter?
Explain why you chose the feed type.

A dry suckler cow

Feed type _____

Explanation _____

_____ [2]

A finishing bullock

Feed types _____ **and** _____

Explanation _____

_____ [2]

- (b) Nutritional needs of animals depend on a number of factors.
One factor is the species.

Name **two** other factors that affect nutritional needs.

1. _____

2. _____ [2]

Examiner Only	
Marks	Remark

- 2 Farmers check their animals' health regularly.
The photograph below shows a healthy animal.



© Mint Images / Science Photo Library

Examiner Only	
Marks	Remark

- (a) Give **two** characteristics of a healthy animal.

1. _____

2. _____

[2]

- (b) (i) A common illness in lactating cows is mastitis.
Which microbes cause mastitis in lactating cows?

_____ [1]

- (ii) Describe **two** symptoms of mastitis in dairy cows.

1. _____

2. _____ [2]

- (iii) Describe **two** ways to prevent the spread of mastitis.

1. _____

2. _____ [2]

- (iv) State **two** ways mastitis can be treated.

1. _____

2. _____ [2]

3 (a) Farm animals have different levels of production.

Draw a line to link each animal to its typical production.

(i)

Litters per year

	1
Sow	2
	5

[1]

(ii)

Annual egg yield

	250–300
Layer hen	20–40
	1000–1200

[1]

(b) Animal production levels can be measured using information such as annual milk yield and calving interval. This information can be used in animal breeding.

Dairy cow	Annual Milk Yield/litres	Calving Interval/days
A	8000	475
B	5000	405
C	7500	368

The table above shows the production levels of three dairy cows.

Use this information to select which dairy cow should be chosen for breeding.

Explain your choice.

Cow **A**, **B** or **C** _____

_____ [3]

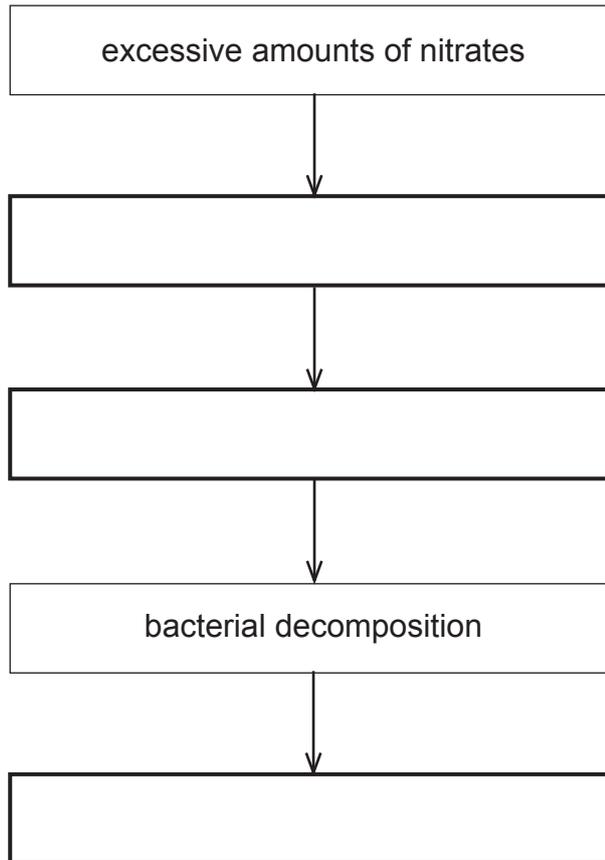
Examiner Only	
Marks	Remark

4 (a) Water pollution has been a problem in Lough Neagh for many years.

- (i) The flow chart below summarises the stages that happen when excessive amounts of nitrates pass into Lough Neagh.

Write the following statements into the empty boxes in the correct order.

algal death fish death algal growth



[2]

- (ii) Name the process summarised in the flow chart above.

[1]

- (b) (i) Give **two** sources of nitrates from farming practices that could pass into Lough Neagh.

1. _____

2. _____

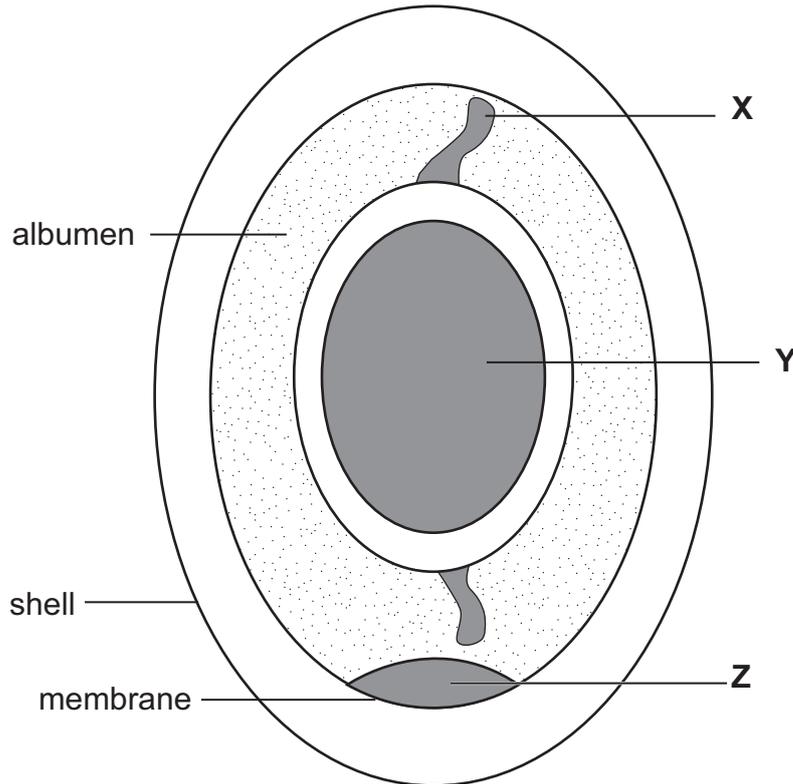
[2]

- (ii) What European Union (EU) legislation controls the disposal of farm waste?

_____ [1]

Examiner Only	
Marks	Remark

- 5 (a) Chickens are very important in the human food chain.
The diagram below shows a section through a fertilised chicken egg.



© Animal Corner -Chicken Eggs: Types of Chicken & Hen Eggs

Name parts **X**, **Y** and **Z**.

X _____

Y _____

Z _____

[3]

- (b) (i) Complete the following passage by writing in the blank spaces.

A chicken's life begins once an egg is fertilised. It will develop into a chick over a period of _____ days until it hatches. A hen will continue to lay eggs but the eggs will not be fertile unless a _____ has been present.

[2]

- (ii) Humidity is one important factor that must be carefully controlled for successful egg incubation.
Name **two** other factors.

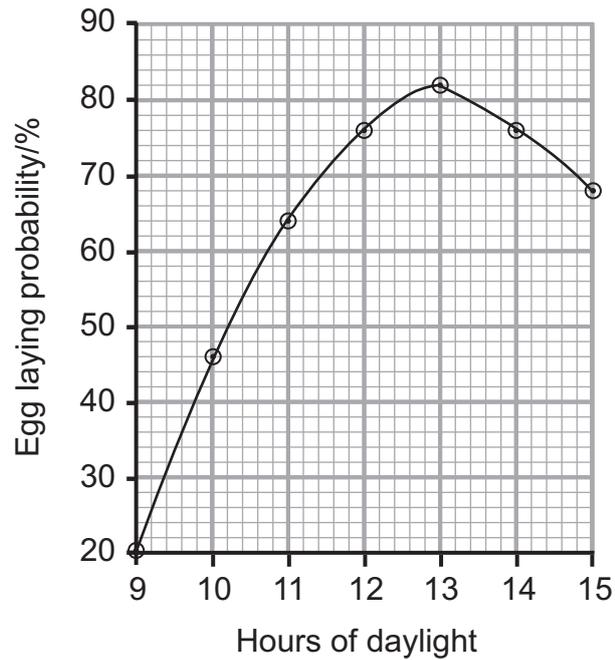
1. _____

2. _____

[2]

Examiner Only	
Marks	Remark

- (c) The graph below shows how the number of hours of daylight affects egg laying probability in chickens.



Use the graph to describe how the number of hours of daylight affects egg laying probability of chickens.

[2]

Examiner Only	
Marks	Remark

- 7 (a) Farm businesses need to make a profit in order to survive.

Identify **two** costs and **two** sources of income from sheep farming.

Costs:

1. _____

2. _____

Sources of income:

1. _____

2. _____

[4]

- (b) The table below shows the income, costs and profit margin for two sheep farms, **A** and **B**, in year 0.

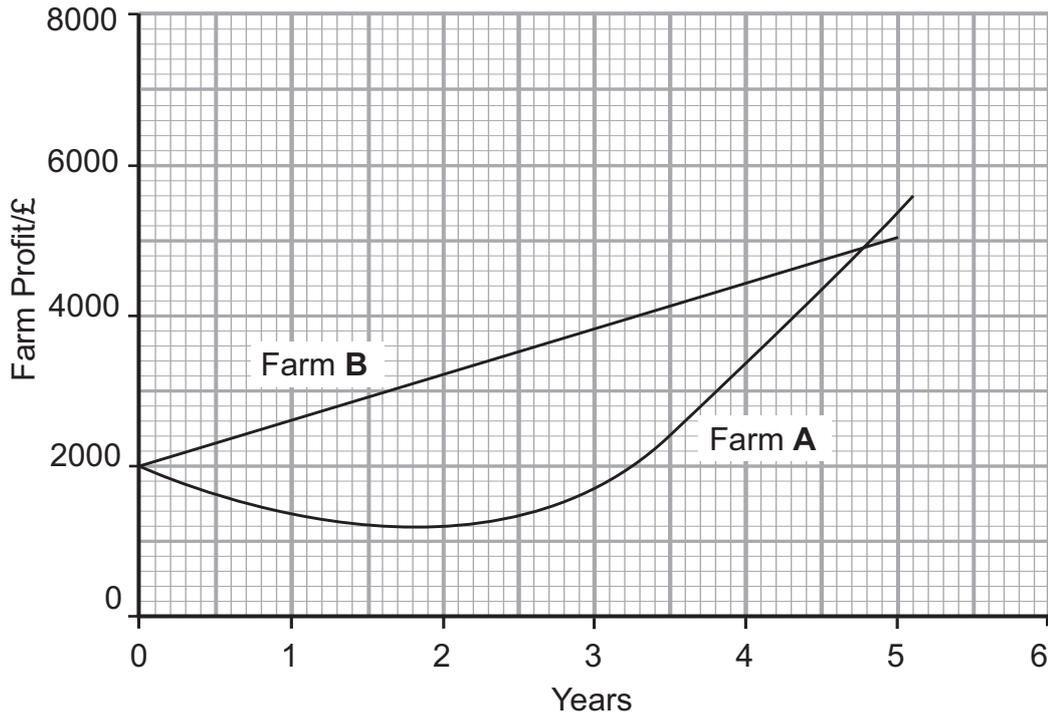
Complete the shaded box in the table below by calculating the total costs for Farm **B**.

	Farm A	Farm B
Total Income	£8500	£8125
Total Costs	£6500	£
Profit Margin	£2000	£2000

[1]

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- (c) The graph below shows the trends in profit margin for Farm A and Farm B.



Use the graph and your knowledge of sheep farming to answer the following questions.

- (i) What is the difference in profit between the two sheep farms at year 2?

£ _____ [2]

- (ii) What will the difference in profit be at the end of year 6 if the trends continue?

£ _____ [3]

Examiner Only	
Marks	Remark

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