



Rewarding Learning

General Certificate of Secondary Education
2019

Centre Number

--	--	--	--	--

Candidate Number

--	--	--	--

Agriculture and Land Use

Unit 2
Animals on the Land



GAR21

[GAR21]

FRIDAY 21 JUNE, MORNING

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 nine** 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 7 and 9(b).

For Examiner's use only	
Question Number	Marks
1	
2	
3	
4	
5	
6	
7	
8	
9	

Total Marks	
--------------------	--

BLANK PAGE

1 The general health of an animal can be assessed by observation.

(a) (i) State **one** of the basic freedoms of farm animals.

_____ [1]

(ii) From the following list of observations, circle **two** that are common symptoms of mastitis.

- moist nose
- clots in milk
- swollen feet
- swollen udder

[2]

(b) (i) Liver fluke is an example of a parasite which affects both cows and sheep. Describe **two** symptoms of an animal infected with parasites.

1. _____

2. _____

_____ [2]

(ii) Suggest **one** other parasite which affects sheep.

_____ [1]

(iii) List **three** biosecurity methods used on a farm.

1. _____

2. _____

3. _____ [3]

Examiner Only	
Marks	Remark

2 The gestation period is the length of time a pregnancy lasts.

- (a) The gestation period in cows is approximately nine months or 283 days.

State the gestation period for sheep and pigs.

Sheep _____

Pigs _____ [2]

- (b) Farmers can get injured when working with animals.

The photograph below shows a pen of rams.



© PhotoJunction / iStock / Getty Images

State **two** precautions that the farmer should take to protect himself, when working with rams.

1. _____

2. _____ [2]

Examiner Only	
Marks	Remark

(c) The photograph below shows a farmer spreading fertiliser.



© fotokostic / iStock / Getty Images

Identify **two** hazards when spreading fertiliser. Describe the risks associated with them and how to reduce the likelihood of an accident happening.

Hazard _____

Describe the risk _____

How to reduce the risk _____

_____ [3]

Hazard _____

Describe the risk _____

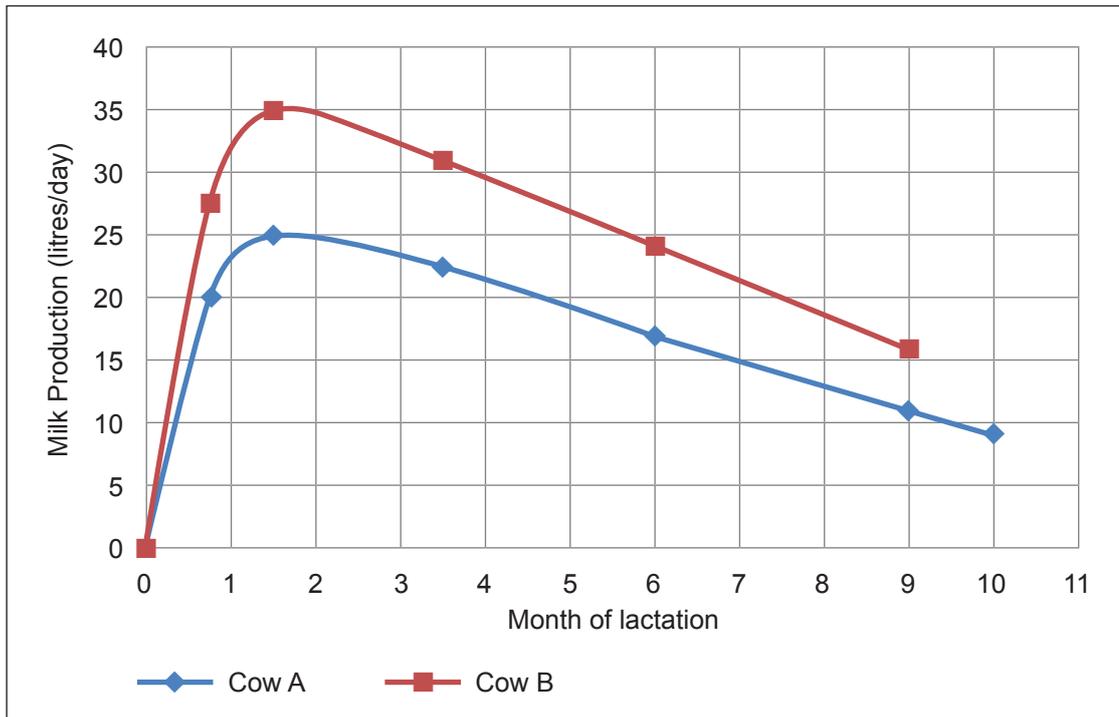
How to reduce the risk _____

_____ [3]

Examiner Only	
Marks	Remark

--	--

3 (a) The graph below shows the lactation curves for cow **A** and cow **B**.



(i) What is the length of the lactation period for cow **A**?

_____ months [1]

(ii) Which cow, **A** or **B**, produces the most milk over the entire lactation?

_____ [1]

(iii) At peak production, how much more milk does cow **B** produce than cow **A**?

Show your working.

_____ litres/day [1]

Examiner Only	
Marks	Remark

(iv) Apart from diet, give **two** reasons why the lactation curve for cow **B** is different from cow **A**.

1. _____
2. _____ [2]

(b) (i) Define the term Dry Matter Intake (DMI).

_____ [1]

(ii) Explain why DMI provides useful information for farmers.

_____ [1]

(iii) A lambed ewe eats 4.0 kg of grass silage with a dry matter percentage of 35% and 0.3 kg of meal with a dry matter percentage of 90%.

Calculate the DMI of the ewe.
Show your working.

_____ kgDM [3]

(iv) How should the ewe's diet be changed after her lamb has been weaned?

_____ [1]

Examiner Only	
Marks	Remark

4 The dairy industry in Northern Ireland has a turnover of £950 million per year. However there are many different costs involved in running a profitable dairy business.

(a) The boxes below give some of the **average costs for a cow per year** on an **intensive** dairy system.

Draw a line to match each cost to its average value. One has been done for you.

silage		£750
medicine	—	£360
meal		£70
water		£20

[2]

(b) How many litres of milk would you expect an intensive dairy cow to produce in **one** year?

_____ litres [1]

Examiner Only	
Marks	Remark

(c) Spreading slurry and making silage are tasks which a farmer may employ a contractor to carry out. Give **two** reasons why a farmer would use contractors for these tasks.

1. _____

2. _____

[2]

Examiner Only	
Marks	Remark

5 (a) Anaerobic digestion is one way that energy can be produced on farms.

(i) Suggest **two** advantages of producing energy from anaerobic digestion.

1. _____

2. _____ [2]

(ii) Intensive farms produce large quantities of slurry.

Describe **two** ways farmers can reduce pollution when spreading slurry in the field.

1. _____

2. _____ [2]

(iii) What does the term BOD stand for?

_____ [1]

(b) Indicator species are used to assess the level of water pollution.

(i) Name **one** indicator species commonly found in polluted water.

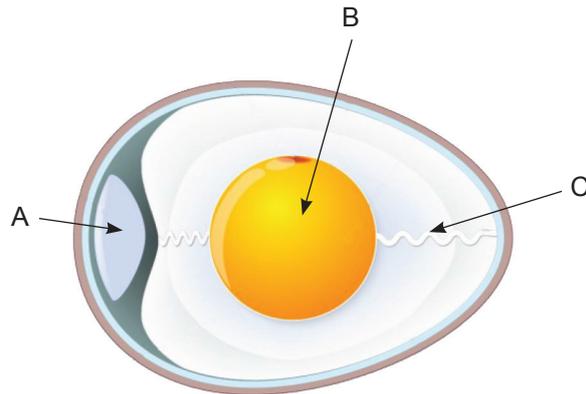
_____ [1]

(ii) Name **one** indicator species commonly found in unpolluted water.

_____ [1]

Examiner Only	
Marks	Remark

6 The diagram below shows a section through a fertilised chicken egg.



© ttsy / iStockphoto / Getty Images

(a) Identify the parts labelled A, B and C.

A _____

B _____

C _____

[3]

(b) A chicken has an avian digestive system, while a cow has a ruminant digestive system.

(i) What type of digestive system does a pig have?

_____ [1]

(ii) The abomasum is one part of the cow's four part stomach system.

Name **two** other parts of the cow's stomach.

1. _____

2. _____ [2]

Examiner Only

Marks Remark

8 Technology is an important part of modern farming. Below is a list of four technologies.

pedometer

robotic milker

automatic calf feeder

embryo transfer

For **two** of the technologies named above, explain how they work and give **one** advantage of each.

Technology _____

How it works _____

_____ [2]

Advantage _____

_____ [1]

Technology _____

How it works _____

_____ [2]

Advantage _____

_____ [1]

Examiner Only	
Marks	Remark

BLANK PAGE
(Questions continue overleaf)

- 9 Some farms in Northern Ireland have successfully diversified their farm business.

Diversification usually involves a change from traditional farming enterprises to non-traditional activities on the farm.

- (a) State **three** examples of ways that farmers in Northern Ireland have diversified their farming activities.

1. _____
2. _____
3. _____ [3]

- (b) Discuss in detail **one** example of diversification.

In your answer include:

- at least **three** benefits to the farmer
- at least **three** benefits to the consumer
- at least **two** ways the new business could expand in the future

In this question you will be assessed on your written communication skills including the use of specialist terms.

Diversification example _____

Examiner Only	
Marks	Remark

THIS IS THE END OF THE QUESTION PAPER

Permission to reproduce all copyright material has been applied for.
In some cases, efforts to contact copyright holders may have been unsuccessful and CCEA
will be happy to rectify any omissions of acknowledgement in future if notified.