

GENERAL CERTIFICATE OF SECONDARY EDUCATION
ENVIRONMENTAL AND LAND-BASED SCIENCE
Livestock Husbandry (Higher Tier)

B495/02

Candidates answer on the question paper.
A calculator may be used for this paper.

OCR supplied materials:
None

Other materials required:

- Pencil
- Ruler (cm/mm)

Monday 31 January 2011
Afternoon

Duration: 45 minutes



| | | | |
|-----------------------|--|----------------------|--|
| Candidate forename | | Candidate surname | |
|-----------------------|--|----------------------|--|

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| Centre number | | | | | | Candidate number | | | | |
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INSTRUCTIONS TO CANDIDATES

- Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).
- Answer **all** the questions.
- Do **not** write in the bar codes.

INFORMATION FOR CANDIDATES

- The number of marks is given in brackets [] at the end of each question or part question.
- The total number of marks for this paper is **36**.
- This document consists of **16** pages. Any blank pages are indicated.

Answer **all** the questions.

1 A Hereford bull was crossed with a number of Friesian cows.

The photograph shows one of the calves.



(a) Which of the following terms can **not** be used to describe this generation of calves?

- A cross-breeds
- B F1
- C F2
- D hybrids

Answer **A, B, C** or **D** [1]

(b) Which of the following would **not** be a possible reason for the farmer using this cross with his cows?

- A To improve disease resistance.
- B To improve growth rate.
- C To improve hardiness.
- D To improve conformation.

Answer **A, B, C** or **D** [1]

(c) What term is used to describe the result of crossing two different breeds that produce offspring which perform better than either of their parents?

..... [1]

(d) Describe the phenotype of the calf shown in the photograph.

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

2 What is colostrum?

- A Another name for the placenta in a mammal.
- B A special feed given to pregnant animals.
- C The first milk produced by a mammal after giving birth.
- D The liquid surrounding the baby in the womb.

Answer **A, B, C** or **D** [1]

3 The photograph shows feed given to farm animals.



(a) What term describes this feed?

Put a ring around the correct answer.

bulk

concentrate

roughage

succulent

[1]

(b) This feed is often given as part of the production ration.

Which of the following animals would **not** need a production ration?

- A** a growing calf
- B** a dry cow (not lactating)
- C** a high yielding dairy cow
- D** a pregnant cow

Answer **A, B, C** or **D** [1]

4 Many changes in an animal's body are controlled by hormones.

Which hormone is responsible for the development of male characteristics?

- A adrenalin
- B oestrogen
- C progesterone
- D testosterone

Answer **A, B, C** or **D** [1]

- 5 Many cattle are born without horns. These cattle are called 'polled'.



The following is a genetic diagram to show what happens if you cross a polled animal with an animal with horns.

| | | | |
|---------------------|-----------------------|----|-----------------------|
| First cross | PP (polled) | X | pp (horned) |
| F1 generation | Pp | Pp | Pp |
| Second cross | Pp | X | Pp |
| F2 generation | PP | Pp | Pp |

(a) How many genotypes are there in the **F2** generation?

- A** 1
- B** 2
- C** 3
- D** 4

Answer **A, B, C** or **D** [1]

(b) What percentage of the F2 generation have horns?

- A 0%
- B 25%
- C 50%
- D 75%
- E 100%

Answer **A, B, C, D** or **E** [1]

6 The photograph shows an animal with ringworm.



Ringworm is a common contagious disease of farm animals.

What causes this disease?

- A bacteria
- B fungi
- C parasites
- D viruses

Answer **A, B, C** or **D** [1]

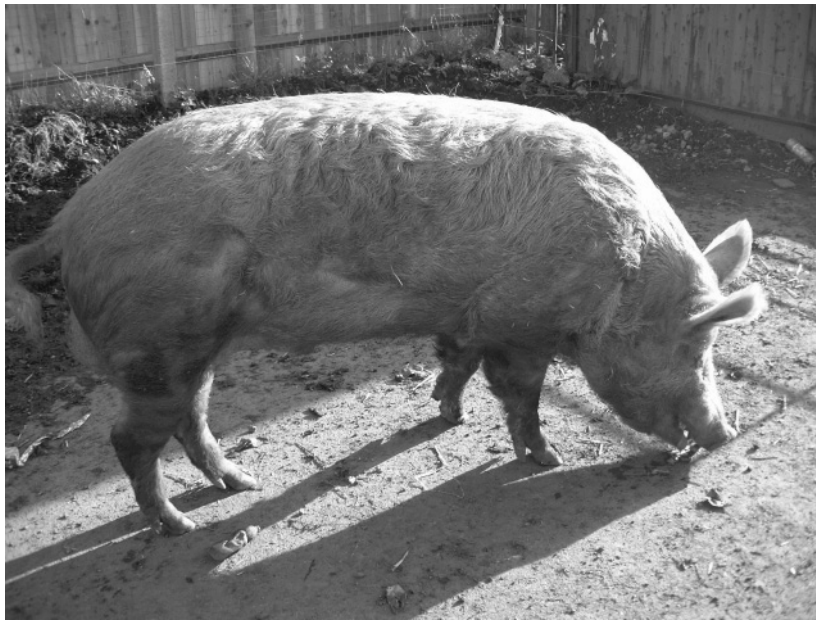
7 A zoonosis is a disease passed from animals to humans.

Which of the following is **not** an example of a zoonosis?

- A asthma
- B TB (tuberculosis)
- C tetanus
- D salmonella

Answer **A, B, C** or **D** [1]

8 This is a photograph of a Tamworth boar.



(a) Many school farms keep pigs.

Few school farms keep a boar. They prefer to use Artificial Insemination (AI).

Suggest **two** reasons why the school chooses to use AI rather than a boar.

1

.....

2

..... [2]

(b) The Tamworth is a rare breed of pig.

Suggest **two** ways that the use of Artificial Insemination (AI) may help protect this breed from extinction.

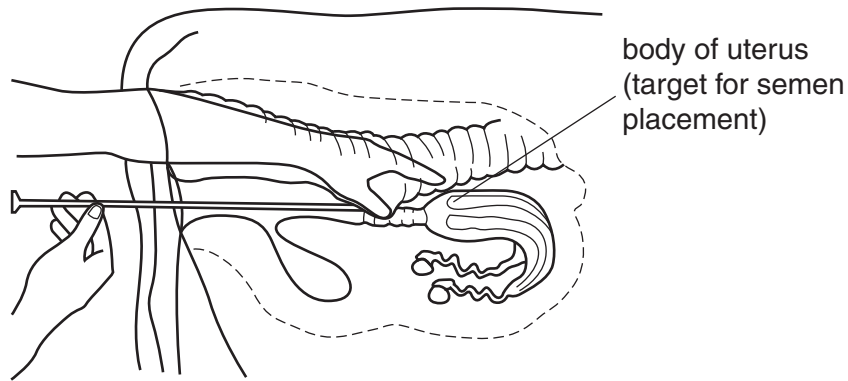
.....

.....

.....

..... [2]

9 The diagram shows artificial insemination being carried out on a cow.



Sperm used for artificial insemination (AI) is frozen soon after collection.

Suggest why.

..... [1]

10 The photograph shows a healthy farm animal.



This calf has had its horns removed.

Suggest why.

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

11 The photograph shows a group of healthy pigs.



State **three** things that animals need to remain healthy.

- 1
- 2
- 3 [3]

12 The table shows the changes in milk composition during a cow's lactation.

| lactation stage | fat % | lactose % | protein % | casein % |
|------------------------|--------------|------------------|------------------|-----------------|
| 1st quarter | 3.69 | 4.94 | 3.09 | 2.47 |
| 2nd quarter | 4.28 | 4.70 | 3.64 | 2.87 |
| 3rd quarter | 4.35 | 4.58 | 3.89 | 3.01 |
| 4th quarter | 4.44 | 4.44 | 4.00 | 3.02 |

(a) Describe **all** the changes in milk composition during the cow's lactation.

.....

.....

.....

..... [2]

(b) Which component shows the greatest change during the lactation?

.....

..... [1]

13 Mastitis is an important disease in dairy animals.

The severity of mastitis in animals is measured by a count of white blood cells.

The white cells are produced by the animal as a response to the mastitis.

The table shows how the cell count changes under different conditions.

| | | white blood cell count (× 1000) |
|-------------------|-------------------|---------------------------------|
| milking frequency | twice daily | 262 |
| | three times a day | 127 |
| nutrition | normal protein | 225 |
| | high protein | 164 |
| lactation stage | 1st quarter | 64 |
| | 2nd quarter | 187 |
| | 3rd quarter | 211 |
| | 4th quarter | 316 |

Using the information from the table, what advice would you give the farmer wishing to reduce mastitis in the dairy herd?

.....

.....

.....

..... [3]

14 Intensive animal production often requires preventative medication.

Preventative medication may include the addition of antibiotics to the diet.



Explain why antibiotics are routinely given even if the animals are not ill.

.....

.....

.....

..... [3]

- 15 A farmer found a sheep in her flock that each year shed its wool naturally in the summer. This meant the sheep did not need to be sheared.

She decided that this could potentially save farmers a lot of money.

She decided to breed a new strain of sheep which did not need to be sheared.



Explain how the farmer could produce a new strain of sheep starting from the one individual.

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

- 16 (a) State why movement forms have now become a legal requirement if livestock are to be moved off the farm.

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

- (b) Name **one** other legal requirement if the animals are to be moved long distances.

..... [1]

END OF QUESTION PAPER

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