

FORM TP 2015311



TEST CODE **02202022**

MAY/JUNE 2015

**C A R I B B E A N   E X A M I N A T I O N S   C O U N C I L**

**C A R I B B E A N   A D V A N C E D   P R O F I C I E N C Y   E X A M I N A T I O N <sup>®</sup>**

**A G R I C U L T U R A L   S C I E N C E**

**UNIT 2 – Paper 02**

*2 hours 30 minutes*

**READ THE FOLLOWING INSTRUCTIONS CAREFULLY.**

1. This paper consists of SIX questions in TWO sections. Answer ALL questions.
2. Write your answers in the spaces provided in this booklet.
3. Do NOT write in the margins.
4. You may use a silent, non-programmable calculator to answer questions.
5. If you need to rewrite any answer and there is not enough space to do so on the original page, you must use the extra lined page(s) provided at the back of this booklet. **Remember to draw a line through your original answer.**
6. **If you use extra page(s) you MUST write the question number clearly in the box provided at the top of the extra page(s) and, where relevant, include the question part beside the answer.**

**DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO.**

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**SECTION A**

**Answer ALL questions.**

1. (a) (i) What is the function of ozone in the stratosphere?

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[1 mark]

- (ii) With the aid of TWO chemical equations, describe the ozone–oxygen cycle in nature.

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[4 marks]

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- (b) The ozone hole is measured by the reduction in the total column ozone above a point on the Earth's surface, expressed as Dobson units (DU). Figure 1 shows the ozone minimum in the Antarctic over a number of years.

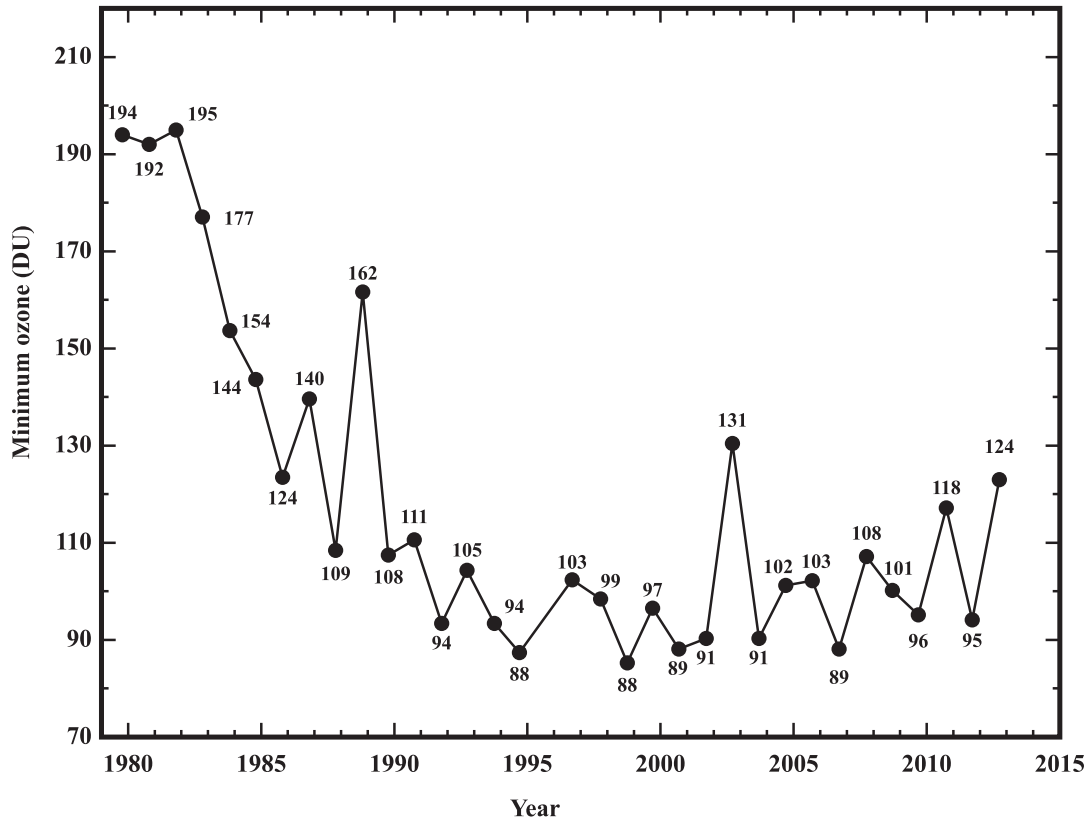


Figure 1. Ozone minimum in the Antarctic

- (i) Describe the trend shown in Figure 1.

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[2 marks]

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- (ii) Explain how chlorofluorocarbons (CFCs) may be responsible for the trend shown in Figure 1.

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**[3 marks]**

- (c) (i) State the date that the Montreal Protocol was adopted.

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**[1 mark]**

- (ii) What is the difference between the Montreal Protocol and the Kyoto Protocol?

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**[2 marks]**

- (iii) How many countries are Parties to the Montreal Protocol?

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**[1 mark]**

- (iv) Suggest ONE benefit of the global success of the Montreal Protocol.

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**[1 mark]**

**Total 15 marks**

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2. (a) (i) Identify TWO benefits of reproductive efficiency.

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[2 marks]

(ii) Describe FOUR reproductive management techniques.

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[4 marks]

(iii) Figure 2 is a diagram of the uterus of a ewe. Identify the parts labelled A, B, C, D, E and F. Write your answers in the relevant spaces in Figure 2. [3 marks]

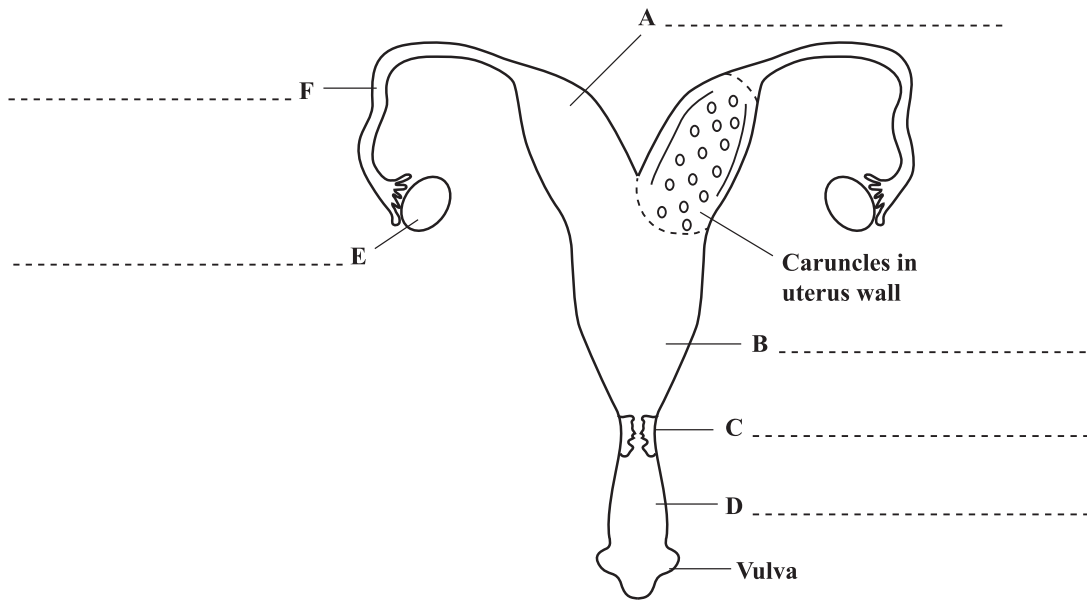


Figure 2. Diagram of the uterus of a ewe

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- (b) (i) Give TWO reasons why an open-sided poultry house should be oriented in an east to west direction in the Caribbean.

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[2 marks]

- (ii) At noon one day, Farmer Carlos notices that the broilers in the open-sided pen are panting and spreading their wings. The birds are also moving away from each other and appear irritable and in discomfort. Outline FOUR strategies which can be used by Farmer Carlos to reduce the birds' discomfort.

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[4 marks]

**Total 15 marks**

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**NOTHING HAS BEEN OMITTED.**

3. (a) (i) State what is meant by 'embryo transfer'.

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[1 mark]

- (ii) Figure 3 is an incomplete annotated diagram illustrating the processes necessary for successful embryo transfer in cows. Provide the missing annotations for A, B, C, D and E to complete Figure 3. [5 marks]

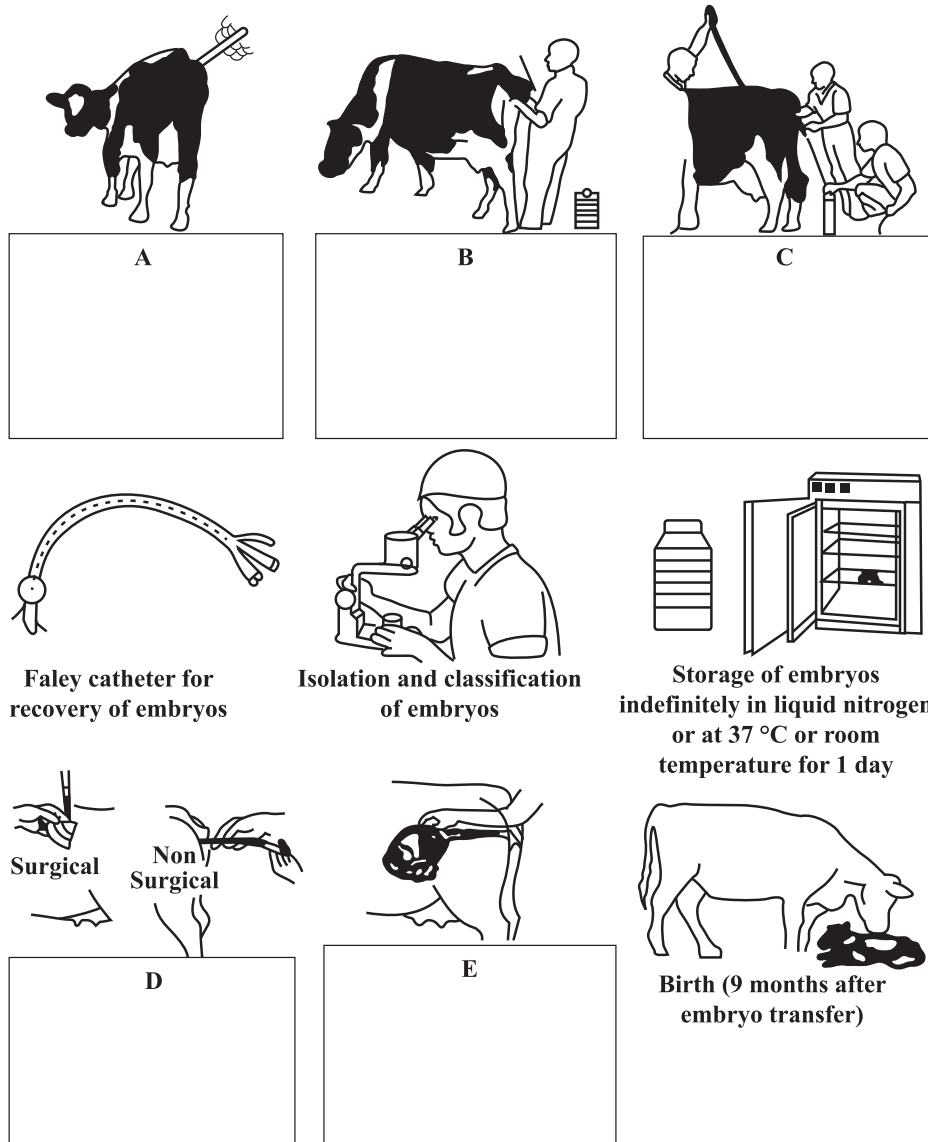


Figure 3. Incomplete annotated diagram of embryo transfer

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- (b) (i) Outline THREE advantages of embryo transfer.

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[3 marks]

- (ii) Outline TWO disadvantages of embryo transfer.

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[2 marks]

- (c) Describe TWO pricing strategies for the sale of beef.

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[4 marks]

**Total 15 marks**

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5. Farmer Bunny notices that several animals in his rabbitry are suffering from diarrhoea and that their food intake has decreased. The growth rates of the younger animals are retarded and there is blood in the faeces. Examinations reveal that the intestinal and liver cells are enlarged.

(a) Suggest the name of the internal parasite affecting the rabbits and name the organism causing the disease.

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[2 marks]

(b) Farmer Bunny places a sulphur drug in the drinking water to treat the rabbits. Will the rabbits become immune to this parasite and other diseases? Explain your answer.

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[3 marks]

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[10 marks]

**Total 15 marks**

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6. (a) Suggest TWO worldwide trends that have created ideal economic conditions for expanding the aquaculture industry.

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[4 marks]

- (b) Suggest THREE effects of overstocking a fish pond.

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[3 marks]

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