

FORM TP 2015133



TEST CODE **02202020**

MAY/JUNE 2015

**CARIBBEAN EXAMINATIONS COUNCIL**

**CARIBBEAN ADVANCED PROFICIENCY EXAMINATION®**

**AGRICULTURAL SCIENCE**

**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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02202020/CAPE 2015



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**SECTION A**

**Answer ALL questions.**

1. (a) (i) Define the term 'greenhouse gas'.

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[1 mark]

- (ii) Outline how carbon dioxide and methane enter the atmosphere.

Carbon dioxide .....

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Methane .....

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[4 marks]

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- (b) Figure 1 shows the atmospheric CO<sub>2</sub> concentrations during the period 1750 to 2000 and the corresponding anthropogenic CO<sub>2</sub> emissions.

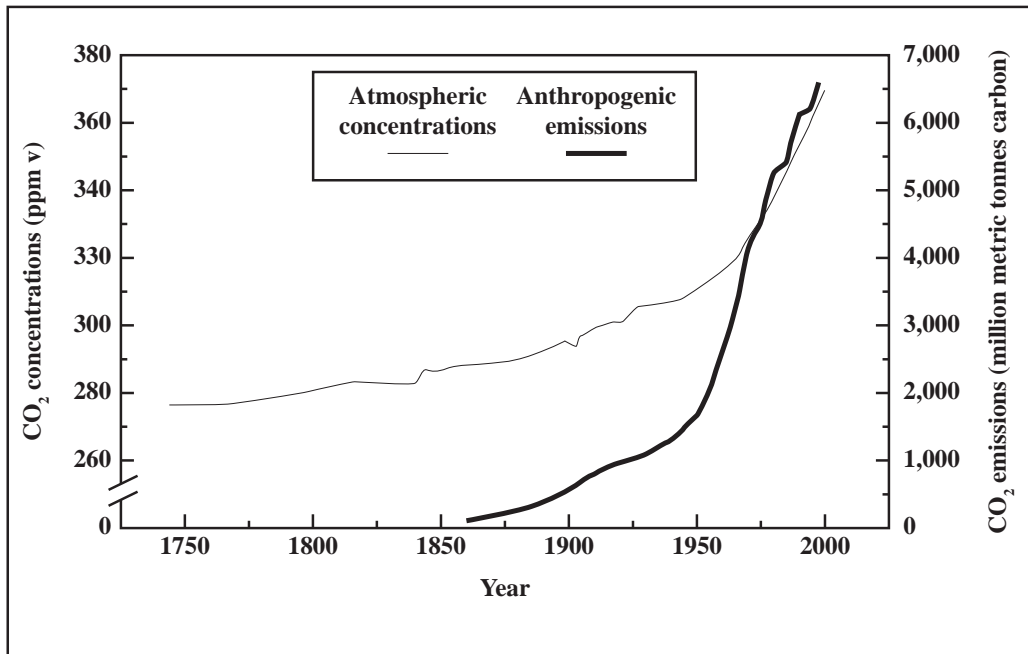


Figure 1. Graph showing atmospheric concentration and anthropogenic emissions of CO<sub>2</sub>

- (i) Describe the trend in CO<sub>2</sub> concentration in relation to anthropogenic emissions shown in Figure 1.

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[2 marks]

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(ii) Account for the trend observed in Figure 1.

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[3 marks]

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

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[1 mark]

(ii) On what date was the amendment to the Kyoto Protocol circulated by the Secretary-General of the United Nations?

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[1 mark]

(iii) Why was the Kyoto Protocol adopted?

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[1 mark]

(iv) Explain how the responsibilities for the greenhouse gas emissions are weighted by the Kyoto Protocol.

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[2 marks]

**Total 15 marks**

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2. (a) (i) Explain what is meant by the term 'feed conversion ratio' (FCR).

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[2 marks]

- (ii) A farmer adds a feed additive in the last two weeks of broiler production, and notices a better FCR at slaughter. Suggest THREE ways by which the feed additive could have improved FCR.

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[3 marks]

- (iii) Farmer Ali reared a batch of broilers for 35 days. On the 35th day, the 2000 birds weighed 5000 kg and had consumed 9500 kg of feed. On Day 1 they each weighed 50 g. See data in Table 1. Calculate the FCR for this batch of broilers. **Show all your working.**

**TABLE 1: DATA FOR FCR**

Initial weight per chick	50 g
Final weight of 2000 broilers	5000 kg
Feed consumed by 2000 broilers	9500 kg

[3 marks]

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- (b) (i) Explain how internal parasites may affect FCR. Include an example of an internal parasite.

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**[3 marks]**

- (ii) List FOUR clinical signs of internal parasites in farm animals.

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**[4 marks]**

**Total 15 marks**

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

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[1 mark]

(ii) Figure 2 is an incomplete annotated diagram illustrating the processes that occur during reproductive cloning. Provide the missing annotations for A, B, C, D and E to complete Figure 2.

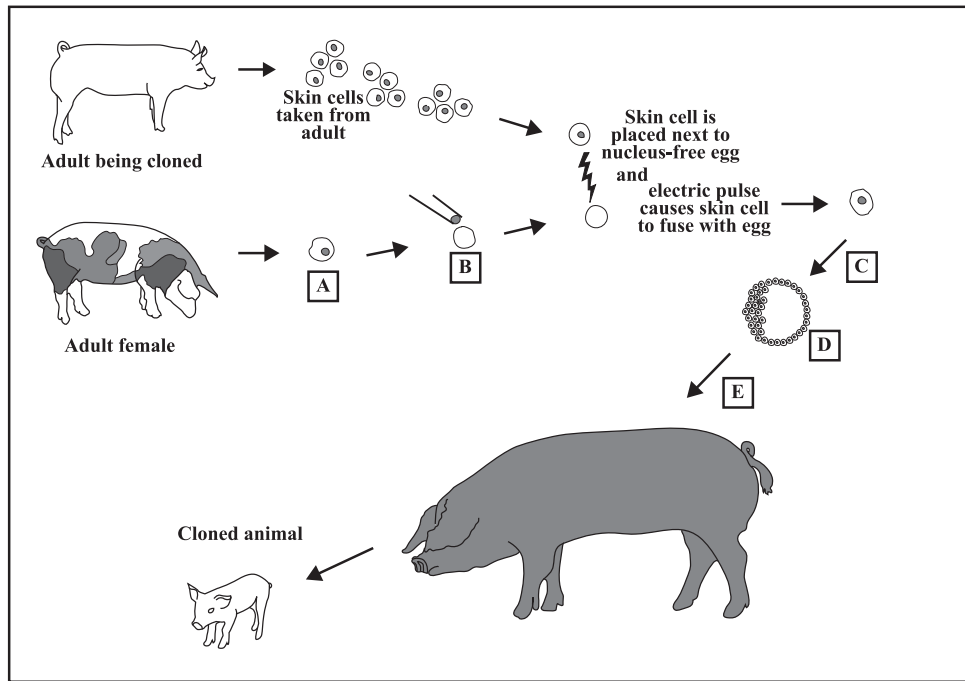


Figure 2. Incomplete annotated diagram of cloning

A .....

B .....

C .....

D .....

E .....

[5 marks]

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- (b) (i) Outline THREE ethical concerns about the cloning of animals.

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[3 marks]

- (ii) State TWO benefits that can be derived from the use of therapeutic cloning in animal production.

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[2 marks]

- (c) Suggest FOUR promotional strategies which can be used to promote therapeutic cloned chicken.

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[4 marks]

**Total 15 marks**

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**SECTION B**

**Answer ALL questions.**

4. (a) What is meant by 'air quality' and explain how air quality affects photosynthesis and hence crop production.

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**[5 marks]**

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5. (a) Poultry is susceptible to several contagious diseases. Identify **FOUR** contagious diseases that affect broilers.

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**[2 marks]**

- (b) Describe **THREE** ways in which a flock of intensively reared broilers can become infected by contagious diseases.

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**[3 marks]**

- (c) Whitly, a young entrepreneur, decides to invest in the commercial production of chickens and ducks. Recommend **TWO** biosecurity measures that he should employ before establishing the farm, and **THREE** biosecurity measures that he should use after establishing the farm, to ensure the health of the birds. Give a reason for **EACH** recommendation.

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- (b) Identify ONE suitable basis for grading fish **prior** to harvesting and explain its importance to the profitability of the farm.

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[3 marks]

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