

FORM TP 2015130



TEST CODE **02102020**

MAY/JUNE 2015

CARIBBEAN EXAMINATIONS COUNCIL

CARIBBEAN ADVANCED PROFICIENCY EXAMINATION®

AGRICULTURAL SCIENCE

UNIT 1 – 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) Define the term 'hormone'.

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[2 marks]

- (b) An artificial hormone, which is also produced naturally in cows, is injected into dairy cows to increase milk production.

- (i) Name the hormone produced naturally in cows.

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[1 mark]

- (ii) Name the endocrine gland in cows responsible for producing the hormone.

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[1 mark]

- (iii) Name the artificial hormone which increases milk production.

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[1 mark]

- (iv) Explain how the artificial hormone stimulates milk production.

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[2 marks]

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(c) In commercial livestock production systems, ruminants and non-ruminants are fed different diets.

(i) State TWO major differences between the diets fed to ruminant and non-ruminant livestock.

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[2 marks]

(ii) Explain how ruminants digest the food they consume.

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[3 marks]

(iii) Identify the component which is the MAJOR source of energy in the diet of ruminant livestock.

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[1 mark]

(d) Give an example of a non-ruminant that has a similar diet to ruminants and state why it is possible for it to digest this food.

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[2 marks]

Total 15 marks

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2. Assume that you wish to establish a commercial nursery to produce landscape plants and fruit trees.

(a) Identify a suitable propagation technique that can be used to produce true-to-type plants for EACH of the following species:

Mango

Citrus

Croton

Ornamental sweet potato

[2 marks]

(b) Compare the propagation techniques identified for mango and croton in (a) above.

Mango

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Croton

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[7 marks]

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- (c) Explain THREE benefits of plants to a landscape.

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[6 marks]

Total 15 marks

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3. Several governments in the Caribbean are encouraging increased production of local food crops such as cassava and sweet potato to increase food and nutrition security. A group of women in a farming community has decided to produce and market flour from these crops.

(a) The women plan to conduct consumer research.

(i) Give FOUR reasons why the women should conduct consumer research.

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[4 marks]

(ii) Explain TWO issues that the women should consider when designing the packaging for their product.

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[4 marks]

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- (b) (i) Why will the group also need a marketing plan?

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[3 marks]

- (ii) State the FOUR Ps of marketing.

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[4 marks]

Total 15 marks

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SECTION B

Answer ALL questions.

4. (a) Farmer Cooks has an integrated farming system (IFS) that includes five units: the crop unit, the fish/pond unit, the livestock unit, the biodigester unit and the family/house unit.

Briefly outline how EACH unit contributes to other units in the system.

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[5 marks]

- (b) Discuss TWO benefits of integrated farming systems (IFS). Your discussion should be logical, coherent and grammatically correct.

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[10 marks]

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5. (a) What is meant by 'sustainable landscaping' ?

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[3 marks]

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- (b) Sites selected for development of sustainable landscaping projects may vary due to climate, soil type, topography, water courses, agricultural and industrial production, and human population and activities.

Describe SIX specific features that should be included in any design for sustainable landscaping development.

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[6 marks]

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- (c) Suggest how a family can benefit **socially** from a sustainable landscaping project. Your answer should include SIX benefits.

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[6 marks]

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6. Discuss how the global positioning system (GPS) can be used to increase the efficiency of agriculture production. Include in your essay, a description of how GPS is used to create the specific technology for agriculture and FOUR ways in which this technology is applied to improve the efficiency of agriculture production.

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[Dotted lines for writing]

[15 marks]

Total 15 marks

END OF TEST

IF YOU FINISH BEFORE TIME IS CALLED, CHECK YOUR WORK ON THIS TEST.

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