# **FORM TP 2021048**



TEST CODE **01203020** 

MAY/JUNE 2021

## CARIBBEAN EXAMINATIONS COUNCIL

# CARIBBEAN SECONDARY EDUCATION CERTIFICATE® EXAMINATION

AGRICULTURAL SCIENCE
(Single Award)

Paper 02 - General Proficiency

2 hours

#### READ THE FOLLOWING INSTRUCTIONS CAREFULLY.

- 1. This paper consists of SIX questions in three 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.
- 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 the 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 I**

# Answer ALL questions.

1. (a) (i)	Explain the difference between 'fixed cost' and 'variable cost'.
	(Single Award)
	Paper 02 - General Projectory
	THOS.
	(2 marks)
(ii)	Define the term 'partial budget'.

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(b) Farmer Khalil operates a two-acre vegetable farm. He wants to expand his farm to five acres but is not sure if he should operate a mixed farm, or grow only vegetables. Table 1 shows the budget information for a mixed farm and a vegetable farm, which Farmer Khalil needs to consider in order to make a decision.

TABLE 1: BUDGET FOR A MIXED FARM AND A VEGETABLE FARM

Option A: Mixed Farm		Option B: Vegetable Farm	
	\$		\$
Income	9 000	Income	15 000
Variable costs	6 000	Variable costs	12 000
Gross margin	3 000	Gross margin	3 000
Fixed costs	500	Fixed costs	4 000
Net profit	2 500	Net profit	(1 000)

a)	Based on the information presented in Table 1, which of the options, a
	mixed farm or a vegetable farm, should Farmer Khalil operate?
	/
	(1 mark)
b)	Using evidence from the table, explain TWO reasons for your choice in a). Your explanation <b>must</b> compare one option with the other.
	C. marks.
	(4 marks)
	(4 marks)

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(i)



			MULHAL KARA	
	income	000 0	Income	
12 000				
	Net profit	EARD V		



<b>2.</b> (a)	(i)	Define the term 'trade agreement'.
		The state of the s
		(2 marks)
	(ii)	CARICOM has a number of trade agreements with other countries. Give an example of ONE such trade agreement.
		(1 mark)
	(iii)	Jaya is a major producer of agricultural products. She has been trying to export to the United Territories without success. The Ministry of Agriculture has just advised her that her country has signed a trade agreement with the United Territories.
		Suggest THREE advantages of this trade agreement to Jaya's business.



(b)	Henry is an egg farmer. He sells eggs to a supermarket in a nearby city. The purchasing manager at the supermarket recently complained that Henry's eggs are being returned by customers. The eggs are sometimes cracked and the trays have many different-sized eggs. The purchasing manager has given Henry two weeks to improve on the quality of eggs that are delivered to the supermarket.  Outline TWO measures that Henry should take to improve the quality of eggs sold to the supermarket.
	Measure
	Explanation
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	Measure
	Explanation
	(4 marks)
	Total 10 marks



3.

#### **SECTION II**

## Answer ALL questions.

опісе	er visits her field and indicates that the tomato plants are affected by powdery mildew.
(a)	Other than a decrease in yield, state TWO symptoms of powdery mildew in tomatoes.
	Netrod
	Explanation 0
	(2 mark
(b)	State the name of the causative agent of powdery mildew.
	(1 mar

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(c)	Explain THREE methods that Farmer Mary can use to control the powdery mildew in her tomato crop.
	Method
	Explanation
	Concerns in decrease in yield, state 1 WO symptoms of providing mildow
	Method
	Explanation
	Method
	Explanation
	(6 marks)
(d)	Suggest ONE way in which powdery mildew can spread or be transmitted throughout Farmer Mary's tomato field.
	(1 mark)
	Total 10 marks



4.

wan	ner Gerona recently cleared ten hectares of flat land and plans to produce a crop of beans. She is to carry out only primary tillage on her field. However, her friend, Farmer George, tells her she also needs to do secondary tillage.
(a)	State THREE advantages of primary tillage.
	11 day in a constraint same
	(3 marks)
(b)	Suggest THREE reasons why Farmer Gerona must also do secondary tillage before planting.
	in
	(3 marks)
	(5 marks)

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Farmer Gerona attaches a seeder/planter to ner tractor which she uses to sow the beam seeds directly into the ground.
Suggest FOUR benefits Farmer Gerona would derive from the use of this mechanical seeder/planter for planting her crop.
Slubed
(a) Supplied HHHE reasons who takes Commandistance to secondary fellogol
(4 marks)
Total 10 marks



#### SECTION III

## Answer ALL questions.

٥.	'prod	uction ration' for many classes of	animals.	feed mill produces
	(a)	Define the term 'production ration	ion'.	
		4.0	Cando In Section 1	
		u.t	Crade Black	
		61 1 1 1 1 2 2 2 2	Minerals San electrical	
		of months shrinds and because A	ich of the law laws of local is BETTE	łw
			Indicated to the second of the second	29.6
				(2 marks)

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(b) Farmer Andy received two different bags of poultry feed from Livestock Feed Mill with labels showing the constituents of the feed, as presented in Table 2.

TABLE 2: CONSTITUENTS OF TWO TYPES OF POULTRY FEED

Constituent	Feed A (%)	Feed B (%)	
Crude protein	20.0	23.0	
Crude fat	2.5	4.0	
Crude fibre	3.0	3.0	
Minerals	1.3	1.6	

Which of the two types of feed is BETTER suited for broiler birds at four to six weeks of

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(3 marks)



(c) Farmer Sunita rears layer birds for table eggs. She uses the equipment shown in Figure 1 to prepare her eggs for the market.

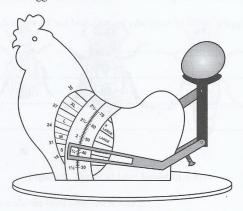


Figure 1. Equipment used in preparing eggs for the market

	State the name of the equipment shown in Figure 1.	i)
(1 mark)		
gs for the market.	Explain why this equipment is necessary when preparing table egg	i)
	¥	
(2 marks)		

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Suggest TWO reasons why eggs should not be washed.	
suggest 1 wo reasons why eggs should not be washed.	
7.7×3	
	(2 marks)
	Total 10 marks



6. (a) Figure 2 shows the types of bees found in a hive.

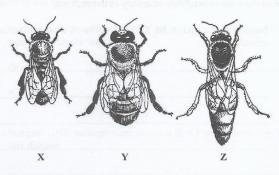


Figure 2. Types of bees found in a hive

· · ·	ALTHUR DESCRIPTION OF THE PROPERTY OF THE PROP	
(i)	Identify the bees labelled X and Z.	
	X	
	Z	
		(2 marks)
(ii)	What is the function of the bee labelled Y?	
		(1 mark)

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(b)	Farme office	er Asha wants to improve the yield of fruits in her citrus orchard. The extension radvises her to establish an apiary in the orchard.
	(i)	Suggest to Farmer Asha TWO benefits of establishing an apiary in her citrus orchard.
		(agare 2, f) gres of here to the a take
		(i) Ideality to been labelled X and &
		(2 marks)
	(ii)	Farmer Asha realizes that beekeeping is a profitable business and wants to increase the size of her apiary. She decides to establish additional hives next to a vegetable farm. However, she observes that the yield of honey from the hives next to the vegetable farm is lower than that of the hives located in the orchard.
		Suggest TWO reasons why the yield of honey in the hives located close to the vegetable farm is lower than that of those located in the orchard.
		(2 marks)
		(2 marks)



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(c)	While the co	inspecting one of her hives, Farmer Asha observes that many of the sealed cells in mbs of the brood box are dark brown and produce a foul smell.
	(i)	Identify the disease from which the bees are MOST likely suffering and state the agent that causes the disease.
		Disease
		Agent
	(ii)	Suggest ONE management practice that Farmer Asha can implement to control this disease.
		(1 mark)
		Total 10 marks

#### **END OF TEST**

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

