

MAY/JUNE 2016

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 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 A

Answer ALL questions.

1. (a) Figure 1 depicts a particular active transport mechanism in which specific ions are bound and released.

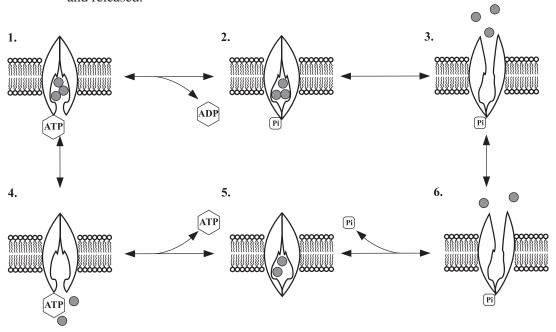


Figure 1. Diagrammatic representation of an active transport mechanism

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	[1 mark
De	scribe the activities at 1, 2, 3, 4, 5 and 6 in Figure 1.
1.	
2.	
3.	
1.	
5.	
5.	
	[6 marks

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		[1 mar Total 15 mar	k]
			••••
		intensity and high temperatures?	
	(ii)	Why do C4 plants have better water use efficiency than C3 plants under high light	_
		[2 mark	
			••••
(c)	(i)	Explain why photosynthesis is faster in C4 plants than in C3 plants.	
		[2 mark	
			••••
	(iii)	Briefly explain why the Calvin cycle requires ATP and CO ₂ .	
		[2 mark	
			••••
	(11)		
	(ii)	What is the difference between cyclic and noncyclic photophosphorylation?	v]
		[1 mar	 J-1
(b)	(i)	Name the photosynthetic process which occurs in the stroma of the chloroplas	t.

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2.	attracti	are several gated communities developing throughout the islands of the Caribbean. The ons of these modern dwelling centres are the green spaces, which include rooftop farming ner urban and peri-urban agriculture practices. In many instances, natural flora is destroyed blish the gated communities.
	(a)	Explain TWO ways, other than aesthetic value, in which green spaces may contribute to the environment.
		[4 marks]
	(b)	Describe TWO factors that should be considered when choosing a site for a rooftop garden

[4 marks]

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(c)	Explain TWO economic benefits of rooftop farming.
	[4 marks]
(d)	Suggest THREE aesthetic values that families in the gated communities derive from the rooftop farming.
	[3 marks]

Total 15 marks

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3.	(a)	State what is meant by a 'transgenic organism'.	
			[1 mark]
	(b)	Explain TWO disadvantages of genetically modified organisms (GMOs).	
	(c)	Identify FOUR advantages of GMOs.	[4 marks]
	(c)	identify FOOK advantages of GMOs.	
			[4 marks]

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(d)	Briefly describe THREE advertising and promotion strategies that could be used to introduce genetically modified foods to the Caribbean.
	[6 marks]

Total 15 marks

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SECTION B

Answer ALL questions.

4.	(a)	The horticulture industry consists of several different types of commercial operations. Identify ONE example of a businessperson in support services and ONE example of a businessperson in marketing, for a named type of horticulture. For EACH example, state TWO functions of the businessperson.
		[6 marks]

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(b)	With reference to any THREE practices used in greenhouse production of vegetables, explain how these practices could be improved to lower costs, in order to make production more profitable.
	[9 marks]

Total 15 marks

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5.	(a)	Suggest FIVE ways in which a turfgrass surface contributes to the playing and to the spectatorship of cricket.
		[5 marks]

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)	Explain FIVE practices used in the maintenance of turfgrass that enhance the quality of cricket fields.
	[10 marks]

Total 15 marks

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6.	Discuss the contribution of seed production, mist propagation and micropropagation techniques to agriculture in the Caribbean.

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[15 marks]

END OF TEST

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

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Total 15 marks