Variation

Question Paper 2

Level	International A Level
Subject	Biology
Exam Board	CIE
Topic	Selection and evolution
Sub Topic	Variation
Booklet	Theory
Paper Type	Question Paper 2

Time Allowed: 68 minutes

Score : /56

Percentage: /100

Grade Boundaries:

A*	А	В	С	D	E	U
>85%	'77.5%	70%	62.5%	57.5%	45%	<45%

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1 The Great Lakes, in North America, lie between the USA and Canada. A survey of birds of the Lake Ontario area has shown the relative abundance of birds between 1995 and 2005.

Table 1.1 shows the feeding habits and the relative change in numbers of some of the birds in the survey.

Table 1.1

name	feeding habit	percentage change in numbers between 1995 and 2005
mallard Anas platyrhynchos	amphibia, plants	+10.0
tree swallow Tachycineta bicolor	flying insects	-6.2
blue-winged teal Anas discors	aquatic insects, molluscs, plants	-12.3
pied-billed grebe Podilymbus podiceps	amphibia, aquatic insects, fish	-15.9
black tern Chlidonias niger	aquatic insects, fish, flying insects	-18.7

(a)	Using the information in Table 1.1 suggest reasons for the changes in numbers of these birds.			
	[4]			

(b)	An ecosystem that has a wide range of species has a high biodiversity.				
	Explain the benefits of maintaining biodiversity.				
	[4]				
	[Total: 8]				

2 (a) A 50-year study of marine animal biodiversity in the coastal waters of Canada was carried out.

The percentage decrease in the number of marine animal species between 1950 and 2000 is shown in Fig. 1.1.

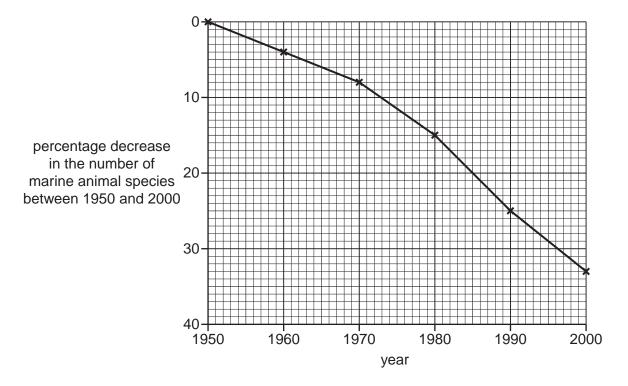


Fig. 1.1

1950 and 2000.	
[3]	1
[O]	1

Suggest explanations for the decrease in the number of marine animal species between

(b)	Explain what is meant by the term biodiversity.
	[2]
(c)	Discuss the benefits of maintaining the biodiversity of a marine ecosystem, such as that in the coastal waters of Canada.
	[3]
	[Total: 8]

3	(a)	Describe the structure of ATP and the role of ATP as the energy currency in all living organisms. [8]
	(b)	Outline anaerobic respiration in mammalian cells and describe how it differs from anaerobic respiration in yeast cells. [7]
		[Total: 15]

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Fig. 2.1 is a diagram of pair of homologous chromosomes during meiosis.

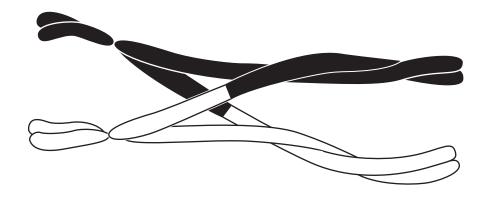


Fig. 2.1

(a)	State what stage of meiosis is shown.
	[1]
(b)	Describe what has occurred between the two homologous chromosomes.
	[3]
(c)	Explain how this can lead to variation.
	[2]
(d)	Describe two other sources of variation that are possible as a result of meiosis.
	[4]

[Total: 10]

5	(a)	Describe the role of auxins in apical dominance.	[6]
	(b)	Explain the role of gibberellins in the germination of wheat or barley.	[9]
			[Total: 15]

