# **Biodiversity**

### **Question Paper 8**

Level	International A Level
Subject	Biology
Exam Board	CIE
Topic	Biodiversity, classification and conservation
Sub Topic	Biodiversity
Booklet	Theory
Paper Type	Question Paper 8

Time Allowed: 41 minutes

Score : /34

Percentage: /100

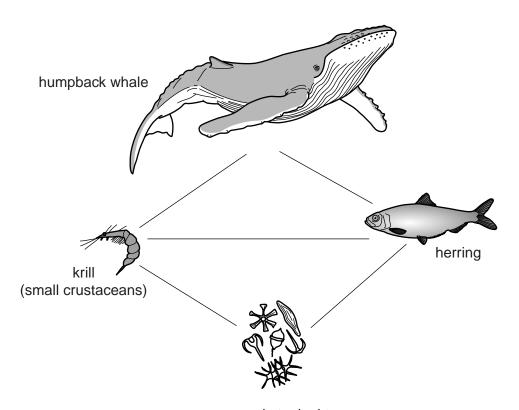
#### **Grade Boundaries:**

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

1 The humpback whale, *Megaptera novaeangliae*, is one of the world's largest aquatic mammals. It can grow to a length of up to 15 metres and a mass of up to 36 000 kg. A large proportion of the mass of a humpback whale is a very thick layer of fat-filled cells stored under the skin, called blubber.

The humpback whales are seasonal feeders. They feed in polar regions during the summer and then migrate to warmer temperate and tropical waters to mate and have their young during the polar winter.

(a) One reason that the humpback whale has managed to reach its enormous size is because it is a member of a simple food web. Fig. 3.1 is an example of such a food web.



not drawn to scale

phytoplankton (very small photosynthetic organisms)

Fig. 3.1

(ii) State the trophic level to which the humpback whale belongs.

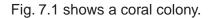
(i)	The humpback whale is a carnivore,	feeding on krill a	and herring.	The herring feed
	on krill.			

Add **arrow heads** to the lines drawn on Fig. 3.1 to show the direction of energy flow in the food web. [1]

 	-	•	
			F41
			111
			1

	(iii)	In terms of energy transfer, explain how the humpback whale is able to reach such a large size.
		[3]
(b)		thickness of blubber in humpback whales decreases during the non-feeding season increases during the feeding season.
	Sug	gest explanations for this observation.
		[2]
(c)		cribe the roles of water as an environment for organisms, such as those shown in 3.1.
		[3]

2 Corals are simple marine animals and usually exist in colonies of thousands of individuals.



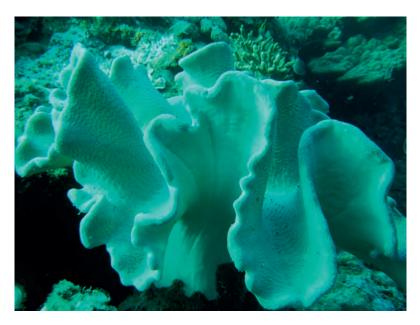


Fig. 7.1

Corals absorb calcium carbonate from the sea to build their skeletons, which help to form large coral reefs. Coral reefs provide a home for about 25% of known fish species and have the highest biodiversity of any marine ecosystem.

(a)	Corals, although they are animals, are sometimes mistaken for members of the plant kingdom.
	State <b>two</b> ways in which corals differ from plants.
	[2]
(b)	Outline what is meant by the term ecosystem.
	[2]

### Save My Exams! - The Home of Revision

For more awesome GCSE and A level resources, visit us at www.savemyexams.co.uk/

(c) Coral reefs are at risk of damage due to human activities. All the coral reefs in three regions were classified as being at low, medium or high risk of damage.

Table 7.1 shows the areas of coral reef at risk of damage in these three regions.

Table 7.1

ragion	area of coral re	percentage of coral reef at high		
region	low	medium	high	risk of damage
Caribbean Sea	9	8	7	29
Indian Ocean	20	15	10	
Pacific Ocean	60	30	9	

(i)	Complete Table 7.1, giving your answers to the nearest whole number. [1	]
(ii)	Suggest how human activities could damage coral reefs.	
		•
		•
		-
	[3	₹1
		']
	[Total: 8	3]

3	(a)	Explain the advantages to a plant species of cross-pollination compared to self-pollination.
		[3]

(b) Some of the most important food plants for humans depend on insect pollinators, such as the honeybee, Apis mellifera.

Fig. 7.1 shows a honeybee.



Fig. 7.1

A study was carried out in 2006 to show how four food crops are pollinated.



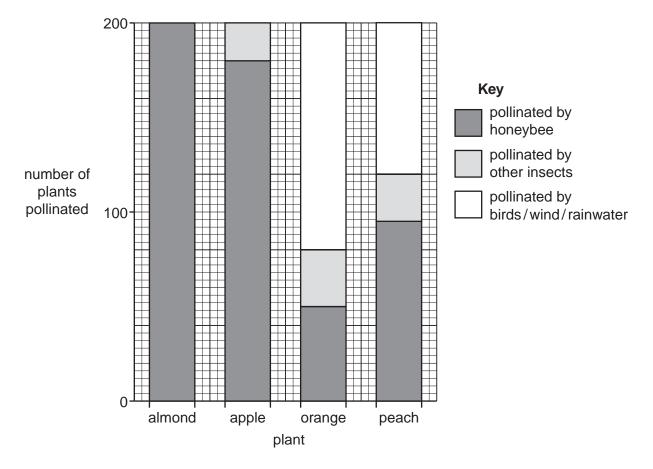


Fig. 7.2

The populations of honeybees in some parts of the world have declined in recent years.

(i)	With reference to Fig. 7.2, <b>explain</b> which crop will be most affected <b>and</b> which c will be least affected by the decline in honeybees.	rop
	most affected	
	least affected	
		roi

(ii)	Suggest reasons why honeybee populations have declined.
	[3]
	[Total: 8]

4 (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.

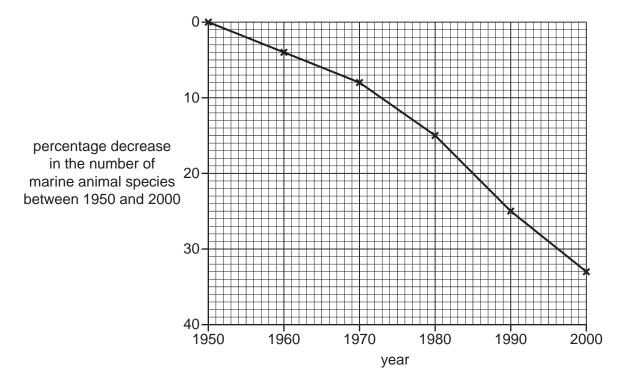


Fig. 1.1

1950 and 2000.	
	[3]

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]