Cambridge Assessment International Education

Cambridge IGCSE™

CANDIDATE NAME									
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0123456789

MARINE SCIENCE **0697/01**

Paper 1 Theory and Data Handling **For examination from 2024**

SPECIMEN PAPER **1 hour 45 minutes**

You must answer on the question paper.

No additional materials are needed.

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- You may use a calculator.
- You should show all your working and use appropriate units.

INFORMATION

- The total mark for this paper is 80.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **18** pages. Any blank pages are indicated.

1 Fig. 1.1 shows migration routes of humpback whales.

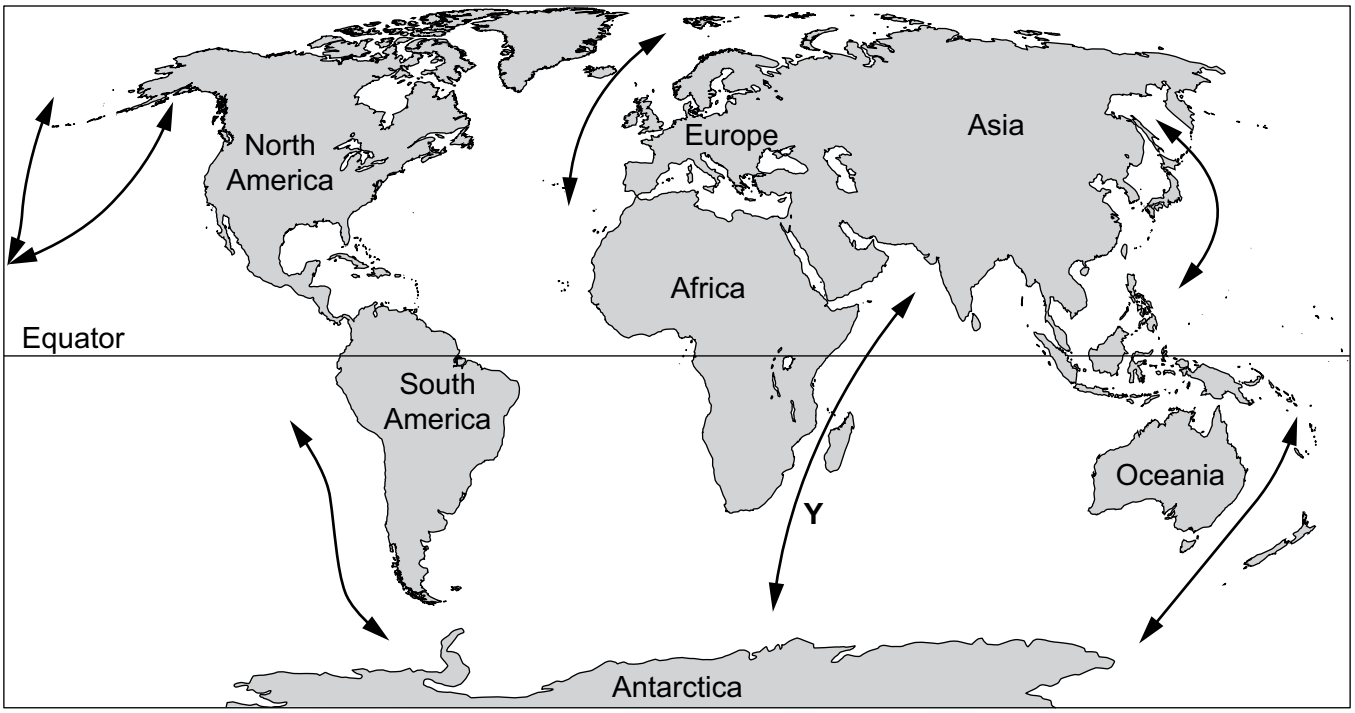

Fig. 1.1

(a) (i) Migration route **Y** represents the movement of one whale.
State the names of the **two** oceans between which this whale migrates.

1 .....

2 .....
[2]

(ii) State **two** reasons why whales migrate.

1 .....

.....

2 .....

.....
[2]

(iii) State **two** methods the whale may use to find its way when migrating.

1 .....

2 .....
[2]

(b) A whale dives through the pelagic zone to a depth of 2000 m.

(i) State the names of the **three** zones the whale dives through.

1 .....

2 .....

3 .....

[3]

(ii) Describe the changes in temperature and light as the whale dives to 2000 m.

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..... [4]

[Total: 13]

2 **(a)** Fig. 2.1 shows a cell from a seagrass plant.

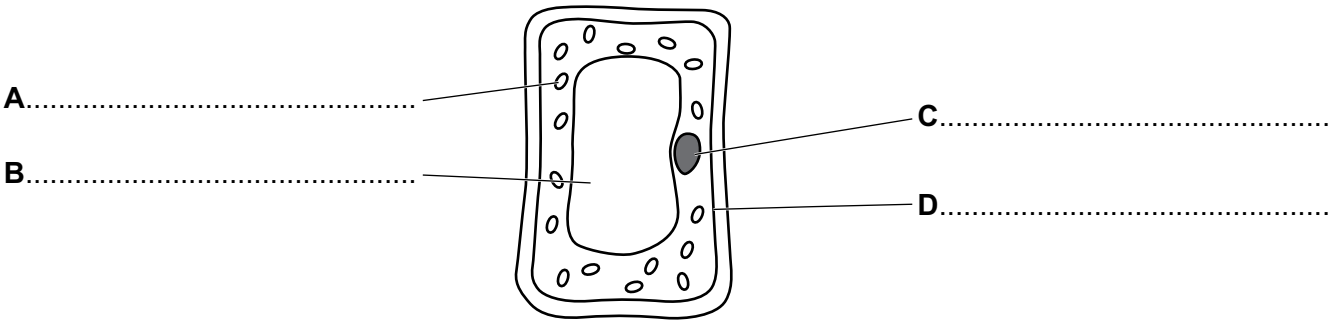

Fig. 2.1

(i) Identify the structures labelled **A**, **B**, **C** and **D** on Fig. 2.1.
Write your answers on Fig. 2.1. [3]

(ii) Aerobic respiration occurs in cells.

State the **word** equation for aerobic respiration.

.....

..... [2]

(b) Describe **three** ways an animal cell differs from the plant cell shown in Fig. 2.1.

1 .....

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2 .....

.....

3 .....

.....

[3]

(c) Manatees are sirenian mammals that feed on seagrass.

(i) State **two** features of sirenians that identify them as mammals.

1 .....

2 .....
[2]

(ii) Manatees obtain essential elements from eating seagrass.

Name **two** of these essential elements. For each element state its biological role in an animal such as a manatee.

essential element .....

biological role .....

essential element .....

biological role .....
[4]

[Total: 14]

3 Fig. 3.1 shows part of a food web. The numbers show the total energy for organisms at each trophic level in arbitrary units, a.u.

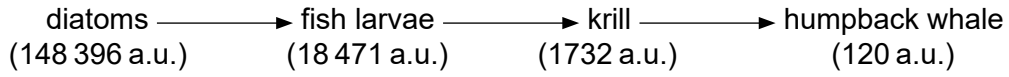

Fig. 3.1

(a) Squid eat krill. Squid are eaten by humpback whales.

Add this information to Fig. 3.1. [1]

(b) **(i)** The numbers in Fig. 3.1 show the total energy in each trophic level.

Calculate the difference between the energy held in trophic level 2 and trophic level 3.

..... a.u. [1]

(ii) State **two** reasons for the loss of energy between trophic levels.

1 .....

2 .....
[2]

(c) Suggest why detritivores are **not** usually included in food webs.

.....

.....

.....

..... [2]

[Total: 6]

4 **(a)** Leatherback turtles are an endangered species.

State what is meant by an endangered species.

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..... [1]

(b) Outline the life cycle of the leatherback turtle.

.....

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..... [5]

(c) Leatherback turtles are often disturbed at their beach nesting sites.

The pie chart in Fig. 4.1 shows the number and type of disturbances at a leatherback nesting site on one night.

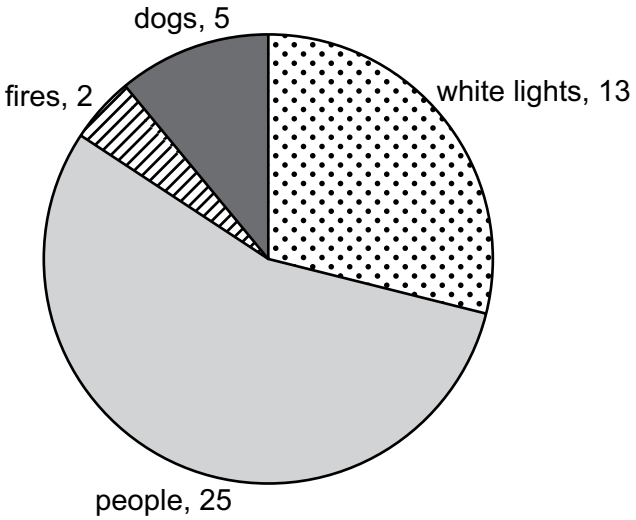

Fig. 4.1

(i) Calculate the disturbances due to white lights as a percentage of total disturbances. Show your working.

.....
[2]

(ii) Suggest why white lights on the beach at night disturbs turtle breeding.

.....

..... [1]

(iii) Scientists estimate that fewer than 0.05% of turtle eggs laid reach adult maturity.

Suggest **three** reasons, caused by humans, for turtle deaths in the oceans.

1 .....

2 .....

3 .....
[3]

[Total: 12]

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5 **(a)** Fig. 5.1 shows some names and diagrams of fishing methods.

(i) Draw **one** line from the name of each fishing method to the diagram of that method. You should draw **four** lines.

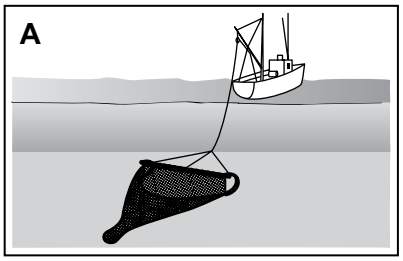
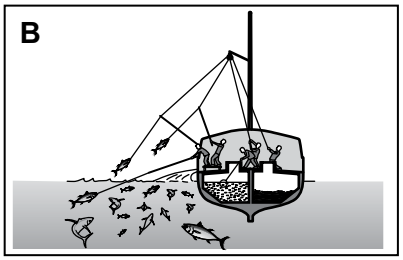
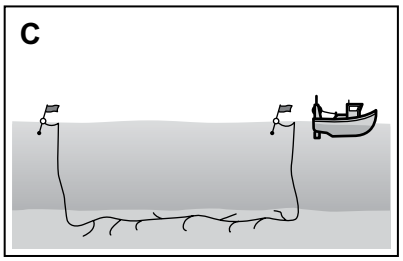
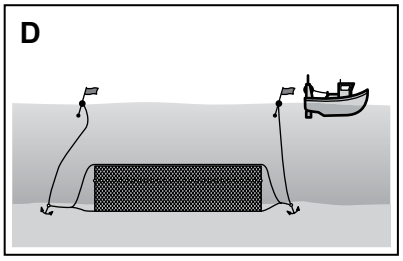
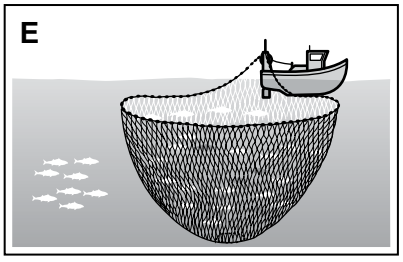
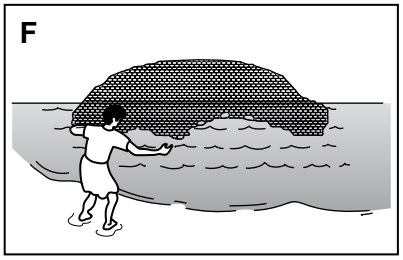
fishing method	diagram of fishing method
pole and line	A 
	B 
seine nets (purse seine)	C 
	D 
cast netting	E 
longlining	F 

Fig. 5.1 [3]

(ii) Explain a harmful environmental impact of method **A**.

.....

.....

.....

..... [2]

(iii) State the letters of the **two** methods that have the least harmful environmental impact.

..... and ..... [1]

(b) Using quotas is a method of maintaining sustainable harvesting of fish.

(i) Explain the use of quotas in maintaining harvesting at sustainable catch levels.

.....

.....

.....

..... [2]

(ii) Describe the effects of using quotas on fish stock levels.

.....

.....

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..... [2]

[Total: 10]

6 **(a)** Fig. 6.1 shows some of the changes in the positions of the Earth's land masses over the last 250 million years.

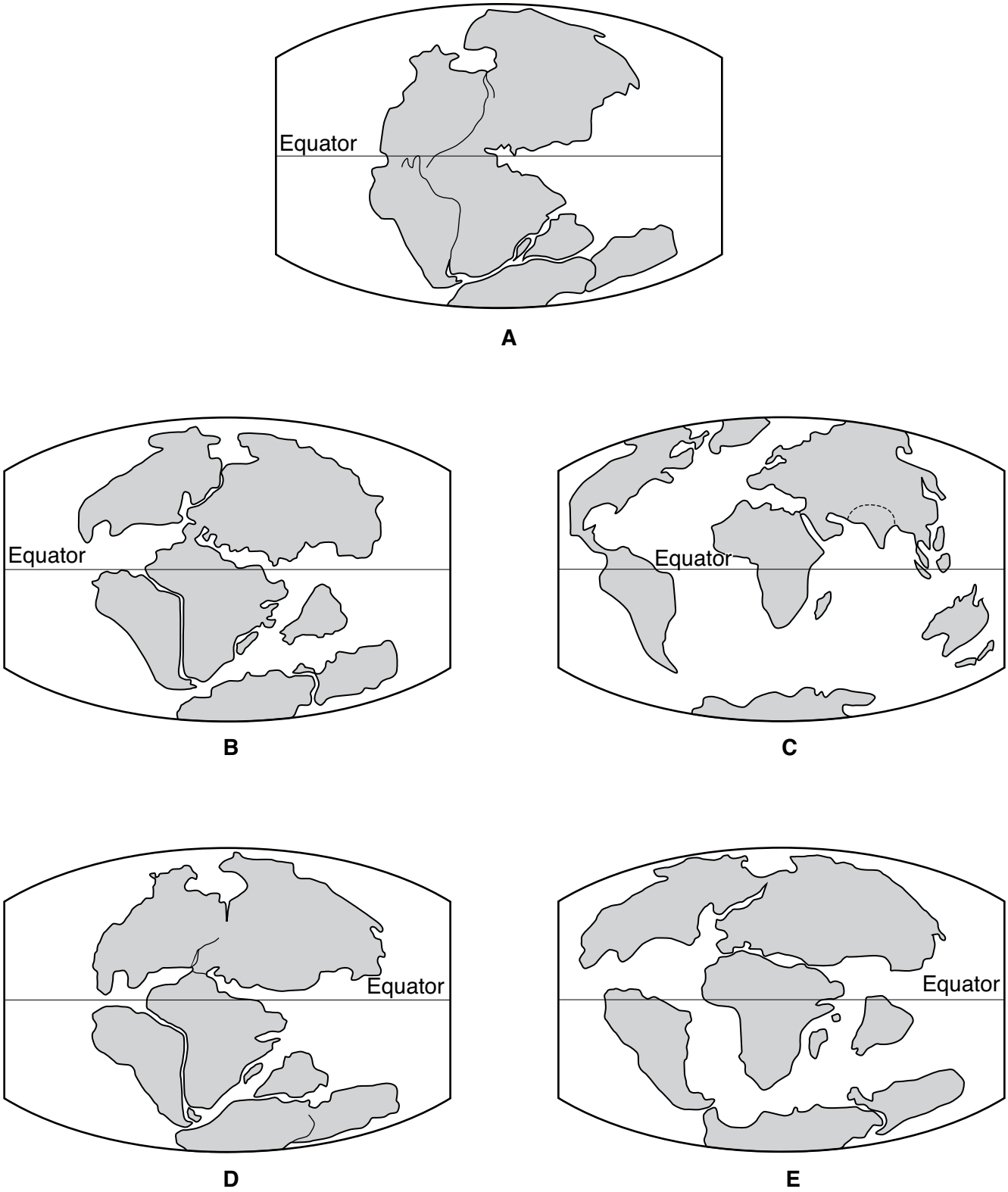

Fig. 6.1

Complete Table 6.1 to show the order the changes in the positions of the Earth's land masses occurred. One has been completed for you.

Table 6.1

order	diagram
1	
2	
3	
4	
5	**C**

[2]

(b) Navigators use maps and charts to safely travel the world's oceans.

(i) List **three** other navigational aids.

1 .....

2 .....

3 .....

[2]

(ii) Charts and maps are divided up by two sets of lines, which are used to locate the position of a place.

Name each set of lines and describe how they locate position.

1 .....

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2 .....

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[3]

[Total: 7]

7 Fig. 7.1 shows a diagram of the water cycle.

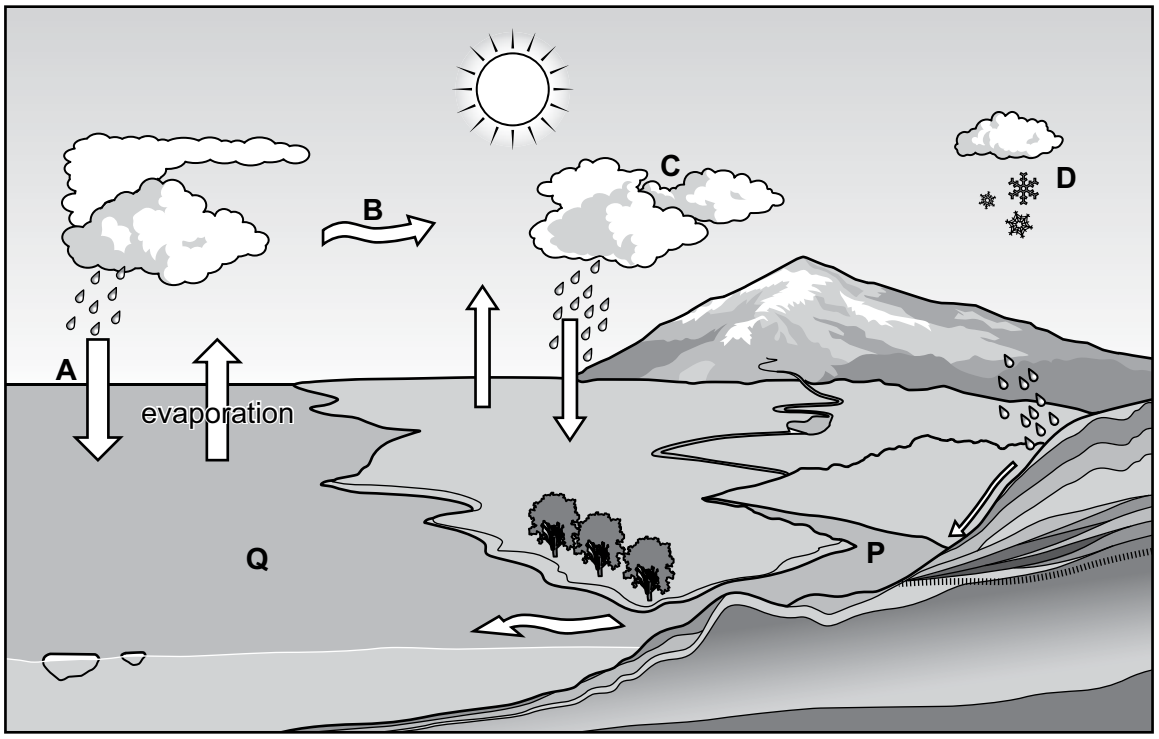

Fig. 7.1

(a) (i) State the letter in Fig. 7.1 which shows where condensation occurs.

letter ..... [1]

(ii) Suggest **three** ways the water at **P** is different from the water at **Q**.

1 .....

.....

2 .....

.....

3 .....

.....

[3]

(b) (i) Explain why the rate of evaporation from a polar ocean differs from the rate of evaporation from a tropical ocean.

.....

.....

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..... [3]

(ii) Explain how **and** why the density of water in polar oceans differs from the density of water in tropical oceans.

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.....

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..... [2]

[Total: 9]

8 **(a)** Fig. 8.1 shows some of the abiotic factors that affect marine organisms on a sandy shore.

Complete Fig. 8.1 with **three** other **abiotic** factors that affect marine organisms on a sandy shore. [3]

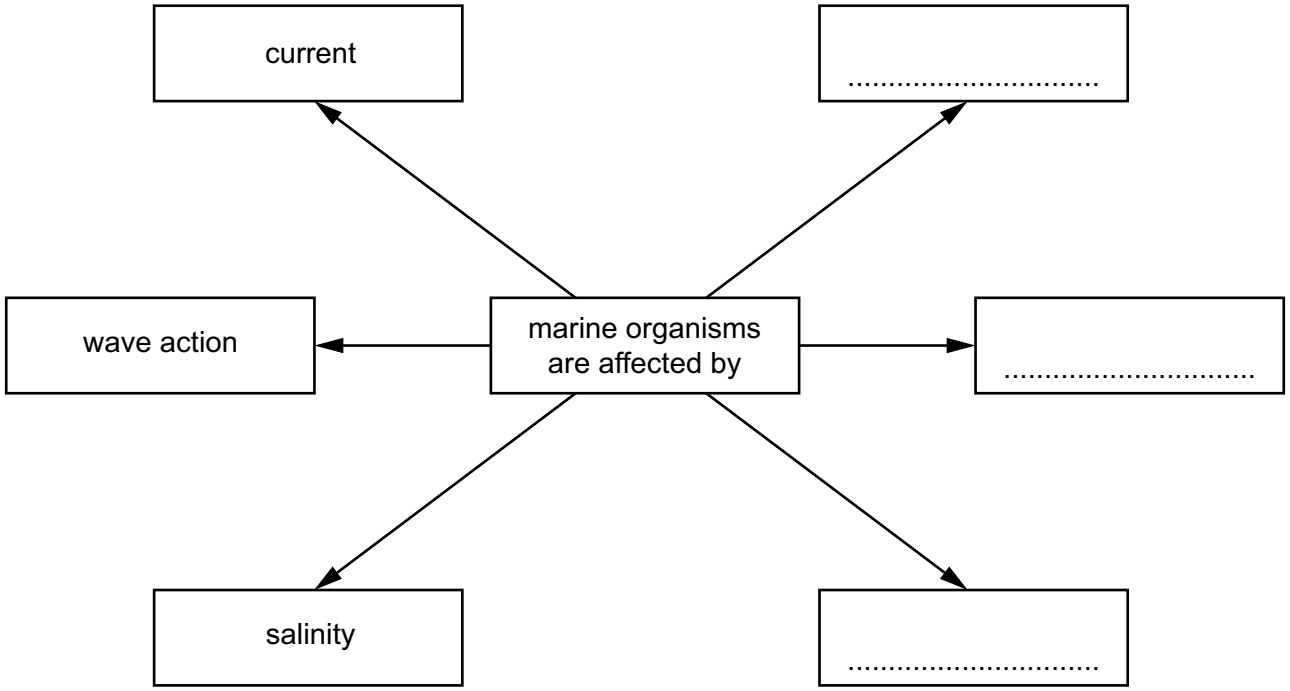

Fig. 8.1

(b) Fig. 8.2 shows organisms on a rocky shore.

Fig. 8.2

Fucus sp. and kelp are macroalgae (seaweed).

Describe how abiotic and biotic factors affect the distribution of macroalgae on a rocky shore.

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..... [6]

[Total: 9]

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