Cambridge O Level

Cambridge International Examinations
Cambridge Ordinary Level

CANDIDATE NAME	

CENTRE NUMBER						CANDIDATE NUMBER					

* 0 9 1 5 3 6 5 5 9 4 *

ENVIRONMENTAL MANAGEMENT **5014/11**

Paper 1 **May/June 2017**

2 hours 15 minutes

Candidates answer on the Question Paper.

No Additional Materials are required.

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Answer **all** questions.

Electronic calculators may be used.
You may lose marks if you do not show your working or if you do not use appropriate units.

Write your answers in the spaces provided on the Question Paper.

All questions in Section A carry 10 marks.
Both questions in Section B carry 40 marks.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

This document consists of **22** printed pages and **2** blank pages.

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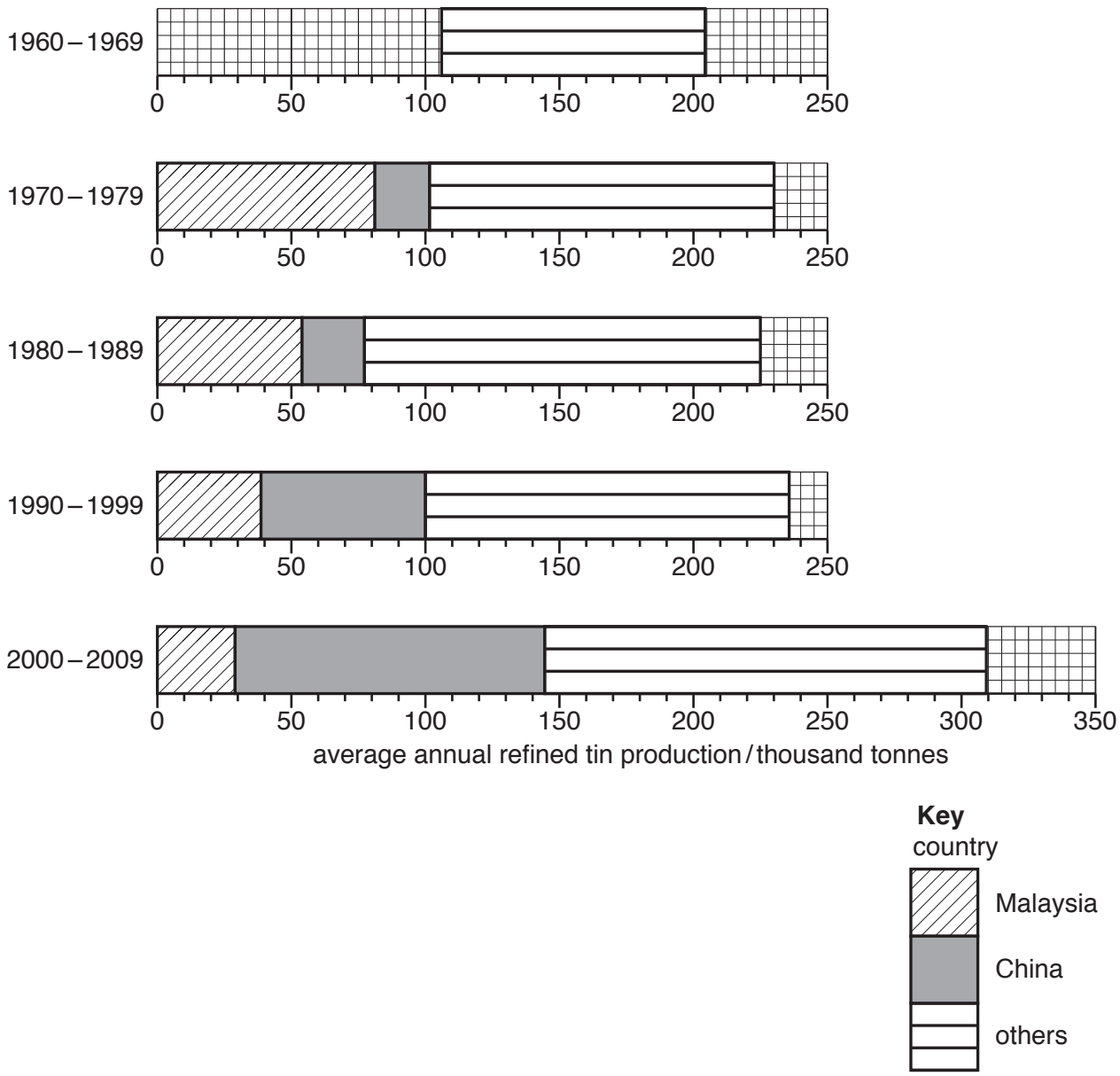
CAMBRIDGE International Examinations

Section A

Answer **all** the questions.

1 The diagram shows the average annual refined tin production for the world between 1960 and 2009. Each bar shows the average annual refined tin production for a ten-year period.



(a) **(i)** Use the table to complete the graph for 1960 to 1969. Use the key provided.

country	Malaysia	China
average annual refined tin production / thousand tonnes	80	26

[2]

(ii) State the average annual refined tin production for China during the period 1990 to 1999.

..... thousand tonnes [1]

(iii) Suggest why some tin ore reserves are **not** mined.

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.....[3]

(b) **(i)** Explain why mineral ores have to be refined.

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.....[1]

(ii) Describe ways of conserving mineral ore reserves.

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.....[3]

2 **(a)** The table gives information about safe water and sanitation in Cambodia. The targets for 2015 and 2025 were set in the year 2000. The actual percentage achieved by 2011 is also shown.

improvement	2011 actual percentage achieved	2015 target percentage	2025 target percentage
rural population with access to safe water	43.2	50.0	100.0
urban population with access to safe water	81.3	80.0	100.0
rural population with access to good sanitation	33.2	30.0	100.0
urban population with access to good sanitation	87.4	74.0	100.0

(i) State which improvement was closest to the 2025 target in 2011.

.....[1]

(ii) Calculate how far below the 2015 target the rural population with access to safe water was in 2011.

.....% [1]

(iii) Use evidence from the table to explain why, in 2011, the government of Cambodia was pleased with its progress in improving access to safe water and good sanitation.

.....

.....[1]

(b) Suggest why water authorities often make more improvements to water and sanitation in urban areas than in rural areas.

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.....[3]

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(c) Explain why water in ponds and irrigation canals in rural areas of developing countries is often a danger to human health.

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.....[4]

3 **(a)** The photograph shows a small-scale irrigation method.

(i) Describe the small-scale irrigation method shown in the photograph.

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.....[2]

(ii) Suggest why this irrigation method wastes water.

.....

.....[1]

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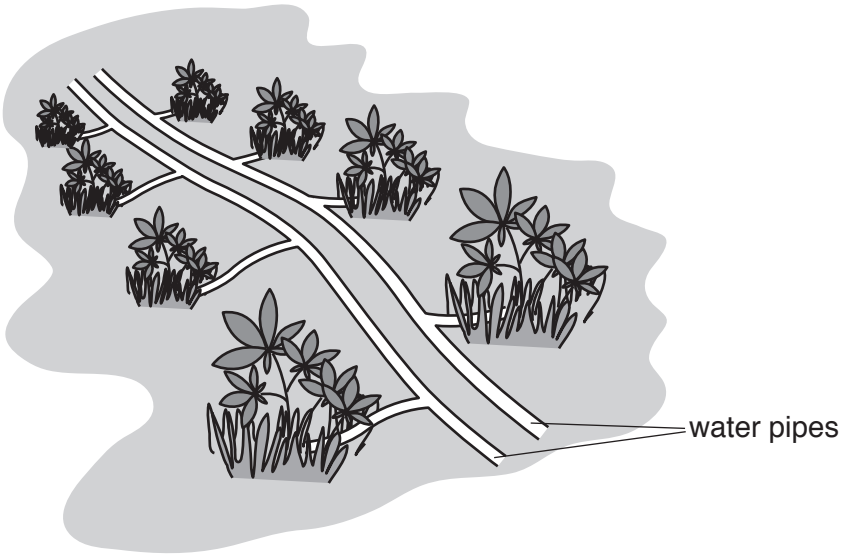
(b) The diagram shows another type of small-scale irrigation.



(i) Name the method of irrigation shown in the diagram.

.....[1]

(ii) Explain why the method of irrigation shown in the diagram wastes less water than the method shown in the photograph.

.....

.....[1]

(c) **(i)** Suggest why the method of irrigation shown in the photograph helps to reduce the risk of soil erosion.

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.....[2]

(ii) Explain why soil erosion can occur on land used for grazing.

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.....[3]

4 **(a)** This information is about an informal (shanty) settlement in an African country.

> At the edge of the city 9000 people live on just one square kilometre of very steep land. There is a mixture of semi-permanent and temporary housing, built by migrants who hope to find work in the city. Most of the housing lacks services. Many families grow crops on small plots and keep animals for food. They sell any surplus crops and animals. A main road goes through the centre of the settlement. Other roads are made of earth and are eroded and unsuitable for vehicles. There are many of these settlements because the country's population has grown very rapidly.

(i) Circle the word that describes the density of population in this settlement.

sparse **low** **medium** **high** [1]

(ii) Give **two** reasons why diseases spread quickly in this settlement.

.....

.....

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.....[2]

(b) State **four** pull factors, other than jobs, that attract migrants to cities in developing countries.

.....

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.....[4]

(c) Suggest why it is difficult for city authorities to improve living conditions in informal (shanty) settlements.

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.....[3]

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Section B

Answer **both** questions.

5 **(a)** State a weather instrument used to measure:

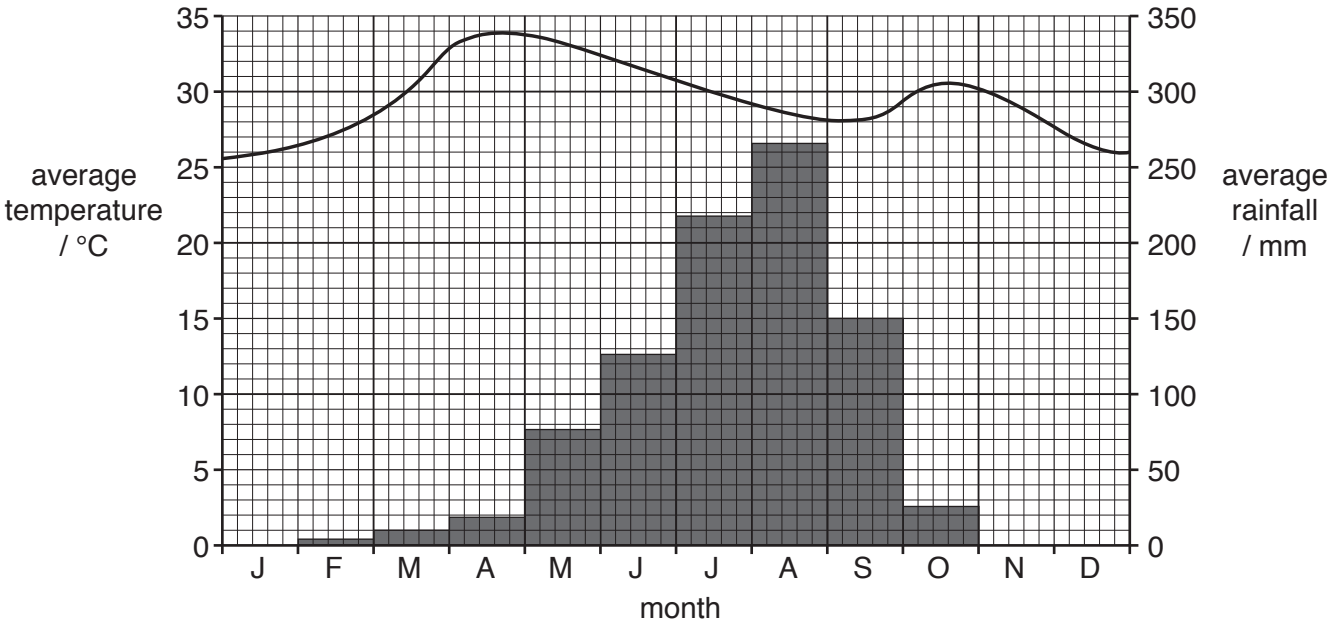
temperature .....

wind speed .....

atmospheric pressure .....

rainfall. ..... [4]

(b) The climate graph shows data for a weather station in a savanna climate.



(i) State the highest monthly rainfall and the month in which it occurs.

rainfall ..... mm

month ..... [2]

(ii) In the dry season monthly rainfall is less than 30 mm.

State the length of the dry season for this weather station.

..... months [1]

(iii) Describe the temperature pattern during the year.

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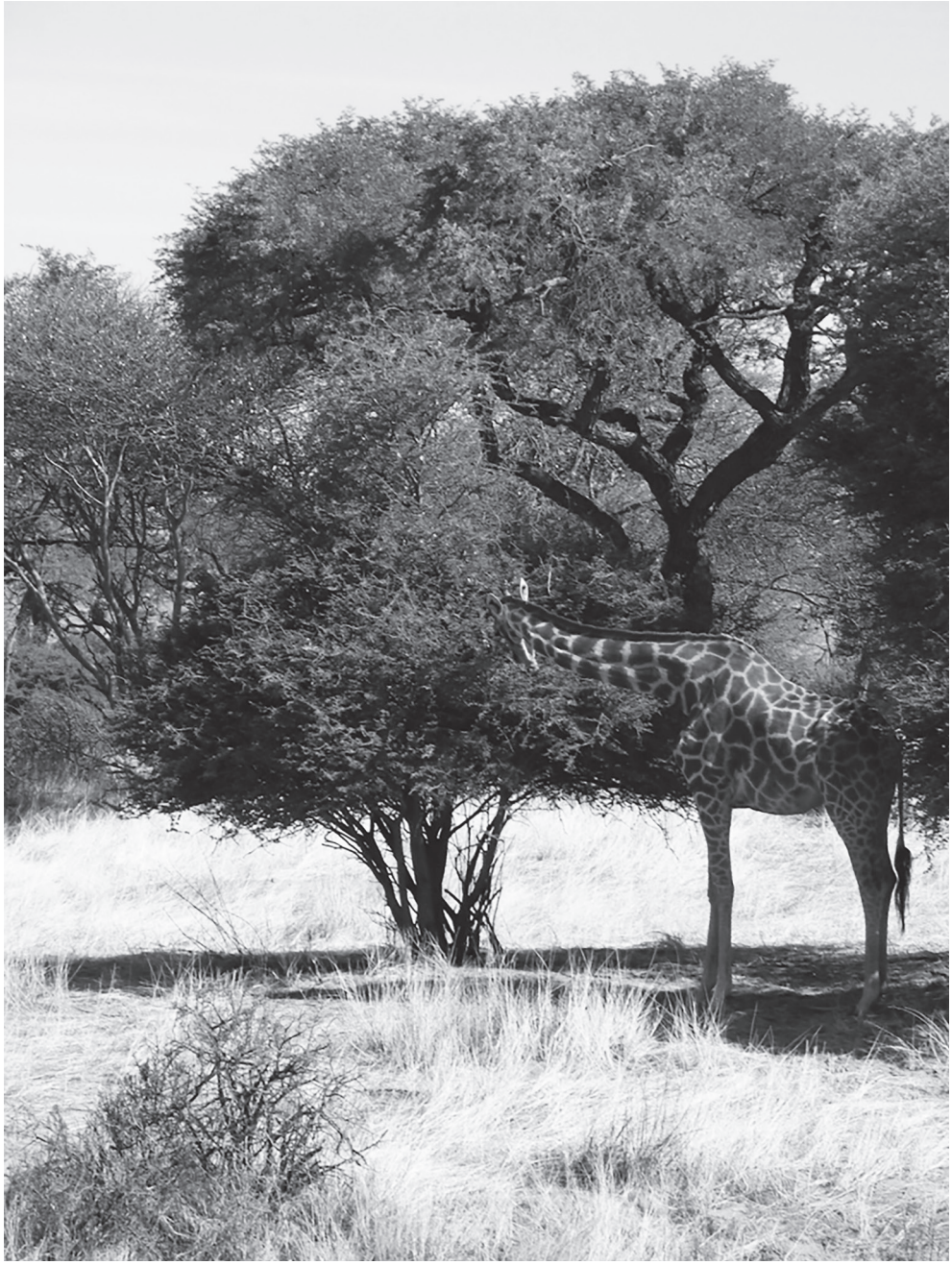
.....[3]

(c) The photograph shows a giraffe grazing on savanna vegetation in the dry season.



(i) Describe the vegetation shown in the photograph.

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.....[3]

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(ii) Suggest how the vegetation will change in the wet season.

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.....[2]

(iii) The photograph shows producers and a consumer.

Define both these terms.

producer .....

.....

consumer .....

.....
[2]

(iv) Parts of the savanna are increasingly being grazed by goats and cattle.

Suggest how this will affect the ecosystem shown in the photograph.

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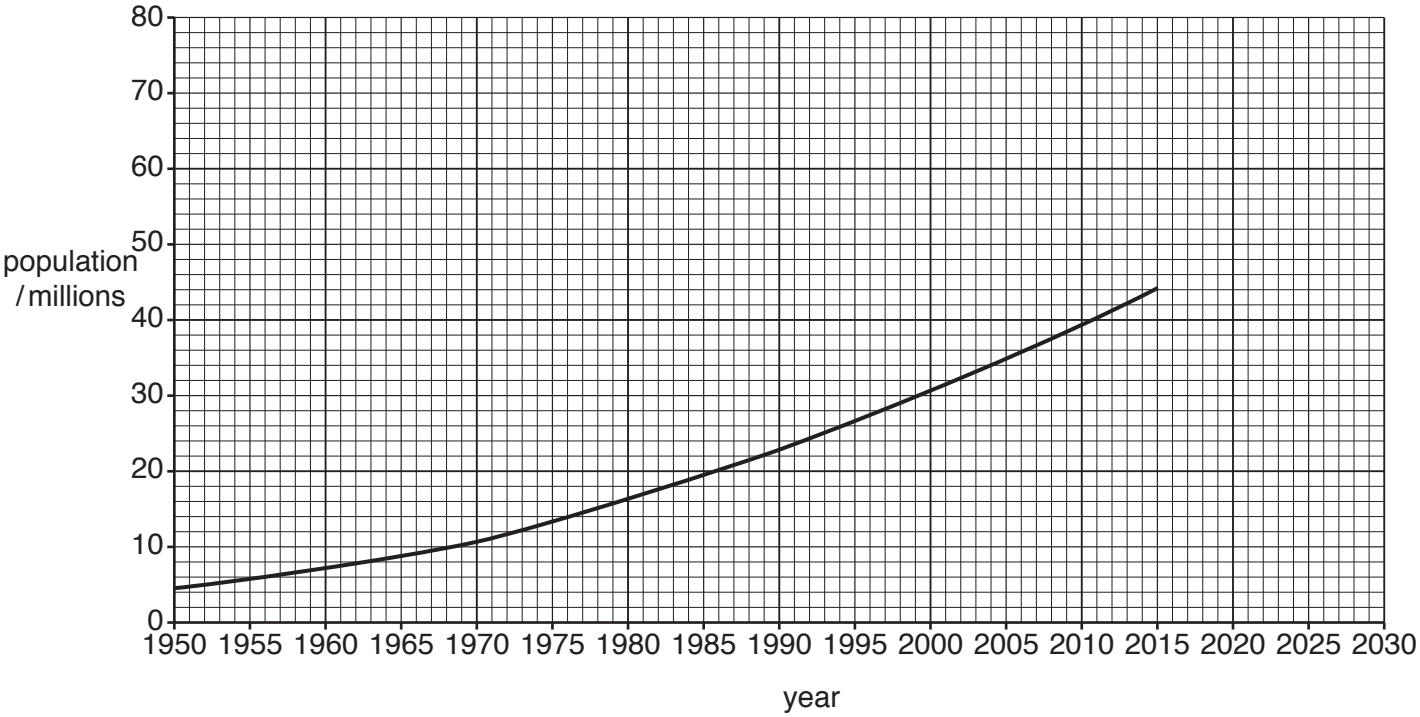
.....[4]

(d) The graph shows the population of Kenya from 1950 to 2015.



(i) State the population of Kenya in 1950 and in 2015.

population in 1950 ..... million

population in 2015 ..... million
[2]

(ii) Use the graph to predict the population of Kenya in 2030.

..... million [1]

(iii) Explain why population growth continues to increase rapidly in many developing countries.

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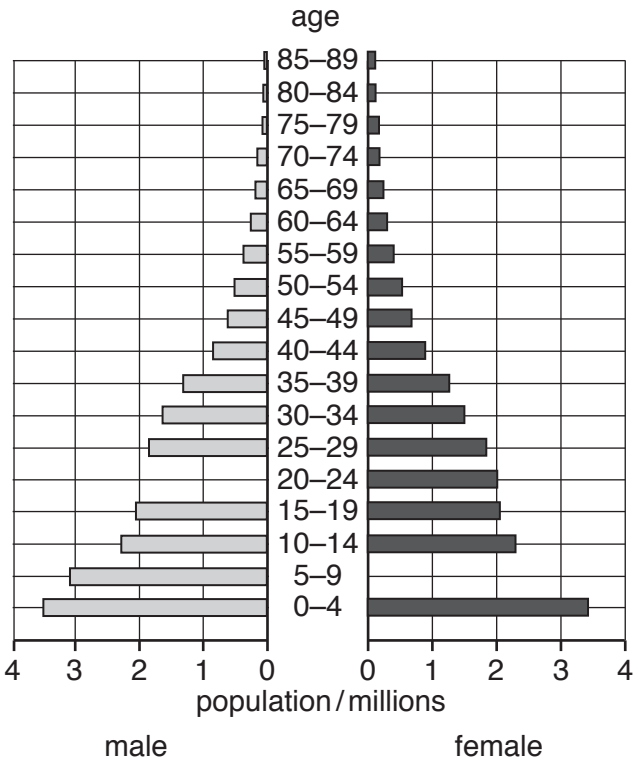
.....[4]

(e) The graph shows a population pyramid for Kenya in 2014.



(i) Complete the population pyramid by drawing in the two missing bars.

male age 20–24	2.0 million
female age 5–9	3.1 million

[2]

(ii) Suggest problems Kenya's government may face because of the population structure shown in the population pyramid.

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.....[4]

(f) 'Reducing the world's population growth is the best way to solve environmental problems.'

How far do you agree with this statement? Give reasons for your answer.

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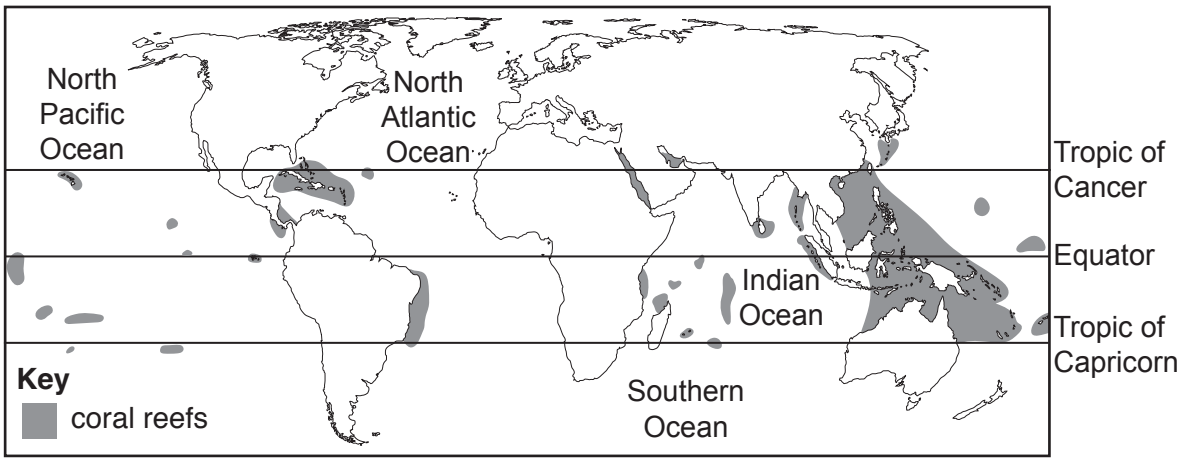
.....[6]

6 **(a)** The map shows the location of coral reefs.



(i) Describe the location of coral reefs as shown on the map.

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.....[3]

(ii) Suggest **one** reason why coral reefs are not found in the North Atlantic Ocean or the North Pacific Ocean.

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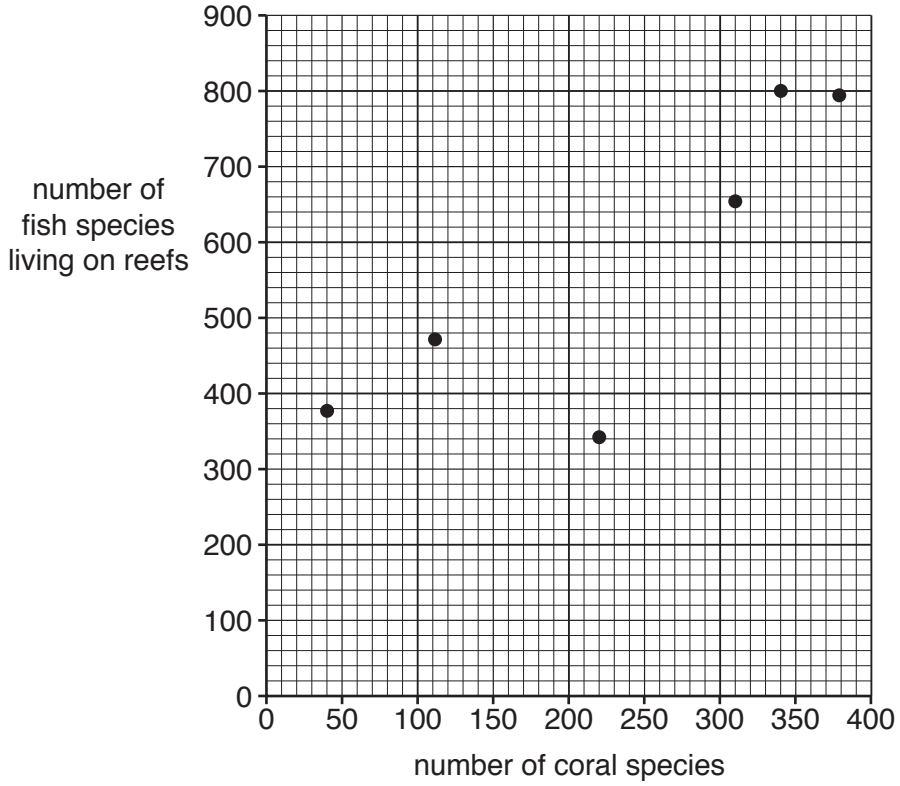
.....[1]

(b) The graph shows the number of coral species and the number of fish species living on reefs.



Describe the relationship between the number of coral species and the number of fish species living on reefs.

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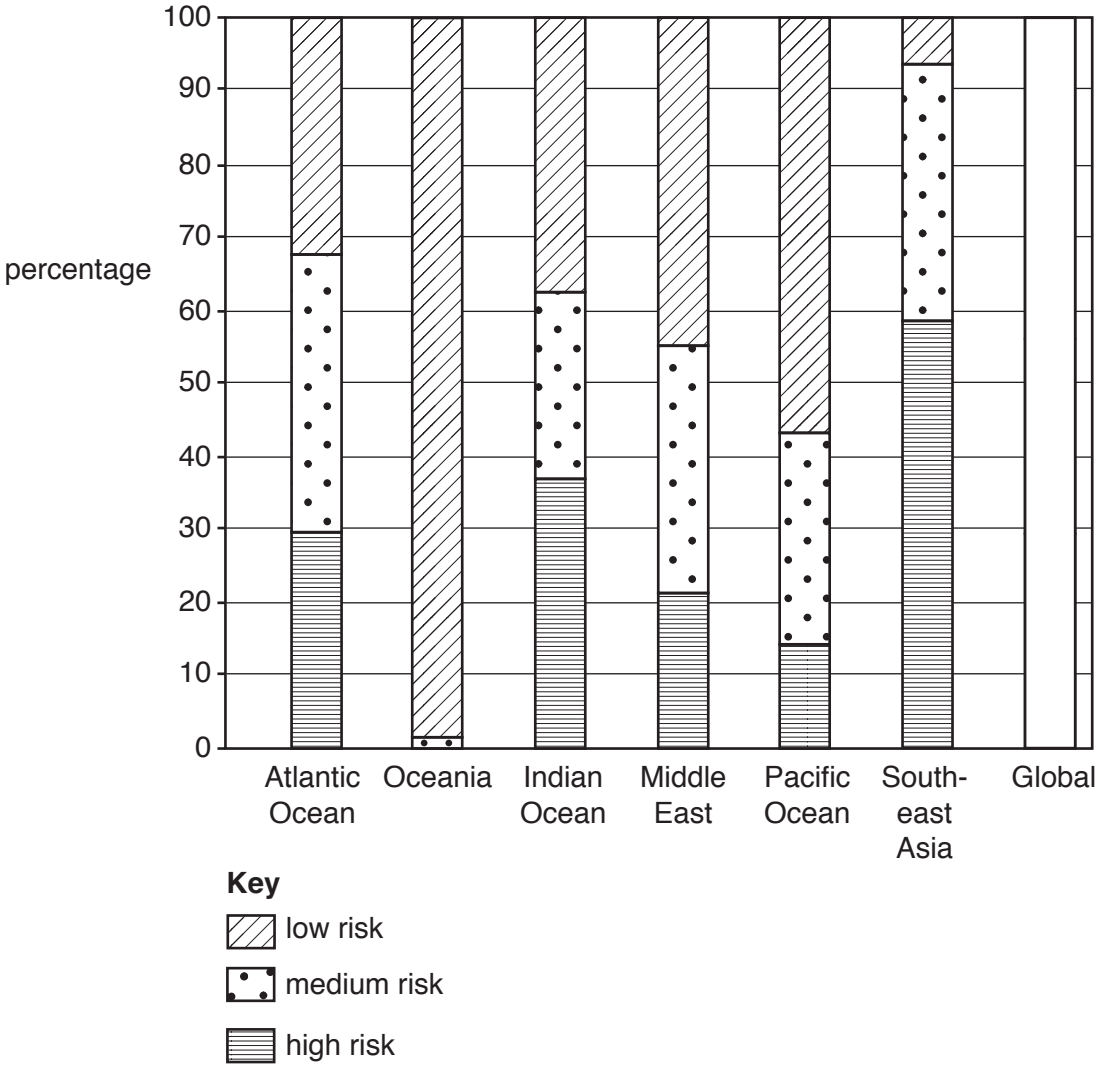
.....[2]

(c) The graph shows the percentage of coral reefs at risk from overfishing.



(i) Complete the global column using the following figures.

high risk	27%
medium risk	30%
low risk	43%

[2]

(ii) Use the graph to complete the following paragraph.

The area where coral reefs are at least risk from overfishing is ..... .

The reefs in Southeast Asia are most at risk from overfishing, with ..... % at high risk and just 7% at ..... risk. [3]

(iii) Suggest why the risk to coral reefs from overfishing is higher in some areas than in others.

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.....[3]

(iv) Give **one** reason why the fish catch from the oceans has increased.

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.....[1]

(v) Describe strategies that can be used to reduce overfishing.

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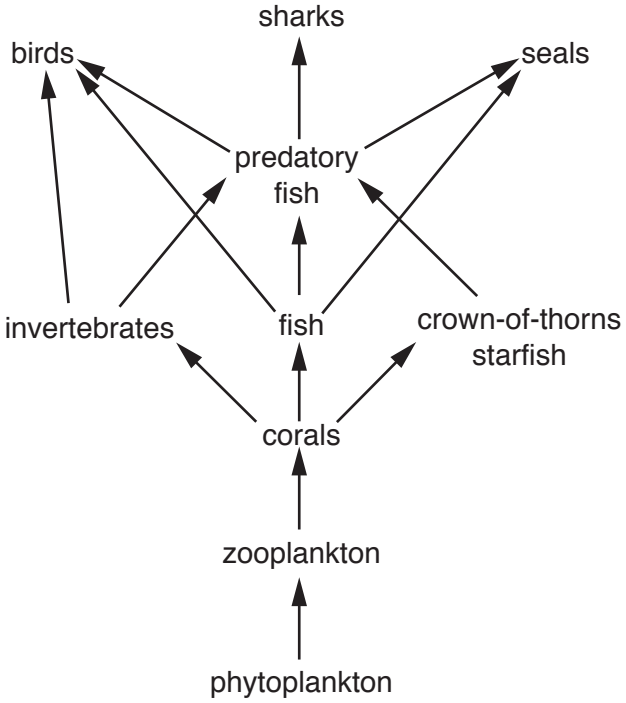
(d) The diagram shows a simplified food web for a coral reef.



(i) State the producer in the food web shown.

.....[1]

(ii) Complete the food chain diagram.

seals
phytoplankton

[3]

(iii) Describe the changes to the food chain in **(ii)** if the number of seals decreased.

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.....[3]

(iv) Crown-of-thorns starfish have few predators because they are covered in spines and contain a chemical which tastes unpleasant. In one year each starfish can consume 6 m^2 of coral.

Explain why crown-of-thorns starfish can destroy coral reefs.

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.....[2]

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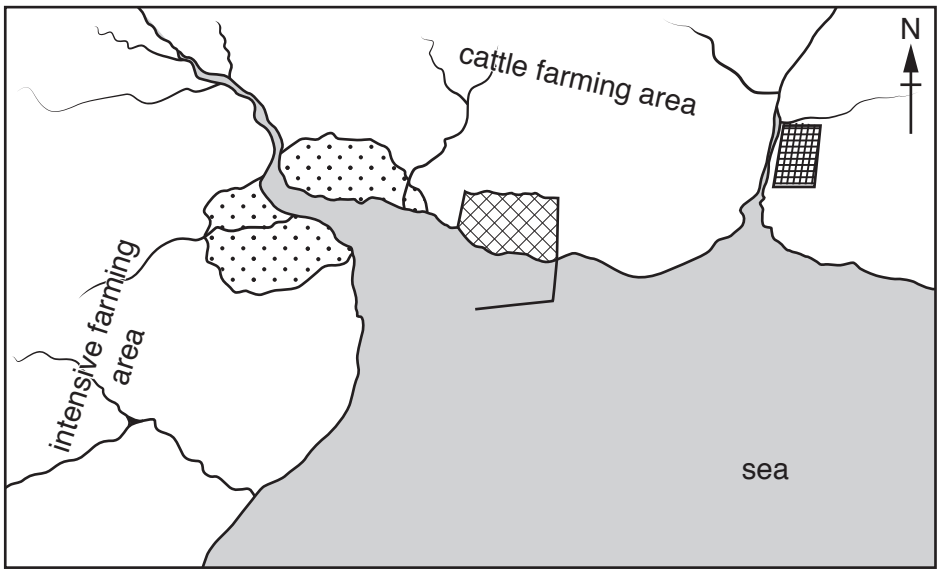
(e) The map shows a coastal area.



not to scale

Key

- city
- oil refinery
- lead mine and processing plant
- rivers
- harbour

Explain how each of the following may damage life in the sea.

the oil refinery .....

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.....

farming .....

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lead mining and processing .....

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[6]

(f) Explain why marine pollution is difficult to control.

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.....[6]

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