



Cambridge International Examinations
Cambridge Ordinary Level

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER



ENVIRONMENTAL MANAGEMENT

5014/01

Paper 1 Theory

For Examination from 2019

SPECIMEN PAPER

1 hour 45 minutes

Candidates answer on the Question Paper.

No Additional Materials are required.

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name in the spaces at the top of this page.

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.

At the end of the examination, fasten all your work securely together.

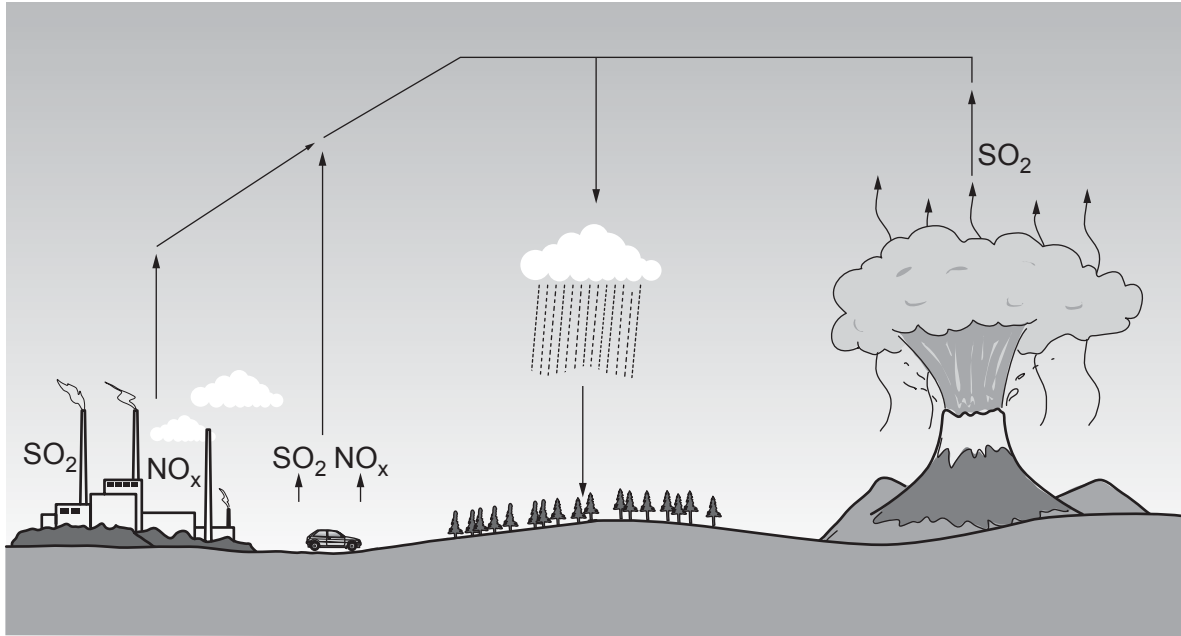
The number of marks is given in brackets [] at the end of each question or part question.

This document consists of **18** printed pages.

Section A

1 Some gases, released from volcanoes, car exhausts and factories, can form acid rain.

(a) Use the diagram and your own knowledge to explain how acid rain is formed.



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..... [3]

(b) State **one** impact of acid rain on the environment.

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..... [1]

(c) Explain why countries need to work together to solve the problem of acid rain.

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..... [2]

2 Limestone is a rock extracted from the Earth.

The photograph shows limestone being extracted from the Earth.



(a) Name the method of rock extraction shown in the photograph.

..... [1]

(b) Suggest **one** positive effect and **one** negative effect of this method of rock extraction.

positive effect

.....

negative effect

.....

[2]

(c) Describe **two** strategies for the sustainable use of rocks.

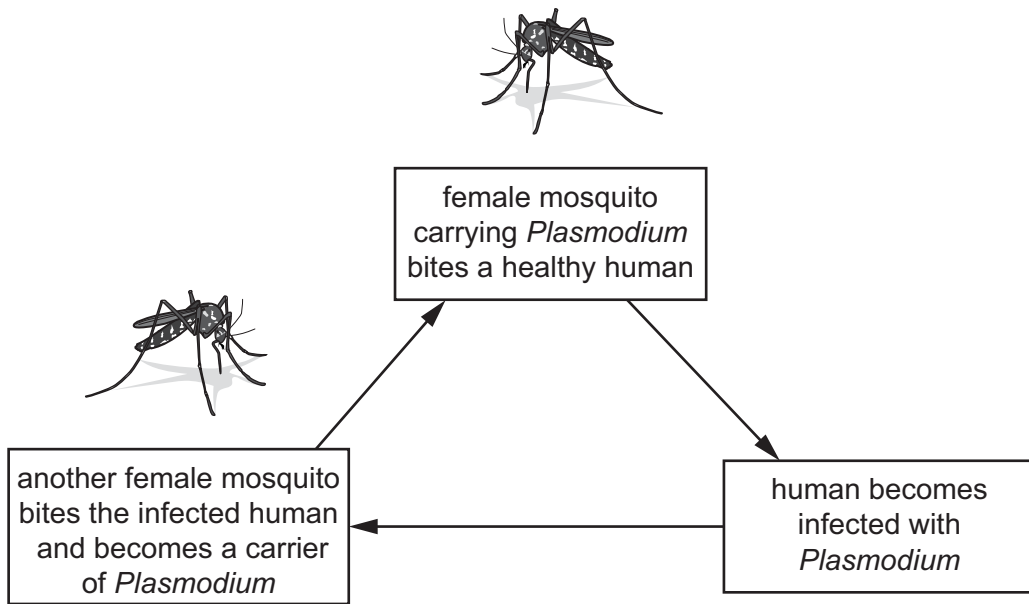
1

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2

..... [2]

3 The diagram shows a simplified life cycle of the malaria parasite, *Plasmodium*.



(a) State the vector in the spread of malaria.

..... [1]

(b) Describe how methods of vector control can reduce the spread of malaria.

You should include in your answer:

- methods of vector control
- how these methods can reduce the spread of malaria.

.....
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..... [3]

4 The photograph shows a coral reef ecosystem.



(a) State **two** abiotic components of an ecosystem.

1

2

[2]

(b) One food chain for a coral reef is shown.

plankton → coral polyp → butterfly fish → reef shark

Butterfly fish are at the third trophic level in this food chain.

Give the name of this third trophic level.

..... [1]

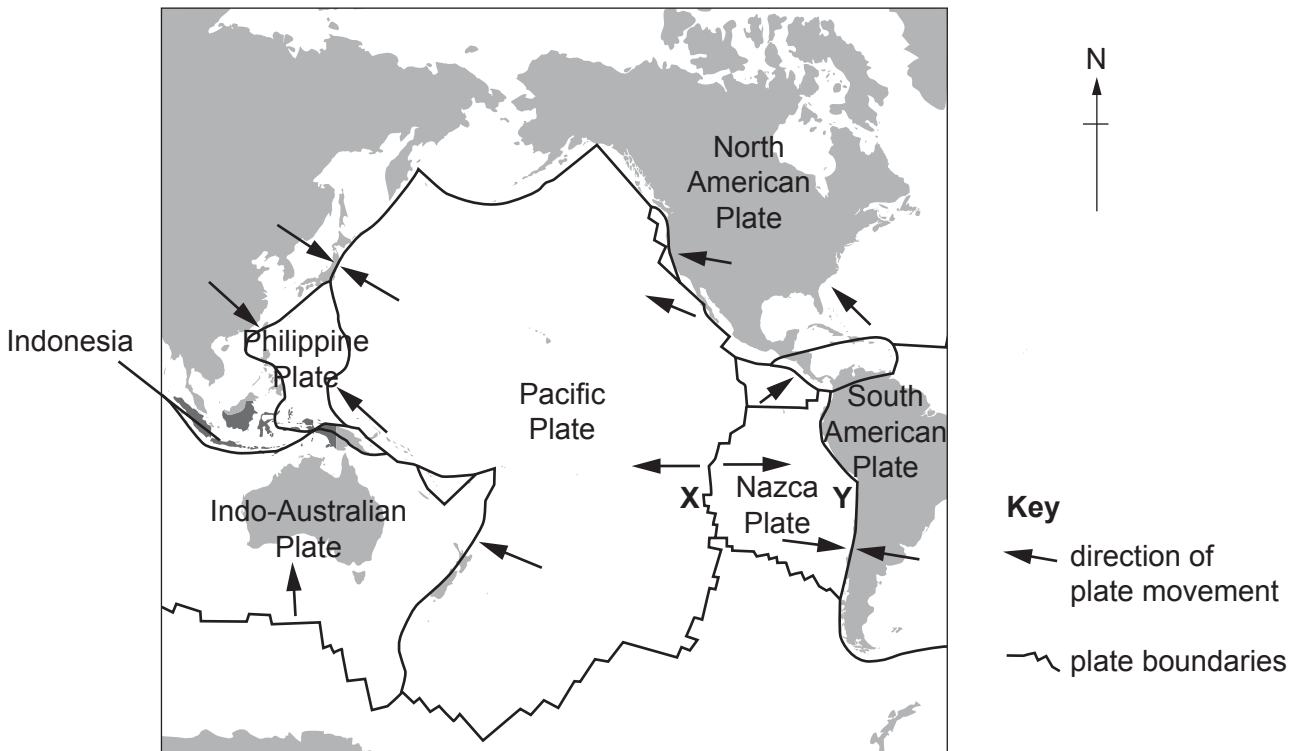
(c) Coral reef ecosystems are under threat from tourism.

State **two** strategies for preserving coral reefs from this threat.

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..... [2]

Section B

5 The map shows some plate boundaries in the region of the Pacific Ocean.



(a) (i) Name the types of plate boundary shown at X and at Y.

X

Y

[2]

(ii) Suggest why major earthquakes are more likely to occur close to plate boundaries than further away from them.

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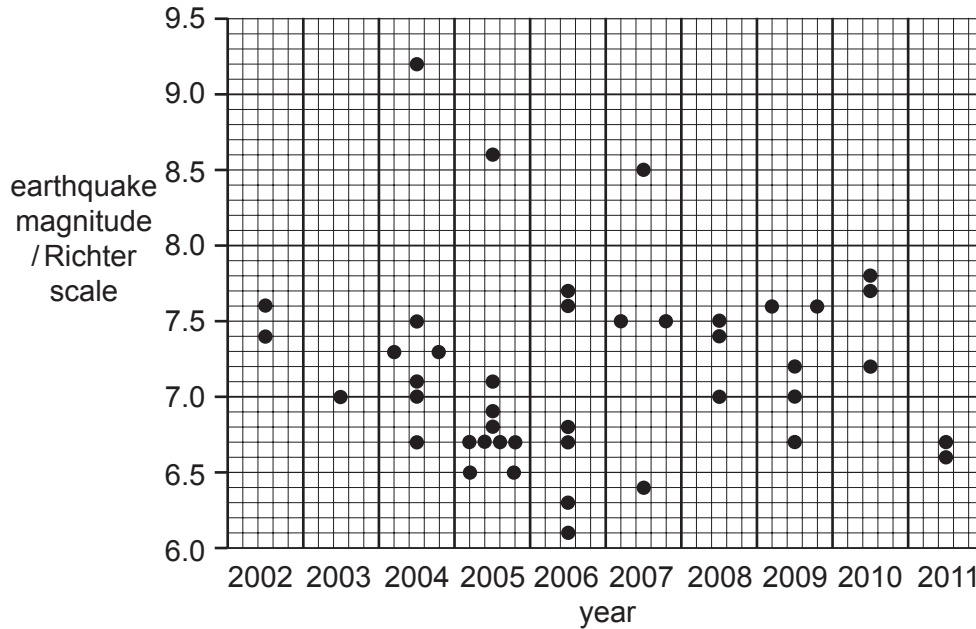
.....

[3]

- (b) Indonesia is marked on the map. It has many earthquakes. It is an island country of 18 000 islands.

The graph shows the magnitude of 43 strong earthquakes that occurred in Indonesia between 2002 and 2011 and were above magnitude 6.0 on the Richter scale.

Each dot shows an earthquake and its magnitude.



- (i) Give the four-year period when earthquakes occurred most frequently. State the evidence which supports your choice of years.

four-year period

evidence

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.....

.....

[3]

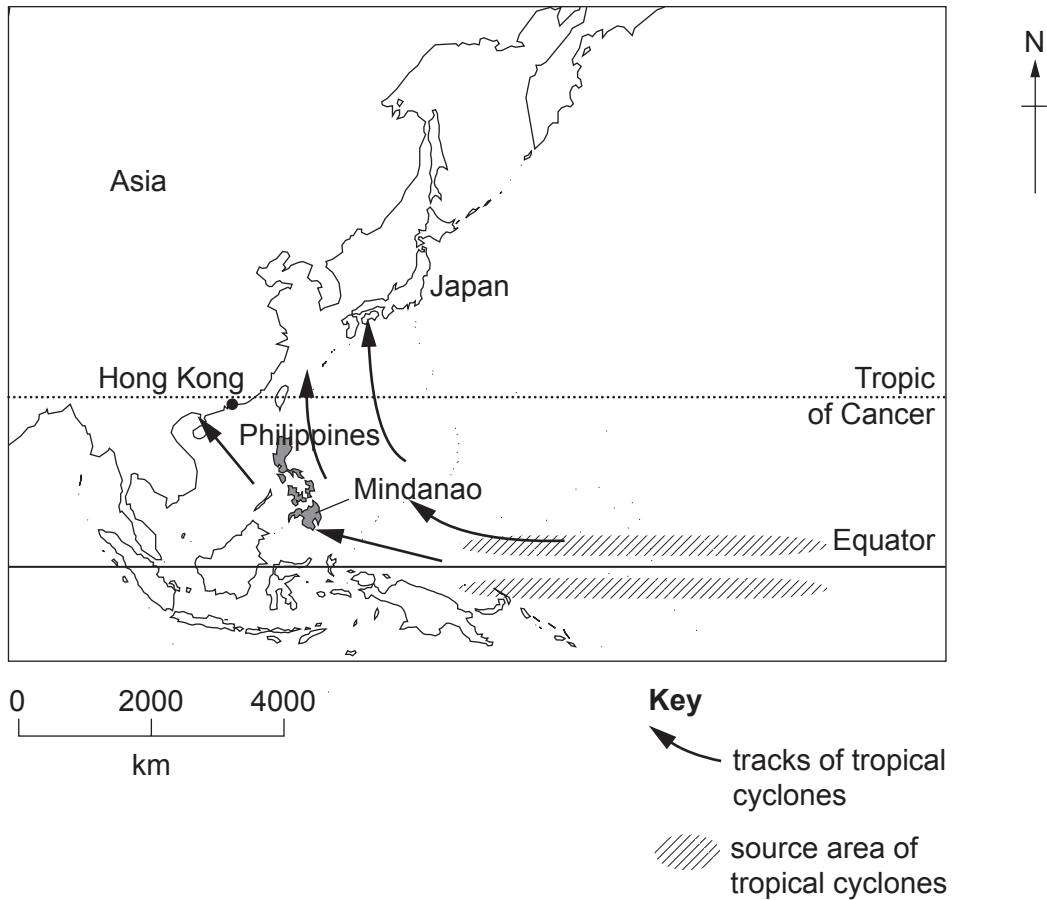
- (ii) Suggest what the graph shows about the risk of earthquakes occurring in Indonesia.

.....

..... [1]

- 6 (a) People living in the Philippines are at a great risk from tropical cyclones. The country is hit by 20 or more tropical cyclones each year.

The map shows the location of the Philippines, and the source areas and tracks of the tropical cyclones in that part of the Pacific Ocean.



- (i) Explain why many tropical cyclones are formed every year in the source area shown on the map.

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..... [3]

- (ii) Suggest why the greatest tropical cyclone risk in the Philippines is during September and October.

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

(b) In December 2011, the full effects of a tropical cyclone called Typhoon Washi were felt on the island of Mindanao.

The people living in the northern part of Mindanao were affected by the tropical cyclone in the following ways:

- severe flooding everywhere, including the main city of Cagayan de Oro
- flash floods and landslides swept houses into rivers and out to sea
- at least 1250 people died, most of them from drowning
- up to 500 000 people lost their homes.

(i) In Typhoon Washi, damage to property and loss of life were caused by the combined effects of very strong winds and heavy rainfall.

Suggest which one of these two causes was more important in Typhoon Washi. Describe the evidence which supports your choice.

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..... [2]

(ii) Survivors of Typhoon Washi blamed the government and local authorities for not doing enough to protect Mindanao against the cyclone risk.

Suggest why you would expect the authorities in the Philippines to be well prepared for cyclones.

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..... [1]

7 Oil is a fossil fuel.

(a) Describe the formation of oil.

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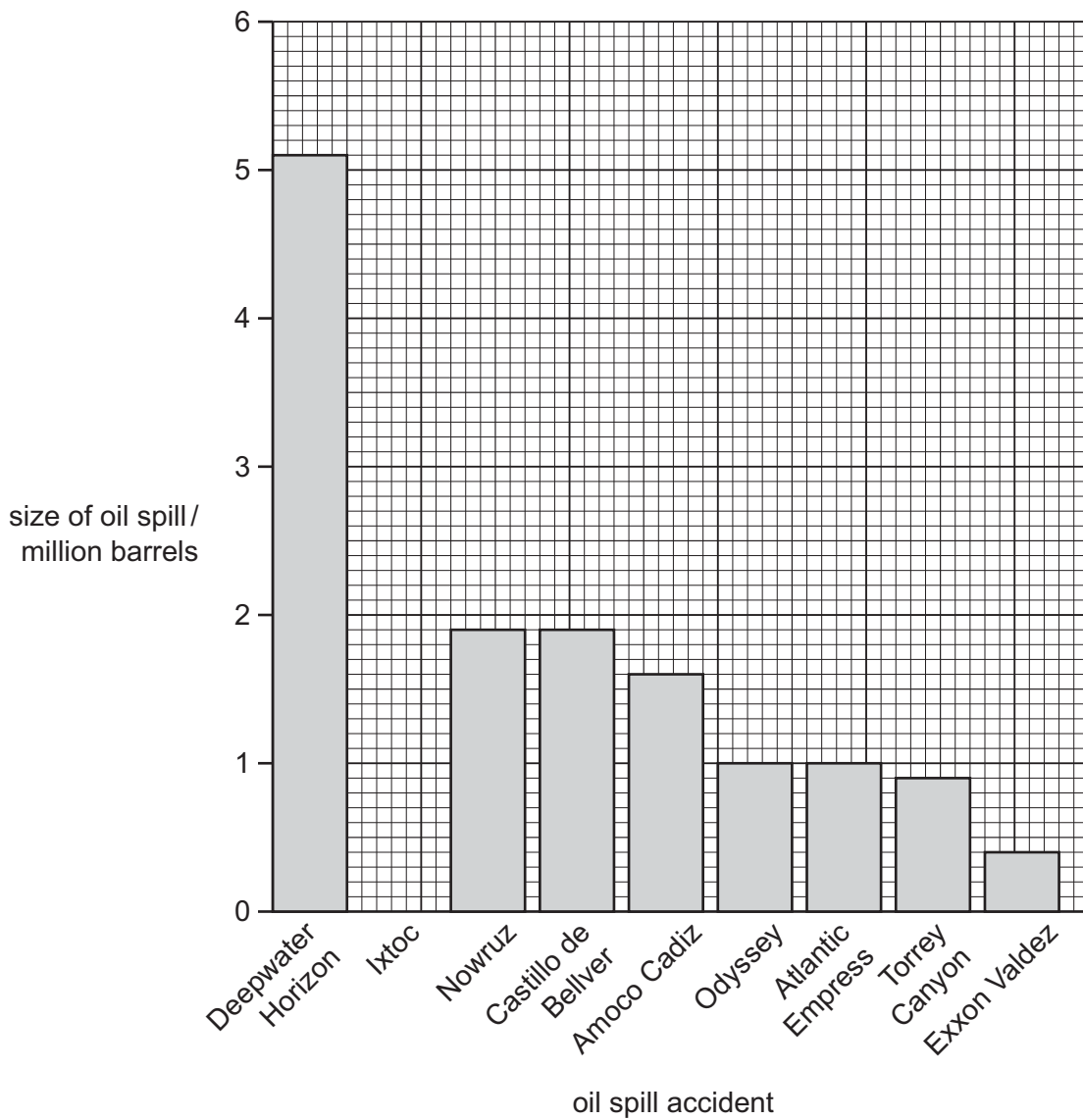
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..... [3]

(b) The graph shows the size of some major accidental oil spills into the ocean.



(i) Complete the graph for the Ixtoc oil spill, to show that 3.3 million barrels of oil were spilled into the ocean. [1]

- (ii) In 2010, the Deepwater Horizon oil spill was the largest accidental marine oil spill in the world.

It was estimated that oil was released into the ocean for approximately 85 days.

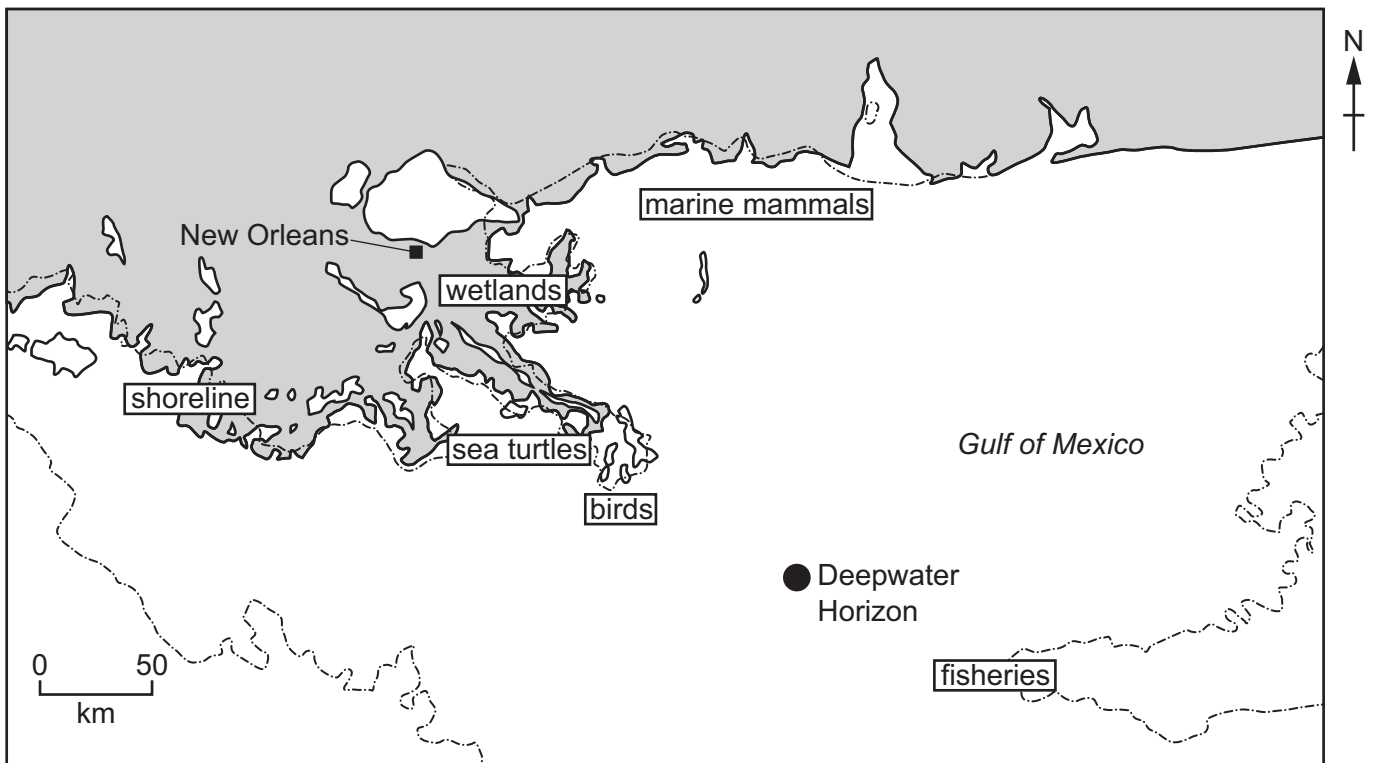
Calculate the average amount of oil released into the ocean per day.

..... million barrels per day [1]

- (iii) Suggest why this average amount of oil was **not** released on every day of the oil spill accident.

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

(c) The map shows the area affected by the Deepwater Horizon oil spill.



Key

- area affected by oil spill
- Deepwater Horizon accident site
- major city

Suggest the possible impacts of the Deepwater Horizon oil spill on the coastal ecosystem.

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..... [4]

(d) State **two** strategies for minimising the impacts of marine oil spills.

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..... [2]

(e) Fossil fuels, such as oil, are limited and non-renewable.

Suggest why some countries are **not** investing in alternative forms of energy.

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..... [3]

8 The table shows population data in some countries in 2013.

country	birth rate per 1000 people	death rate per 1000 people	natural increase per 1000 people
Bulgaria	9.6	14.2
Japan	8.4	9.5	-1.1
Pakistan	25.2	7.3

(a) (i) Complete the table to calculate the natural increase for Bulgaria and Pakistan. One has been completed for you. [1]

(ii) Use the data in the table for 2013 to predict what will happen to the population of Japan if the birth and death rates remain unchanged.

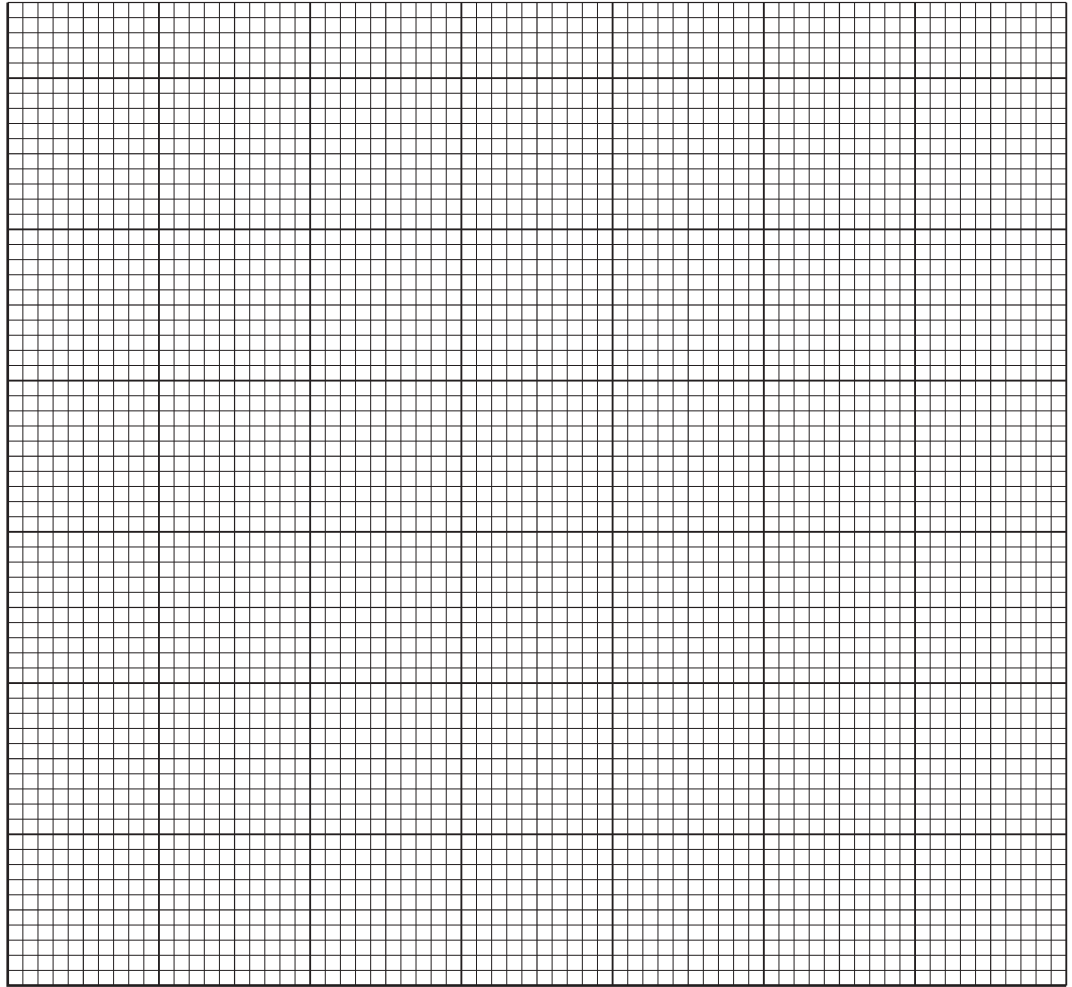
..... [1]

(iii) Suggest **two** reasons for the change in population you have predicted in (ii).

.....

 [2]

(b) Use the data in the table to plot a graph for birth rate and death rate for each country. Label the axes and complete the key.



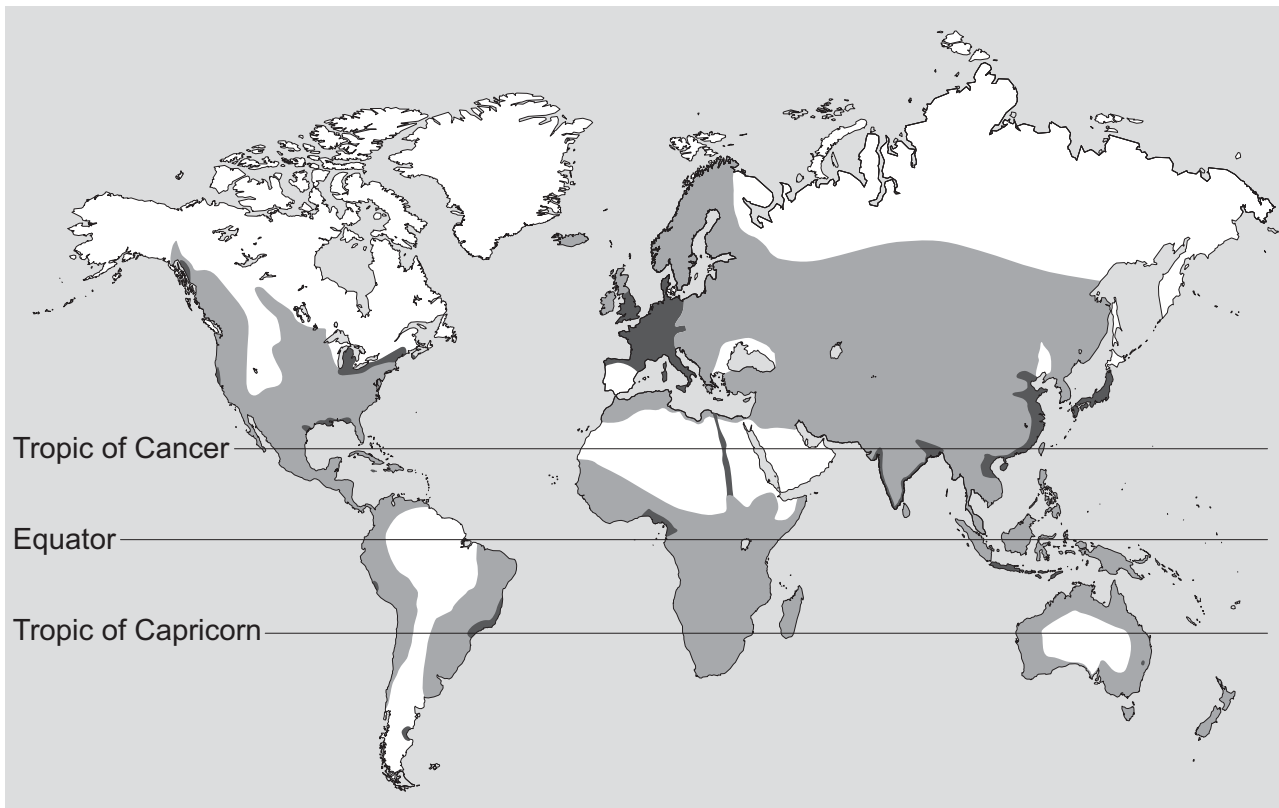
Key

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[4]

(c) The map shows world population density.



Key

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-
-

(i) Complete the key using the following terms.

high population density medium population density low population density

[1]

(ii) State **one** factor that attracts people to migrate to an area and **one** factor that discourages them.

attracts

.....

discourages

.....

[2]

- 9 A student read an article in a scientific journal.

The article said:

Modern fishing nets are large and cover a wide area. They catch all the fish species and only the smaller fish escape. The unwanted fish are called bycatch. Bycatch can be a large part of the total fish caught.

Many fish caught as bycatch die in the nets. The death of bycatch fish is recorded as mortality rate. It is used by scientists to understand the effects of fishing on each fish species.

The amount of bycatch caught and the mortality rate are recorded for each type of fishing method. This information is important for the sustainability of fisheries.

In the North Pacific for crab pot fishing the mortality rate was 45-100%, for groundfish trawl it was 90-100%, domestic trawl fishing was 10-42%, longline fishing was 32-50% and shrimp fishing was 100%.

- (a) Use the article to help answer the questions.

- (i) State the meaning of the term *bycatch*.

.....
 [1]

- (ii) State why monitoring bycatch is important.

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 [1]

- (b) The student wants to summarise the mortality rate data in the article.

Record the data in a suitable table.

[3]

