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9720508297

ENVIRONMENTAL MANAGEMENT **0680/12**

Paper 1 Theory **February/March 2023**

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 **20** pages. Any blank pages are indicated.

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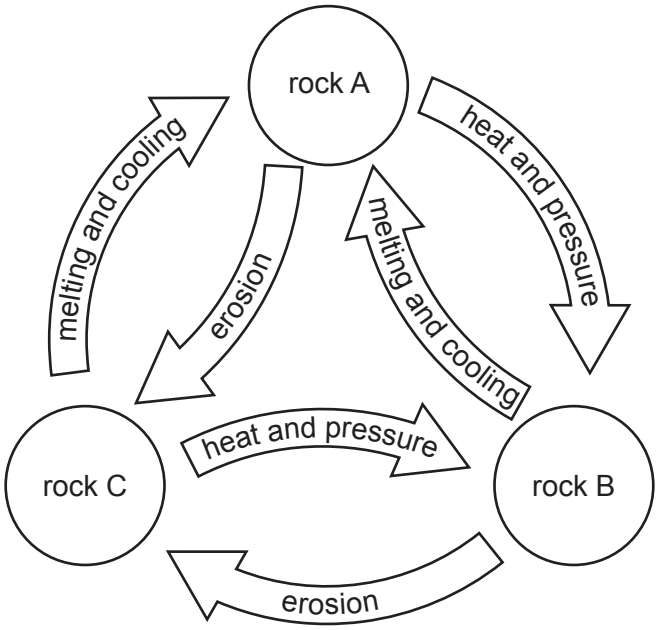
Section A

1 **(a)** The list contains examples of different types of rock.

basalt **granite** **limestone** **marble** **slate**

Circle **two** rocks in the list that are igneous. [2]

(b) The diagram represents the rock cycle.



Identify the rock, A, B or C, that represents:

- igneous rock .....
- sedimentary rock .....
- metamorphic rock. .....

[2]

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(c) Igneous rocks are made from crystals.

Explain why some igneous rocks have smaller crystals than other igneous rocks.

.....

.....

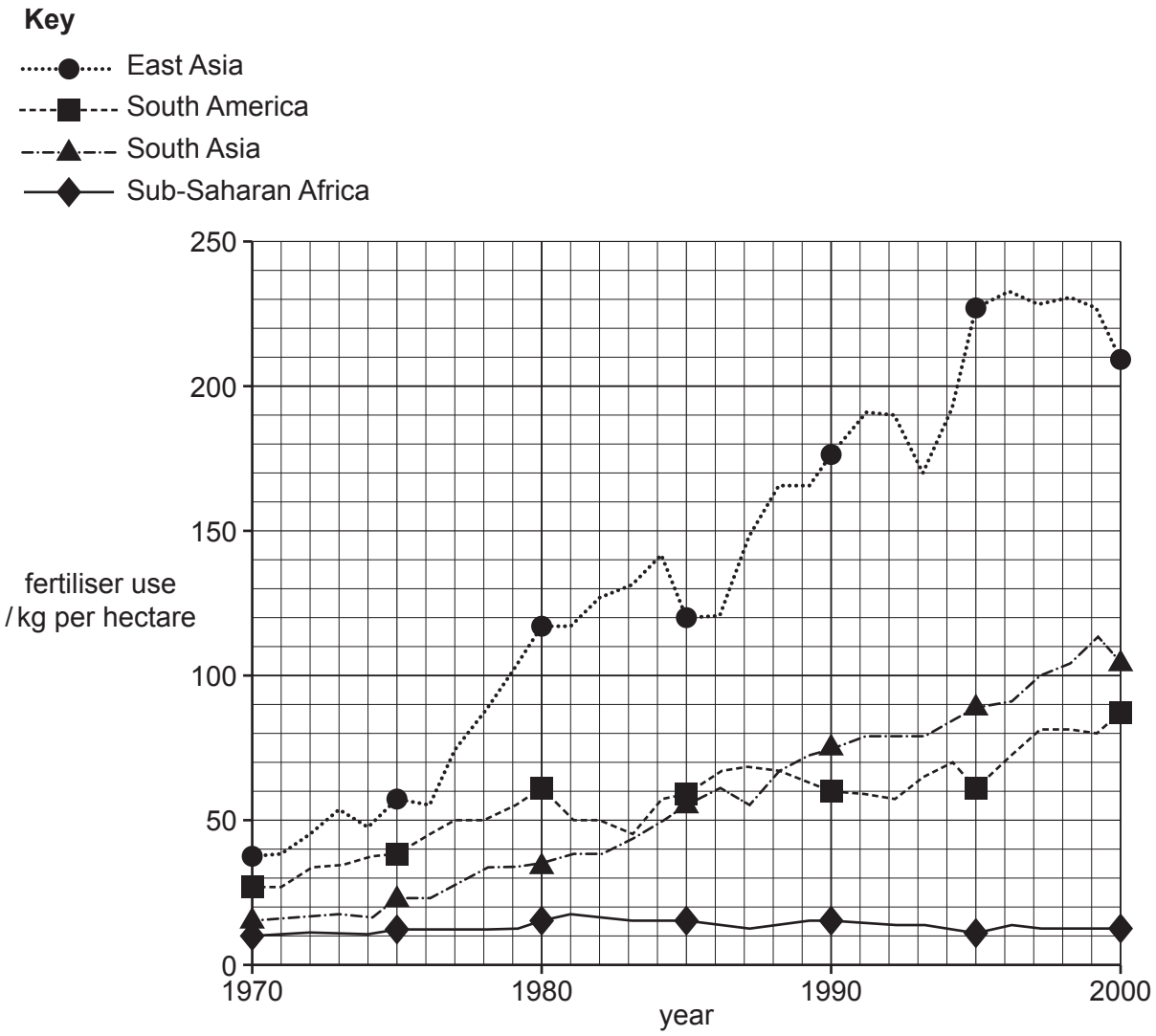
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..... [2]

[Total: 6]

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2 **(a)** The graph shows fertiliser use in four regions of the world.



(i) Calculate the increase in fertiliser use in South Asia between 1980 and 2000.

increase = ... kg per hectare [2]

(ii) Compare the fertiliser use in South America with the fertiliser use in East Asia, describing the changes between 1970 and 2000.

.....

.....

.....

.....

.....

..... [3]

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(b) Using organic fertiliser is one strategy for making agriculture sustainable.

Name and describe **one** other strategy for making agriculture sustainable.

name of strategy .....

description of strategy .....

.....

.....

.....

[2]

[Total: 7]

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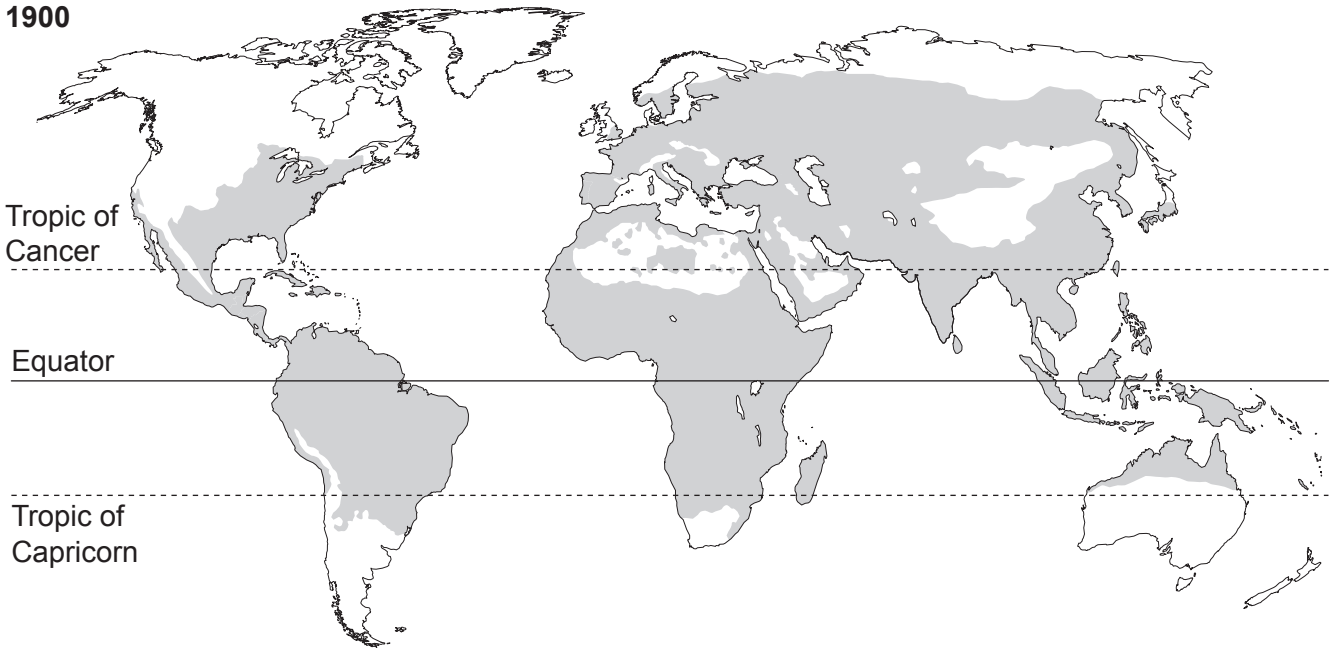
3 The maps show the global distribution of malaria in 1900 and 2000.

Key

no malaria present

malaria present

1900



2000



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(a) Describe how the global distribution of malaria has changed between 1900 and 2000.

.....

.....

.....

..... [2]

(b) **(i)** The use of antimalarial drugs is one strategy for controlling malaria.

Describe the benefits and limitations of the use of antimalarial drugs as a strategy for controlling malaria.

benefits .....

.....

.....

.....

limitations .....

.....

.....

.....

[3]

(ii) Name and describe **one** other strategy for controlling malaria.

name of strategy .....

description of strategy .....

.....

.....

[2]

[Total: 7]

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Section B

4 (a) (i) Use words from the list to complete the sentences describing the composition of soils.

chlorophyll **microorganisms** **mineral** **ozone** **water**

Each word may be used once, more than once or not at all.

Soils are composed of:

- ..... particles
- air
- .....
- and organic content.

This organic content consists of:

- plants
- animals
- .....
- and their dead remains.

[2]

(ii) Sand, silt and clay are the three different sizes of soil particle.

Arrange these soil particles in order of increasing size.

smallest ⟶ largest

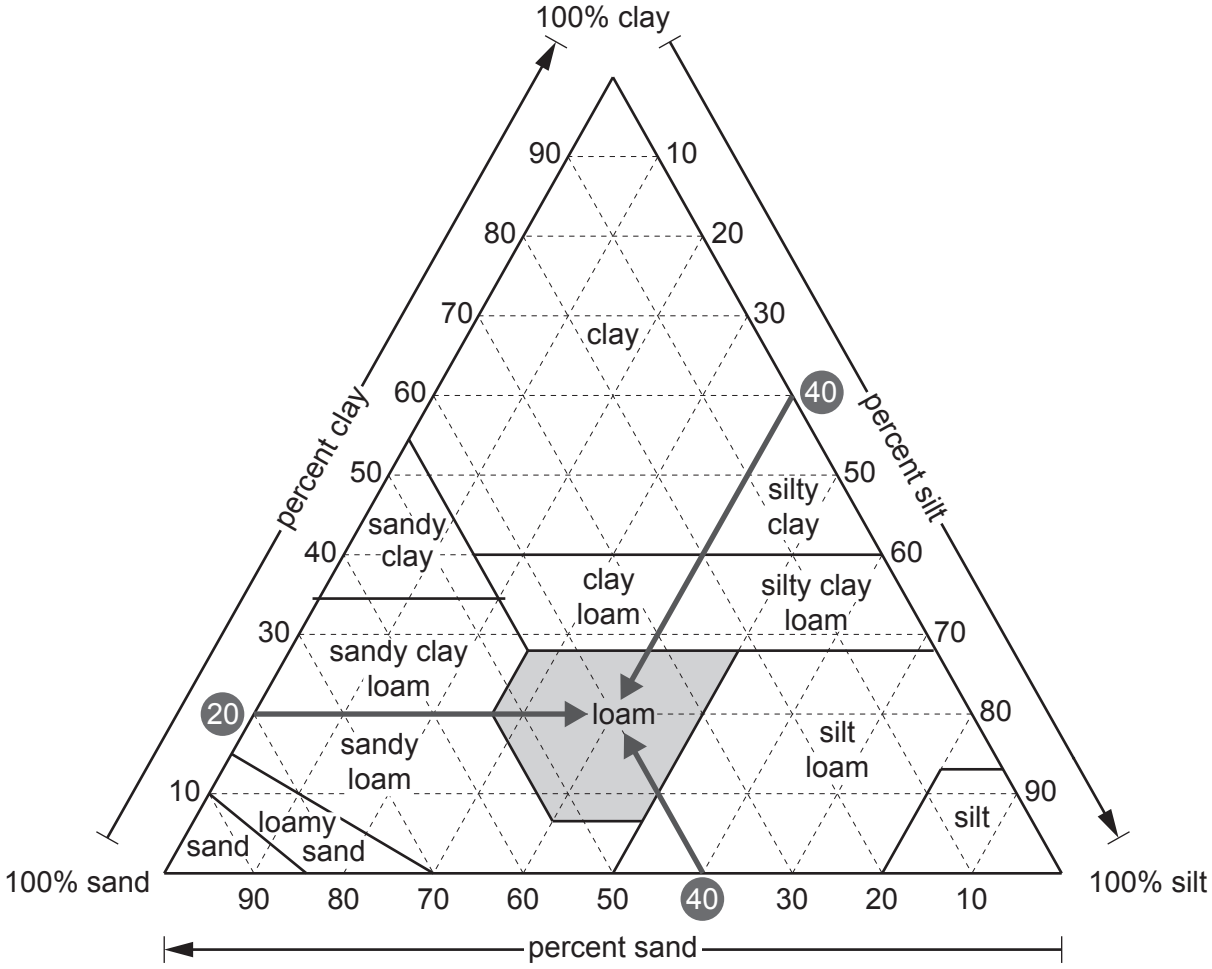
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[2]

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(b) The diagram shows the names of some soil types and their percentage composition of clay, silt and sand.

The shaded area represents a sample of loam soil that contains 40% silt, 40% sand and 20% clay.



(i) Identify the soil type with a composition of 20% silt, 70% sand and 10% clay.

..... [1]

(ii) Determine a percentage composition for a silty clay loam soil.

silt ..... %

sand ..... %

clay ..... %

[2]

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[Turn over

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(c) The photograph shows farmers in Ecuador.



Suggest **four** strategies that these farmers could use to reduce soil erosion.

1 .....

2 .....

3 .....

4 .....

[4]

[Total: 11]

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5 New Zealand has several important marine fisheries.

It is estimated that 95% of all marine species harvested in New Zealand are from sustainable fisheries.

(a) (i) Describe what is meant by the term, sustainable fisheries.

.....

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..... [2]

(ii) Explain the importance of sustainable fisheries for humans.

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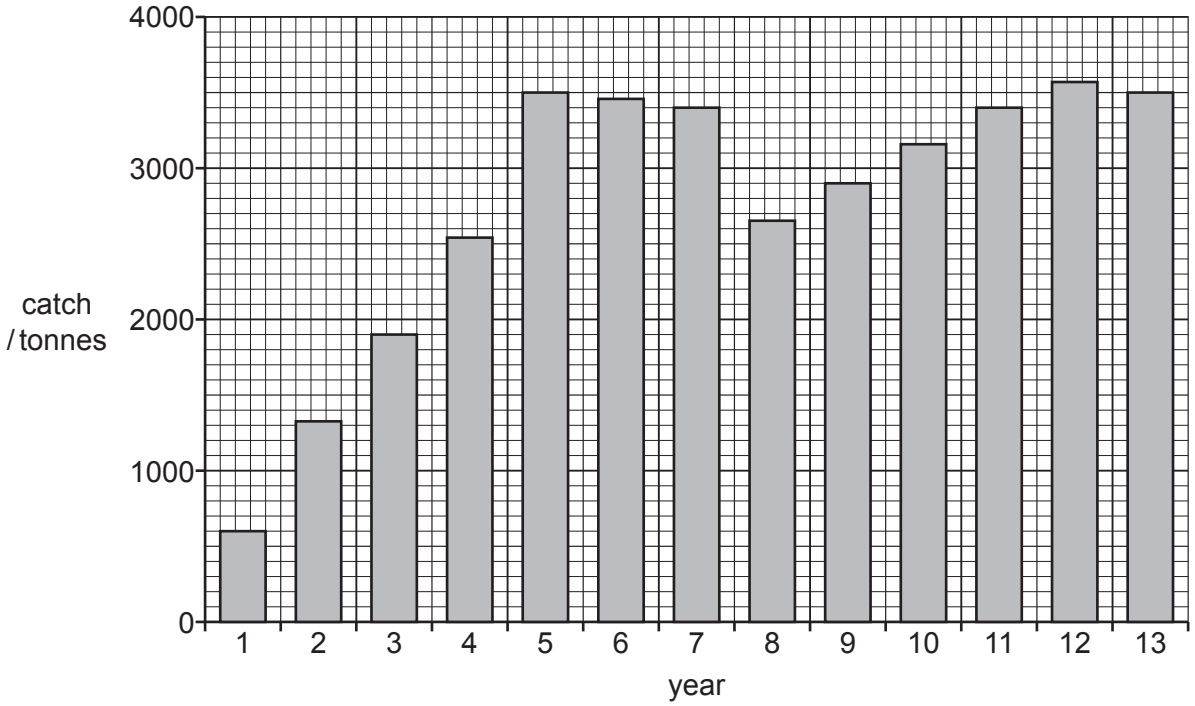
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[Turn over

(b) Toothfish are harvested in the Southern Ocean off New Zealand.

The graph shows the harvest of toothfish over a 13-year period.



(i) Describe the trends in the harvest of toothfish.

.....

.....

.....

.....

.....

..... [3]

(ii) Calculate the percentage increase in catch between year 1 and year 5.

Give your answer as a whole number.

percentage increase = ... [3]

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(c) Toothfish are large predatory fish that live in very deep water. They grow slowly and are 10 years old before they can reproduce.

(i) Explain **two** reasons why toothfish are **not** suitable for fish farming.

1 .....

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2 .....

.....

[2]

(ii) Suggest how fish farming can impact marine ecosystems.

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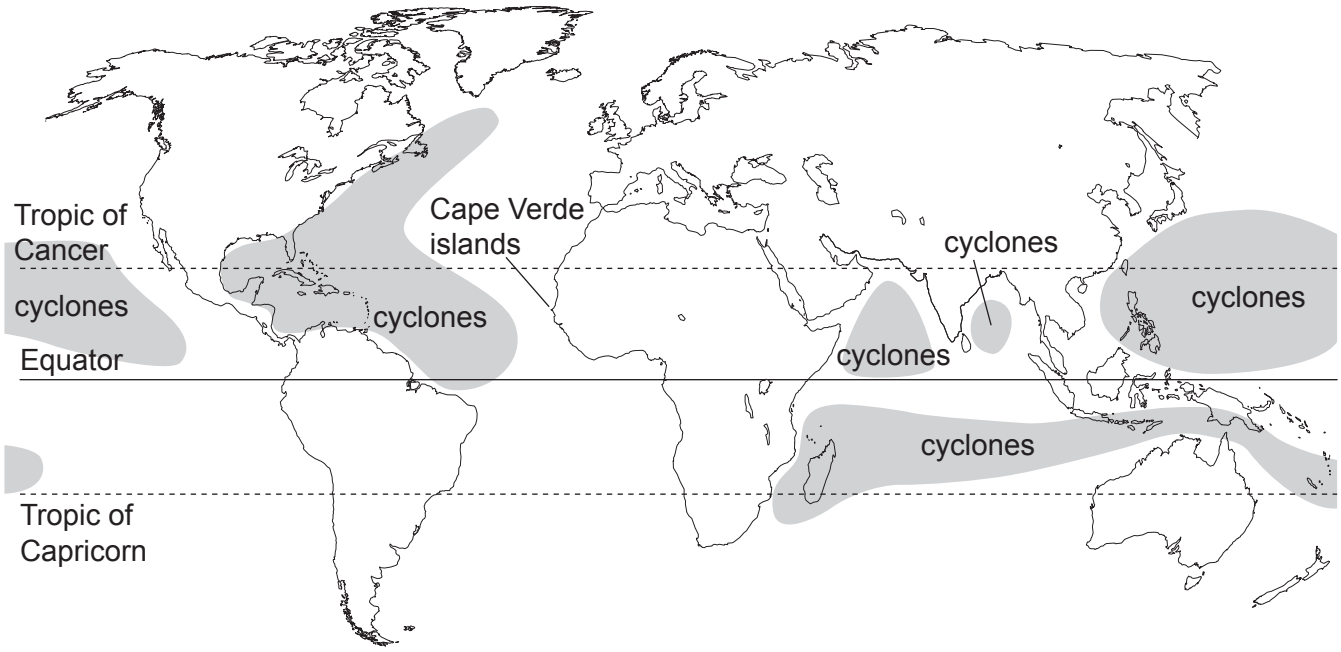
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6 The map shows the main distribution of tropical cyclones.



Tropical cyclones only form under certain conditions. Many Atlantic tropical cyclones, known as hurricanes, form near the Cape Verde islands off the west coast of Africa.

(a) (i) Suggest why tropical cyclones form near the Cape Verde islands.

.....

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..... [3]

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(ii) Suggest how climate change may affect the number and distribution of tropical cyclones.

Explain your answer.

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..... [3]

(b) After tropical cyclones, people are often affected by water-related diseases.

Explain how tropical cyclones increase the chance of water-related diseases.

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..... [3]

(c) State **two** other impacts that tropical cyclones have on people.

1 .....

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2 .....

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[2]

[Total: 11]

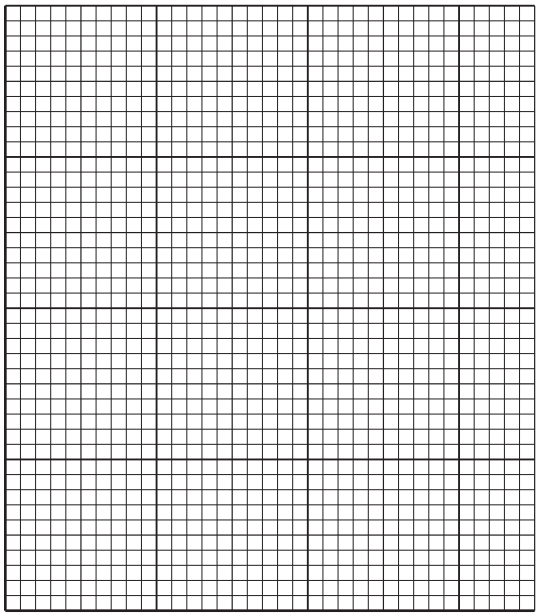
7 Air pollution can contribute to deaths in humans.

The table shows the number of deaths per 100 000 people linked to air pollution between 1990 and 2015.

year	number of deaths per 100 000 people
1990	110
1995	104
2000	no data available
2005	83
2010	75
2015	67

(a) Plot a line graph to show the number of deaths per 100 000 people linked to air pollution between 1990 and 2015.

Draw a straight line between each point.



[4]

(b) Use your graph to estimate the number of deaths per 100 000 people in 2000.

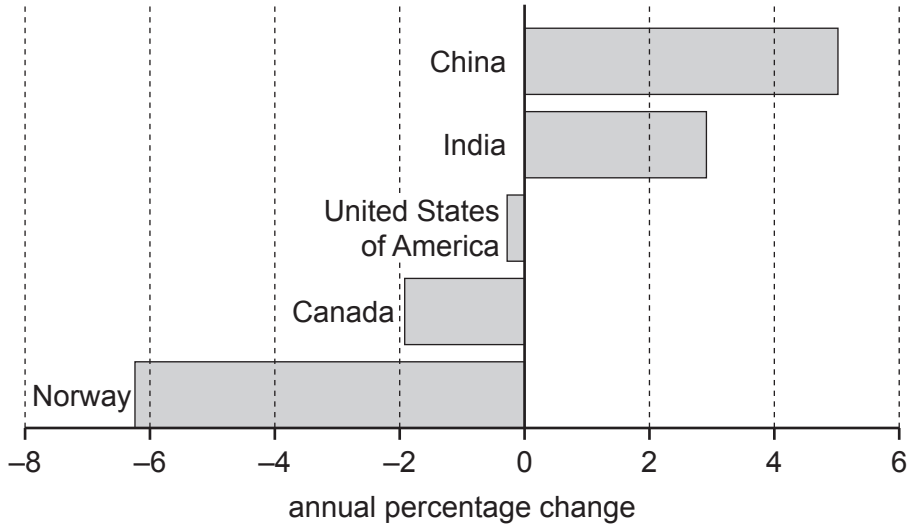
Show on your graph how you determined your answer.

number of deaths = ... [2]

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(c) One strategy for reducing atmospheric pollution is to reduce the use of fossil fuels.

The graph shows the annual percentage change in oil use for five countries.



(i) Explain why annual percentage change is used for the comparison of oil use.

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..... [1]

(ii) Suggest strategies that Norway has used to reduce its use of oil.

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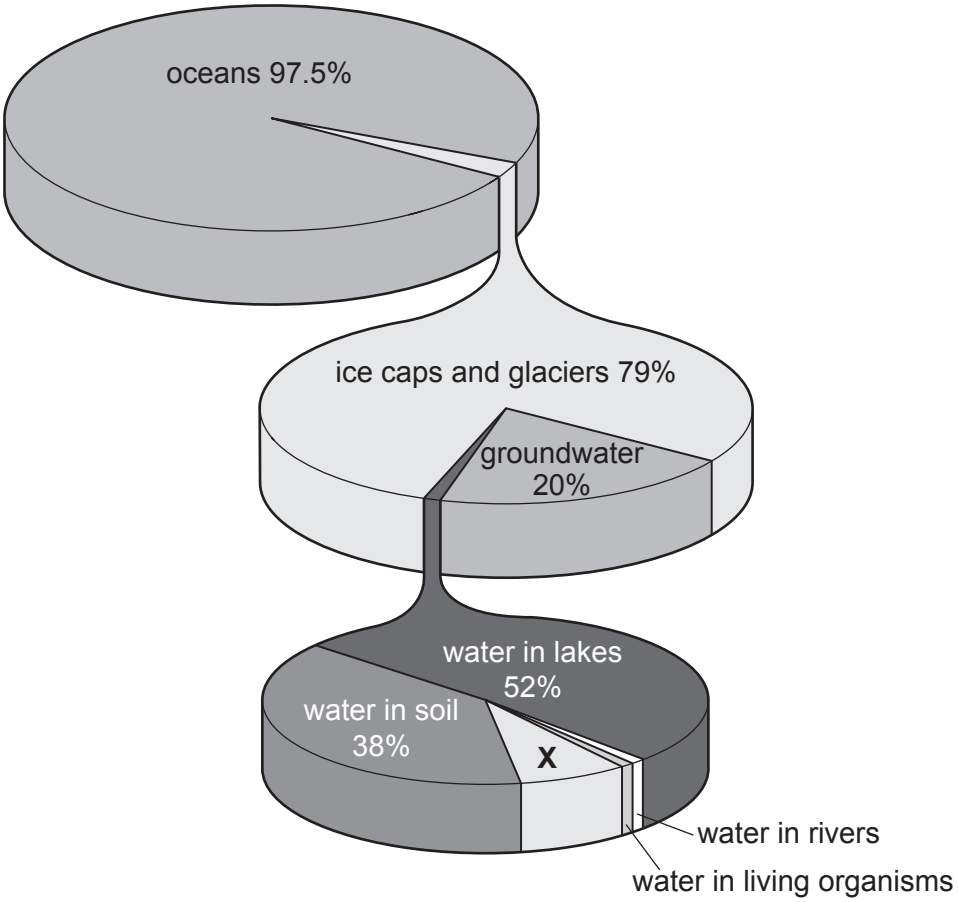
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[Total: 12]

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8 The diagram shows the distribution of water on Earth.



(a) (i) Use the diagram to determine the percentage of the Earth's water that is fresh water.

..... [1]

(ii) State the name of the source of water labelled **X** on the diagram.

..... [1]

(iii) Suggest why the percentages shown on the diagram are estimates.

.....

..... [1]

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(b) Reservoirs can store large volumes of fresh water for people to use.

State **two** other stores of fresh water that people can use.

1 .....

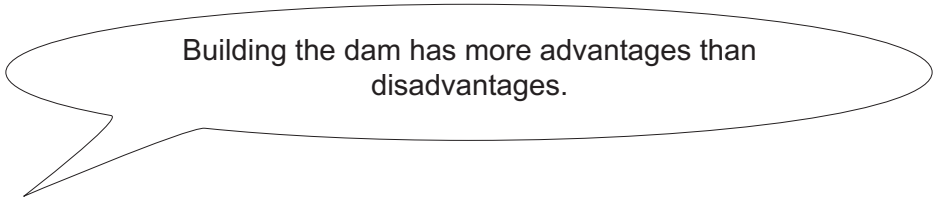
2 .....

[2]

(c) A local government wants to build a dam across a river valley to form a large reservoir covering an area of 10 km^2.

The reservoir means that a small village and the people living there must be moved.

A government officer says:



To what extent do you agree with this statement? Give reasons for your answer.

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..... [6]

[Total: 11]

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