

CANDIDATE
NAME

CENTRE
NUMBER

--	--	--	--	--	--

CANDIDATE
NUMBER

--	--	--	--



ENVIRONMENTAL MANAGEMENT

8291/11

Paper 1 Lithosphere and Atmosphere

May/June 2018

1 hour 30 minutes

Additional Materials: Answer Booklet/Paper

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.

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

Section A

Answer **all** questions in this section.
Write your answers in the spaces provided on the question paper.

Section B

Answer **one** question from this section.
Write your answers on the separate answer paper provided.

At the end of the examination,

1. fasten all separate answer paper securely to the question paper;
2. enter the question number from Section B in the grid.

	For Examiner's Use
Section A	/
1	
2	
Section B	/
Total	

This document consists of **12** printed pages.

Section A

Answer **all** questions in this section.

Write your answers in the spaces provided.

- 1 (a) Fig. 1.1 is a simplified diagram of the Earth's energy budget with energy transfers shown in arbitrary units.

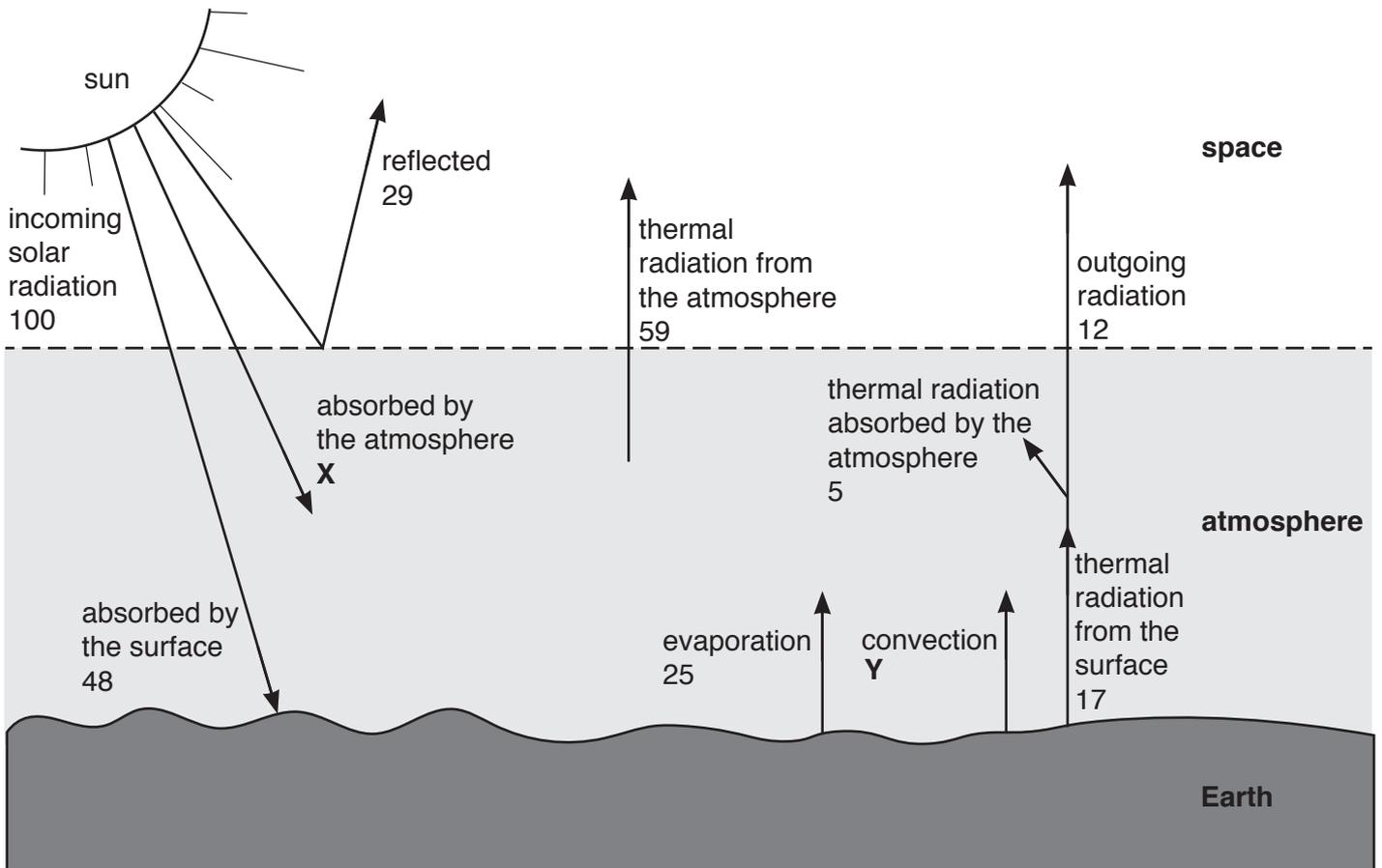


Fig. 1.1

- (i) State what is meant by the term *incoming solar radiation*.

.....
 [1]

- (ii) Calculate the value for **X** shown on Fig. 1.1.

Show your working.

X = arbitrary units [2]

(iii) Calculate the value for **Y** shown on Fig. 1.1.

Show your working.

Y = arbitrary units [2]

(iv) Explain why the term *budget* is used when describing Fig. 1.1.

.....
.....
.....
..... [2]

(v) Explain how both evaporation and convection result in an energy transfer from the Earth to the atmosphere as shown in Fig. 1.1.

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

(vi) Suggest how the balance of transfers shown in Fig. 1.1 might vary if there is:

an absence of cloud cover

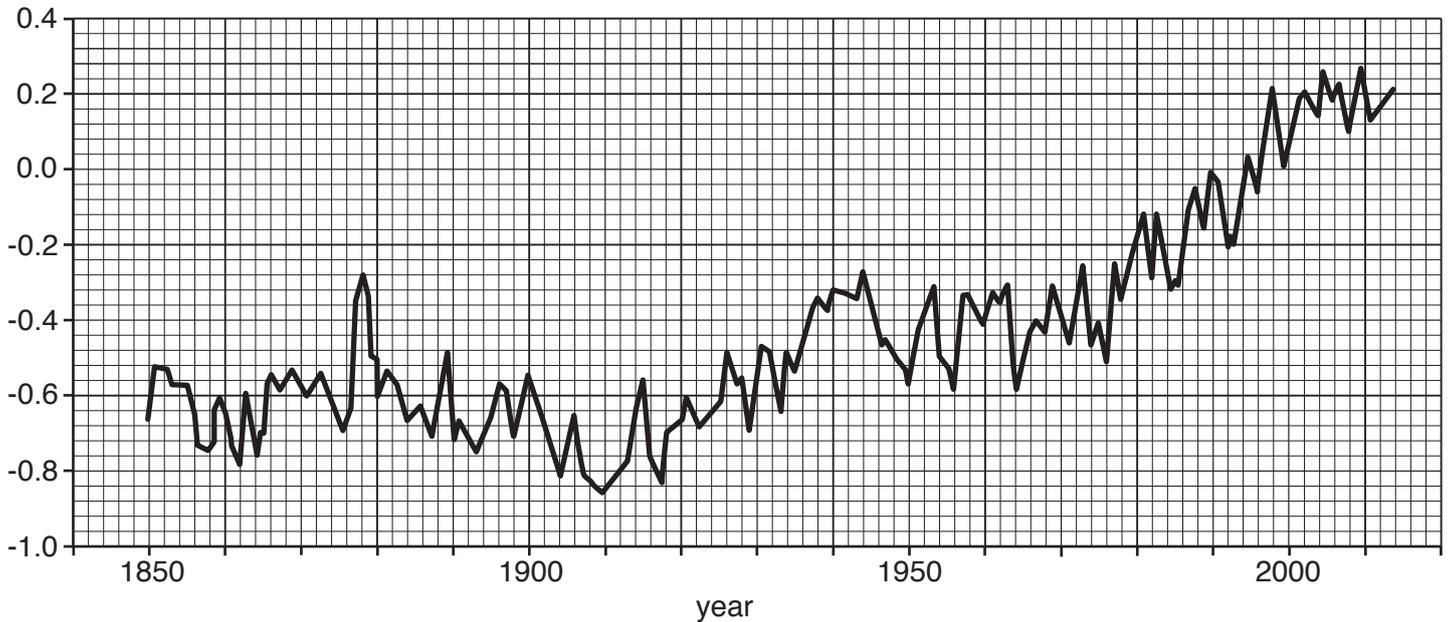
.....
.....
.....

a major volcanic eruption.

.....
.....
..... [4]

(b) Fig. 1.2 shows information about global surface temperatures and carbon dioxide emissions from 1850 to 2014.

average change
in global surface
temperature / °C



The temperature changes are relative to the average over the period 1986 to 2005.

carbon dioxide emissions
from human activity
/ gigatonnes per year

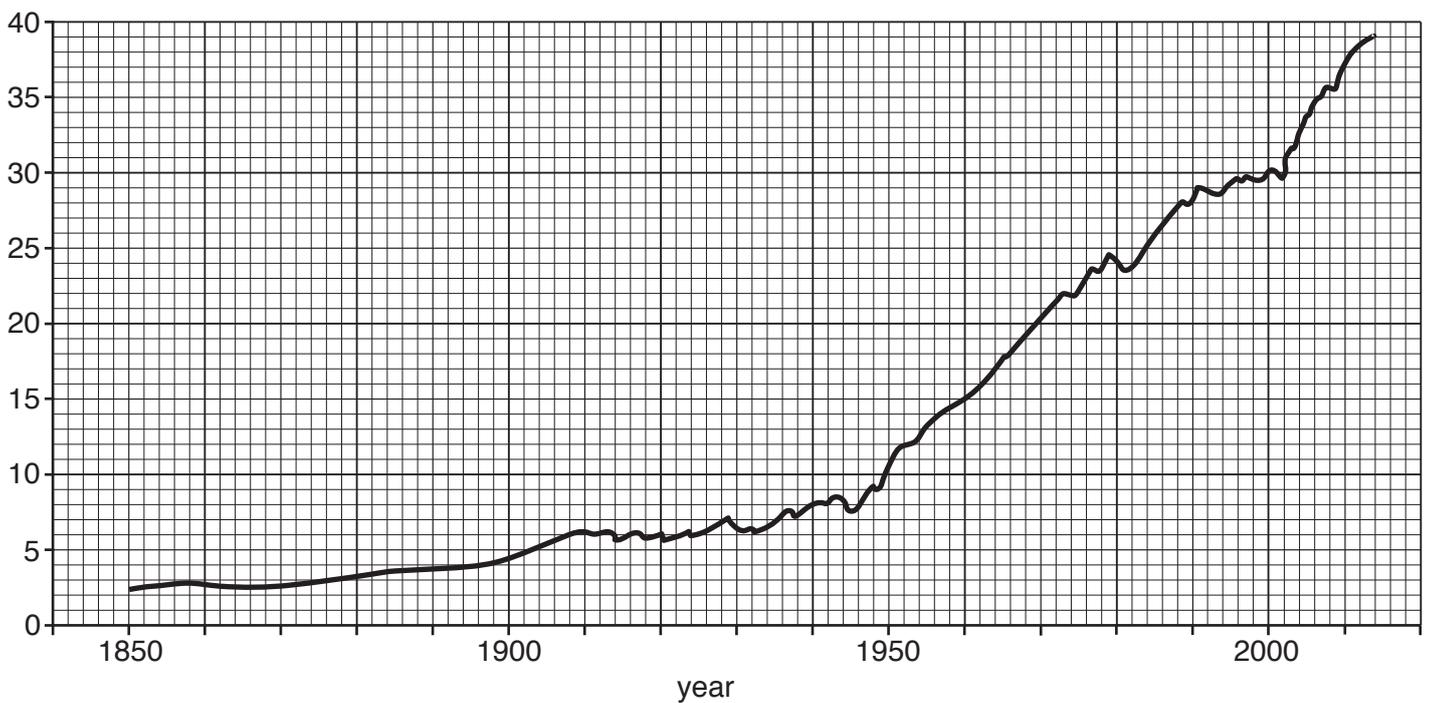


Fig. 1.2

- (i) With reference to Fig. 1.2, outline the trends in average change in global surface temperature from 1850 to 2014.

.....
.....
.....
..... [2]

- (ii) With reference to Fig. 1.2, suggest how and why changes in global carbon dioxide emissions might be linked to changes in global surface temperature.

.....
.....
.....
.....
.....
.....
.....
.....
..... [4]

[Total: 20]

- 2 (a) Fig. 2.1 is a simplified map to show the location of the plate boundary known as the North Anatolian Fault in northern Turkey.

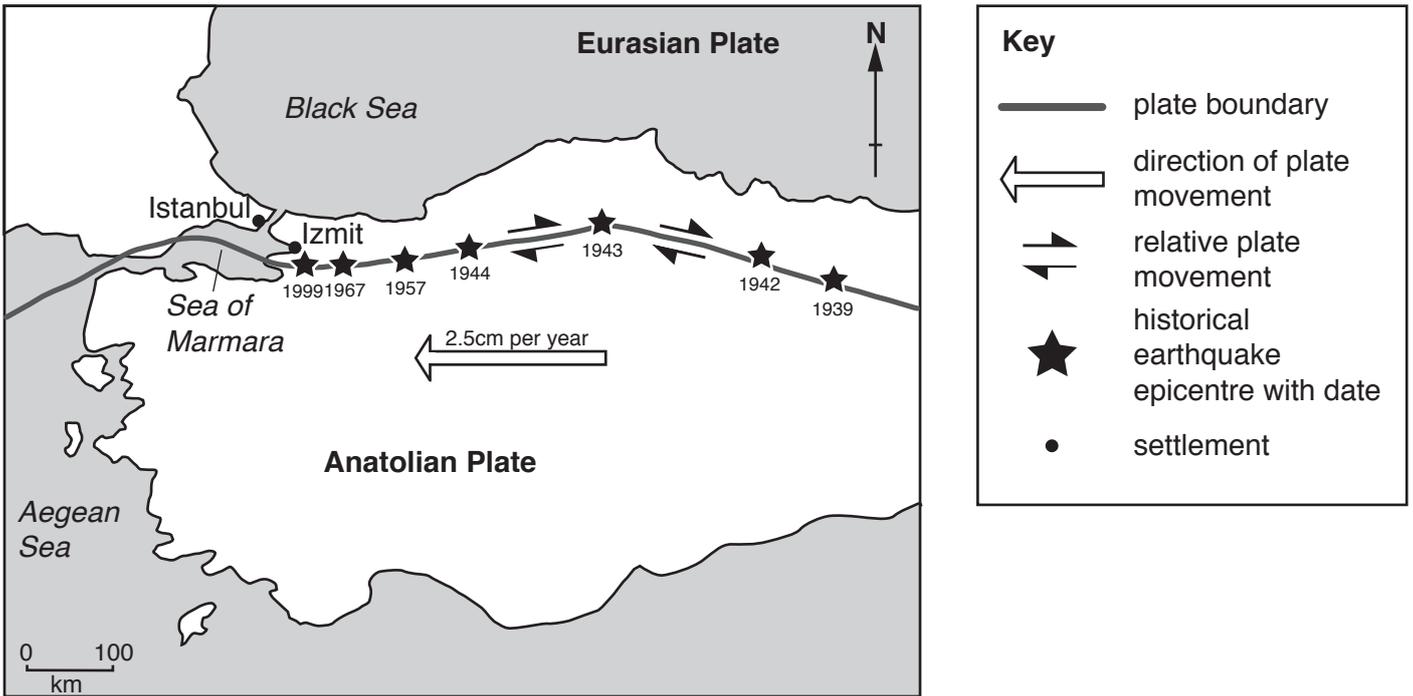


Fig. 2.1

- (i) Name the type of plate boundary shown in Fig. 2.1.

..... [1]

- (ii) Describe the movement of the Anatolian plate shown in Fig. 2.1.

.....

 [2]

- (iii) Explain why the area shown in Fig. 2.1 experiences earthquakes.

.....

 [3]

(iv) Describe the pattern of historical earthquake epicentres shown in Fig. 2.1.

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

(v) Explain the process which makes it likely that the location of the next major earthquake in this area will be at the western end of the North Anatolian Fault.

.....
.....
.....
.....[2]

(ii) Fig. 2.3 shows a design for a tall building.

Add labels to Fig. 2.3 to show how the design could be adapted to resist ground deformation and shaking in earthquake-prone areas.

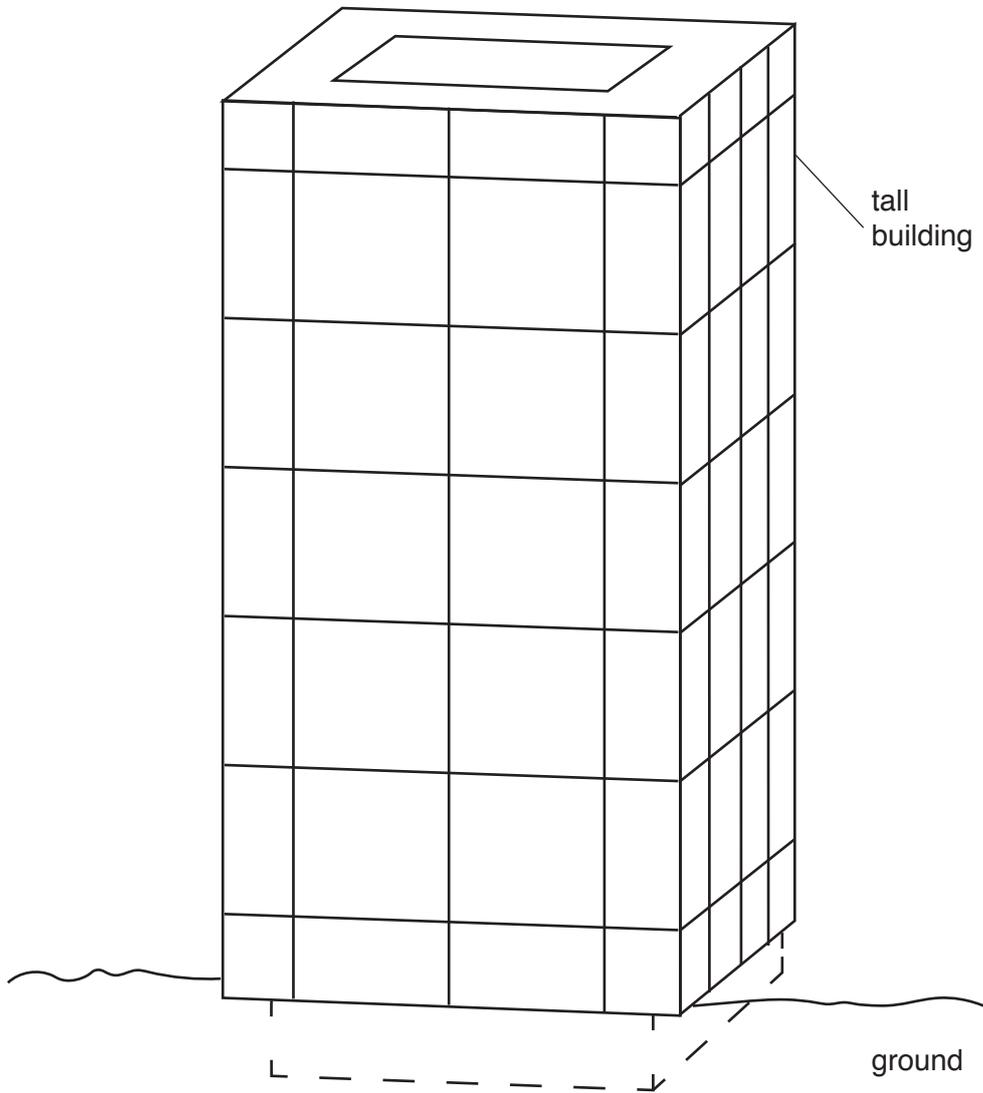


Fig. 2.3

[4]

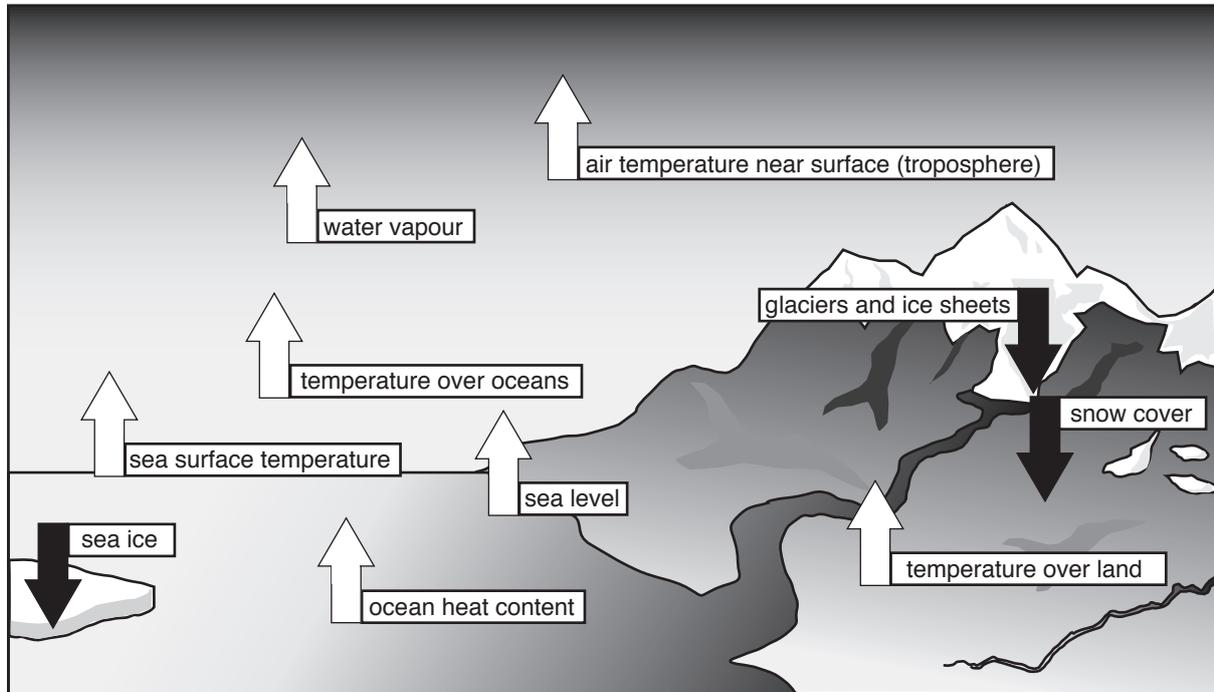
[Total: 20]

Section B

Answer **one** question from this section.

Write your answers on the separate answer paper provided.

- 3 Fig. 3.1 suggests ways the global natural environment is changing.



Key



increase

decrease

Fig. 3.1

- (a) Describe possible implications of the changes shown in Fig. 3.1 for people and the natural environment. [10]
- (b) Compare the success of strategies to reduce atmospheric pollution at a local level with strategies to reduce atmospheric pollution at a global level. [30]

[Total: 40]

4 Fig. 4.1 shows energy consumption and renewable energy production in a more economically developed country (MEDC).

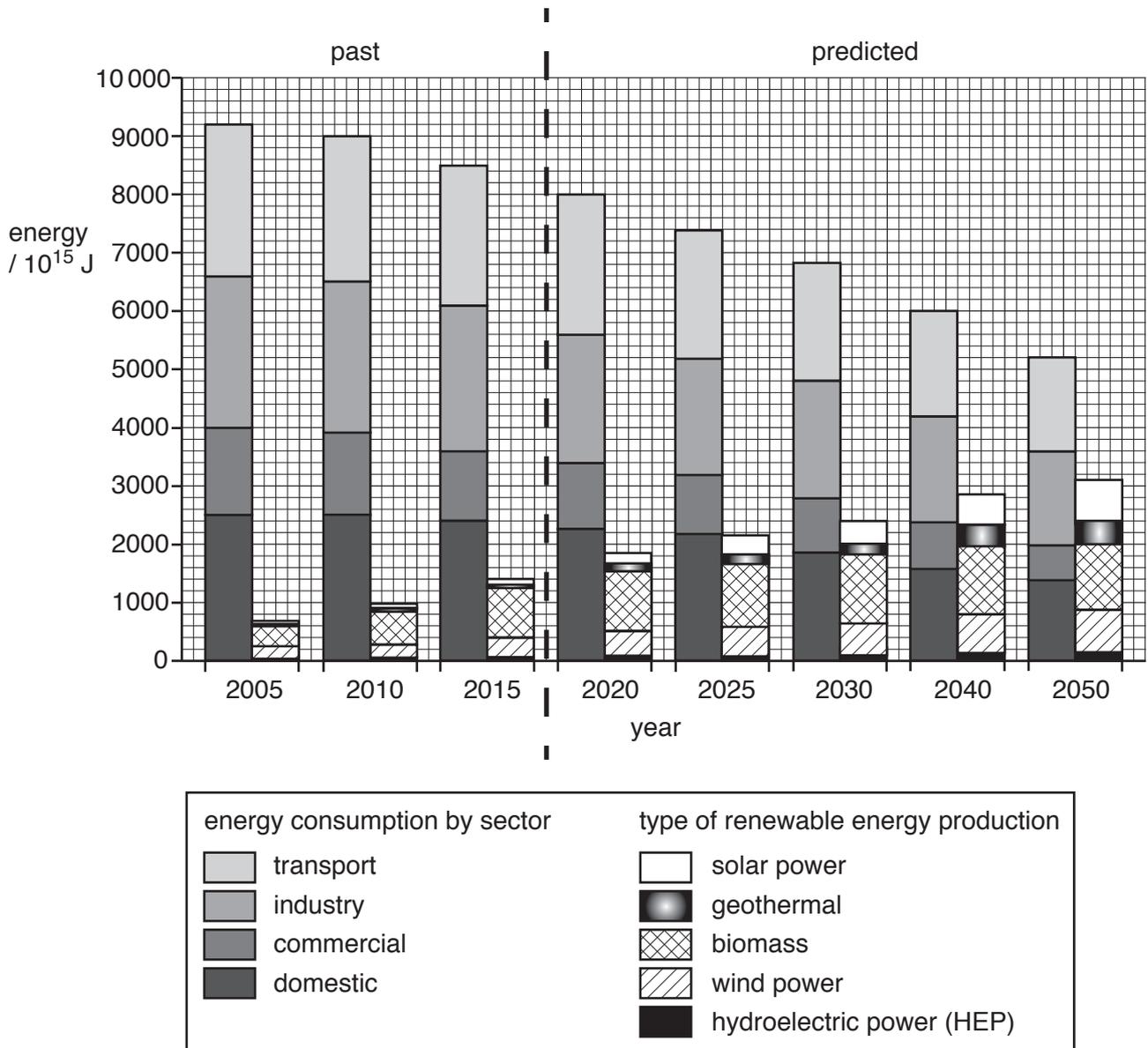


Fig. 4.1

(a) Analyse the information in Fig. 4.1 and suggest what it might indicate about the energy policy of the country. [10]

(b) 'Fossil fuels should **not** be involved in meeting future energy needs.' To what extent do you agree with this statement? [30]

[Total: 40]

5 Fig. 5.1 shows the number of deaths linked to urban air pollution in a year.



Fig. 5.1

- (a) Describe the distribution of deaths linked to urban air pollution shown in Fig. 5.1 and suggest reasons for the distribution. [10]
- (b) Discuss the extent to which the problem of both air pollution and noise pollution can be solved by reducing vehicle traffic. [30]

[Total: 40]

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced online in the Cambridge International Examinations Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at www.cie.org.uk after the live examination series.

Cambridge International Examinations is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.