Cambridge Assessment International Education

Cambridge International AS Level

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

5491610844

ENVIRONMENTAL MANAGEMENT **8291/11**

Paper 1 Lithosphere and Atmosphere **October/November 2020**

1 hour 30 minutes

You must answer **Section A** on the question paper and **Section B** on the answer booklet/paper you have been given.

You will need: Answer booklet/paper

INSTRUCTIONS

- Section A: answer **all** questions. Write your answer to each question in the space provided on the question paper.
- Section B: answer **one** question. Write your answer on the separate answer booklet/paper provided.
- 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.
- 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.
- At the end of the examination, fasten all your work together. Do **not** use staples, paper clips or glue.

INFORMATION

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

For Examiner's use	
Section A	
1	
2	
Section B	
Total	

This document has **12** pages. Blank pages are indicated.

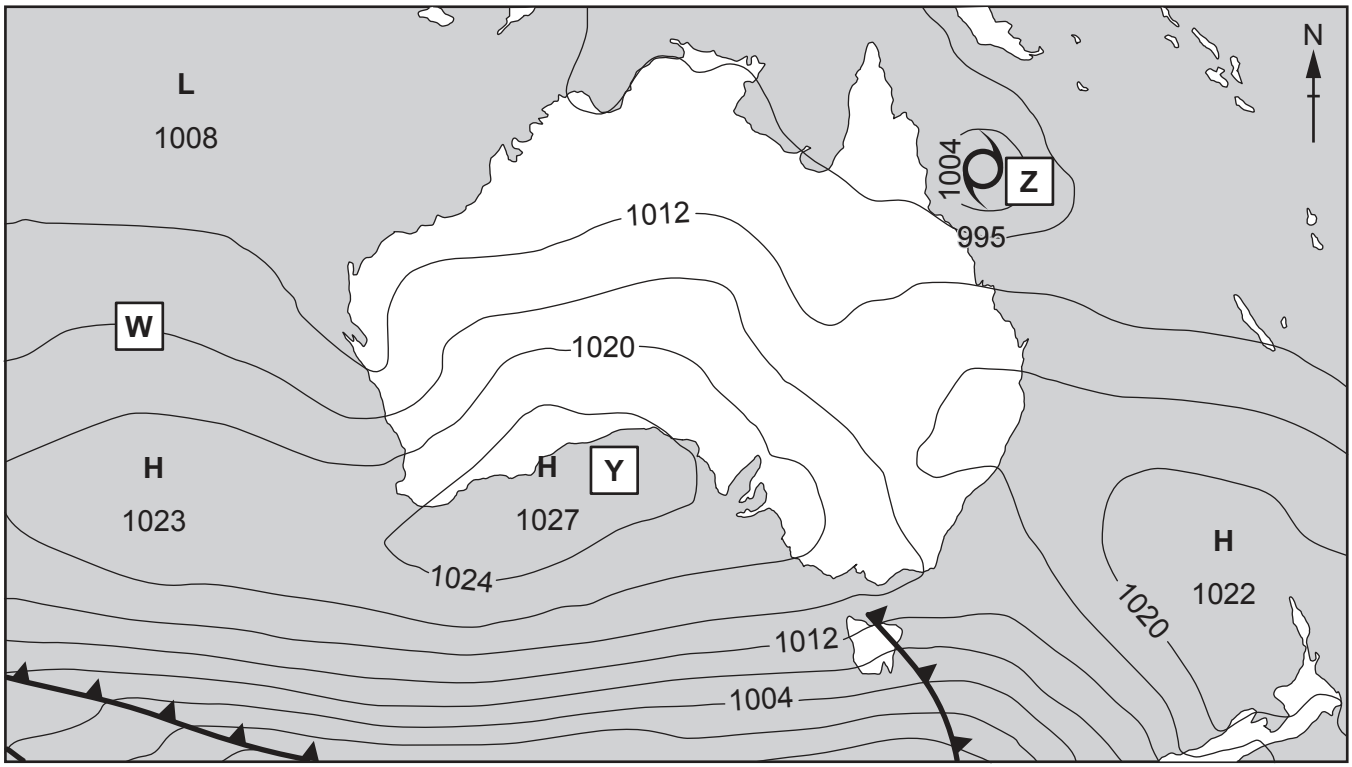
[Turn over

Section A

Answer **all** questions in this section.

Write your answers in the spaces provided.

1 **(a)** Fig. 1.1 is a weather chart for Australia from Monday 2 April 2018.



Key

tropical cyclone (hurricane)	**L** area of low pressure
cold front	**H** area of high pressure
isobar (units mbar)	
W **Y** **Z** weather features	

Fig. 1.1

(i) Predict the value of the isobar labelled **W**.

..... mbar [1]

(ii) State the name of weather feature **Y** on Fig. 1.1.

Justify your answer.

feature **Y** .....

justification .....

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[2]

(iii) Suggest **two** ways in which the weather associated with feature **Z** could affect the economy of the region.

Give reasons for your answer.

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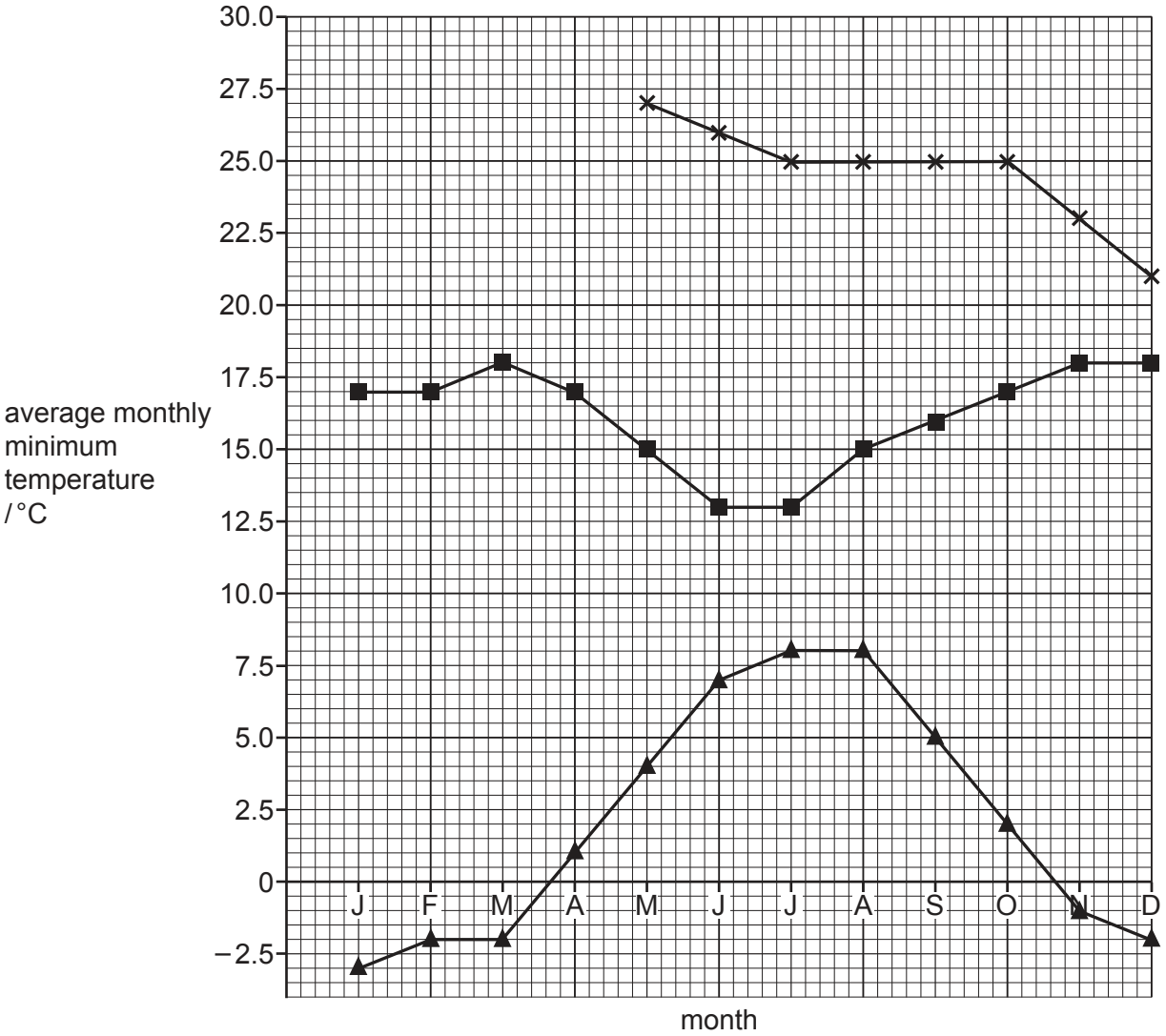
..... [4]

(b) Table 1.1 displays the average monthly minimum temperature by month for Mumbai, a city in India.

Table 1.1

	average monthly minimum temperature for Mumbai / °C											
month	J	F	M	A	M	J	J	A	S	O	N	D
	19	20	23	25	27	26	25	25	25	25	23	21

Fig. 1.2 is a graph to show average monthly minimum temperatures for Mumbai, Brasilia and Reykjavik.



Key

trendline	city	latitude
×	Mumbai	18 °N
■	Brasilia	15 °S
▲	Reykjavik	64 °N

Fig. 1.2

(i) Complete Fig. 1.2 by plotting the average monthly minimum temperature for Mumbai for the months January, February, March and April.

Complete the trendline. [2]

(ii) Calculate the range in the average monthly minimum temperature for Mumbai.

..... °C [1]

(iii) Explain how latitude affects the average monthly minimum temperature.

Use Fig. 1.2 to support your answer.

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..... [4]

(iv) State **two** factors, other than latitude, which may influence the temperature on the Earth's surface.

Explain your answer.

factor .....

explanation .....

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factor .....

explanation .....

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[4]

(c) Samples of rain water in Reykjavik were found to have a pH of 5.

Explain how rain water becomes acidic.

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..... [2]

[Total: 20]

2 **(a)** **(i)** Define *mechanical weathering*.

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..... [2]

(ii) Describe **one** similarity and **one** difference between *landslides* and *mudflows*.

similarity .....

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difference .....

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[4]

(b) Fig. 2.1 is a graph to show the reduction in size of rock **A** and rock **B** during 50 years of weathering.

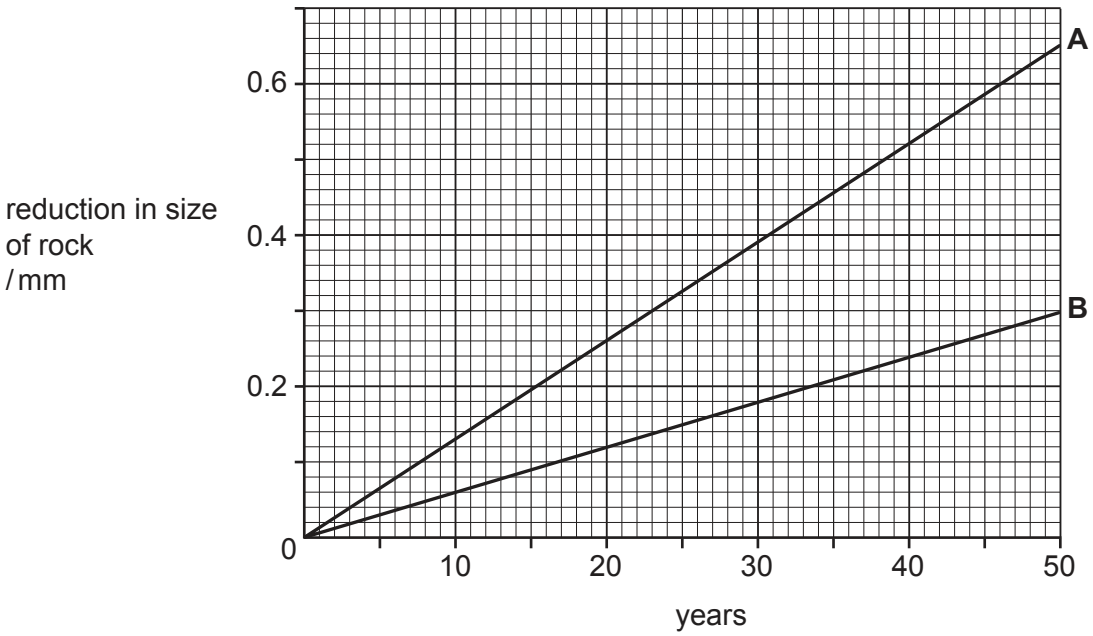

Fig. 2.1

(i) Suggest reasons for the difference in the rate of weathering between rock **A** and rock **B** shown in Fig. 2.1.

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..... [4]

(ii) Explain **two** ways in which human activity can trigger sudden mass movements.

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(c) Fig. 2.2 is a diagram of a valley where a settlement is located.

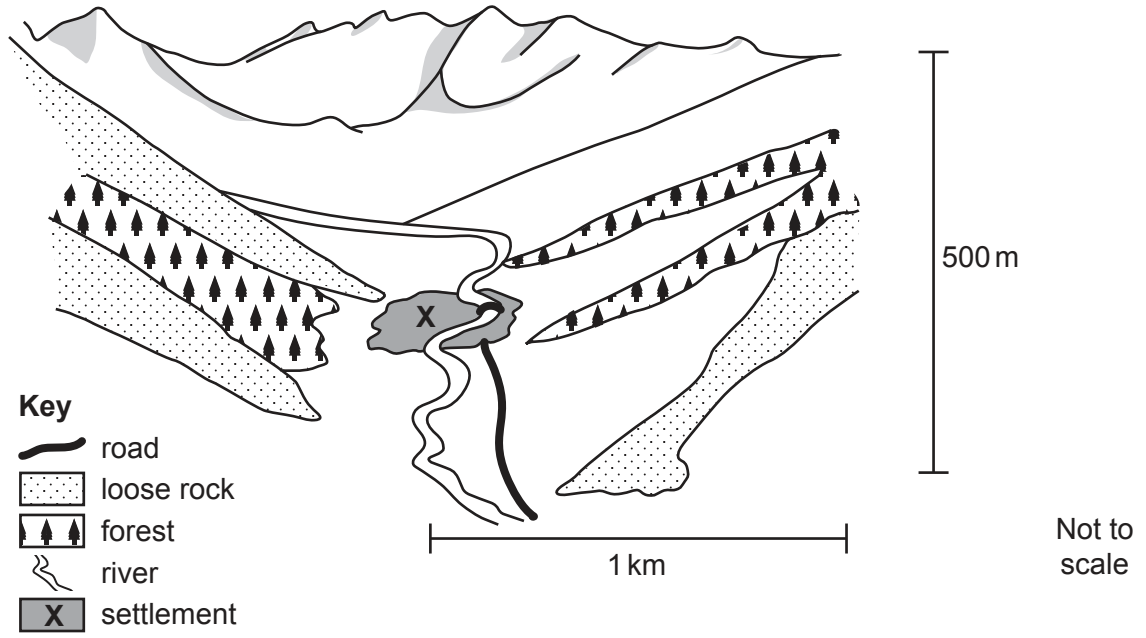

Fig. 2.2

Describe **three** strategies which could be used to reduce the risk to the settlement shown in Fig. 2.2 from mass movement events.

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..... [6]

[Total: 20]

Section B

Answer **one** question from this section.

Write your answers on the separate answer paper provided.

3 Fig. 3.1 shows the potential impact areas for some volcanic hazards within two regions of the United States of America.

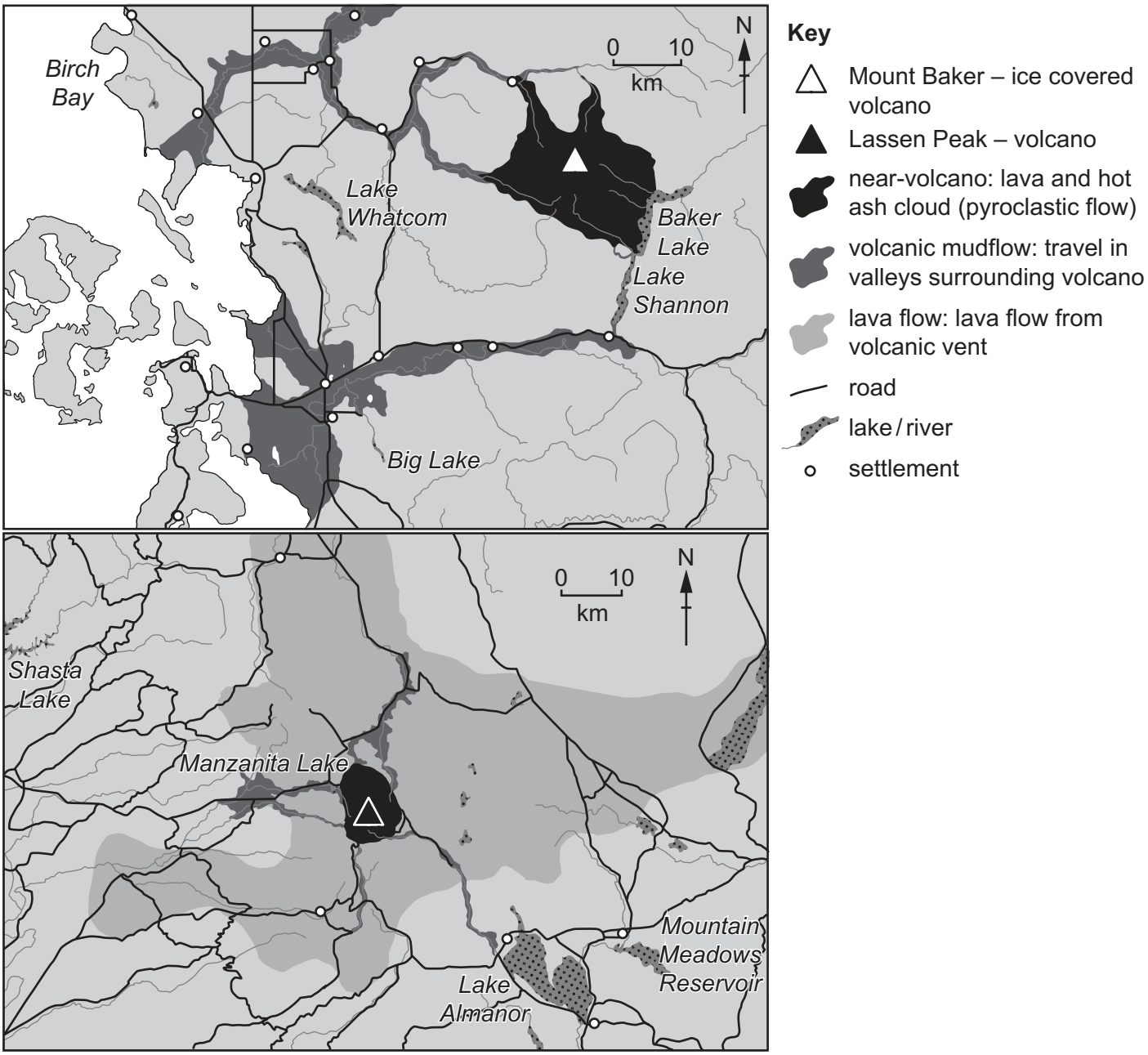

Fig. 3.1

(a) Compare and contrast the volcanic hazards near Mount Baker with the volcanic hazards near Lassen Peak. Refer to Fig. 3.1. [10]

(b) 'Strategies are successful in limiting damage and loss of life caused by volcanoes.'

Using contrasting examples, discuss the extent to which you agree with this statement. [30]

[Total: 40]

4 Table 4.1 shows global energy supply by source and global energy consumption by sector.

Table 4.1

	energy (Mtoe) *			
	1990	2005	2015	2030**
coal	2216	2892	3988	4994
oil	3216	4000	4720	5585
gas	1676	2354	3044	3948
nuclear	525	714	804	854
hydroelectric power (HEP)	184	251	327	416
biomass and waste	903	1149	1334	1615
other renewable	35	61	145	308
total global energy supply by source	8755	11421	14362	17720
domestic, services, agriculture	2516	2892	3423	4122
industry	2197	2834	3765	4576
transport	1471	2011	2469	3163
total global energy consumption by sector	6184	7737	9657	11861

* Mtoe (Million tonnes of oil equivalent) is the amount of energy released when one million tonnes of oil is burned.
** predicted values

(a) Describe and explain the trends in global energy supply and global energy consumption from 1990 to 2015 and predicted for 2030. Refer to Table 4.1. [10]

(b) Evaluate strategies which support the sustainable use of resources from the lithosphere. Refer to countries at contrasting levels of economic development. [30]

[Total: 40]

[Turn over

5 Fig. 5.1 shows air quality data from three urban locations.

8 April 2018 at 11:00			
urban location	**A**	**B**	**C**
air quality	very poor	poor	good

air quality recorded during the previous 100 days

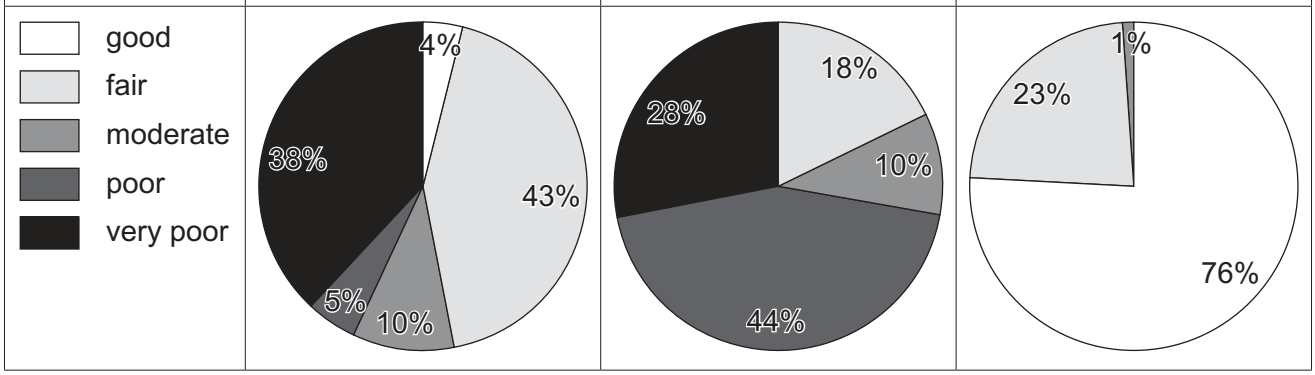

Fig. 5.1

(a) Compare the air quality between urban locations **A**, **B** and **C**. Suggest reasons why air quality may vary during a period of 100 days. [10]

(b) Discuss the challenges in managing industrial pollution. Refer to examples from countries of contrasting levels of economic development in your answer. [30]

[Total: 40]