Cambridge International AS Level

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

ENVIRONMENTAL MANAGEMENT **8291/13**

Paper 1 Lithosphere and Atmosphere **October/November 2021**

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 [ ].

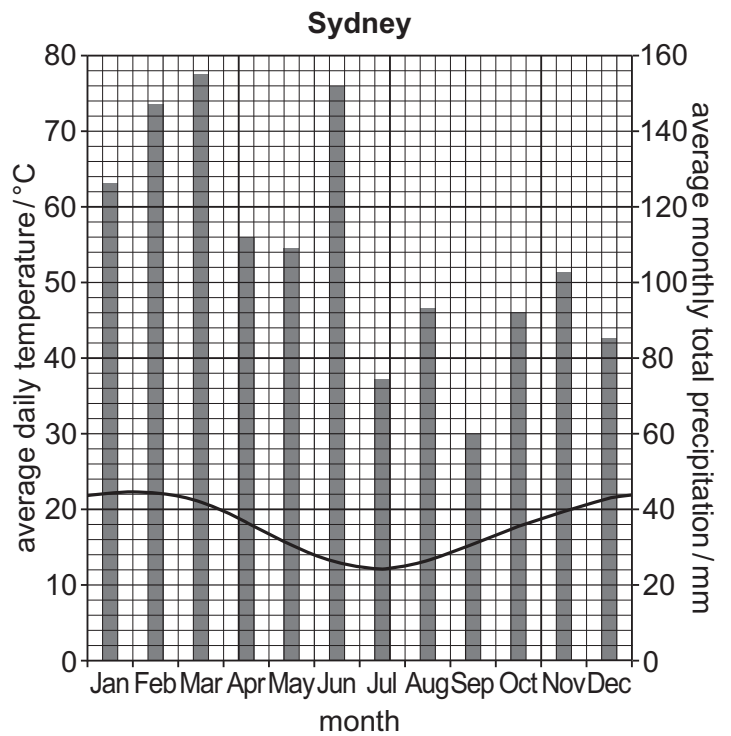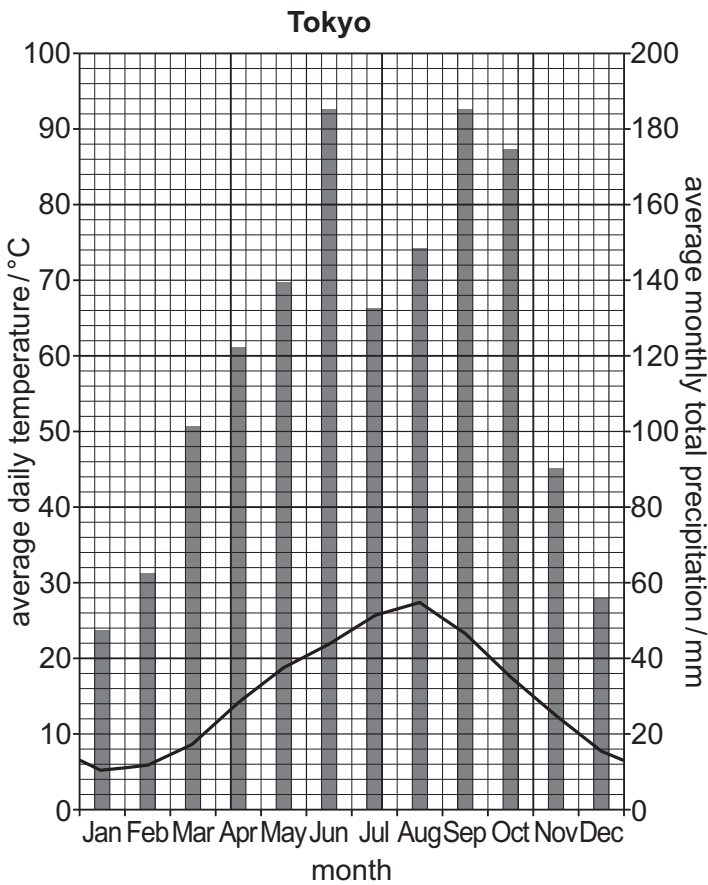| For Examiner's use	
Section A	
1	
2	
Section B	
Total	

This document has **12** pages.

[Turn over

Section A

Answer **all** questions in this section.

Write your answers in the spaces provided.

1 **(a)** Fig. 1.1 shows the location of two cities and their climate data.

Fig. 1.1

(i) Compare the climate for Tokyo and Sydney in August. Refer to Fig. 1.1 in your answer.

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.... [3]

(ii) Explain why the climate data indicates that Tokyo is located in the Northern Hemisphere. Refer to Fig. 1.1 in your answer.

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.... [2]

(iii) Mount Fuji is a mountain southwest of Tokyo.

Explain the effects mountains have on climate.

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.... [4]

(iv) Suggest how ocean currents influence the climate of an area.

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.... [1]

(b) Fig. 1.2 shows rainfall data and wind direction during the summer monsoon in part of Asia.
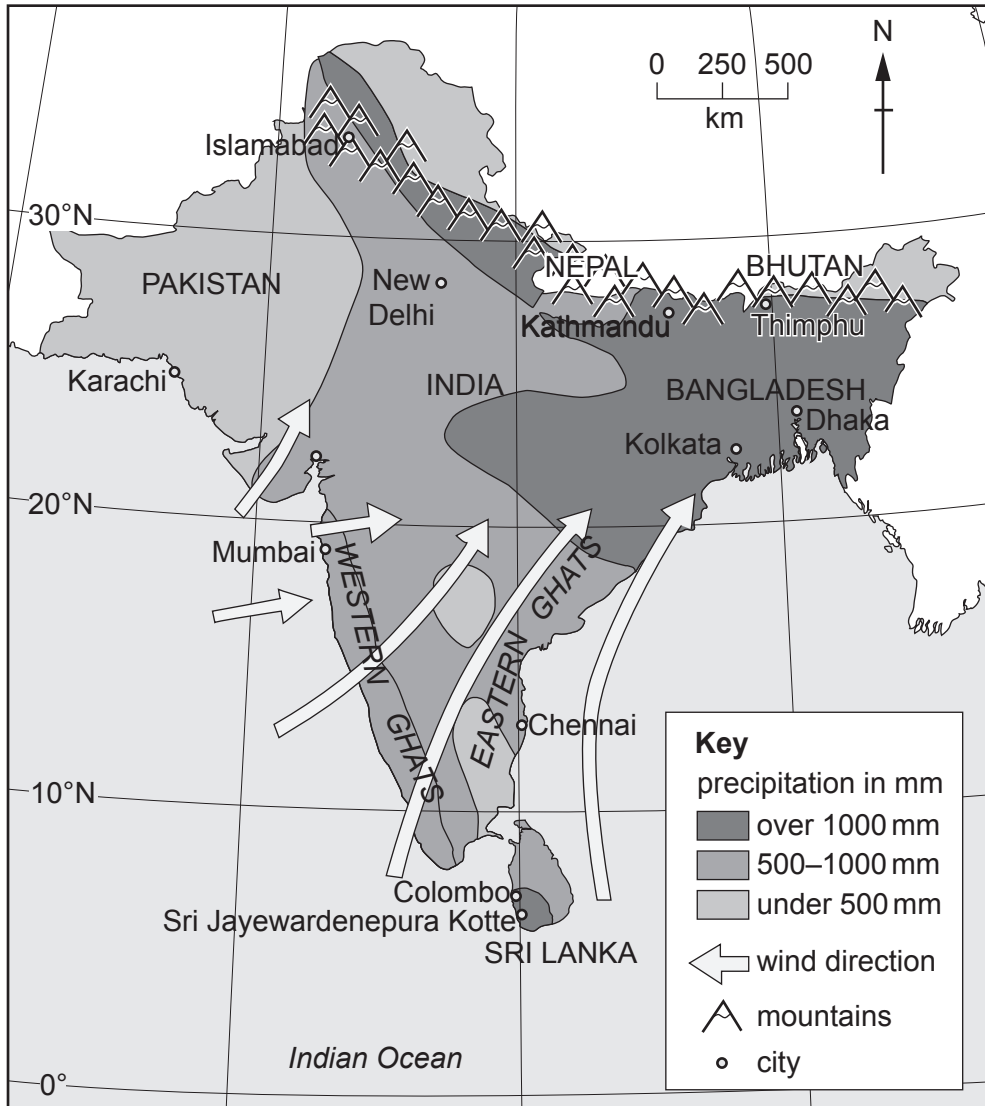
Fig. 1.2

(i) Describe the pattern in precipitation distribution shown in Fig. 1.2.

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.... [2]

(ii) Explain why the area shown in Fig. 1.2 experiences a summer monsoon.

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.... [3]

(c) 80% of India's annual precipitation occurs from May to October.

Table 1.1 shows annual precipitation data for India from May to October.

Table 1.1

maximum precipitation / mm	1080
average precipitation / mm	890

Suggest challenges to humans caused by the data shown in Table 1.1.

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.... [5]

[Total: 20]

2 **(a)** **(i)** Explain why freeze-thaw weathering is an example of mechanical (physical) weathering.

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.... [2]

(ii) Describe factors that affect the rate of freeze-thaw weathering.

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.... [4]

(b) Fig. 2.1 shows the percentage of clay, silt and sand in a variety of types of soil.
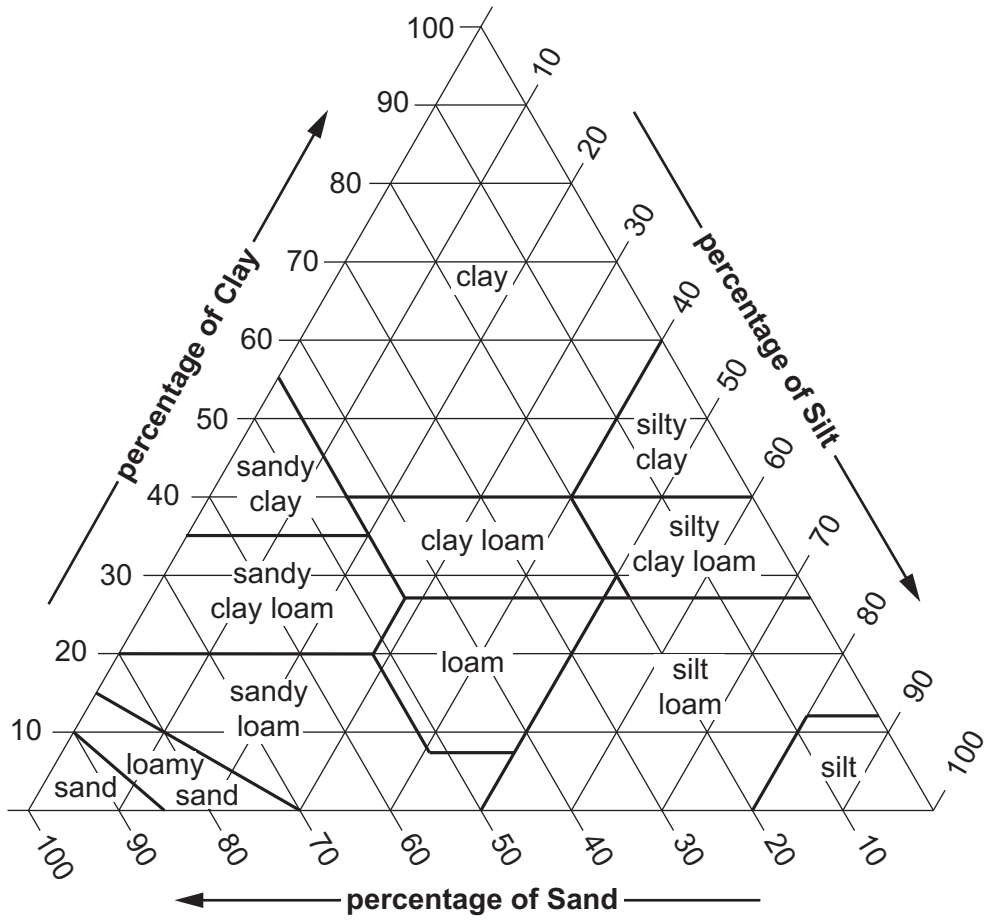
Fig. 2.1

(i) Identify the type of soil that contains 30% clay, 20% silt and 50% sand.

.... [1]

(ii) Clay, silt and sand are components of soil.

State **two** other components of soil.

1 ....

2 ....

[2]

(c) Fig. 2.2 shows change in forest area from 1990–2015.
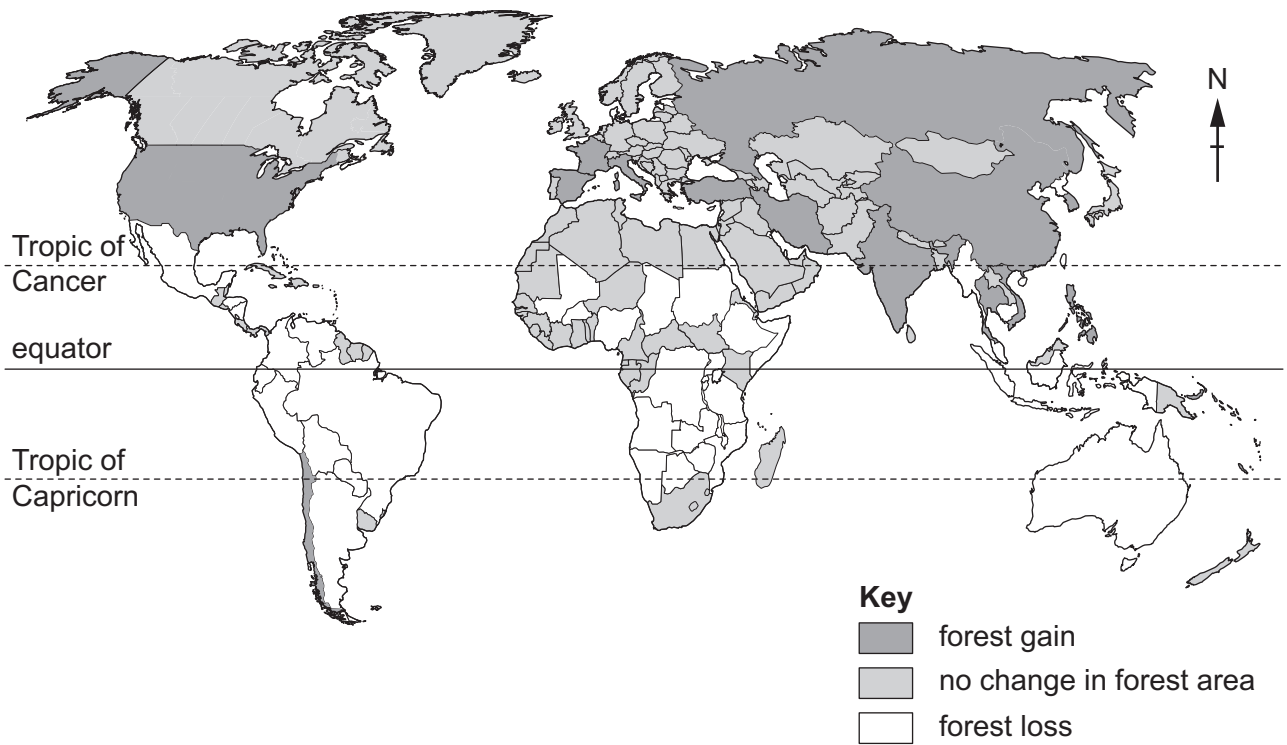
Fig. 2.2

(i) Describe the distribution of change in forest area shown in Fig. 2.2.

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.... [3]

(ii) Explain how deforestation can lead to soil deterioration.

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.... [2]

(iii) State **two** threats to soil other than deforestation.

1 ....

2 ....

[2]

(d) Fig. 2.3 shows slope management strategies.
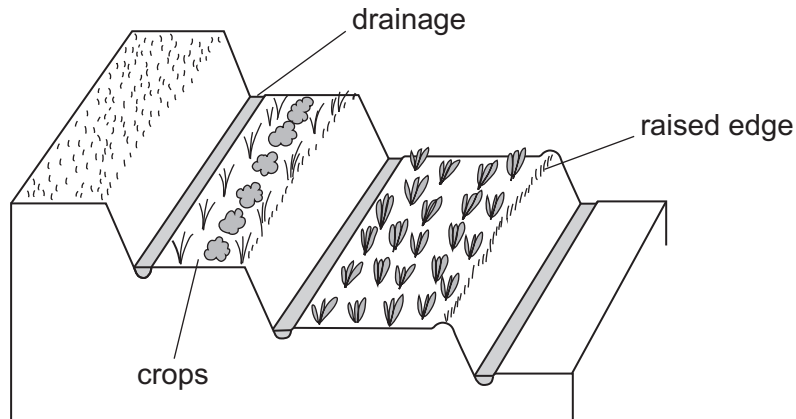
Fig. 2.3

Describe how the slope management strategies shown in Fig. 2.3 reduce the risk of mass movement.

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.... [4]

[Total: 20]

Section B

Answer **one** question from this section.

Write your answers on the separate answer paper provided.

3 Fig. 3.1 shows hazards that result from volcanic eruptions.
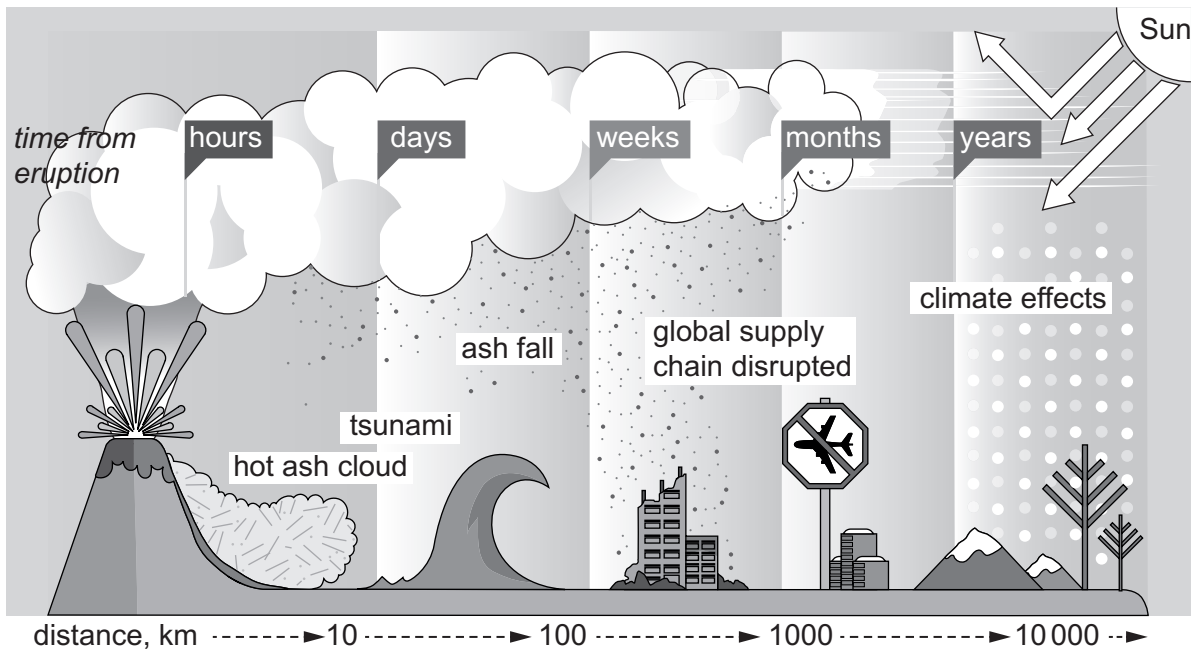
Fig. 3.1

(a) Compare the impacts of the hazards associated with volcanic eruptions shown in Fig. 3.1. [10]

(b) 'The damage and loss of life caused by a volcano is determined by the type of eruption.'

Discuss the extent to which you agree with this statement. Refer to examples in your answer. [30]

[Total: 40]

4 Fig. 4.1 shows areas at risk from impacts of global warming.
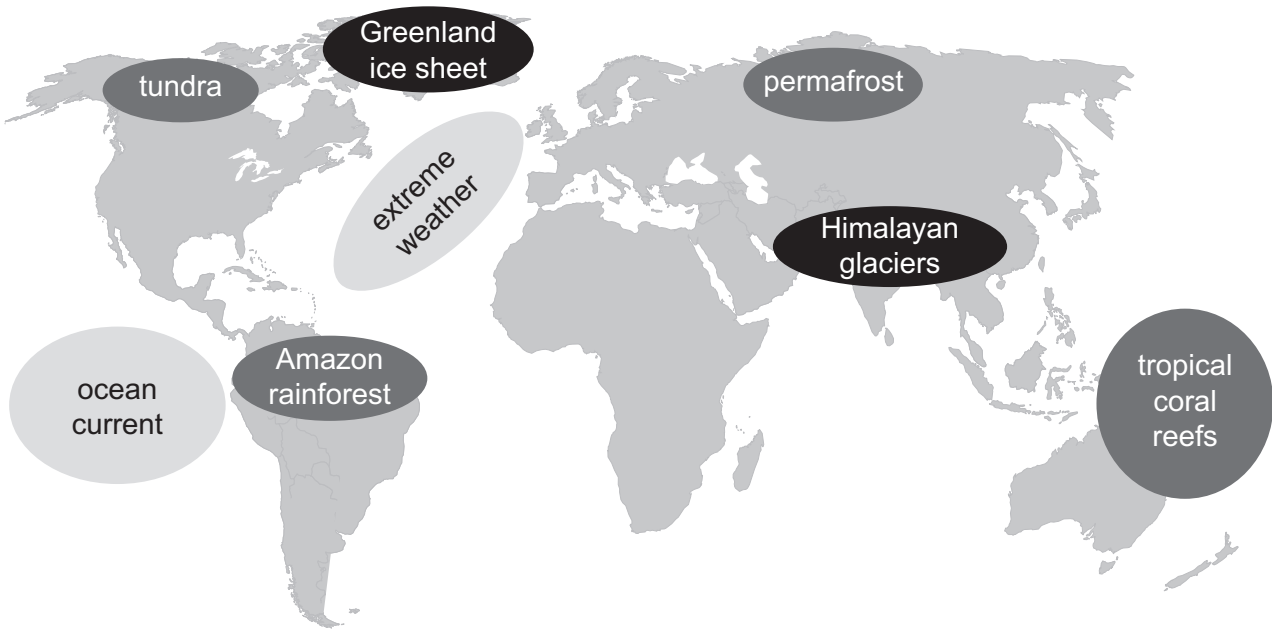
Fig. 4.1

(a) Describe the impacts of global warming on the areas shown in Fig. 4.1. [10]

(b) The use of renewable resources to meet energy needs reduces the impact of global warming.

Discuss why MEDCs can and should support LEDCs in developing and using renewable resources. Use examples in your answer. [30]

[Total: 40]

5 CFCs in the atmosphere depleted stratospheric ozone.

Fig. 5.1 shows factors that managed the reduction of CFC emissions.
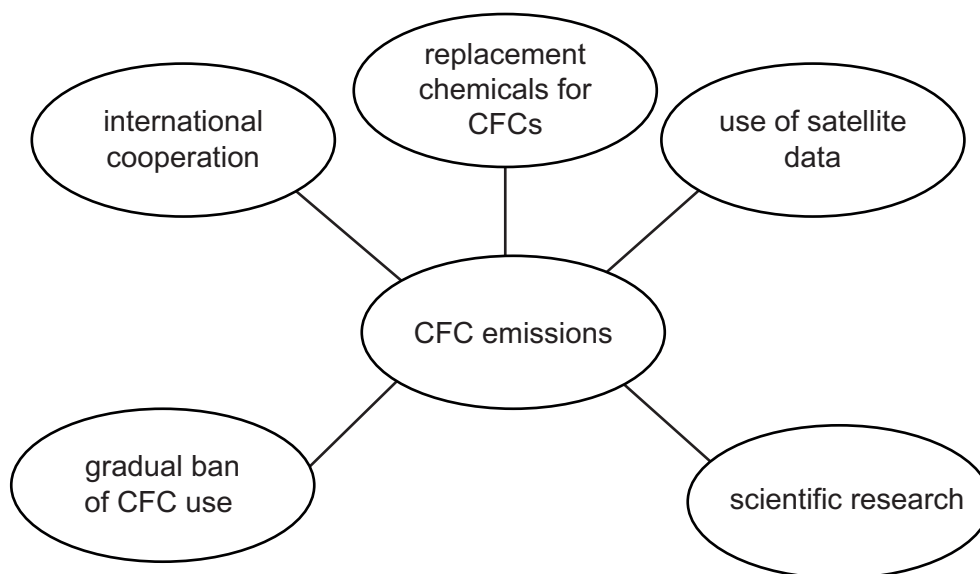
Fig. 5.1

(a) Explain how the factors in Fig. 5.1 contributed to the reduction of CFC emissions. [10]

(b) Discuss the challenges in managing air pollution in urban areas. Refer to examples. [30]

[Total: 40]