UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education
Advanced Subsidiary Level

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

7103906888

ENVIRONMENTAL MANAGEMENT **8291/12**

Paper 1 Lithosphere and Atmosphere **May/June 2011**

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 a soft pencil for any diagrams, graphs, tables or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Section A
Answer **all** questions.
Write your answers in the spaces provided on the question paper.

Section B
Answer **one** question from this section.
Answer the question 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 opposite.

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

This document consists of **11** printed pages and **1** blank page.

UNIVERSITY of CAMBRIDGE International Examinations

Section A

For Examiner's Use

Answer **all** questions in this section.

Write your answers in the spaces provided.

1 **(a)** Table 1.1 contains details of sources and types of atmospheric pollution commonly found in urban areas. Complete the table by adding the appropriate sources and types to the empty boxes. [3]

Table 1.1

source of pollution	type of pollution
incinerators	dioxins
coal-fired power stations	
	carbon monoxide
	nitrogen oxides

(b) Ground level ozone is a secondary pollutant produced in urban areas. Fig. 1.1 illustrates how it is formed.

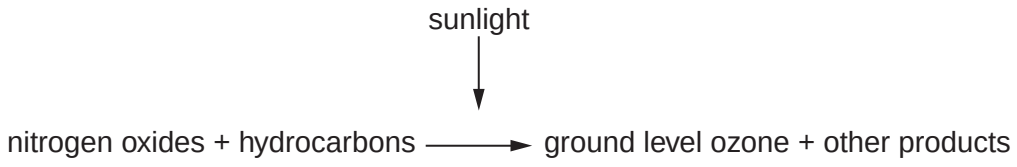

Fig. 1.1

(i) What is meant by the term *secondary pollutant*?

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..... [1]

(ii) Suggest why ground level ozone is more of a problem on sunny days.

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..... [2]

(iii) Explain why concentrations of ground level ozone can also be found in rural, traffic-free areas.

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..... [2]

(c) Fig. 1.2 and Fig. 1.3 show buildings in a cross-section though a city.

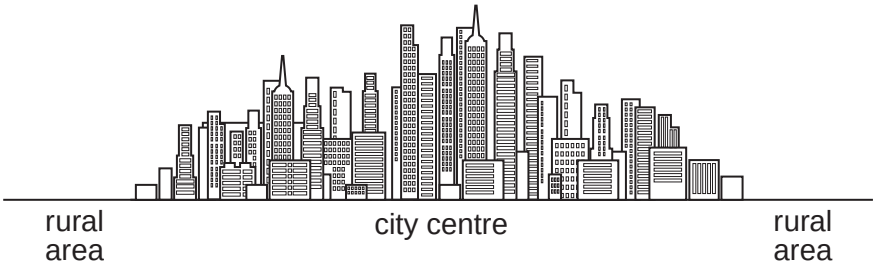

Fig. 1.2

Fig. 1.3

(i) Draw a line (——) onto Fig. 1.2 to show the shape of the atmospheric pollution zone when there is no wind. [2]

(ii) Draw a line (——) onto Fig. 1.3 to show the shape of the atmospheric pollution zone when wind direction is from west to east. [2]

(d) Fig.1.4 is a map showing levels of nitrogen oxides (NO_x) polluting the atmosphere in a district in the city of Prague.

For Examiner's Use

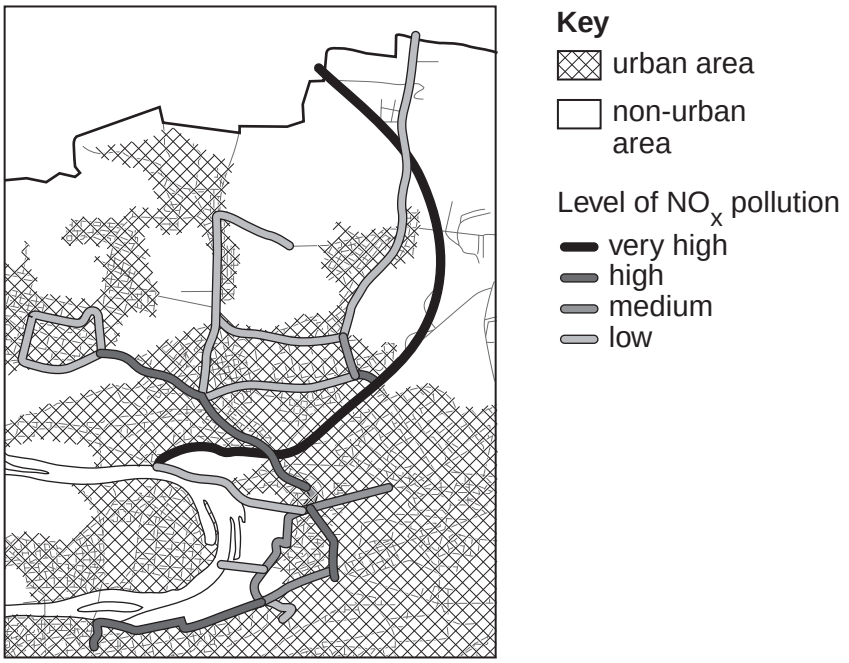

Fig. 1.4

(i) Describe the distribution in atmospheric pollution shown in Fig. 1.4 and suggest **two** reasons for this distribution.

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..... [6]

(ii) Outline **one** way in which the design of an inner city area would assist in keeping atmospheric pollution in the streets at a low level.

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..... [2]

[Total: 20]

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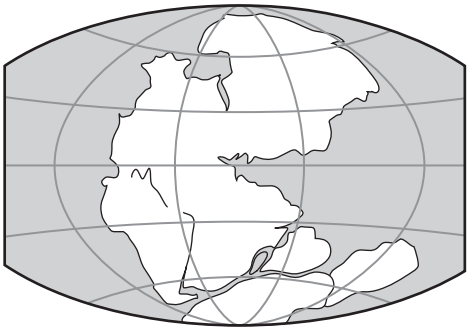
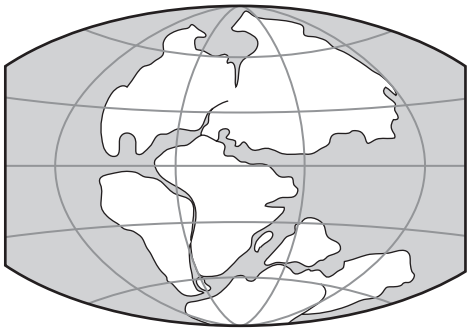
2 **(a)** **(i)** Using Fig. 2.1, describe how the location of the Earth's continental plates has changed over the last 225 million years.

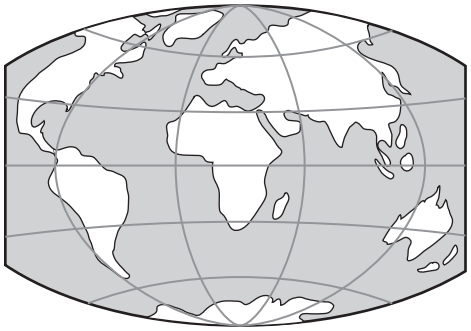
For Examiner's Use



PERMIAN
225 million years ago



JURASSIC
135 million years ago



PRESENT DAY

Fig. 2.1

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..... [3]

(ii) Describe how **either** palaeo-magnetism **or** palaeontology can provide supporting evidence for the changes evident in Fig. 2.1.

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(b) The San Andreas Fault in California is a transform or strike slip-fault.
Fig. 2.2 shows some surface features produced by the San Andreas Fault.
Fig. 2.3 shows the location of different types of seismic activity along the San Andreas Fault.

For Examiner's Use

Carrizo Plain Section

Fig. 2.2

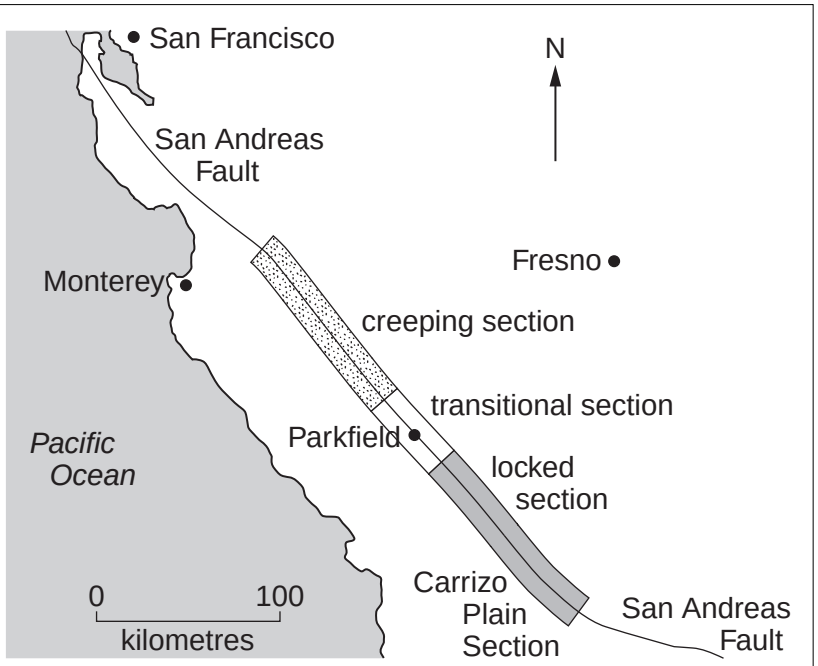

Fig. 2.3

(i) State **one** piece of evidence from Fig. 2.2 that suggests the type of fault movement is horizontal rather than vertical.

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..... [2]

(ii) State **one** piece of evidence from Fig. 2.2 that suggests that earthquakes are frequent occurrences along this section of the fault.

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..... [2]

(iii) Fig. 2.3 shows that the nature of plate movement divides the San Andreas Fault into a creeping section, a transitional section and a locked section.

For Examiner's Use

- Suggest how and why earthquake activity in the locked section of the fault would differ from that in the creeping section.

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- Suggest why Parkfield is a good location for studying earthquake activity along the San Andreas Fault.

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..... [4]

(c) Fig. 2.4 shows the frequency of seismic activity along the San Andreas Fault over a period of time. One dot is used to record one seismic event. Where many events are recorded over a short period, the dots merge to produce a more continuous form of shading.

For Examiner's Use

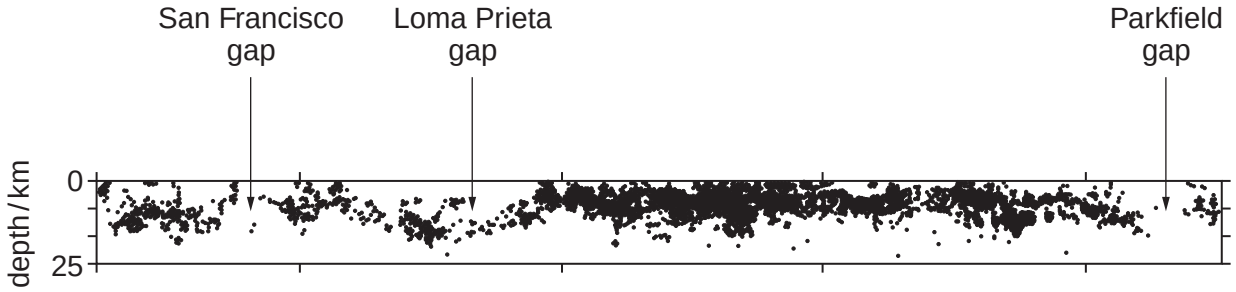

Fig. 2.4

Describe how seismological evidence, such as that shown in Fig. 2.4, can be used in the prediction of earthquake activity at different places along the San Andreas Fault.

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..... [6]

[Total: 20]

Section B

Answer **one** question from this section.

3 **(a)** Fig. 3.1 shows changes to estimated global temperatures, atmospheric carbon dioxide concentration and sunspot activity between 1855 and 2010.

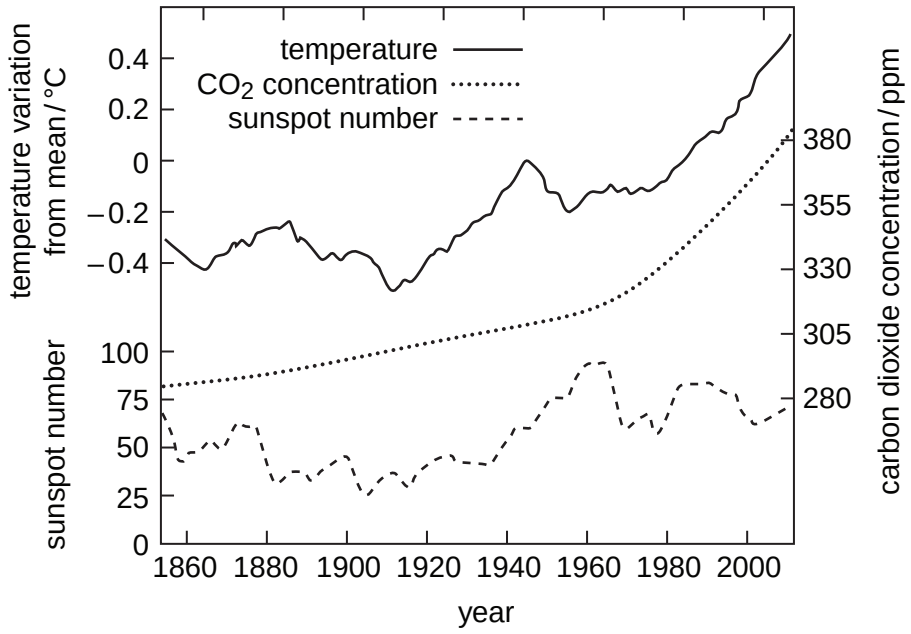

Fig. 3.1

Briefly assess the extent to which sunspot activity and carbon dioxide concentration can be regarded as contributors to global warming. [10]

(b) With reference to examples from More Economically Developed countries (MEDCs) and Less Economically Developed Countries (LEDCs), assess the difficulties in achieving agreement on reducing levels of atmospheric carbon dioxide. [30]

[Total: 40]

4 **(a)** Suggest **three** reasons for the distribution of soil degradation shown in Fig. 4.1. [10]

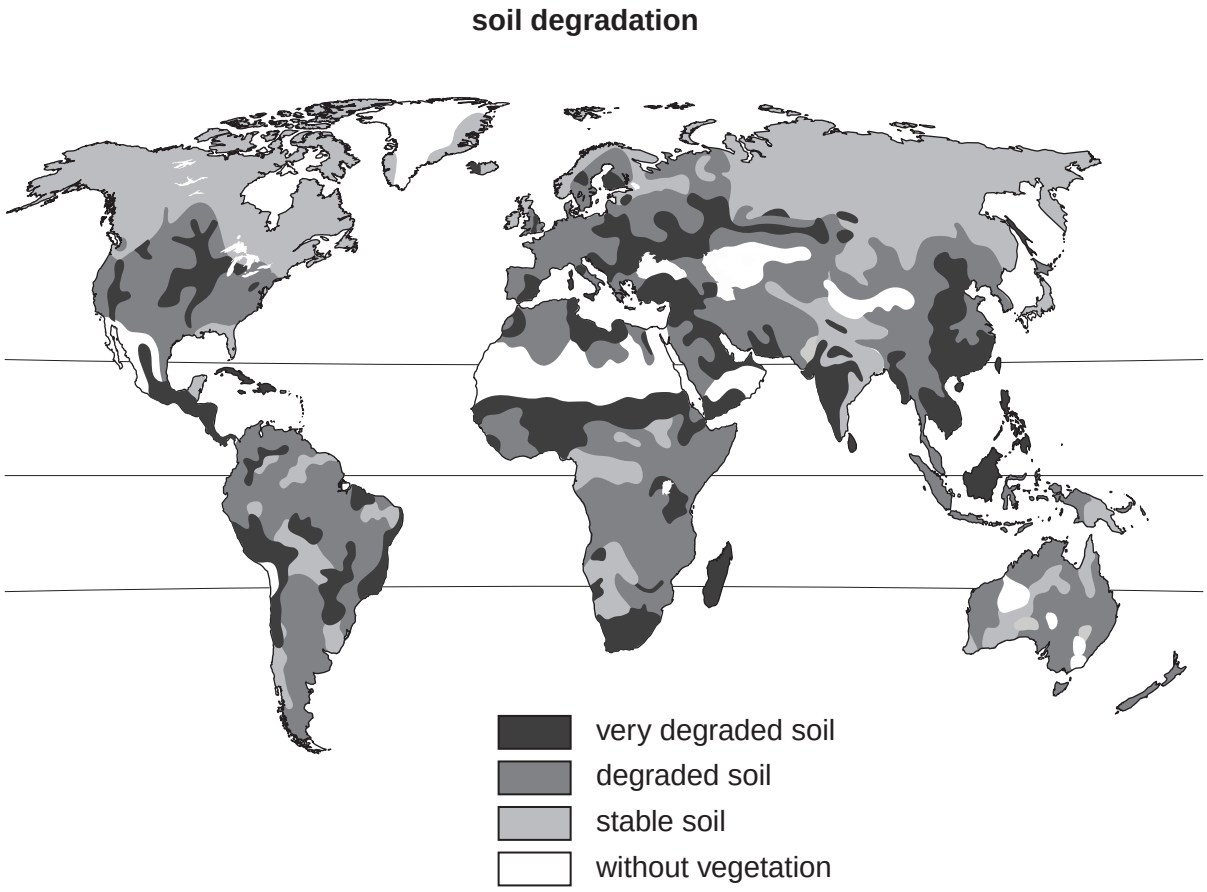

Fig. 4.1

(b) With reference to examples with which you are familiar, assess the extent to which agricultural land is used in an environmentally sustainable way. [30]

[Total: 40]

5 **(a)** Using examples for each, distinguish between renewable, non-renewable and recyclable resources. [10]

(b) We live in a world of increasing population and universal demands for high standards of living.

In light of this statement assess the environmental arguments for replacing non-renewable resources with renewable and recyclable resources. [30]

[Total: 40]