

CANDIDATE
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ENVIRONMENTAL MANAGEMENT

8291/12

Paper 1 Lithosphere and Atmosphere

October/November 2017

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 **11** printed pages and **1** blank page.

Section A

Answer **all** questions in this section.

Write your answers in the spaces provided.

- 1 (a) Fig. 1.1 shows a simplified pattern of global air circulation.

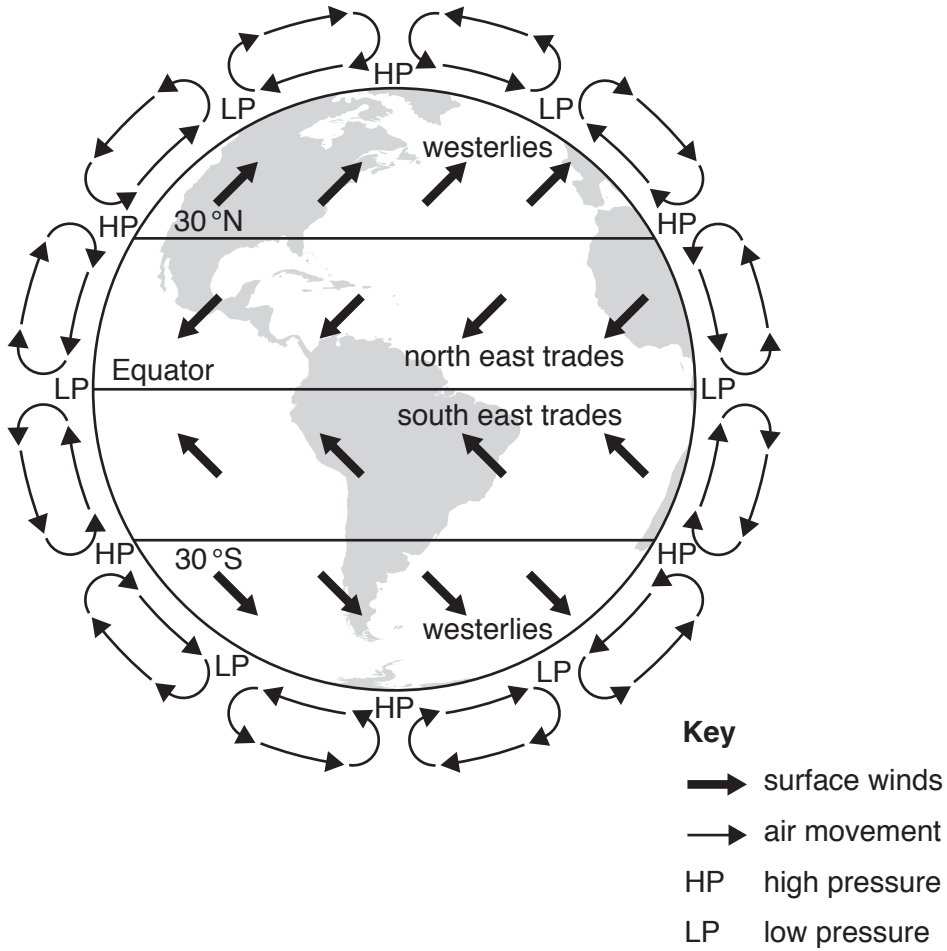


Fig. 1.1

- (i) State **one** similarity and **one** difference between the circulation of air in the northern and southern hemispheres as shown in Fig. 1.1.

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.....

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.....[2]

(ii) With reference to Fig. 1.1, describe the pattern of air circulation in the equatorial region.

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..... [2]

(b) Fig. 1.2 is a cross-section through South America at latitude 20°S.

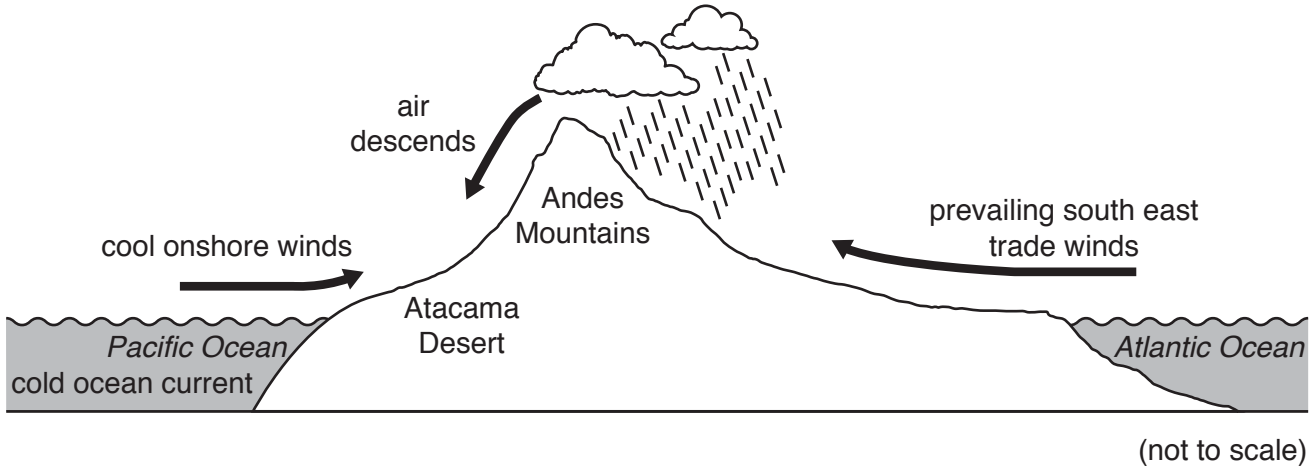


Fig. 1.2

With reference to Fig. 1.2, briefly explain the effect of the following influences on the climate of the Atacama Desert.

relief

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ocean currents

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[6]

(c) Fig. 1.3 shows local patterns of air circulation at the coast during the daytime and during the night-time.

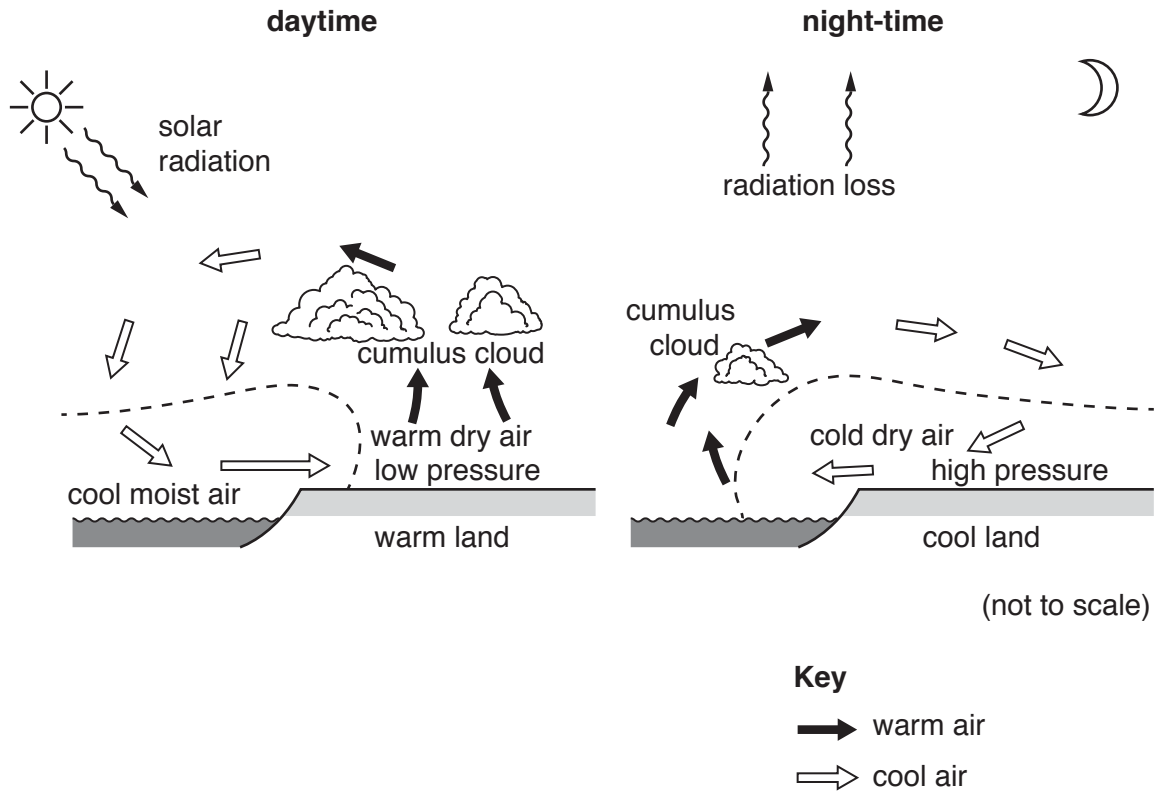


Fig. 1.3

(i) State **two** ways the daytime pattern of air movement is different to the night-time pattern of air movement shown in Fig. 1.3.

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.....[2]

(ii) Explain why clouds are more common along the coast during the daytime than during the night-time.

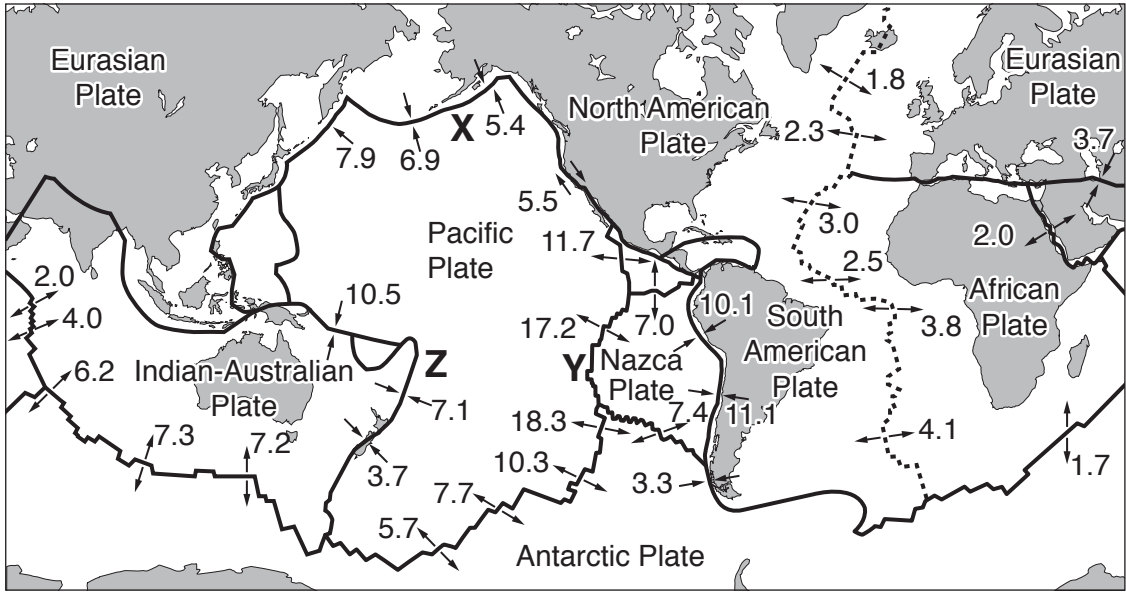
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..... [4]

(d) Explain why daily forecasts of wind speed are useful.

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..... [4]

[Total: 20]

- 2 (a) Fig. 2.1 shows information about some of the world's tectonic plates, their movement and the boundaries between them.



Key
 plate boundary —————
 Mid-Atlantic Ridge
 direction of plate movement ———→
 (figures refer to movement per year in cm)

Fig. 2.1

- (i) Identify the type of plate boundary found at X, Y and Z in Fig. 2.1. Choose from the list.

conservative constructive destructive

X

Y

Z

[2]

- (ii) Use Fig. 2.1 to calculate the average rate of movement along the Mid-Atlantic Ridge.

Show your working.

..... cm per year [2]

- (b) Table 2.1 shows how the nature of an earthquake varies according to the type of plate boundary it occurs on.

Table 2.1

type of plate boundary	depth of focus	earthquake frequency	earthquake magnitude
conservative	always shallow	variable	variable
constructive	mainly shallow	high	low
destructive	varying depths up to around 700 km	low	generally high

- (i) Explain what is meant by the following terms.

earthquake magnitude

.....

earthquake frequency

.....

[4]

- (ii) With reference to Table 2.1, suggest which type of plate boundary is likely to produce the most damaging earthquake effects. Give reasons for your answer.

.....

..... [4]

(iii) Fig. 2.2 identifies some factors which affect the damage to life and property from an earthquake.

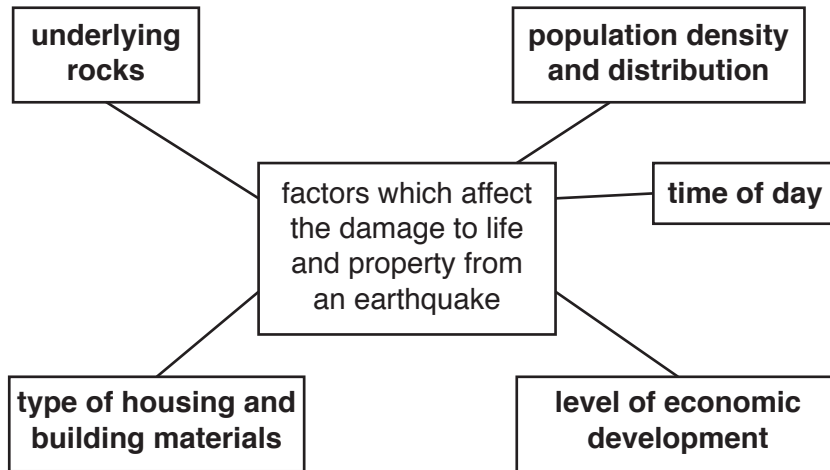


Fig. 2.2

Choose **two** of the factors shown in Fig. 2.2 and explain how each factor influences the damage caused by an earthquake.

factor 1

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factor 2

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[8]

[Total: 20]

Section B



Answer **one** question from this section.

Write your answers on the separate answer paper provided.

- 3 Fig. 3.1 is taken from a newspaper article in 2014 and describes a project to create more urban land in Gansu, a province in China.

5 June 2014

China moving mountains for mega-cities

When the most populated country on Earth continues to grow rapidly, what can be done? China is moving mountains in order to create more land. The idea is simple; remove the tops of the mountains and use the material to fill in the valleys below to create a flat, habitable area of land.

Fig. 3.1

- (a) Suggest what environmental problems might result from the project described in Fig. 3.1. [10]
- (b) With reference to examples, discuss the view that using resources of the lithosphere is always damaging to the natural environment. [30]

[Total: 40]

- 4 Fig. 4.1 is a satellite image showing information about weather over the Pacific region.

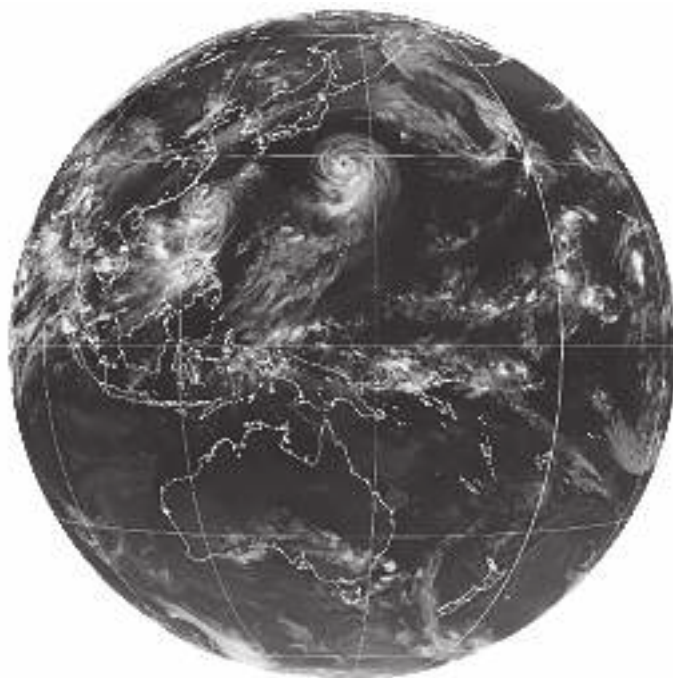


Fig. 4.1

- (a) With reference to Fig. 4.1, describe the different weather patterns shown and suggest how satellite imagery can contribute to monitoring long-term climate change. [10]
- (b) Assess the extent to which emissions of carbon dioxide and methane from human activities may be responsible for global warming. Refer to examples from different areas of the world. [30]

[Total: 40]

- 5 Fig. 5.1 is a diagram showing how the use of CFCs (chlorofluorocarbons) has been linked to harmful effects on people and on the natural environment.

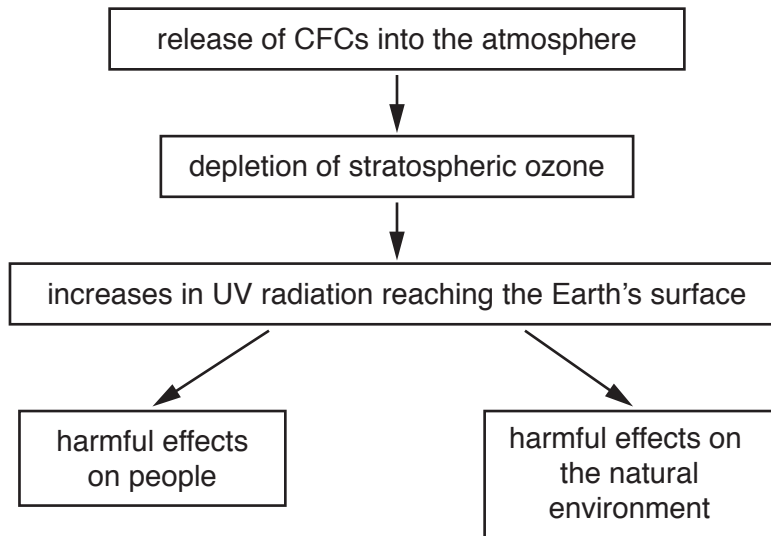


Fig. 5.1

- (a) With reference to Fig. 5.1, explain the link between the use of CFCs and the harmful effects on people and on the natural environment. [10]
- (b) To what extent is atmospheric pollution from human activities being managed successfully? Use examples from different areas of the world in your answer. [30]

[Total: 40]

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