Cambridge Assessment International Education

Cambridge International AS Level

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

ENVIRONMENTAL MANAGEMENT **8291/11**

Paper 1 Lithosphere and Atmosphere **May/June 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.

DC (JC/CT) 184666/4

[Turn over

Section A

Answer **all** questions in this section.

Write your answers in the spaces provided.

1 (a) Table 1.1 shows information on predicted global surface temperature increase.

Table 1.1

	predicted global surface temperature increase compared to temperatures measured in 2005				
year	2020	2040	2060	2080	2100
maximum predicted temperature increase / °C	1.00	1.80	2.70	4.00	5.40
minimum predicted temperature increase / °C	0.02	0.02	0.02	0.02	0.02

(i) A range is the difference between the maximum and minimum values.

Calculate the range of predicted temperature increase for the year 2100. Use the data provided in Table 1.1.

..... °C
[1]

(ii) The range of predicted temperature increase for the year 2020 is 0.98 °C.

Suggest **two** reasons why it is difficult to make accurate predictions about the global surface temperature increase in 2100.

.....

.....

.....

..... [2]

(iii) Increased concentrations of atmospheric carbon dioxide lead to the *enhanced greenhouse effect*.

Describe how the *enhanced greenhouse effect* leads to an increase in global surface temperatures.

.....

.....

.....

.....

.....

..... [4]

(iv) Describe **one** likely impact of the *enhanced greenhouse effect* other than surface temperature increase.

.....

.....

.....

..... [2]

(b) Fig. 1.1 is a simplified diagram showing part of the annual global exchange of carbon (the carbon cycle).

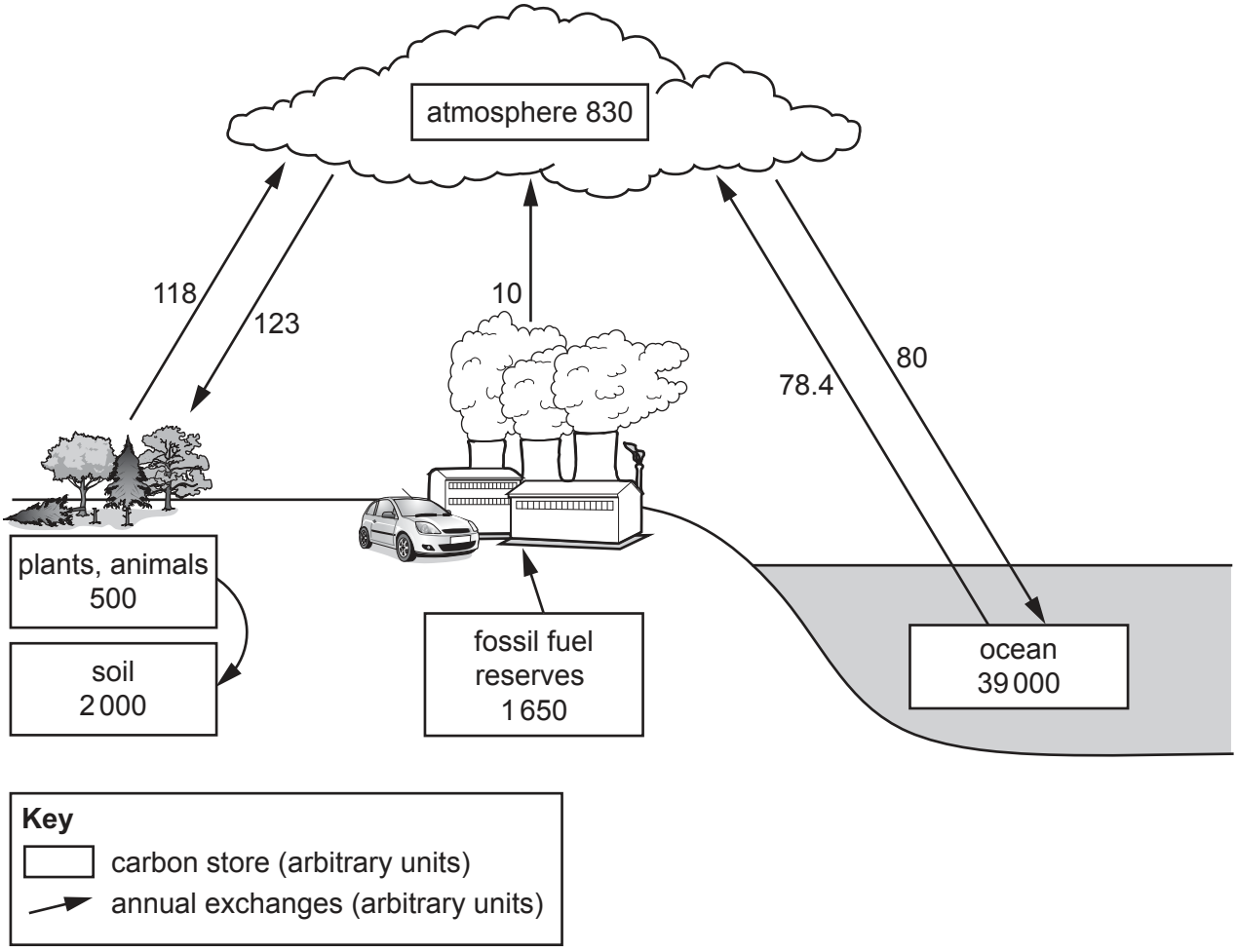

Fig. 1.1

(i) Calculate the annual exchange of carbon entering the atmosphere and leaving the atmosphere.

Use the data in Fig. 1.1.

entering the atmosphere ..... units

leaving the atmosphere ..... units
[2]

(ii) Explain how human activities are responsible for the *enhanced greenhouse effect*.

You can refer to your calculations in **(b)(i)** to support your answer.

.....

.....

.....

.....

.....

.....

..... [3]

(iii) Explain how countries can work together to reduce the e*nhanced greenhouse effect*.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [6]

[Total: 20]

2 **(a)** Fig. 2.1 shows a chain of volcanic islands of different ages on one tectonic plate. This evidence can be used to support post-Pangaea plate movement.

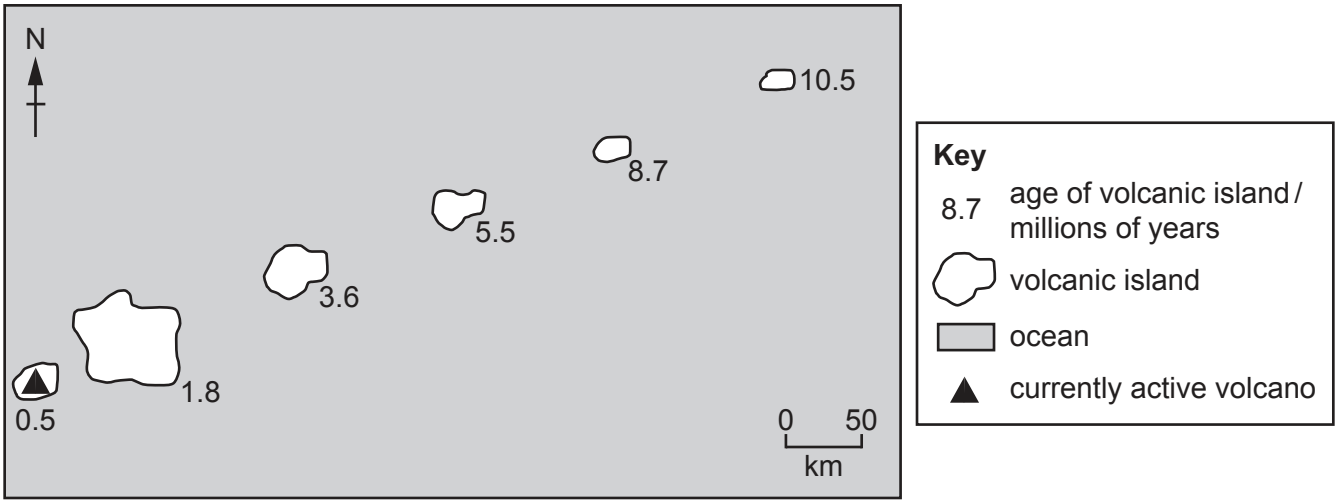

Fig. 2.1

(i) Draw an arrow on Fig. 2.1 to suggest the direction the tectonic plate is moving. [1]

(ii) Calculate the rate at which the tectonic plate has moved in the last 10 million years.

..... km / million years [2]

(b) Fig. 2.2 shows a simplified diagram of the plate boundaries surrounding the Indo-Australian tectonic plate.

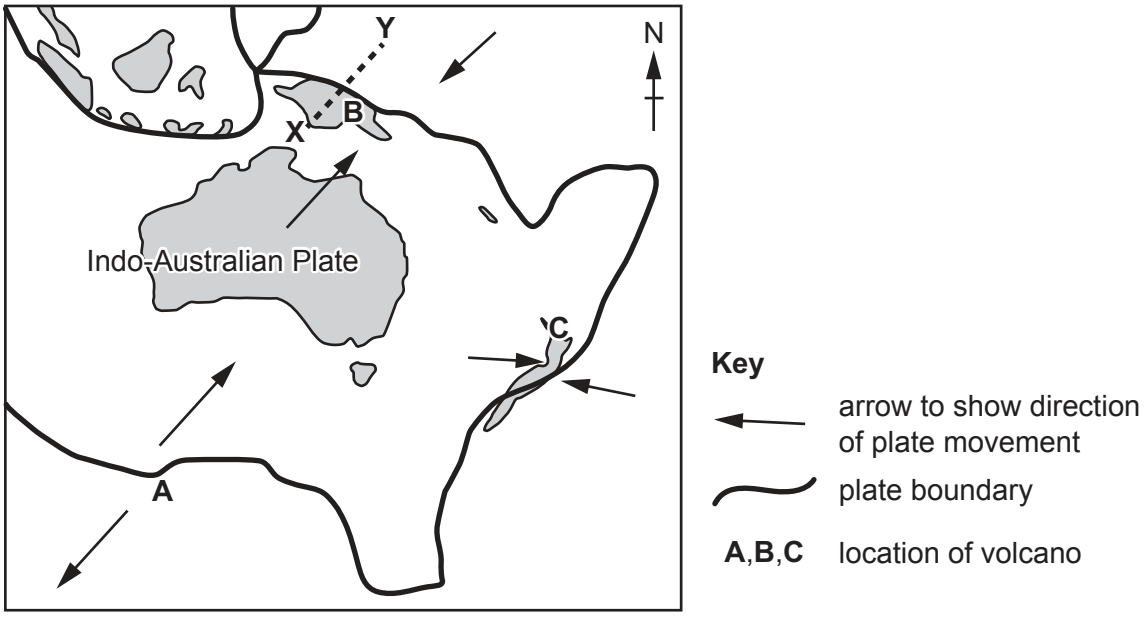

Fig. 2.2

(i) Name the type of plate boundary at location **A** and location **B** on Fig. 2.2.

location **A** .....

location **B** .....

[1]

(ii) Sketch a labelled cross-section from the point labelled **X** on Fig. 2.2 to the point labelled **Y** on Fig. 2.2 to show the plate boundary between the tectonic plates.

X • • **Y**

[4]

(iii) The volcano at **A** produces basaltic lava when it erupts.

Describe the characteristics of basaltic lava.

.....

.....

.....

.....

.....

..... [3]

(iv) Explain why earthquakes are a frequent hazard at location **C** shown in Fig. 2.2.

.....

.....

.....

.....

.....

..... [3]

[Turn over

(v) Location **B** is located in a low-income country and location **C** is located in a high-income country.

Compare and contrast the way each country is likely to prepare for the hazards associated with tectonic events.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [6]

[Total: 20]

Section B

Answer **one** question from this section.

Write your answers on the separate answer paper provided.

3 Fig. 3.1 is a graph to show the frequency of hazards associated with extreme weather events from 1950 to 2011.

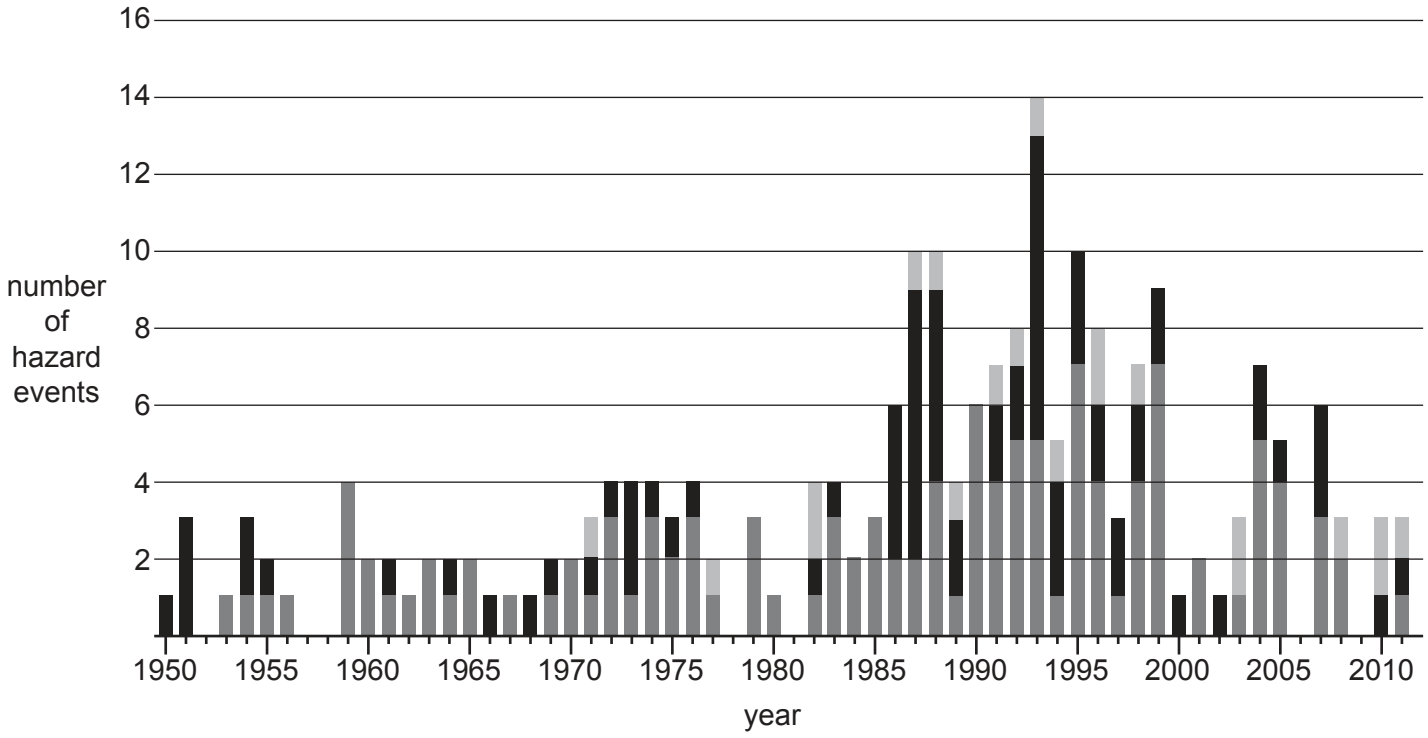

Fig. 3.1

(a) Describe the trends for **one** of the three categories of hazards associated with extreme weather events and suggest reasons for this trend. Refer to Fig. 3.1. [10]

(b) Contrast the social, economic and environmental issues associated with extreme weather events in countries with different levels of economic development. [30]

[Total: 40]

4 Fig. 4.1 shows the amount of precipitation, number of hot days and yield of maize crop grown in France from 1961 to 2011.

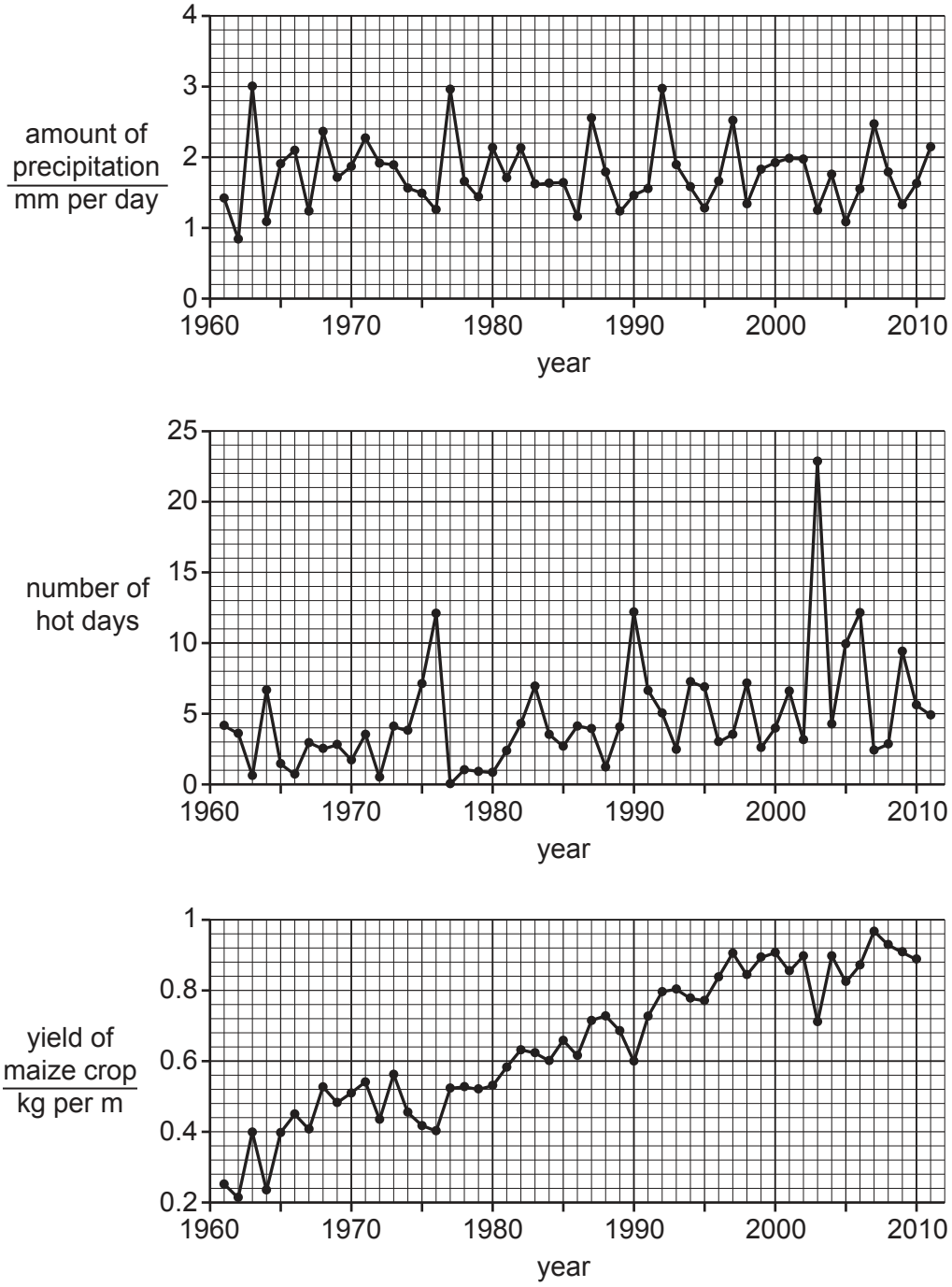

Fig. 4.1

(a) Describe and explain the relationship between the amount of precipitation, number of hot days and the yield of maize crop. Refer to Fig. 4.1. [10]

(b) Countries with contrasting levels of economic development have different land use requirements. This can lead to different agricultural practices.

Evaluate the agricultural practices which allow farmers to use soil sustainably. Refer to countries with contrasting levels of economic development. [30]

[Total: 40]

5 Fig. 5.1 is a map of part of a national park.

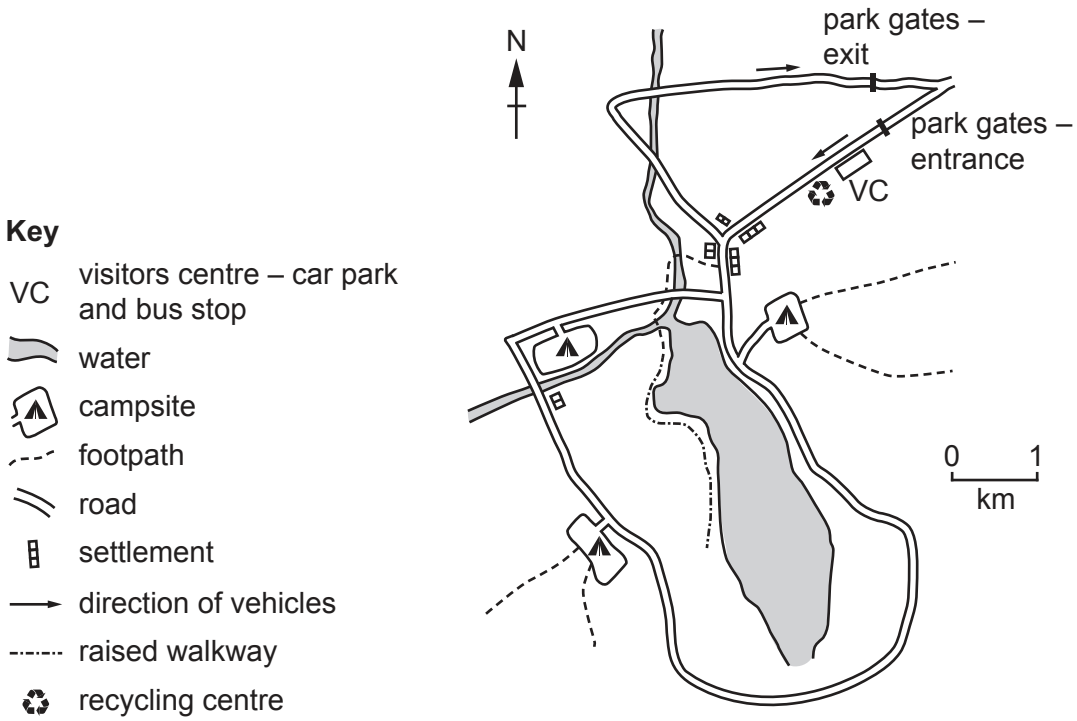

Fig. 5.1

(a) Suggest how the national park in Fig. 5.1 is being managed to reduce the pressures of human activity in the area. [10]

(b) Discuss the conflicts which may occur when managing areas of outstanding natural beauty in a sustainable way. [30]

[Total: 40]

BLANK PAGE