Cambridge Assessment International Education

Cambridge International AS Level

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

9886998933

ENVIRONMENTAL MANAGEMENT **8291/21**

Paper 2 Hydrosphere and Biosphere **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.

Section A

Answer **all** questions in this section.

Write your answers in the spaces provided.

1 **(a)** Fig. 1.1 shows the relationships between nutrient flows and stores for three biomes, **P**, **Q** and **R**.

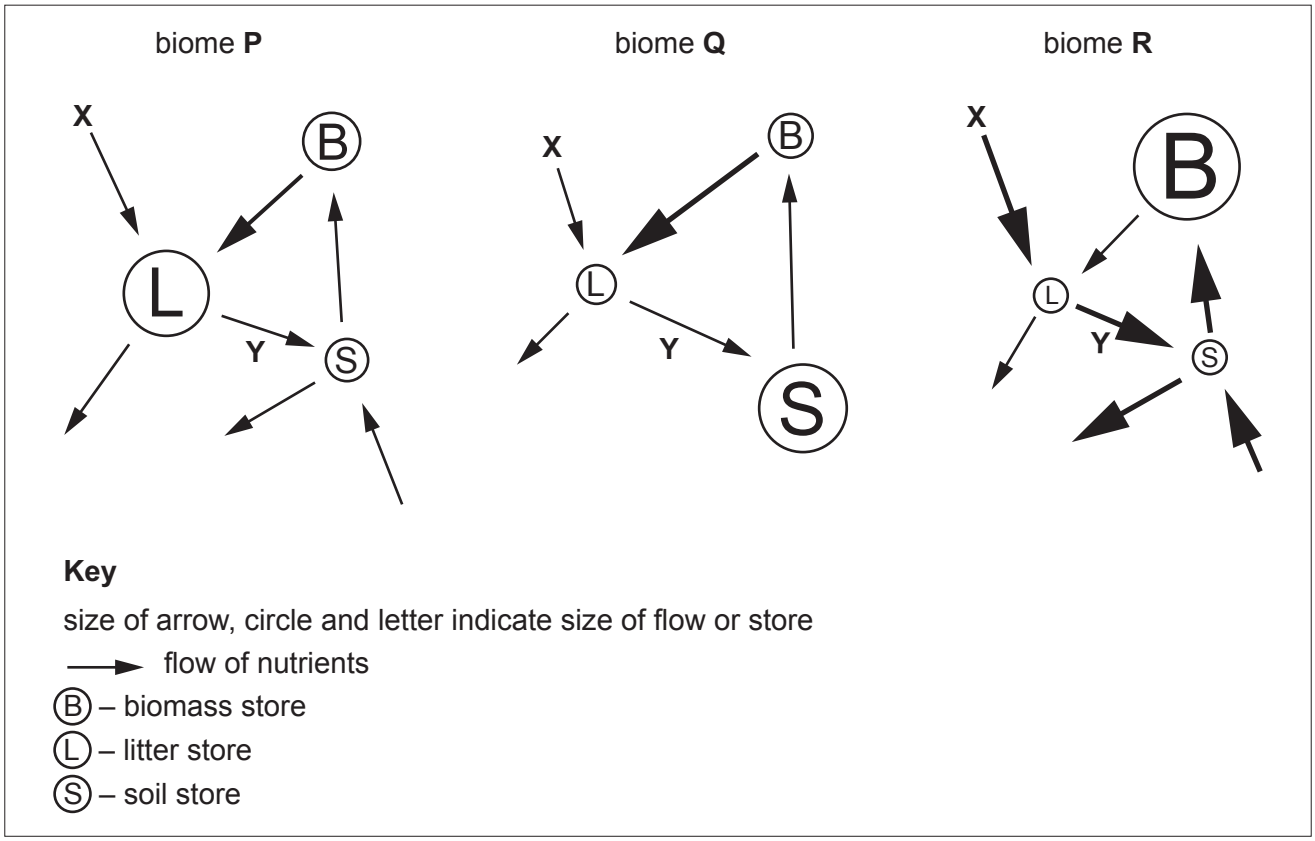

Fig. 1.1

(i) Identify the biomes in Fig. 1.1 using the terms listed.

desert **temperate forest** **tropical rainforest**

biome **P** .....

biome **Q** .....

biome **R** .....

[2]

(ii) State the process labelled **X** in Fig. 1.1.

..... [1]

(iii) State the process labelled **Y** in Fig. 1.1.

..... [1]

(iv) Describe how deforestation affects nutrient flows and stores in a tropical rainforest.

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..... [4]

(b) Fig. 1.2 shows the distribution of savannah (tropical grassland).

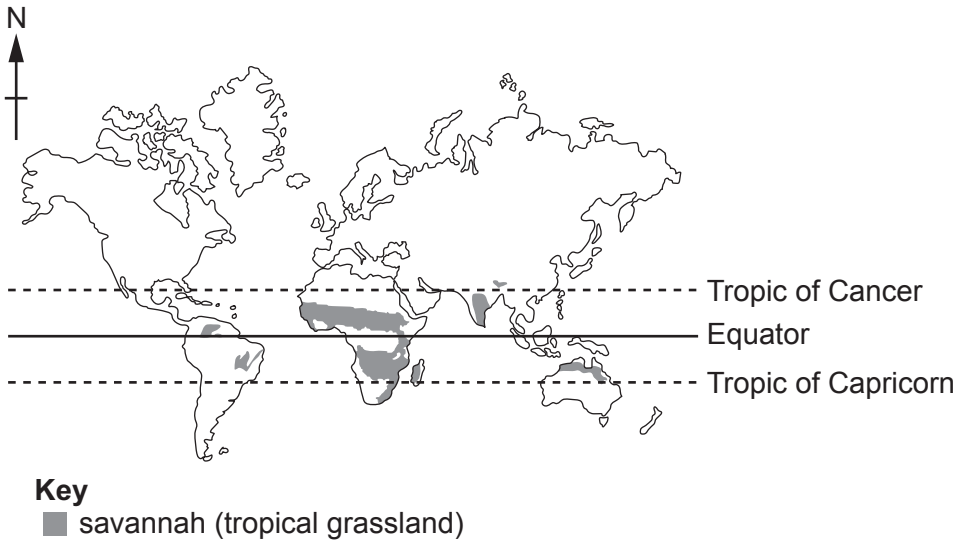

Fig. 1.2

(i) Describe the distribution of savannah (tropical grassland) shown in Fig. 1.2.

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..... [2]

(ii) State the two main abiotic factors which lead to the distribution shown in Fig. 1.2.

1 .....

2 ..... [2]

(iii) Wildfires are needed to help maintain the stability of the savannah (tropical grassland) ecosystem.

Suggest **two** advantages and **two** disadvantages of wildfires.

advantages .....

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disadvantages .....

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..... [4]

(iv) Explain **two** strategies, other than the use of fire, which manage and conserve the biodiversity of savannah (tropical grassland).

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..... [4]

[Total: 20]

2 **(a)** Fig. 2.1 is a graph showing the demand for water by sector in China for 2005, 2015 and predicted demand for 2030.

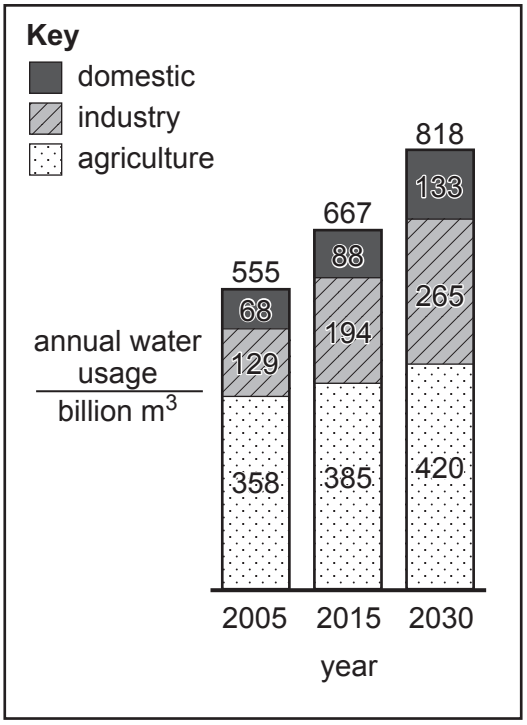

Fig. 2.1

(i) State the sector shown in Fig. 2.1 which is predicted to have the largest increase in demand for water from 2005 to 2030.

..... [1]

(ii) Suggest reasons for the increase in demand for water by the sector stated in **(a)(i)**.

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..... [2]

(iii) Describe **four** ways China might manage the increase in demand for water shown in Fig. 2.1.

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..... [4]

(iv) Fig. 2.2 shows how the predicted demand for water will affect the water supply in different regions of China in 2030.

Fig. 2.2

Describe the impact of the predicted 2030 water supply for the Yangtze region of China.

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.....[4]

(b) Fig. 2.3 is an extract from an English-language webpage published in China.

> **Jade Dragon Snow Mountain Shrinks**
>
> The melting of the glaciers at Jade Dragon Snow Mountain, in Lijiang city of China's southwest Province, has accelerated.

Fig. 2.3

(i) Suggest **one** reason for the accelerated melting of the glaciers described in Fig. 2.3.

Explain your answer.

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..... [2]

(ii) Glaciers and ice caps store more than 68% of the Earth's freshwater.

Describe **three** impacts of glaciers melting.

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..... [3]

(c) Describe the impacts of pollution due to human activity on a named water store.

Include the source of this pollution in your answer.

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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 the Great Limpopo Trans-Frontier Park and Conservation Area, a joint project between Mozambique, South Africa and Zimbabwe in the south of Africa.

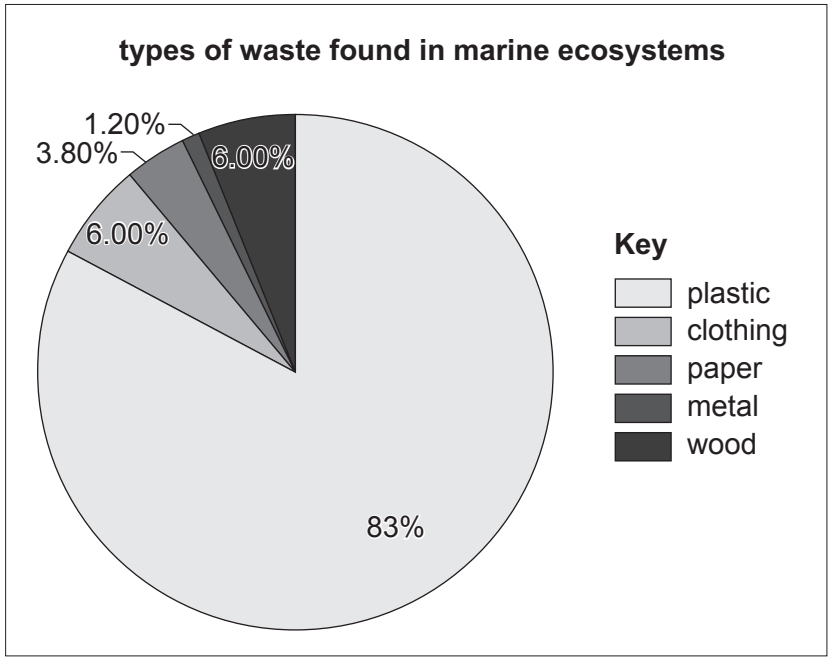
Fig. 3.1

(a) Suggest advantages and disadvantages of international cooperation in the management of conservation projects, such as the Great Limpopo Trans-Frontier Park and Conservation Area. [10]

(b) Using examples other than national parks, evaluate the success of conservation methods such as ecotourism, wildlife management and ecological islands. [30]

[Total: 40]

4 Fig. 4.1 shows the major types of waste found in marine ecosystems and information about the potential threats.



Threats from marine debris

Over 100 million marine animals are killed each year due to plastic waste in the ocean. It is estimated that there are 100 million tonnes of plastic waste in oceans around the world. It is expected that at least another 60 billion kilograms will be produced every year.

In some areas, the build-up of plastic waste is estimated to cover 8 million square kilometres, approximately the area of the USA. Eighty percent of the plastic waste comes from land. It is washed out to sea from our roads, storm drains, rivers and beaches.

Fig. 4.1

(a) With reference to Fig. 4.1, suggest the likely effects of plastic waste on marine species. [10]

(b) Using examples evaluate the strategies used to manage the problems caused by different sources of marine pollution. [30]

[Total: 40]

5 Fig. 5.1 shows the area of susceptible drylands in each continent, and the main causes of soil deterioration in these areas.

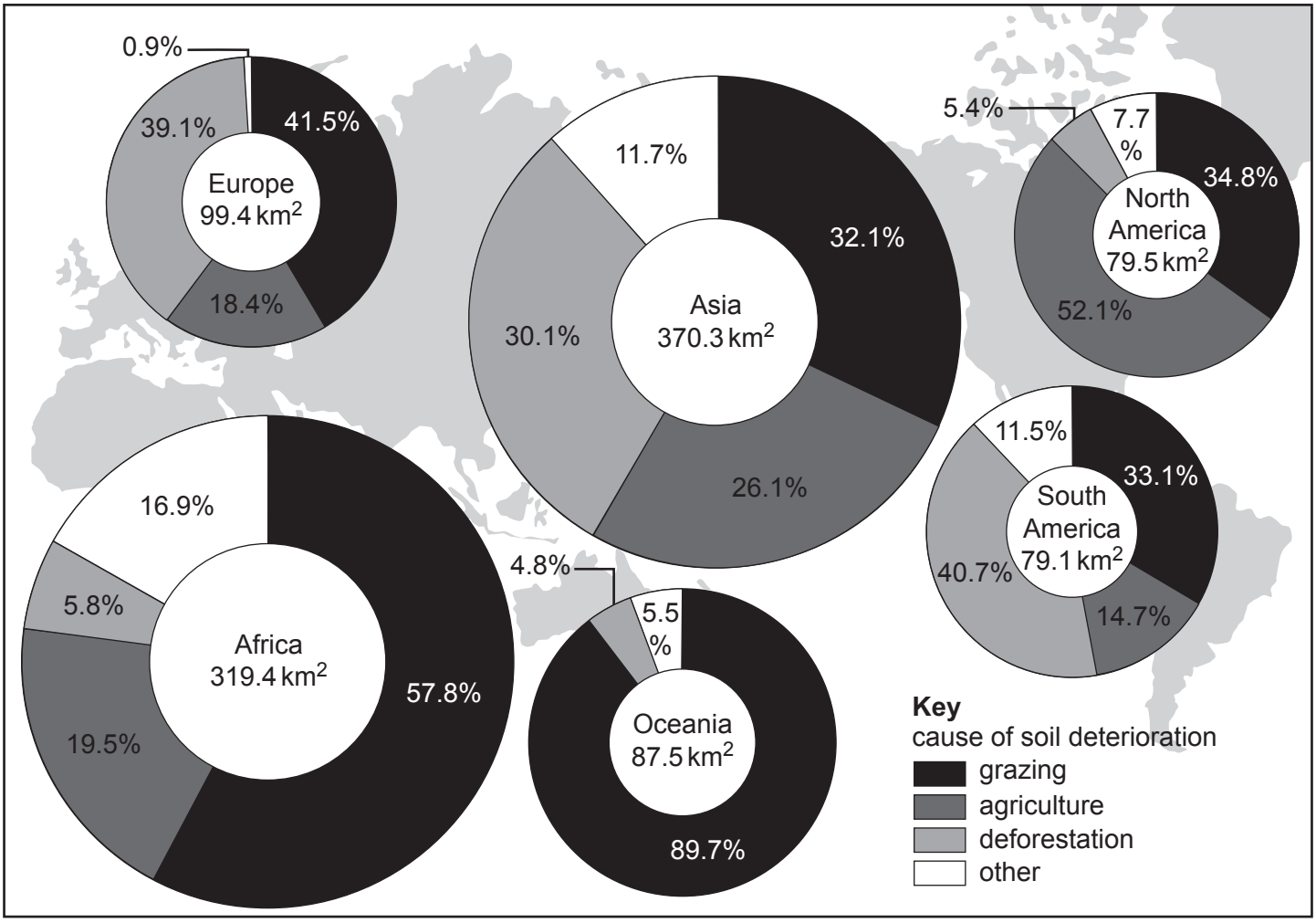


Fig. 5.1

(a) With reference to Fig. 5.1, describe the regional variation of the causes of soil deterioration. Suggest reasons for the regional variation described. [10]

(b) Using examples, discuss how countries with different levels of economic development might prevent the loss of local habitats as a result of agricultural practices. [30]

[Total: 40]