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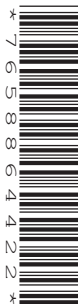
Cambridge International AS Level

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

ENVIRONMENTAL MANAGEMENT **8291/13**

Paper 1 Principles of Environmental Management **May/June 2022**

1 hour 45 minutes

You must answer on the question paper.

No additional materials are needed.

INSTRUCTIONS

- Section A: answer **all** questions.
- Section B: answer **one** question.
- 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.
- Write your answer to each question in the space provided.
- 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.

INFORMATION

- The total mark for this paper is 80.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **20** pages. Any blank pages are indicated.

[Turn over

Section A

Answer **all** questions in this section.

1   **(a)**   Table 1.1 shows the population density for three countries.

Table 1.1

country	area / km^2	population in 2020	population density / people km^{-2}
United Kingdom	241 930	67 200 000	278
France	547 557	67 400 000	123
Bangladesh	130 170	164 700 000	....

   (i)   Complete Table 1.1 by calculating the population density for Bangladesh. Give your answer to the nearest whole number.

[2]

   (ii)   Use Table 1.1 to suggest why the United Kingdom and France have different population densities.

   ....

   .... [1]

   (iii)   Describe **four** factors which influence the population density of different regions within a country.

   ....

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   .... [4]

(b) Fig. 1.1 shows population pyramids for the United Kingdom (a HIC) and Mozambique (a LIC).

United Kingdom – 2018

Mozambique – 2018

Fig. 1.1

(i) Using Fig. 1.1, compare the population pyramids of the United Kingdom and Mozambique.

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.... [4]

(ii) Suggest reasons for the differences in the population pyramids for the HIC and the LIC shown in Fig. 1.1.

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.... [4]

[Total: 15]
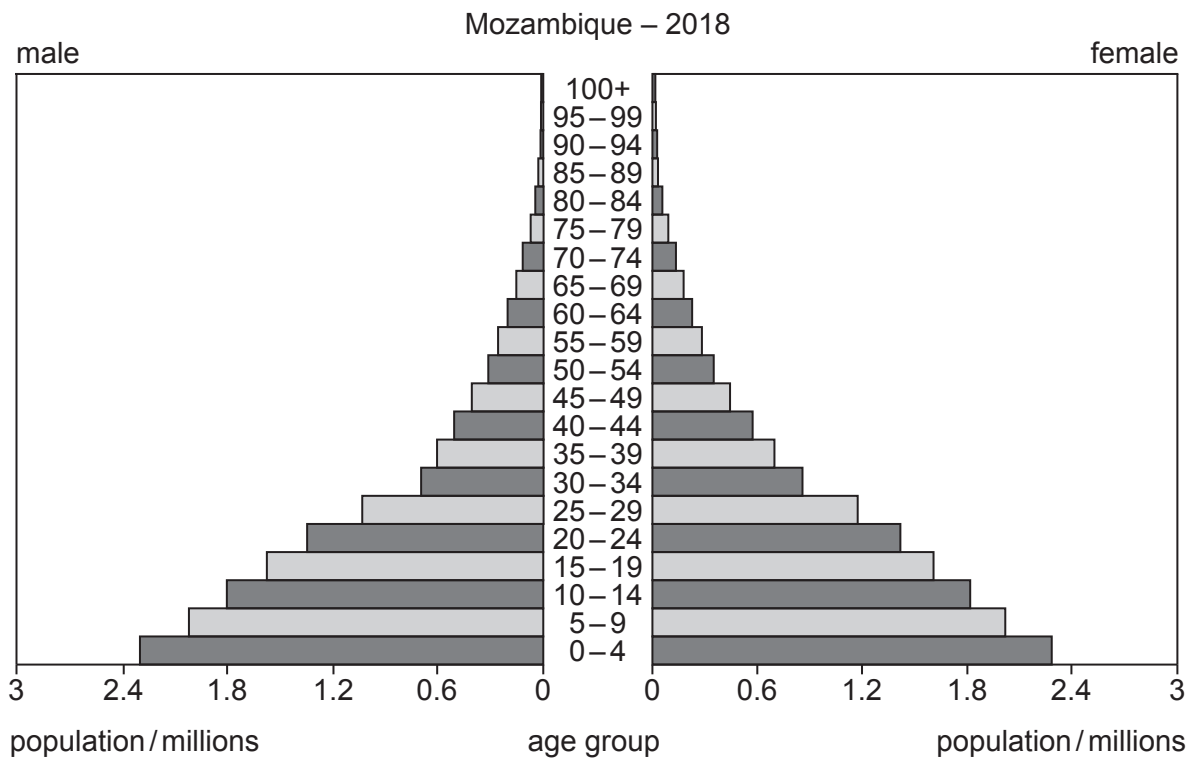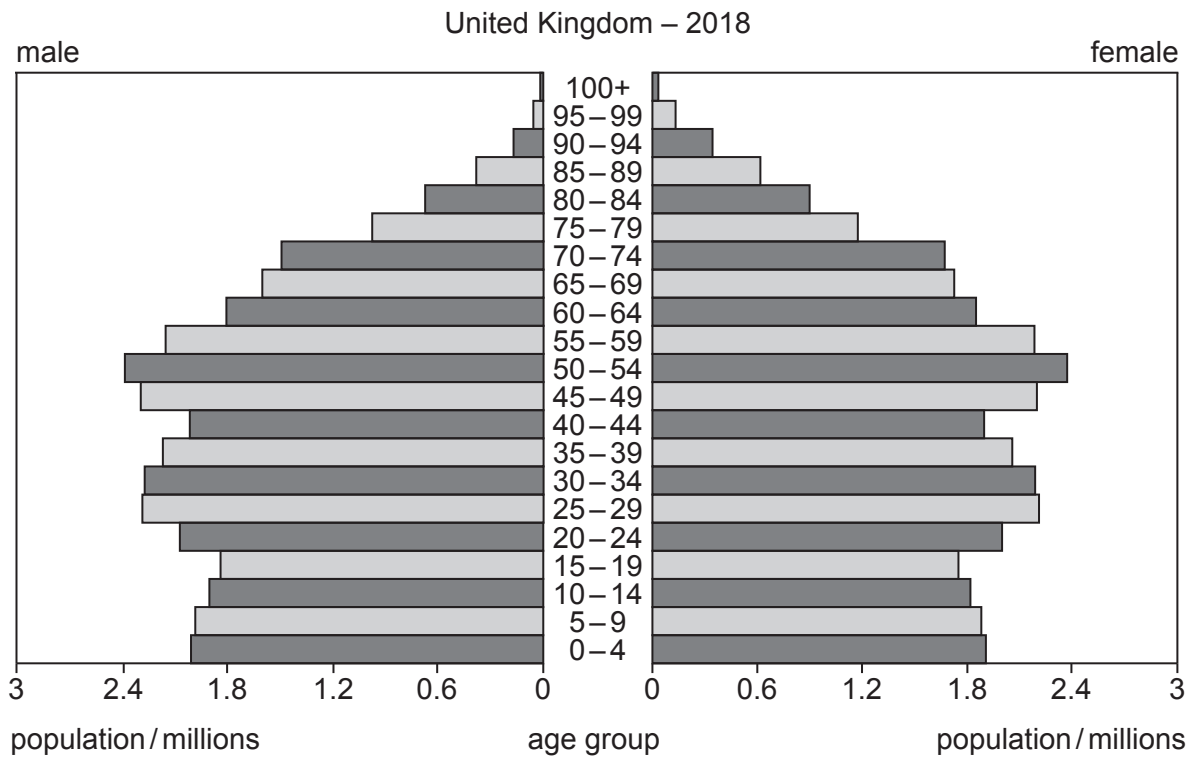
2 **(a)** Table 2.1 shows four gases that cause air pollution and one source.

Table 2.1

gas	source
carbon dioxide CO_2	combustion of fossil fuels
methane CH_4	....
oxides of nitrogen NO_x	....
CFCs	....

(i) Complete Table 2.1 to show **one** source for each gas. [2]

(ii) Describe strategies for managing air pollution caused by the gases shown in Table 2.1.

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.... [4]

(iii) Explain how the combustion of fossil fuels leads to the enhanced greenhouse effect.

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.... [5]

(b) Fig. 2.1 shows the carbon cycle.

Fig. 2.1

State the processes labelled **X**, **Y** and **Z** in Fig. 2.1.

X ....

Y ....

Z ....

[2]

[Total: 13]

3 **(a)** Tundra and desert are two biomes that receive very little precipitation.

    (i) State **one** abiotic component, other than water.

      .... [1]

    (ii) Explain, in terms of abiotic components, why mosses and lichens are the most abundant vegetation in tundra.

      ....

      ....

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      .... [4]

    (iii) Name the store of methane and carbon dioxide found in tundra.

      .... [1]

(b) Fig. 3.1 shows some nutrient transfers and stores for a desert biome.
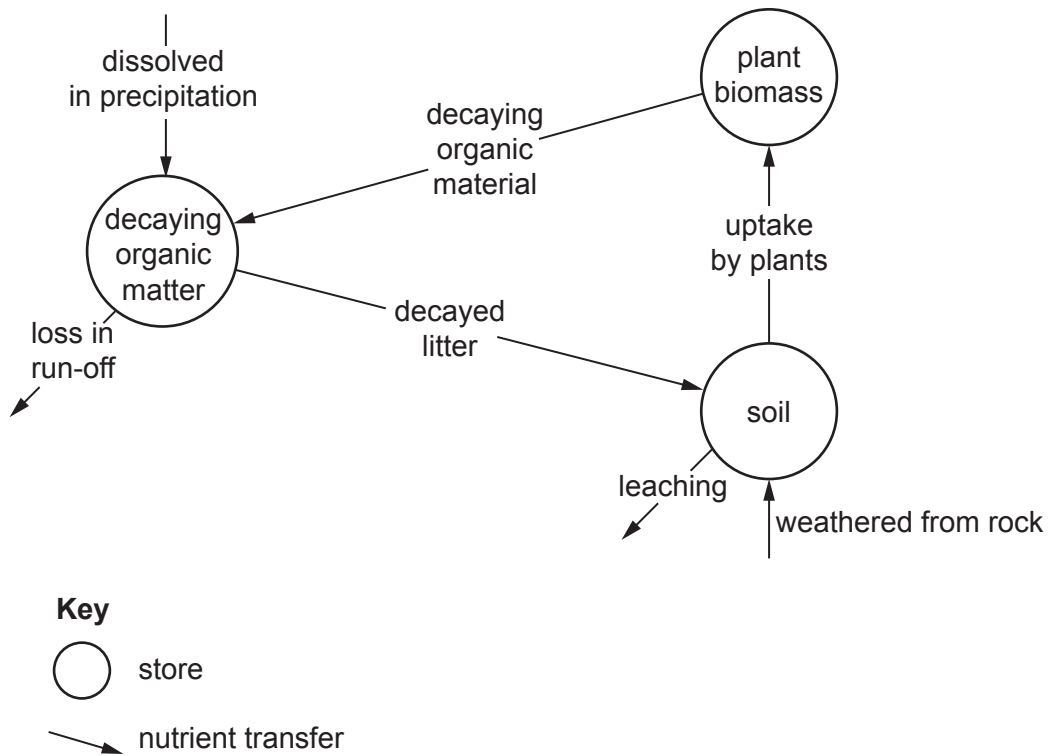
Fig. 3.1

(i) Explain why the stores for biomass and litter are relatively small in a desert biome.

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.... [4]

(ii) Define the terms gross primary productivity and net primary productivity.

gross primary productivity ....

....

net primary productivity ....

....
[2]

[Total: 12]

4 (a) Fig. 4.1 shows the current and proposed hydroelectric power production in Austria, a country in Europe.

Key

▾   storage power plant
▽   storage power plant under construction
•   power plant

〰️ river
⟶ direction of river flow
─··─ international boundary

Fig. 4.1

(i) Describe how the development of hydroelectric power in Austria contributes to energy security.

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.... [4]

(ii) Explain **two** causes of energy insecurity.

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.... [4]

(b) State **two** advantages and **two** disadvantages, other than energy security, of hydroelectric power generation to the countries shown in Fig. 4.1.

advantages

1 ....

....

2 ....

....

disadvantages

1 ....

....

2 ....

....

[4]

[Total: 12]

5 A recent survey found that the amount of plastic waste on beaches in the United Kingdom was the same whether or not the beach was in a marine conservation area.

(a) Give **three** reasons why the marine conservation area beaches have the same amount of plastic waste as other beaches.

1 ....

....

2 ....

....

3 ....

....
[3]

(b) Suggest **one** impact of plastic waste on beach environments.

....

.... [1]

(c) Evaluate the success of **one** strategy to manage the disposal of plastic waste. Give reasons for your answer.

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.... [4]

[Total: 8]

Section B

Answer **one** question.

Either

6 'The devastating Australian wild fires of 2020 are strong evidence for global climate change.'

To what extent do you agree with this statement?

Give reasons and include information from relevant examples to support your answer. [20]

Or

7 Evaluate the success of strategies to manage the conservation of habitats in a location of your choice.

Give reasons and include information from relevant examples to support your answer. [20]

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