



# Cambridge International AS Level

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## ENVIRONMENTAL MANAGEMENT

8291/12

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.

## 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 <sup>2</sup>	population in 2020	population density / people km <sup>-2</sup>
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.

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..... [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).

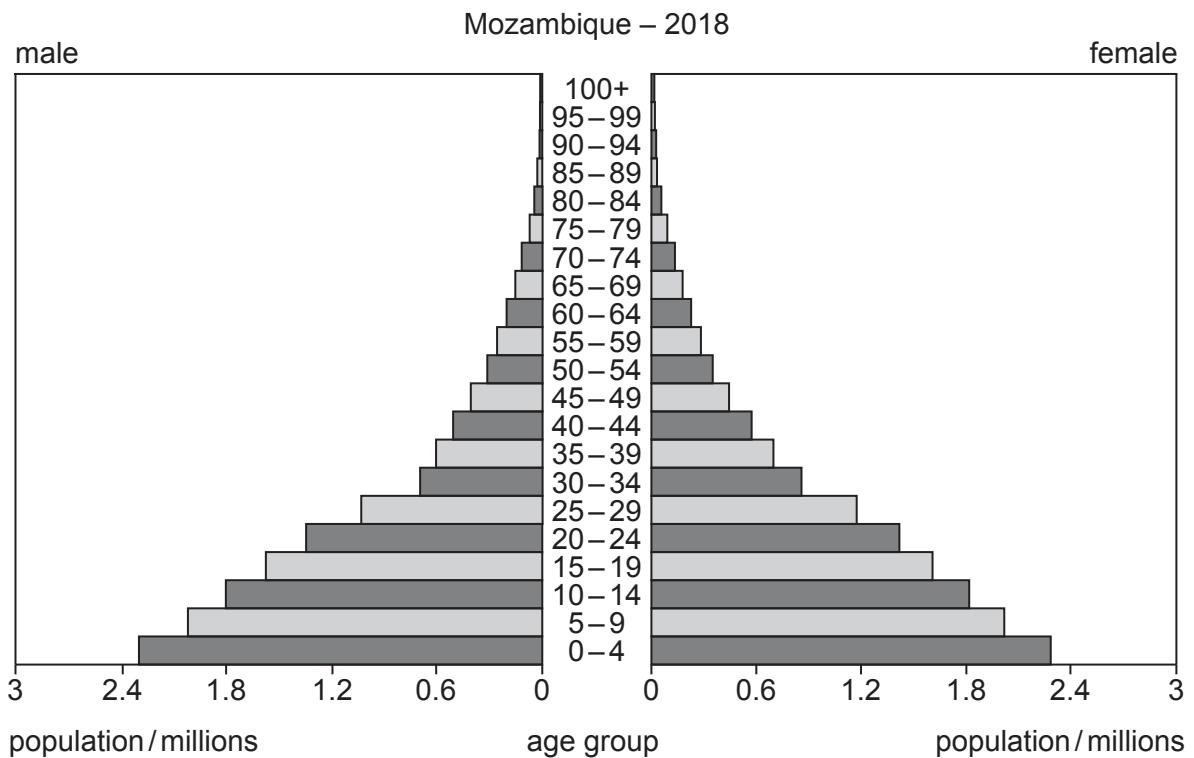
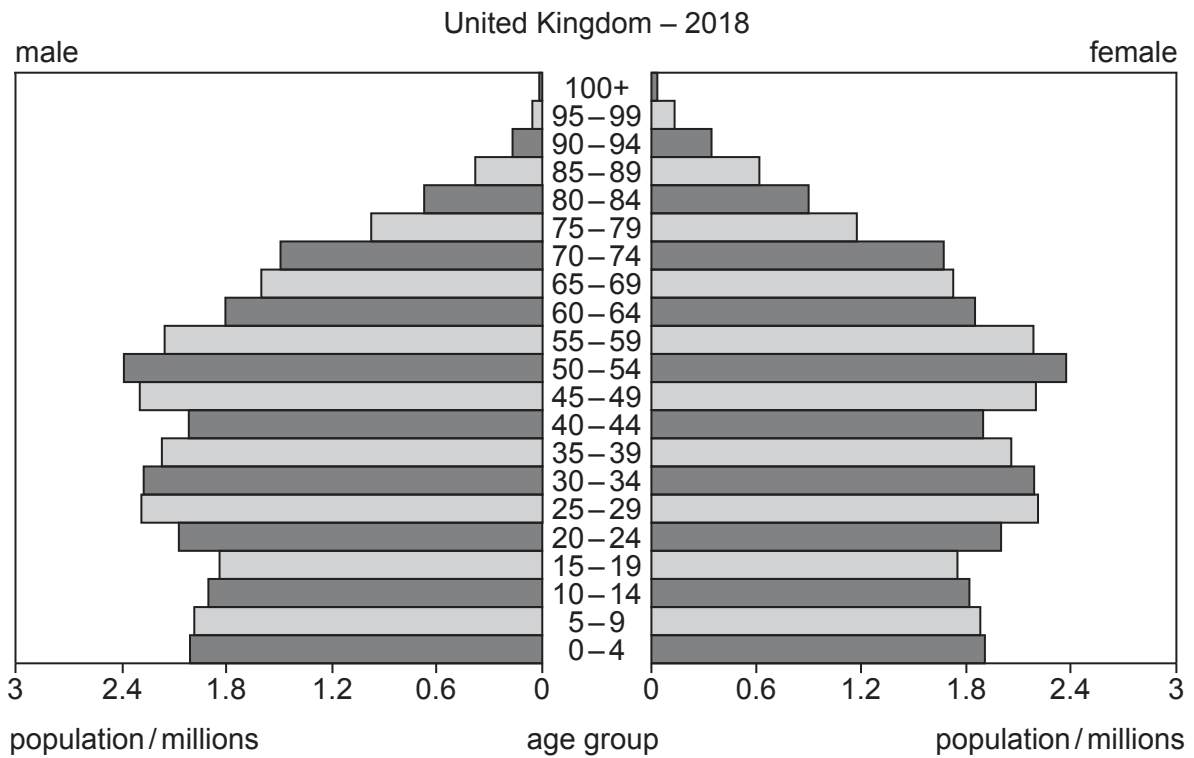


Fig. 1.1



- 2 (a) Table 2.1 shows four gases that cause air pollution and one source.

**Table 2.1**

<b>gas</b>	<b>source</b>
carbon dioxide CO <sub>2</sub>	combustion of fossil fuels
methane CH <sub>4</sub>	.....
oxides of nitrogen NO <sub>x</sub>	.....
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]



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

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

..... [1]

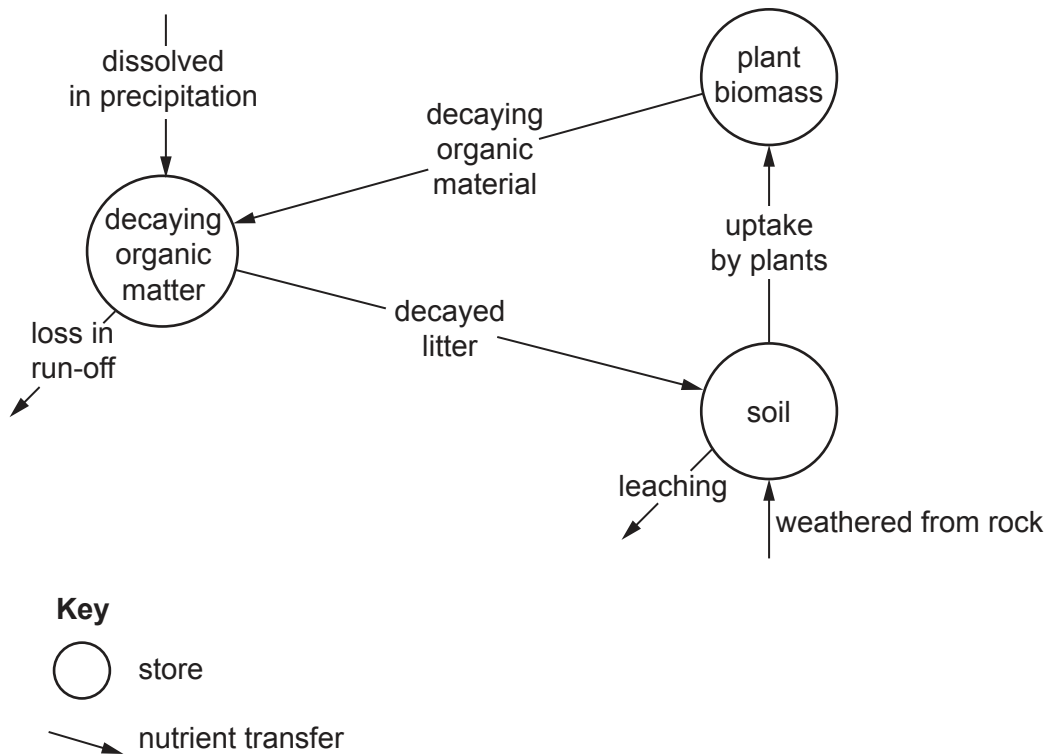
(ii) Explain, in terms of abiotic components, why mosses and lichens are the most abundant vegetation in tundra.

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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 .....

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net primary productivity .....

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[2]





(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 .....

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2 .....

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disadvantages

1 .....

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2 .....

.....

[4]

[Total: 12]





















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