CAMBRIDGE
International Education

Cambridge IGCSE™

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER			

0123456789

ENVIRONMENTAL MANAGEMENT **0680/01**

Paper 1 Principles of Environmental Management **For examination from 2027**

SPECIMEN PAPER **1 hour 45 minutes**

You must answer on the question paper.

No additional materials are needed.

INSTRUCTIONS

- Answer **all** questions.
- 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. Do **not** use correction fluid or tape.
- 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 **16** pages. Any blank pages are indicated.

1 **(a)** Figure 1.1 represents the rock cycle.

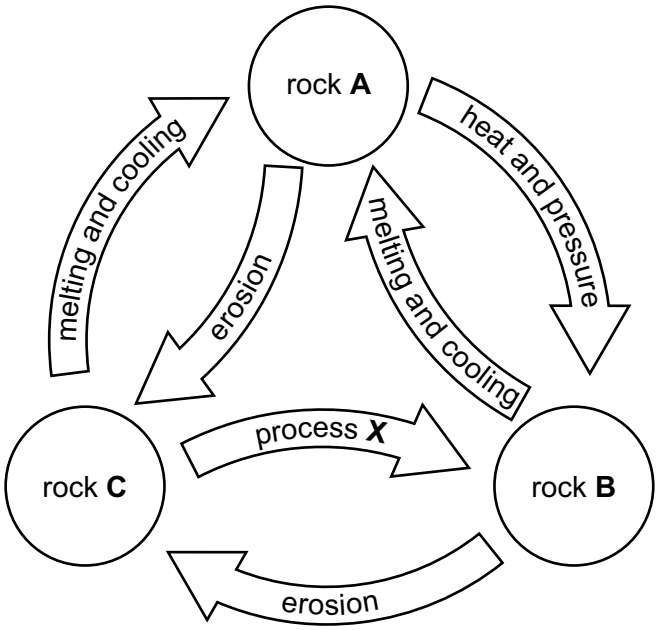


Figure 1.1

(i) Identify the rock, **A**, **B** or **C**, that represents igneous rocks in Figure 1.1.

..... [1]

(ii) In Figure 1.1, process **X** changes rock **C** into rock **B**.

(Circle) the correct description of process **X**.

erosion

heat and pressure

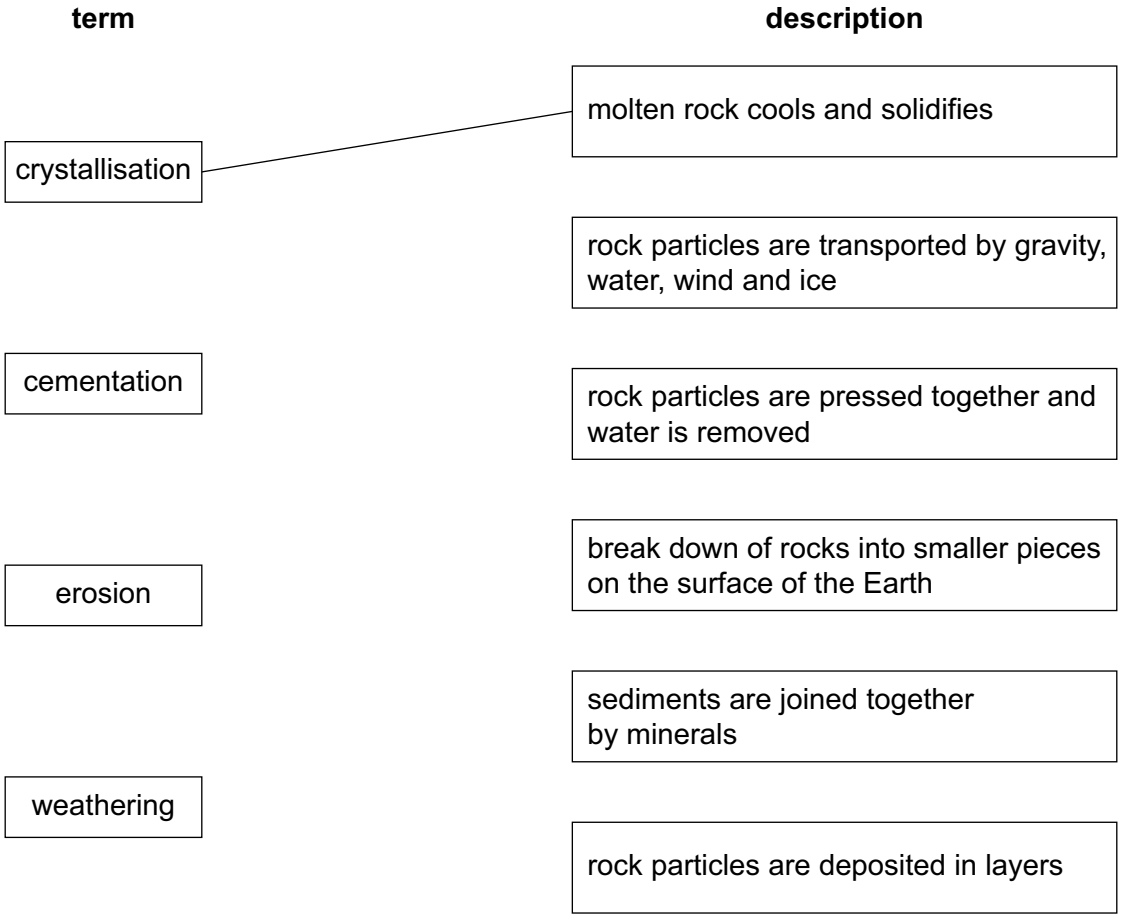
melting and cooling

[1]

(b) Figure 1.2 shows terms used in the rock cycle and their descriptions.

Draw **one** line from each term to its correct description.

One line has been done for you.



[3]

Figure 1.2

(c) Most sedimentary rocks are permeable.

(i) Define permeability.

.....

.....

.....

..... [2]

(ii) Name a sedimentary rock that is:

permeable .....

impermeable .....

[2]

(d) The African thistle plant, *Berkheya coddii*, is used for the biological extraction of minerals.

(i) Describe how plants are used for the biological extraction of minerals.

.....

.....

.....

.....

.....

..... [3]

(ii) Suggest **two** limitations of using plants for the biological extraction of minerals.

1 .....

.....

2 .....

.....

[2]

[Total: 14]

2 **(a)** Figure 2.1 shows part of the water cycle.

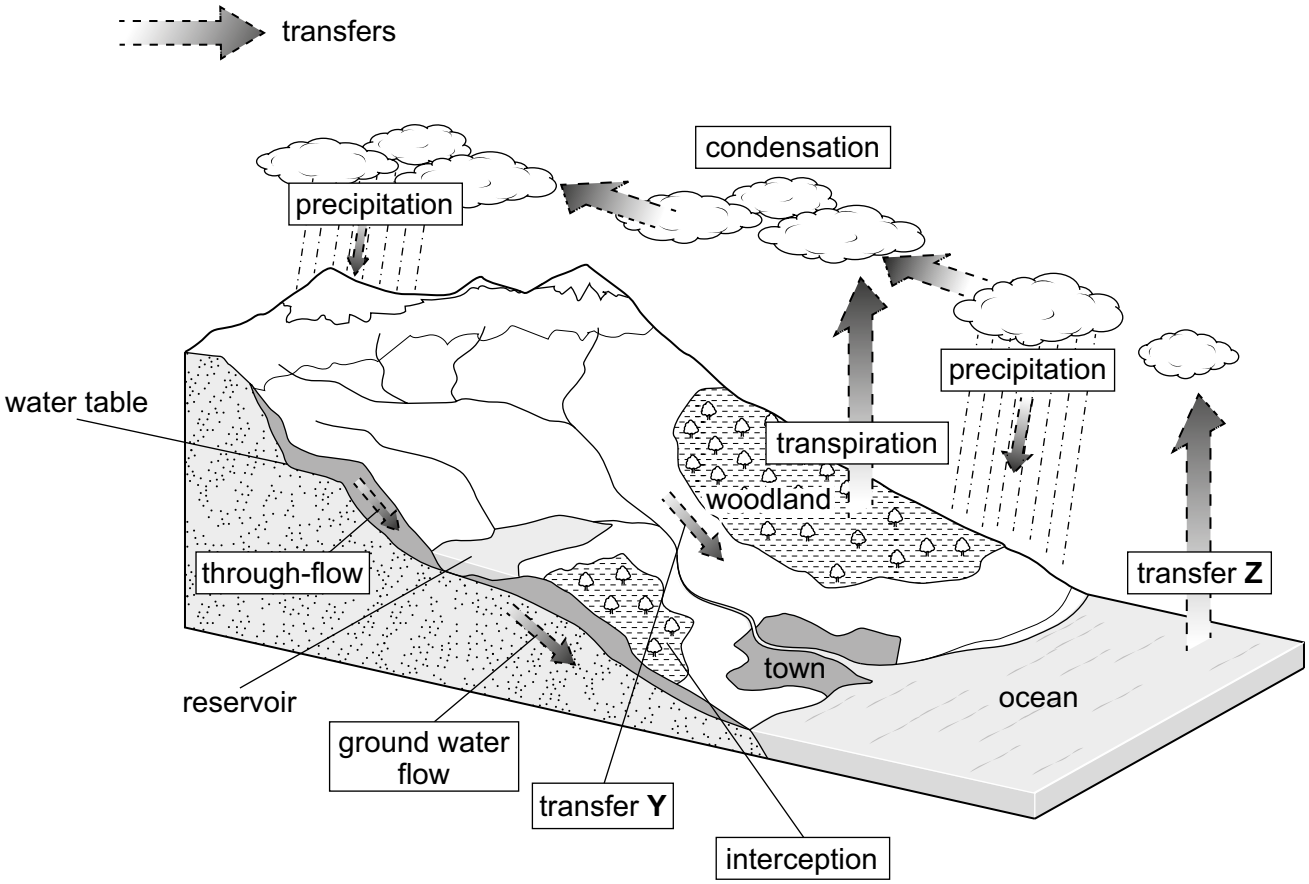


Figure 2.1

(i) In Figure 2.1, identify:

transfer **Y** .....

transfer **Z** .....

[2]

(ii) Suggest how planting trees affects interception.

Give a reason for your answer.

.....

.....

.....

..... [2]

(b) The oceans are a store of water.

Desalination makes sea water potable.

(i) Define potable water.

.....

..... [1]

(ii) Distillation is one type of desalination.

Describe the process of distillation.

.....

.....

.....

.....

.....

..... [3]

(iii) Name **one** other type of desalination.

..... [1]

(iv) Discuss the benefits and limitations of desalination.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [6]

[Total: 15]

3 **(a)** Figure 3.1 shows the world population pyramid in 2023.

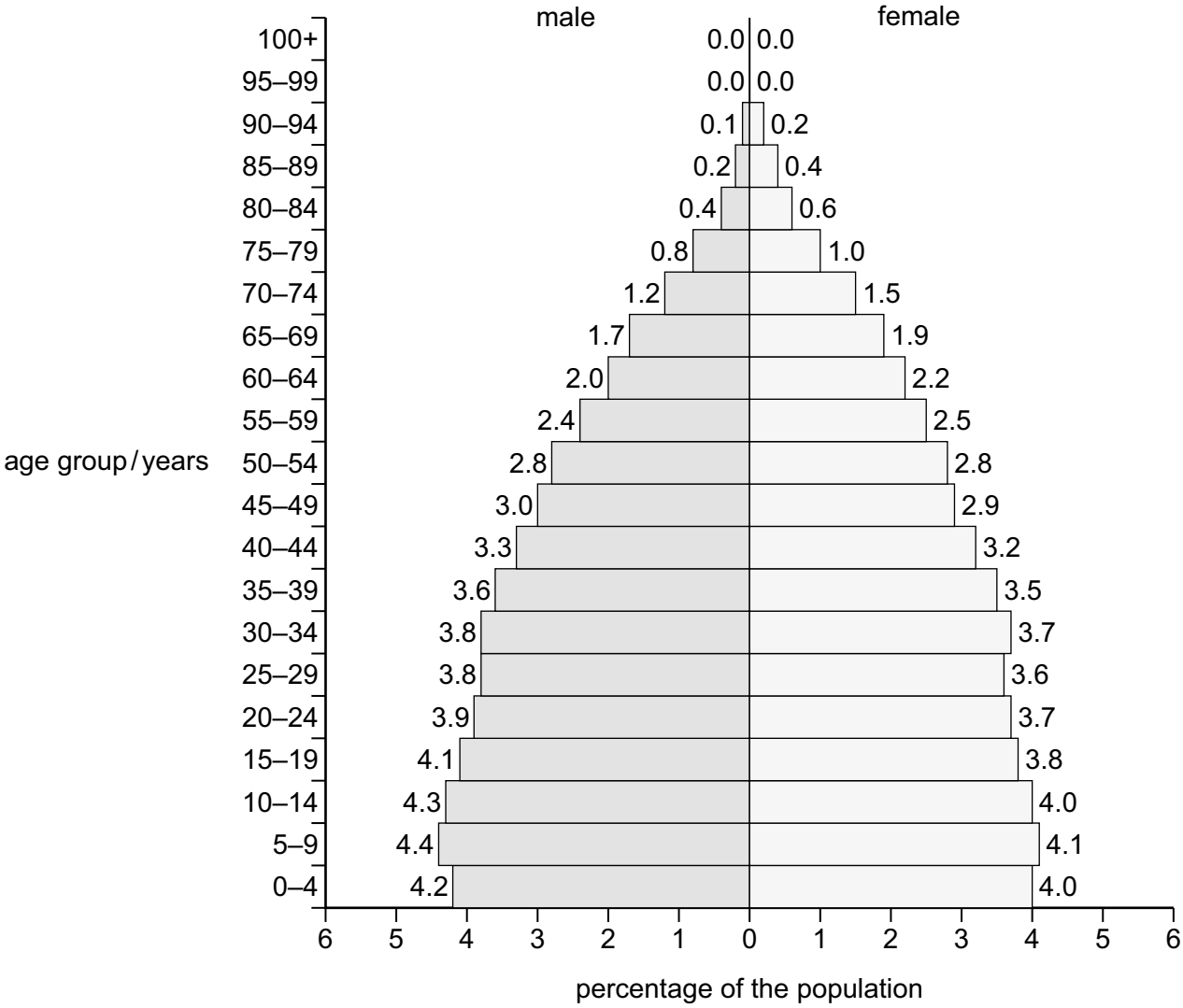


Figure 3.1

(i) State the percentage of the world population that is over 74 years of age in 2023.

.....% [1]

(ii) Suggest why the percentage values in the pyramid in Figure 3.1 do **not** total 100%.

.....

..... [1]

(iii) Use Figure 3.1 to compare the world population of males to the world population of females in 2023.

.....

.....

.....

.....

.....

..... [3]

(b) The population pyramids for low-income countries (LICs) and high-income countries (HICs) are different.

Complete Table 3.1.

Tick (✓) to show if a description is true or false.

Table 3.1

description	tick (✓) if true	tick (✓) if false
LICs have a wider base than HICs.		
HICs have a smaller percentage of people in the working population than LICs.		
LICs have a smaller percentage of elderly dependants than HICs.		

[2]

(c) State **three** strategies for managing human population.

1 .....

2 .....

3 .....

[3]

[Total: 10]

4 **(a)** Energy resources are classified as non-finite or finite.

Circle **all** the non-finite resources in the list.

biogas

geothermal power

nuclear power using uranium

solar power

wood

[2]

(b) Bioethanol is used to generate electricity.

(i) Describe how bioethanol is used to generate electricity.

.....

.....

.....

.....

.....

..... [3]

(ii) Describe **three** limitations of using bioethanol to generate electricity.

1 .....

.....

2 .....

.....

3 .....

.....

[3]

(c) Scientists predict that the mean global temperature will increase.

(i) One group of scientists predicts that the mean global temperature in 2033 will increase by 1.5 °C and that the mean global temperature in 2100 will increase by 5.4 °C.

Calculate the mean annual increase in global temperature between 2033 and 2100.

Give your answer to **two** significant figures.

..... °C [3]

(ii) Explain **two** ways the predicted increase in mean global temperature will affect the demand for energy.

1 .....

.....

.....

2 .....

.....

.....

[2]

(iii) Most scientists predict global temperature change as a range of values.

Suggest **two** reasons why a range of temperatures is predicted and **not** an actual value.

1 .....

.....

2 .....

.....

[2]

[Total: 15]

5 **(a)** Figure 5.1 shows the global production of non-biodegradable bioplastics and biodegradable bioplastics in 2021 and 2023.

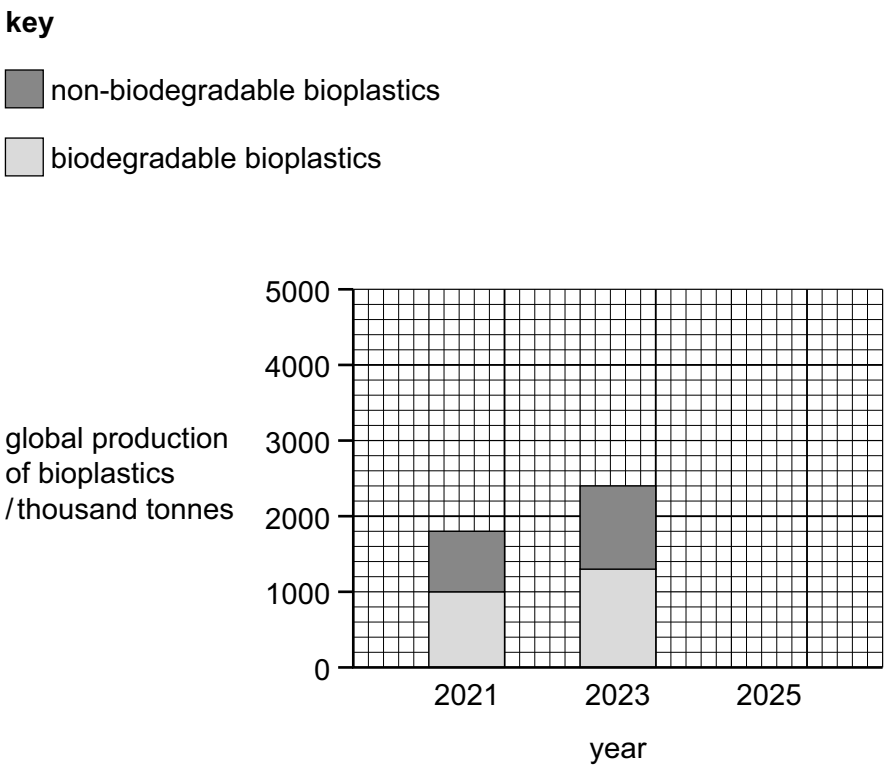


Figure 5.1

Table 5.1 shows the predicted global production of non-biodegradable bioplastics and biodegradable bioplastics in 2025.

Table 5.1

year	global production of non-biodegradable bioplastics / thousand tonnes	global production of biodegradable bioplastics / thousand tonnes
2025	2500	2400

(i) Plot the data for 2025 on the grid in Figure 5.1. [2]

(ii) Determine the mass of non-biodegradable bioplastics produced in 2023.

Give the unit.

mass = ... unit ..... [3]

(b) Biodegradable bioplastics break down over time.

(i) Name **one** group of organisms that break down biodegradable bioplastics.

..... [1]

(ii) Name **two** products formed when biodegradable bioplastics break down.

1 .....

2 .....
[2]

(iii) Suggest **two** abiotic factors that affect the rate of break down of biodegradable bioplastics.

1 .....

2 .....
[2]

(c) Bioaccumulation and biomagnification are two impacts of plastic pollution on marine ecosystems.

Describe other impacts of plastic pollution on marine ecosystems.

.....

.....

.....

.....

.....

.....

.....

..... [4]

[Total: 14]

6 **(a)** Figure 6.1 shows water hyacinth plants in a river ecosystem.

Figure 6.1

(i) Water hyacinth plants reduce the growth of other aquatic plants by competition.

Suggest **two** ways water hyacinth plants compete with other aquatic plants.

1 .....

.....

2 .....

.....
[2]

(ii) Water hyacinth plants are **not** native to this river ecosystem.

State the term for an organism living in an ecosystem they are **not** native to.

..... [1]

(b) Water hyacinth plants produce flowers above the surface of the water. These flowers are pollinated by two different methods.

(i) Suggest **two** ways that water hyacinth flowers are pollinated.

1 .....

2 .....
[2]

(ii) Complete the sentences about the events that occur in a flower after pollination.

After pollination, the flower is .....

This allows the formation of fruits and .....
[2]

(c) Figure 6.2 shows a food web containing water hyacinth plants.

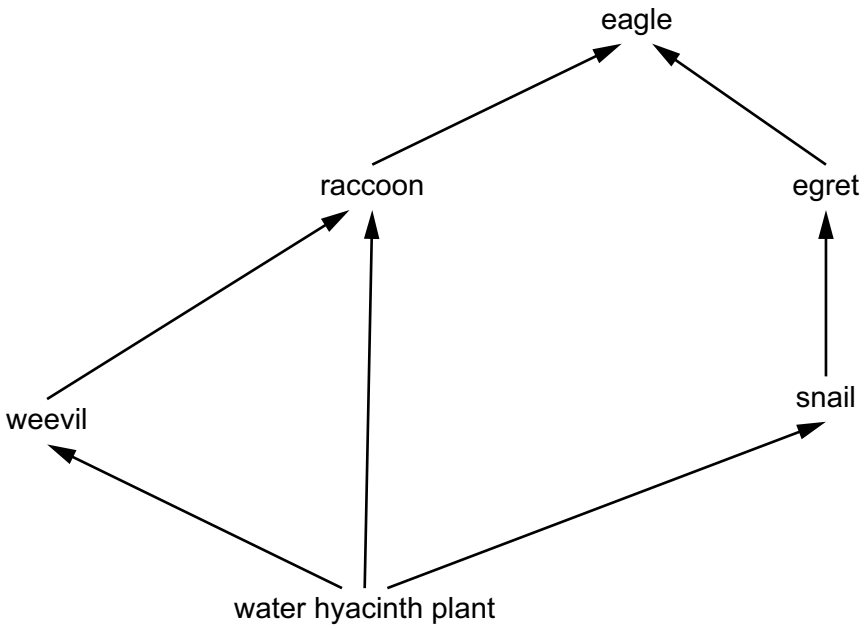


Figure 6.2

(i) Use Figure 6.2 to identify:

all the primary consumers

.....

the organism that **only** feeds as a secondary consumer

.....

the organism that feeds at trophic levels two and three

.....

[3]

(ii) The snails contain 100 units of energy.

Complete Figure 6.3 to show the units of energy in the food chain.

water hyacinth plant	→	snail 100 units	→	egret	→	eagle .....

Figure 6.3

[2]

[Total: 12]

BLANK PAGE

