Cambridge Assessment International Education

Cambridge O Level

CANDIDATE NAME	

CENTRE NUMBER						CANDIDATE NUMBER				

6872218914

ENVIRONMENTAL MANAGEMENT **5014/12**

Paper 1 Theory **May/June 2021**

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 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

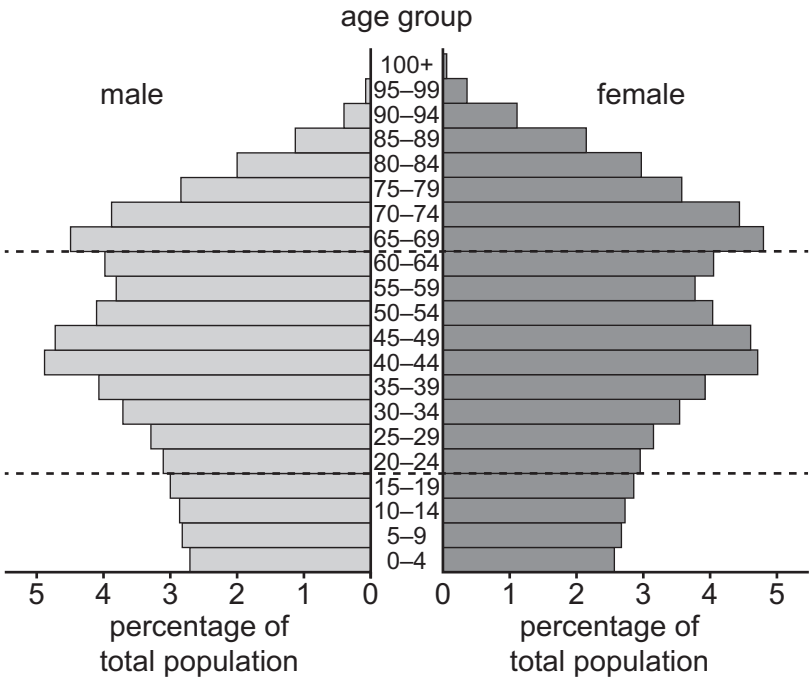
- The total mark for this paper is 80.
- The number of marks for each question or part question is shown in brackets [ ].

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

DC (NF) 213134
© UCLES 2021

Section A

1 The diagram shows a population pyramid for a more economically developed country (MEDC).



(a) Identify the age group with the highest percentage of males.

..... [1]

(b) Describe the population structure of the MEDC shown in the diagram.

.....

.....

.....

.....

.....

..... [3]

(c) State **three** reasons why people migrate from a country.

1 .....

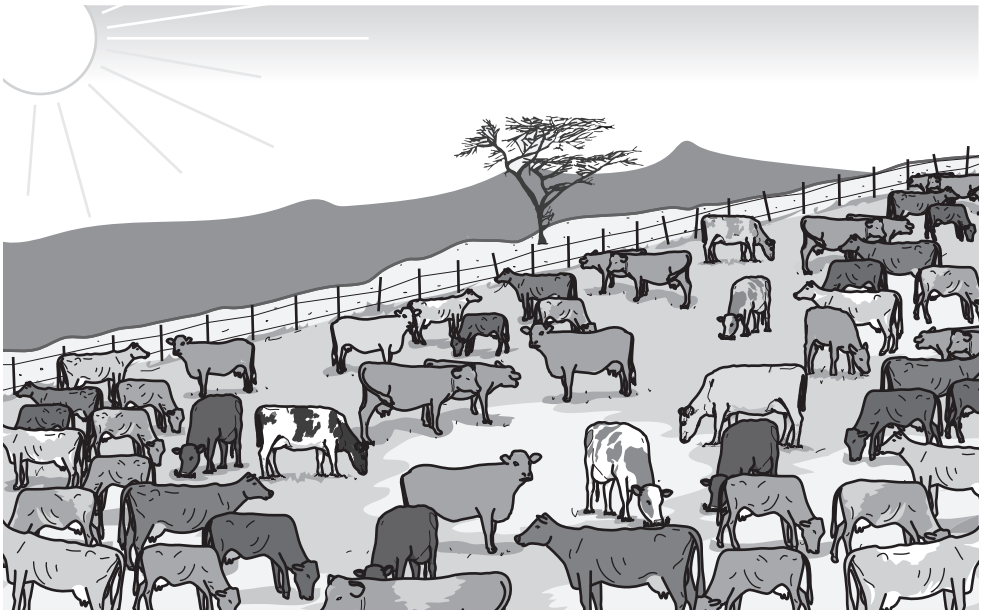
2 .....

3 .....

[3]

[Total: 7]

2 The drawing shows part of a farm in Africa.



(a) Describe the type of agriculture shown in the drawing.

.....

.....

.....

..... [2]

(b) Explain why soil erosion is a risk on this farm.

.....

.....

.....

.....

.....

..... [3]

[Total: 5]

3 **(a)** Complete the table by putting each rock in the correct column.

basalt **granite** **marble** **limestone** **shale** **slate**

rock type		
igneous	**metamorphic**	**sedimentary**

[3]

(b) Describe how a sedimentary rock such as sandstone is formed.

.....

.....

.....

.....

.....

..... [3]

(c) The photograph shows a quarry where gravel is extracted.

Describe the impacts of this gravel extraction on the local environment.

.....

.....

.....

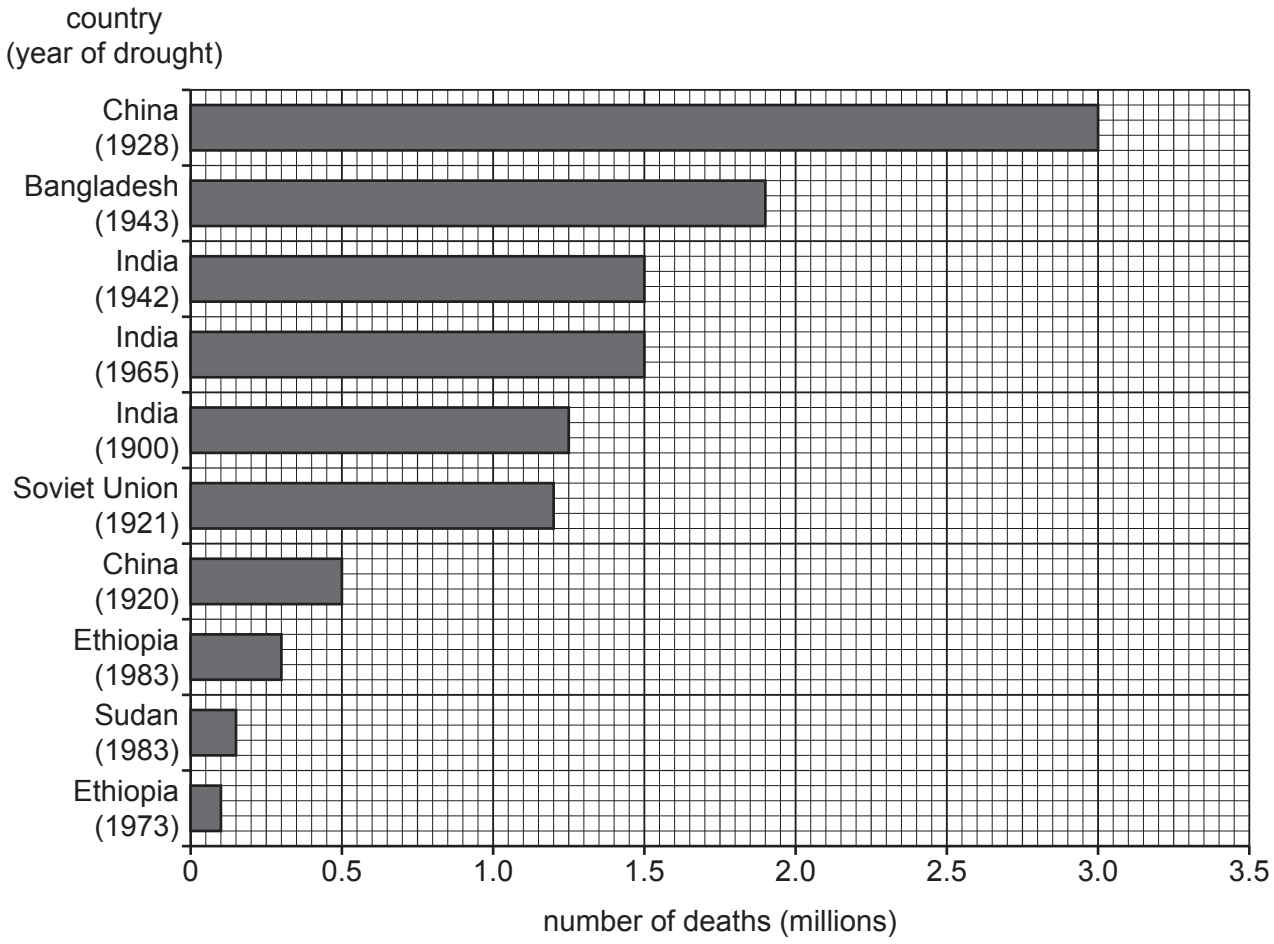
..... [2]

[Total: 8]

Section B

4 Long-term drought is a risk to life in many countries.

(a) The bar chart shows historic data for the number of deaths caused by some long-term droughts in the twentieth century.



(i) Identify which country had the most long-term droughts shown in the bar chart.

..... [1]

(ii) Calculate the **total** number of deaths due to long-term droughts in China.

..... million [1]

(b) Death is one impact of long-term drought on people.

Describe other impacts of long-term drought.

.....

.....

.....

.....

.....

.....

.....

..... [4]

(c) Long-term droughts in MEDCs are less likely to result in large numbers of deaths than long-term droughts in LEDCs.

Suggest why.

.....

.....

.....

.....

.....

.....

.....

..... [4]

(d) A scientist said, 'Long-term droughts are expected to occur more frequently in the next 50 years.'

Suggest reasons why long-term droughts are expected to occur more frequently.

.....

.....

.....

..... [2]

(e) Suggest why people continue to live in areas where long-term droughts occur.

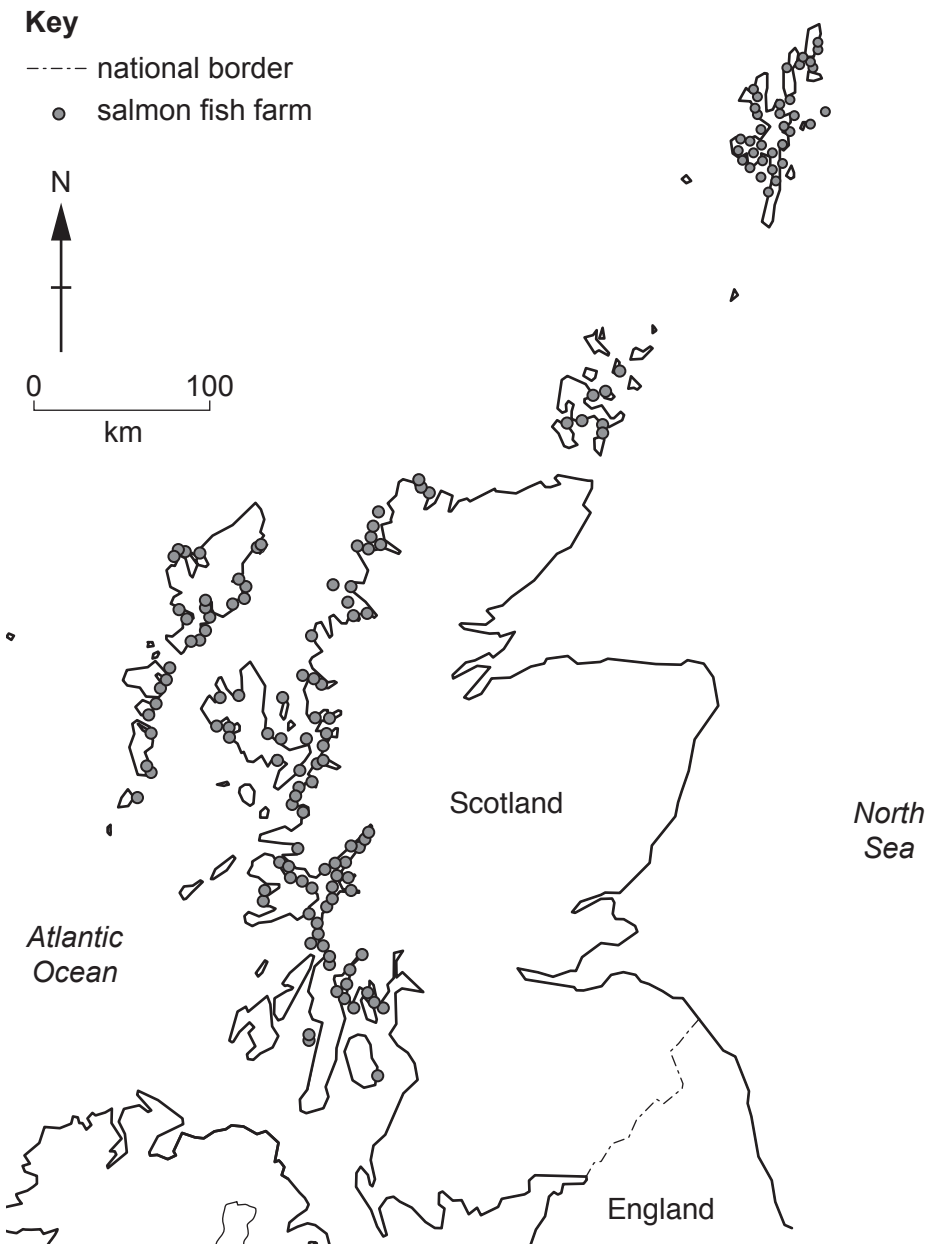
.....

..... [1]

[Total: 13]

BLANK PAGE

5 The map shows the locations of salmon fish farms in Scotland.



(a) Describe the distribution of salmon fish farms shown on the map.

.....

.....

.....

.....

.....

..... [3]

(b) The article describes changes in salmon fish farming in Scotland.

Salmon fish farmers reduce the use of pesticides

Sea lice are parasites that feed on the bodies of living salmon. Salmon fish farmers in Scotland want to reduce the amount of pesticides used to control sea lice.

Experiments to replace these pesticides with wrasse, small fish that eat sea lice, have been successful in controlling the sea lice.

Wrasse live in the sea around England. They are caught and transported to the salmon fish farms in Scotland.

Scientists are worried that there are now fewer wrasse in the sea around England. They think this decrease is due to the demand for wrasse in salmon fish farms.

Over the last 10 years, it is estimated that the catch of wrasse has increased from 2.0 million to 22 million fish per year.

(i) Suggest reasons why the use of pesticides on fish farms may be harmful to the environment.

.....

.....

.....

..... [2]

(ii) Calculate the percentage increase in the yearly number of wrasse caught over the last 10 years.

..... % [2]

(iii) Suggest reasons why some scientists think that using wrasse to control sea lice is **not** sustainable.

.....

.....

.....

..... [2]

(iv) Explain why fish farming is a more sustainable method of food supply than catching fish from the oceans.

.....

.....

.....

.....

.....

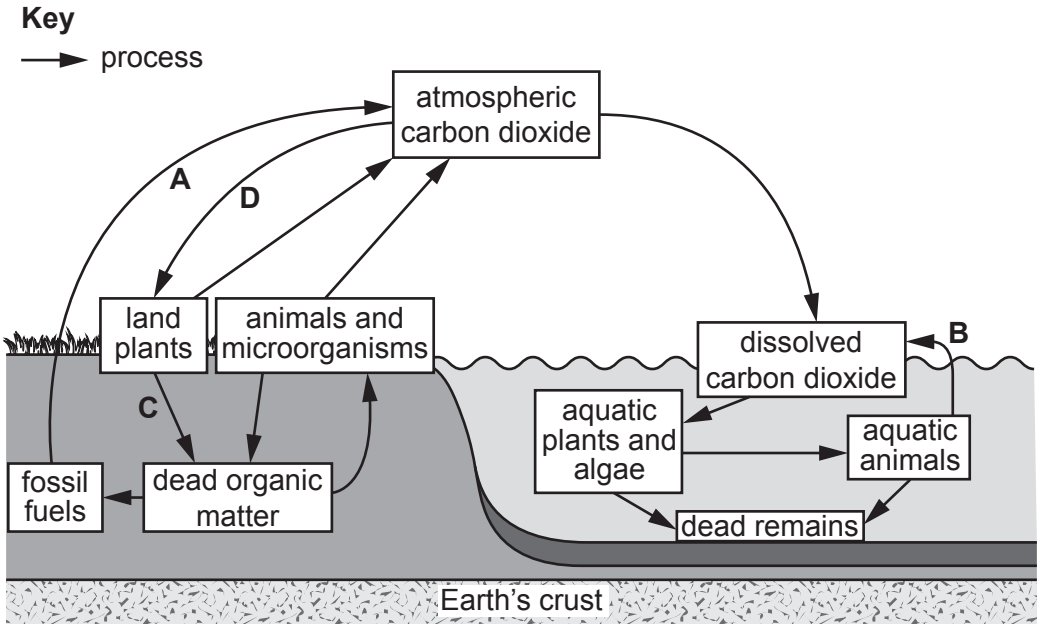
.....

.....

..... [4]

[Total: 13]

6 The diagram shows part of the carbon cycle.



(a) State the names of processes **A**, **B**, **C** and **D**.

A .....

B .....

C .....

D .....

[4]

(b) Explain why fossil fuels are described as a non-renewable energy resource.

.....

.....

.....

..... [2]

(c) Suggest the impacts of urbanisation on the carbon cycle.

.....

.....

.....

.....

.....

..... [3]

[Total: 9]

7 **(a)** Some environmental scientists investigated sources of marine oil pollution.

The table shows their results.

(i) Complete the table by calculating the total estimated mass of oil.

source of marine oil pollution	**estimated mass of oil / tonnes per year**
sea bed	600 000
large ships	457 000
ports	115 000
small boats	53 000
oil rigs	20 000
total	.....

[1]

(ii) Calculate the percentage of oil that enters the marine environment from the sea bed.

..... % [1]

(iii) Suggest **one** reason why the mass of oil is estimated.

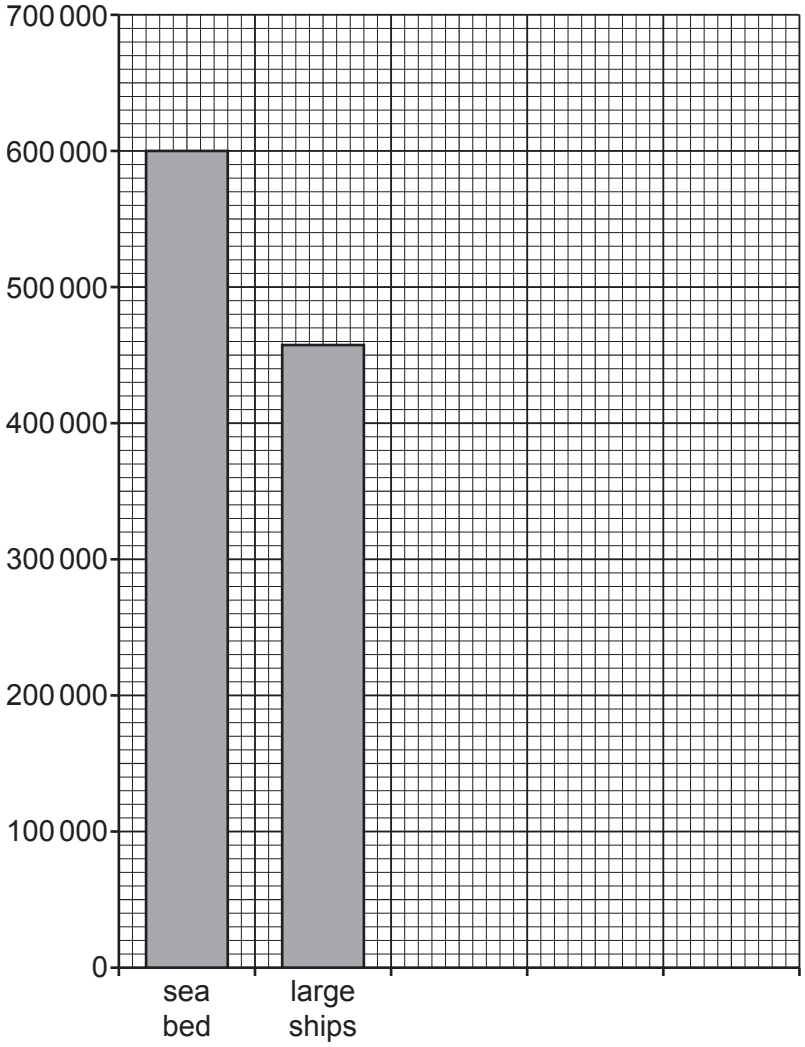
.....

..... [1]

(iv) Use the data from the table to complete the bar chart of the sources of marine oil pollution.

Label both axes.

.....



.....

[3]

(b) Describe the impacts of an oil spill on a marine ecosystem.

.....

.....

.....

.....

.....

.....

.....

..... [4]

(c) Oil tankers are a major source of marine oil pollution.

Describe strategies to reduce the risk of oil spills.

.....

.....

.....

.....

.....

..... [3]

[Total: 13]

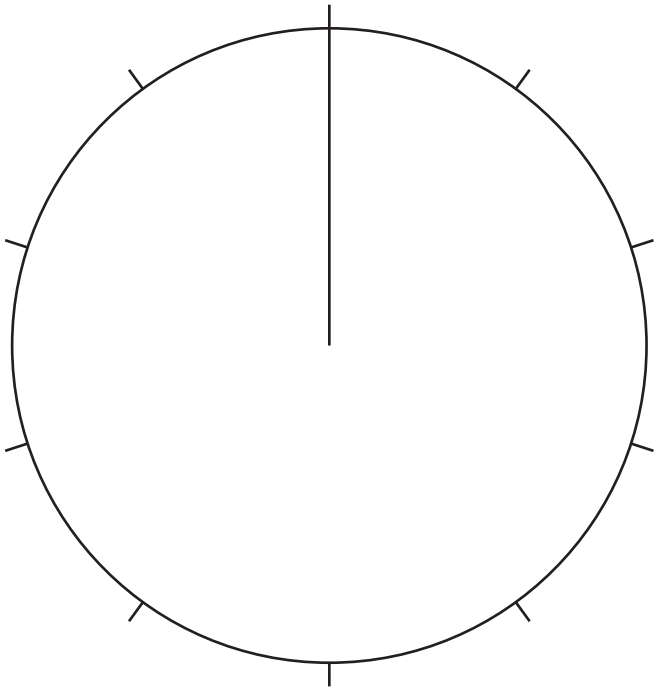
© UCLES 2021

BLANK PAGE

8 The table shows the sources of global greenhouse gas emissions.

source of greenhouse gas emission	percentage of greenhouse gas emissions
electricity and heat production	25
agriculture and forestry	24
industry	21
transport	14
construction	6
other	10

(a) Use the data in the table to complete the pie chart and key.



Key

- ☐ electricity and heat production
- ☐ agriculture and forestry
- ☐ industry
- ☐ transport
- ☐ construction
- ☐ other

[3]

(b) Describe how atmospheric pollution causes acid rain.

.....

.....

.....

.....

.....

..... [3]

(c) A student says:

> We cannot allow the level of atmospheric pollution to continue increasing. International laws are needed to force countries to reduce their atmospheric pollution by at least 20% over the next 10 years.

To what extent do you agree with this statement? Give reasons for your answer.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [6]

[Total: 12]

© UCLES 2021

BLANK PAGE

The boundaries and names shown, the designations used and the presentation of material on any maps contained in this question paper/insert do not imply official endorsement or acceptance by Cambridge Assessment International Education concerning the legal status of any country, territory, or area or any of its authorities, or of the delimitation of its frontiers or boundaries.

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced online in the Cambridge Assessment International Education Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at www.cambridgeinternational.org after the live examination series.

Cambridge Assessment International Education is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of the University of Cambridge Local Examinations Syndicate (UCLES), which itself is a department of the University of Cambridge.

© UCLES 2021