



Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE
NAME

--

CENTRE
NUMBER

--	--	--	--	--

CANDIDATE
NUMBER

--	--	--	--



ENVIRONMENTAL MANAGEMENT

0680/22

Paper 2

February/March 2018

1 hour 45 minutes

Candidates answer on the Question Paper.

No Additional Materials are required.

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.

Write in dark blue or black pen.

You may use an HB pencil for any diagrams or graphs.

Do not use staples, paper clips, glue or correction fluid.

DO **NOT** WRITE IN ANY BARCODES.

Answer **both** questions.

Electronic calculators may be used.

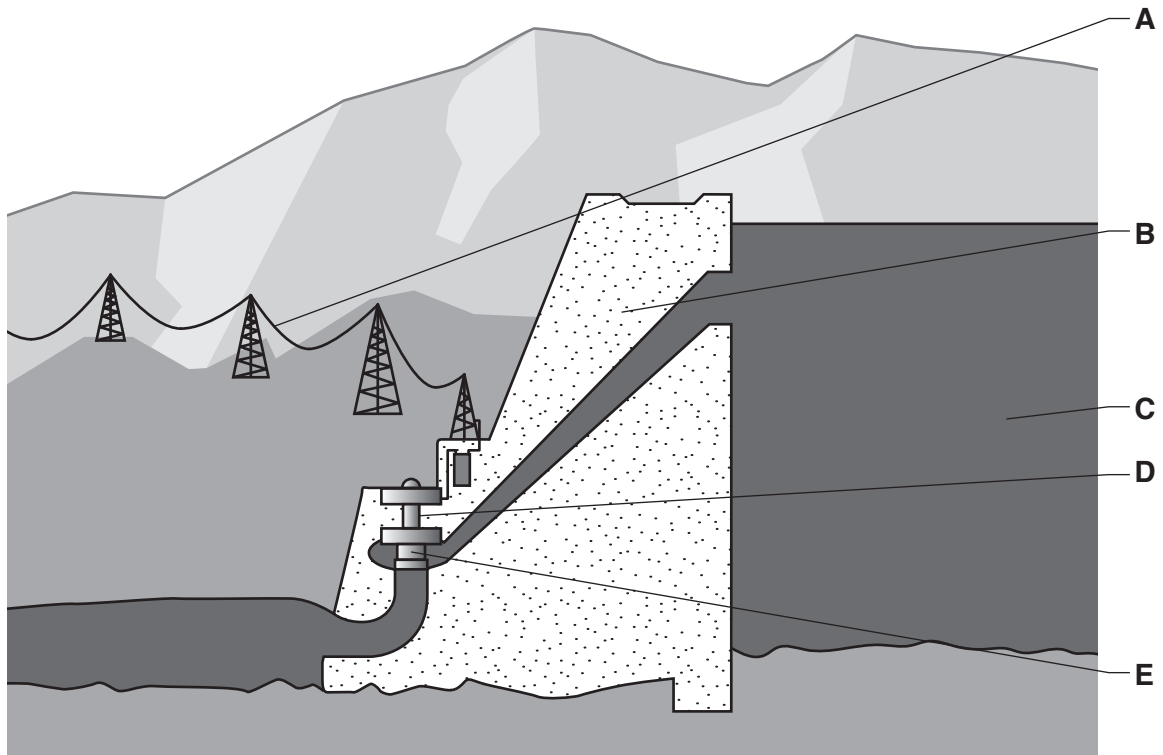
You may lose marks if you do not show your working or if you do not use appropriate units.

At the end of the examination, fasten all your work securely together.

The number of marks is given in brackets [] at the end of each question or part question.

This document consists of **14** printed pages and **2** blank pages.

- 1 (a) The diagram shows a dam and hydro-electric power (HEP) station.



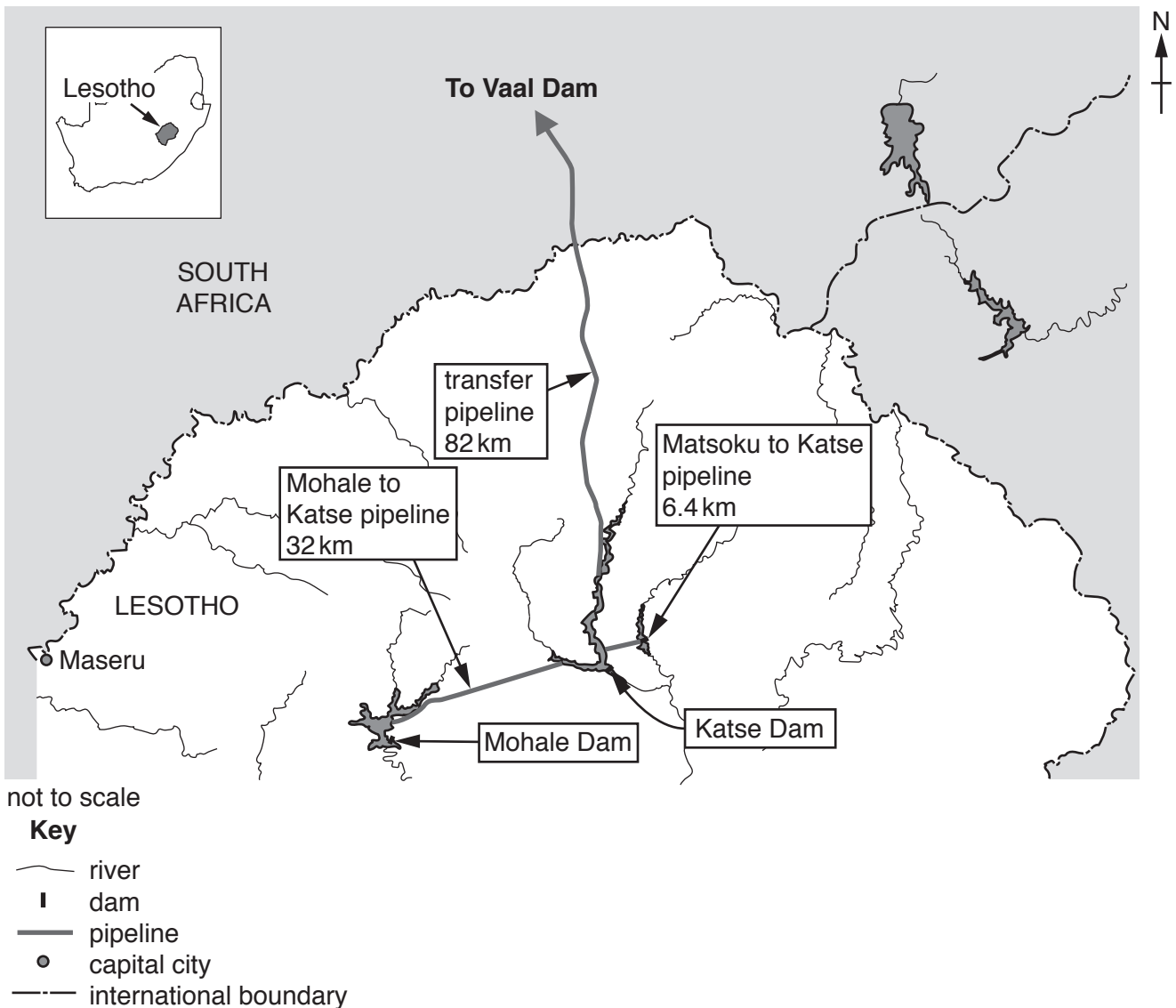
Using the diagram, match the letters, **A**, **B**, **C**, **D** and **E**, to the correct term.

term	letter
dam wall
electricity transmission line
generators
reservoir
turbines

[4]

BLANK PAGE

(b) The information is about the Lesotho Highlands Water Project.



Lesotho is a developing country. The mountains of Lesotho usually receive large volumes of rainfall. Water from Lesotho is sold to South Africa for use in industry. A pipeline takes the water to the Vaal Dam near Johannesburg in South Africa. Many large dams have been built in the river valleys of Lesotho where people used to live and farm. Hundreds of people were forced to move from the valleys. They were promised money from the project would be spent to improve their lives. Instead, many live in poverty as there is no good farmland for them. They often have no electricity even though the project also produces HEP.

(i) Suggest why South Africa needs water from Lesotho.

.....

.....

.....

..... [2]

(ii) State **two** reasons why the government of Lesotho wanted to build the Highlands Water Project.

1

.....

2

.....

[2]

(iii) State the length of the transfer pipeline from the Katse Dam in Lesotho to the Vaal Dam in South Africa.

..... km [1]

(iv) Suggest why water is transferred by pipeline from the Mohale Dam and Matsuko river to the Katse Dam.

.....

..... [1]

(v) Explain why many people in Lesotho are unhappy with the Lesotho Highlands Water Project.

.....

.....

.....

.....

..... [3]

(vi) State **two** environmental impacts of building large dams.

1

.....

2

.....

[2]

(c) The table shows average rainfall figures for a weather station in Lesotho and the rainfall figures for the period June 2015 to May 2016.

month	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	total
average monthly rainfall /mm	8	9	19	33	65	92	120	128	107	95	45	16	737
rainfall June 2015 to May 2016 /mm	15	30	3	12	8	10	72	65	20	38	32	20	325

(i) Calculate the difference between the average rainfall total and the total for the period June 2015 to May 2016.

..... mm [1]

(ii) The rainy season in Lesotho is from the start of October to the end of March. Describe differences in rainfall between an average year and that of 2015–2016 during these months.

.....

 [3]

(iii) The change in rainfall for 2015–2016 is thought to have been the result of El Niño. Describe the causes of El Niño.

.....

 [3]

(d) The quotes are from villagers in Lesotho who were affected by the low rainfall in 2015–2016.

In all my life, I have never experienced a drought this bad.



Our rivers are dried out and the grass has turned brown.



Usually we get money from selling crops from our land. Nowadays, we cannot harvest anything and our animals are dying.



My daughter had to leave to find work in the city. Now I am left alone in the village, taking care of her three children.



People in this area are lacking water because the water sources are drying up.



I am very worried. People will die, unless help is provided.



(i) Explain why the drought in Lesotho may cause people to die.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [4]

(ii) Suggest strategies the Lesotho government could use to reduce the impact on farmers of future droughts.

.....

.....

.....

.....

.....

.....

.....

.....

..... [4]

(iii) Explain why soil erosion might be a problem during the drought and the next rainy season.

during the drought

.....

.....

.....

.....

.....

.....

.....

next rainy season

.....

.....

.....

.....

..... [4]

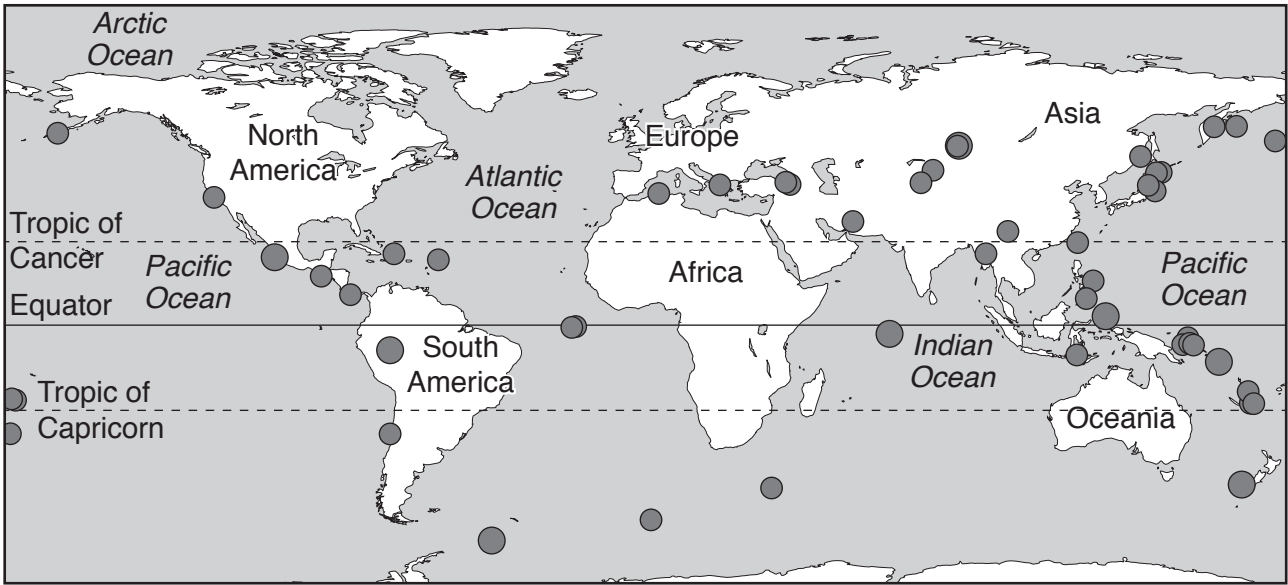
(e) 'Pollution of rivers and lakes from human activities will always be a problem.'

How far do you agree with this statement? Give reasons for your answer.

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

[6]

2 (a) The map shows the locations of major earthquakes in 2003.



Key ● major earthquake

Describe the distribution of earthquakes shown on the map.

.....

.....

.....

.....

.....

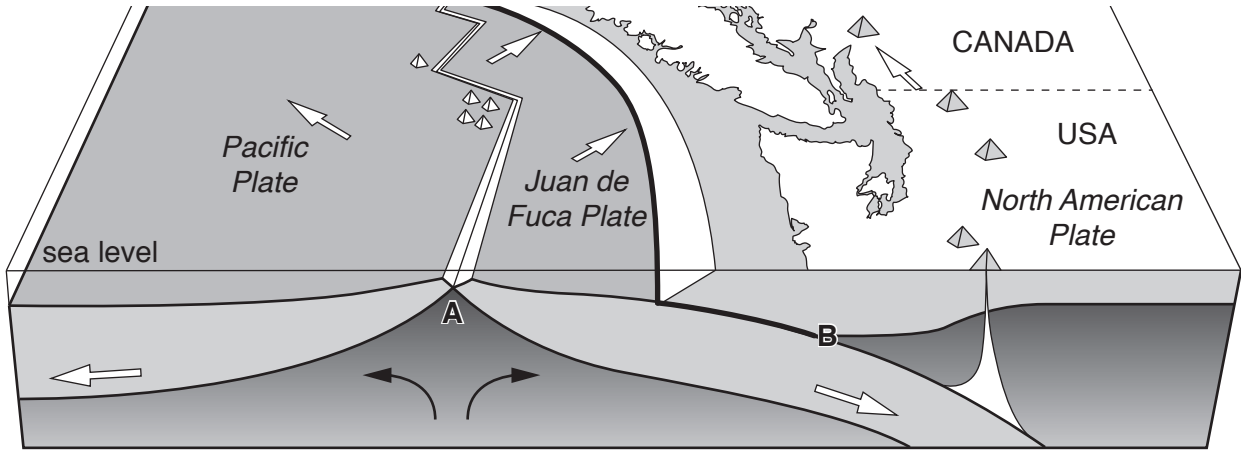
.....

.....

.....

[3]

(b) The diagram shows plate boundaries on the west coast of North America.



Key

- direction of plate movement
- convection current
- volcanoes
- international boundary

(i) State the type of plate boundary at **A** and at **B**.

A

B

[2]

(ii) Using information from the diagram, explain why earthquakes occur along plate boundary **B**.

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

[4]

(c) The photograph shows part of the damage caused by an earthquake in Haiti.



(i) Describe the damage shown in the photograph.

.....
.....
.....
..... [2]

(ii) Describe the impacts of the earthquake on the people living in the area shown in the photograph.

.....
.....
.....
.....
.....
.....
.....
..... [4]

(iii) After the earthquake there was an outbreak of cholera in Haiti that killed 9000 people.

Suggest how the earthquake led to an outbreak of cholera.

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [4]

(iv) Suggest strategies for reducing the impacts of any future earthquakes in Haiti.

.....

.....

.....

.....

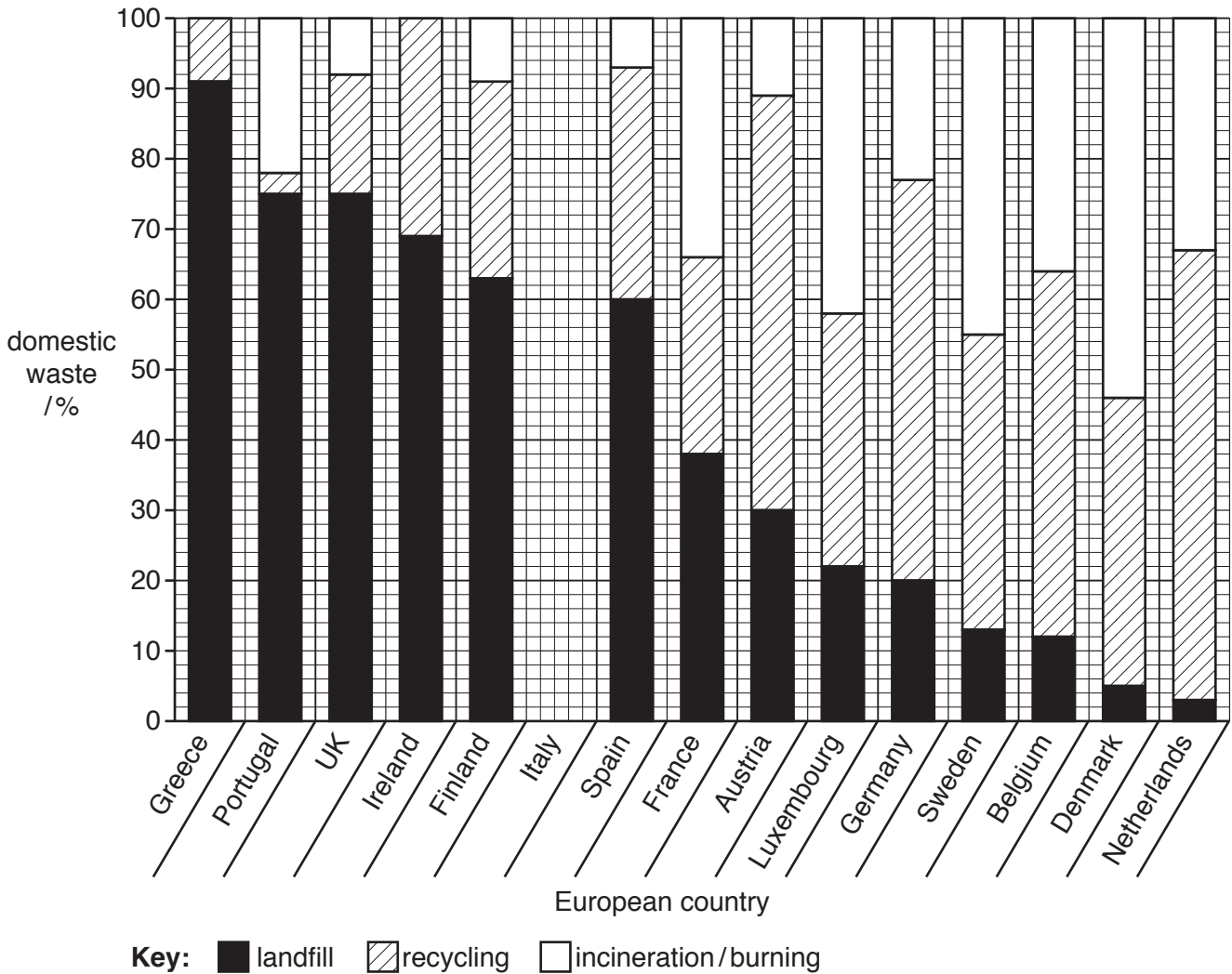
.....

.....

.....

..... [3]

(d) The graph shows what happens to domestic waste in fifteen European countries.



(i) Complete the graph, by adding a bar for Italy using the key and these percentages.

landfill 62%
 recycling 27%
 incineration/burning 11%

[3]

(ii) State the country that sends the most waste to:

landfill

recycling

[2]

(iii) State the percentage of waste that is incinerated in Sweden.

.....% [1]

(iv) State the meaning of the term *recycling*.

.....
..... [1]

(v) Explain the benefits of recycling.

.....
.....
.....
.....
.....
..... [3]

(vi) Suggest why some countries recycle more domestic waste than other countries.

.....
.....
.....
..... [2]

(e) Over-exploitation and depletion of mineral and fossil fuel reserves are international problems. Outline how these problems can be reduced.

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
..... [6]

BLANK PAGE

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 International Examinations Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at www.cie.org.uk after the live examination series.

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