Cambridge O Level

Cambridge Assessment International Education
Cambridge Ordinary Level

CANDIDATE NAME	

CENTRE NUMBER						CANDIDATE NUMBER				

ENVIRONMENTAL MANAGEMENT **5014/12**

Paper 1 Theory **October/November 2019**

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 in the spaces at the top of this page.
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 **all** 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 **17** printed pages and **3** blank pages.

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[Turn over

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Section A

1 The photograph shows terracing, a method of reducing soil erosion.

(a) Describe how this method reduces soil erosion.

.....

.....

.....

..... [2]

(b) State **two** other methods that could be used to reduce soil erosion.

1 .....

2 .....
[2]

[Total: 4]

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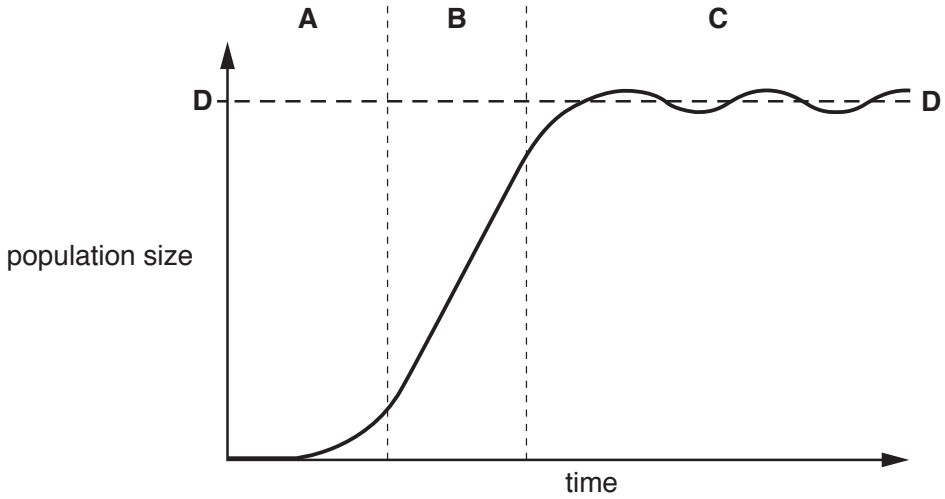
2 The graph shows a typical growth curve for a population.



(a) State the name of each part of the graph, labelled **A**, **B**, **C** and **D**.

part	name of part
A	.....
B	.....
C	.....
D	.....

[3]

(b) Describe **two** ways a country could control its birth rate.

1 .....

.....

2 .....

.....

[2]

[Total: 5]

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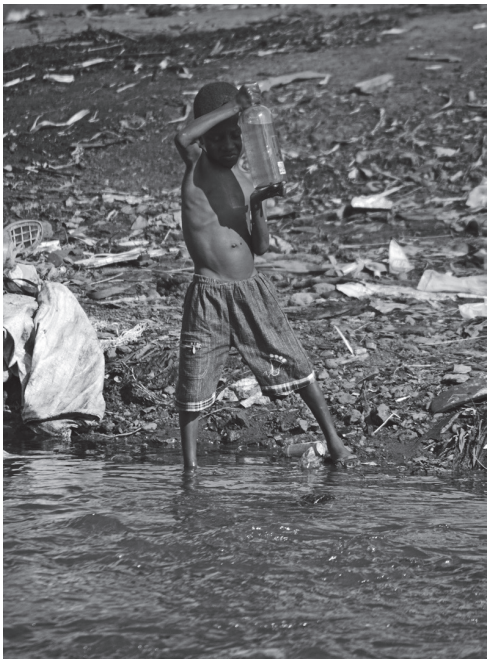
3 **(a)** The photograph shows a child collecting water to drink in an LEDC.



(i) Suggest **two** reasons why the water may be unsafe to drink.

1 .....

.....

2 .....

.....

[2]

(ii) Describe **two** ways a supply of safe drinking water could be provided to the area.

1 .....

.....

2 .....

.....

[2]

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(b) A scientist investigated the impact of water quality on female life expectancy.

water quality	female life expectancy / years
safe drinking water	82.6
polluted water	72.9

Calculate the percentage increase in female life expectancy if there is a supply of safe drinking water.

.....% [2]

(c) Suggest **two** reasons why some countries do **not** have sufficient access to safe drinking water.

1 .....

.....

2 .....

.....
[2]

[Total: 8]

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4 The photograph shows the damage caused by an earthquake in Japan.

Describe the damage shown in the photograph.

.....

.....

.....

.....

.....

..... [3]

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Section B

5 Teak is an important timber tree.

The table shows some data about the growth of teak trees.

age of tree / years	average diameter of trunk / cm	average height of tree / m
10	6.0	12.5
20	11.0	13.5
30	17.0	18.0
40	22.0	21.0
50	27.0	24.0
60	32.0	26.0
70	37.0	28.0
80	42.0	29.0
90	46.0	30.0
100	50.0	21.0
110	54.0	32.0
120	58.0	33.0
130	61.0	34.0
140	65.0	34.0
150	68.0	34.0

(a) **(i)** Identify the age teak trees reach their maximum height.

..... years [1]

(ii) Calculate the average annual increase in tree height over the first 50 years.

..... m [1]

(iii) The trees may still continue to grow after 150 years.

State the evidence for this from the table.

.....

..... [1]

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(iv) The greater the circumference of a tree, the greater the volume of wood that is available for timber.

The circumference of a tree can be determined using the following formula:

circumference = 3.142 × diameter

Calculate the average circumference of a 50 year old teak tree.

..... cm [1]

(v) The average harvested volume of wood from a 50 year old teak tree is 8 m^3. The planting density of a managed teak forest is 200 trees per hectare.

Calculate the volume of wood that could be harvested from one hectare of this managed teak forest if all the trees are harvested at 50 years old.

..... m^3 [1]

(b) Suggest how replacing natural rainforest with managed teak forest can affect biodiversity.

.....

.....

.....

.....

.....

..... [3]

(c) Excessive logging can have a negative impact on an area of forest.

Instead of banning all timber extraction in natural rainforests, some countries allow selective logging of teak.

Suggest reasons why.

.....

.....

.....

.....

.....

..... [3]

[Total: 11]

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6 The newspaper report is about air pollution in 2012.

> **7 million deaths due to air pollution in 2012**
>
> The World Health Organisation estimates that around 7 million people died as a result of air pollution in 2012. This represents one in eight of total global deaths. This information confirms that air pollution is now the world's largest single environmental health risk. Reducing air pollution could save millions of lives.
>
> Low and middle income countries in the South East Asia and Western Pacific regions were the most affected by air pollution in 2012. There were 3.3 million deaths due to indoor air pollution and 2.6 million deaths due to outdoor air pollution in these regions.

(a) **(i)** Calculate the percentage of global deaths that were due to air pollution in 2012.

.....% [1]

(ii) Suggest reasons why low and middle income countries were greatly affected by air pollution in 2012.

.....

.....

.....

.....

.....

..... [3]

(iii) Give the ratio of air pollution deaths in the South East Asia and Western Pacific regions compared to the total global deaths from air pollution in 2012.

..... [1]

(b) Suggest **two** health problems that could be caused by the air pollution.

1 .....

2 .....
[2]

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(c) Suggest reasons why governments have difficulty in reducing air pollution.

.....

.....

.....

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.....

.....

..... [4]

[Total: 11]

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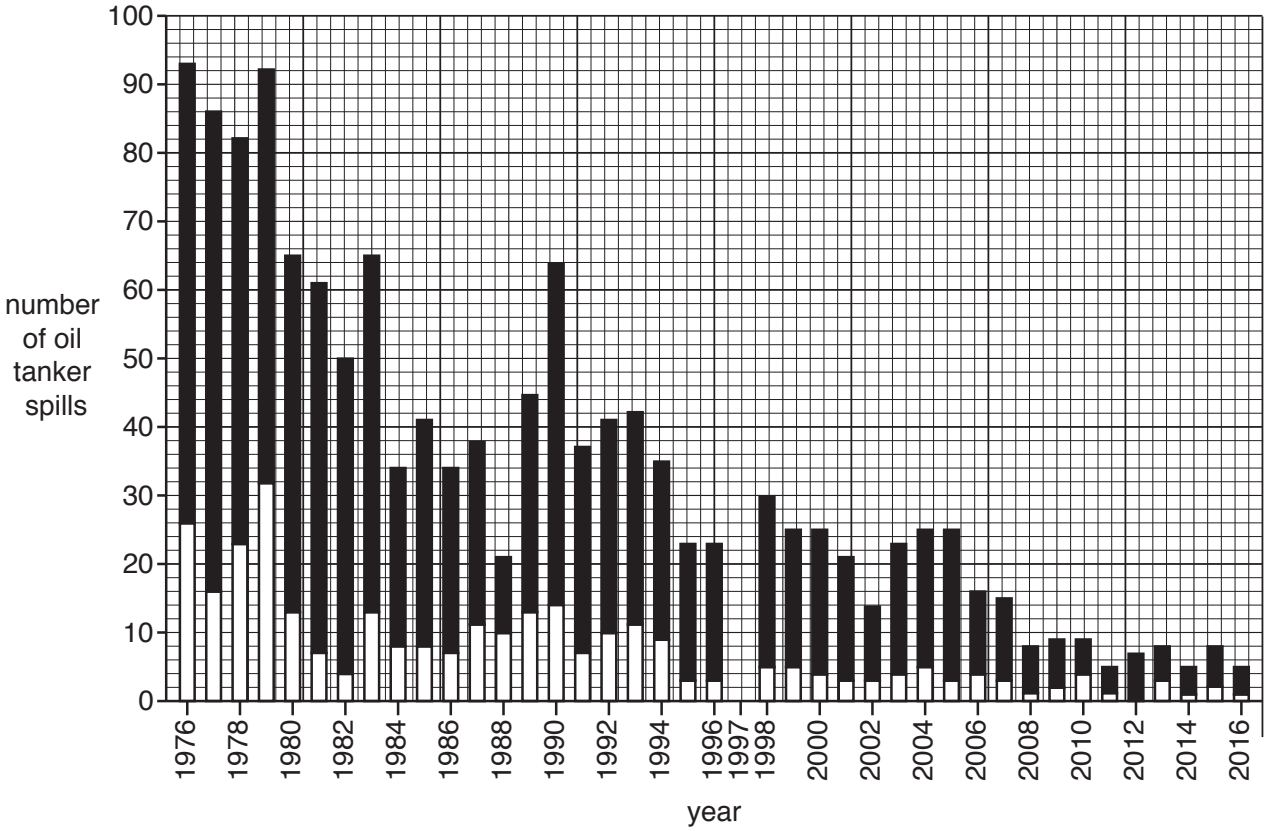
7 The bar chart shows the number of oil tanker spills in the world's oceans between 1976 and 2016.



Key

small oil spills (7–700 tonnes)

large oil spills (>700 tonnes)

(a) **(i)** Complete the bar chart using the data in the table for 1997.

	number of oil tanker spills in 1997
small oil spills (7–700 tonnes)	10
large oil spills (>700 tonnes)	18

[2]

(ii) Identify the year with the highest number of large oil spills.

..... [1]

(iii) Identify the number of small oil spills in 1988.

..... [1]

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(iv) Describe the trends in oil tanker spills between 1976 and 2016.

.....

.....

.....

.....

.....

..... [3]

(v) Suggest **two** reasons for the differences in the number of oil tanker spills between 1976 and 2016.

1 .....

.....

2 .....

.....
[2]

(b) Explain ways oil spills can impact marine organisms.

.....

.....

.....

.....

.....

..... [3]

(c) Transportation of oil by tankers is a major source of oil pollution.

State **one** other major source of oil pollution.

.....

..... [1]

[Total: 13]

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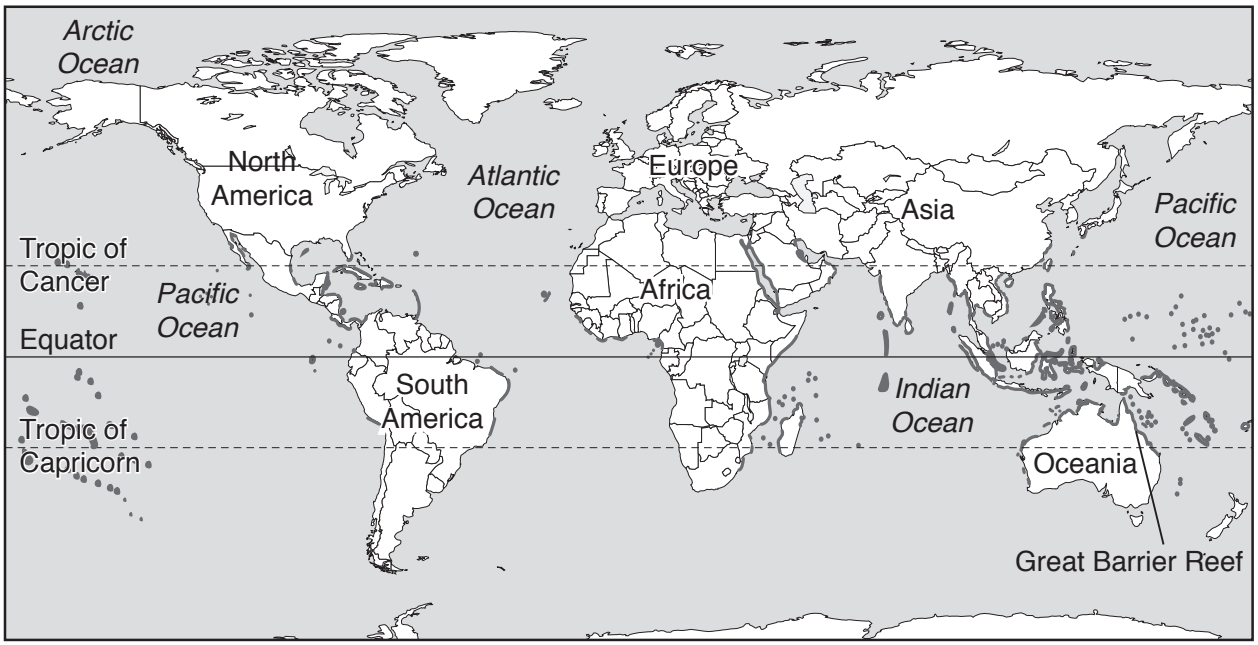
8 The map shows the location of coral reefs.



Key

coral reefs

(a) Describe the location of the coral reefs.

.....

.....

.....

.....

.....

..... [3]

(b) The Great Barrier Reef is a major coral reef and a popular tourist destination.

Scientists estimate that the living coral has decreased by 50% since 1988.

(i) Suggest **two** reasons for this decrease.

1 .....

.....

2 .....

.....

[2]

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(ii) In 1988, living coral covered an area of 300 000 km^2 on the Great Barrier Reef.

Calculate the current area covered by living coral.

..... km^2 [1]

(c) Some coral reefs are marine ecological reserves.

Suggest reasons why it is difficult to make coral reefs into marine ecological reserves.

.....

.....

.....

.....

.....

..... [3]

[Total: 9]

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9 The photograph shows an example of surface mining.

(a) State **two** advantages and **two** disadvantages of surface mining compared with subsurface mining.

advantage 1 .....

.....

advantage 2 .....

.....

disadvantage 1 .....

.....

disadvantage 2 .....

.....

[4]

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(b) Rocks are classified into three main types.

Complete the table by identifying each type of rock.

basalt **granite** **limestone**

sandstone **shale** **slate**

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

[3]

(c) Describe how metamorphic rocks are formed.

.....

.....

.....

.....

.....

..... [3]

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(d) Two students were talking about the extraction of minerals.

The extraction of minerals is necessary as it will help the economy of the country. This is more important than preserving the environment.

I disagree.

Preserving the environment is far more important than obtaining minerals.

How far do you agree with these views?

Give reasons for your answer.

.....

.....

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..... [6]

[Total: 16]

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