Cambridge Assessment International Education

Cambridge IGCSE™

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

5315801555

ENVIRONMENTAL MANAGEMENT **0680/13**

Paper 1 Theory **October/November 2020**

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 [ ].

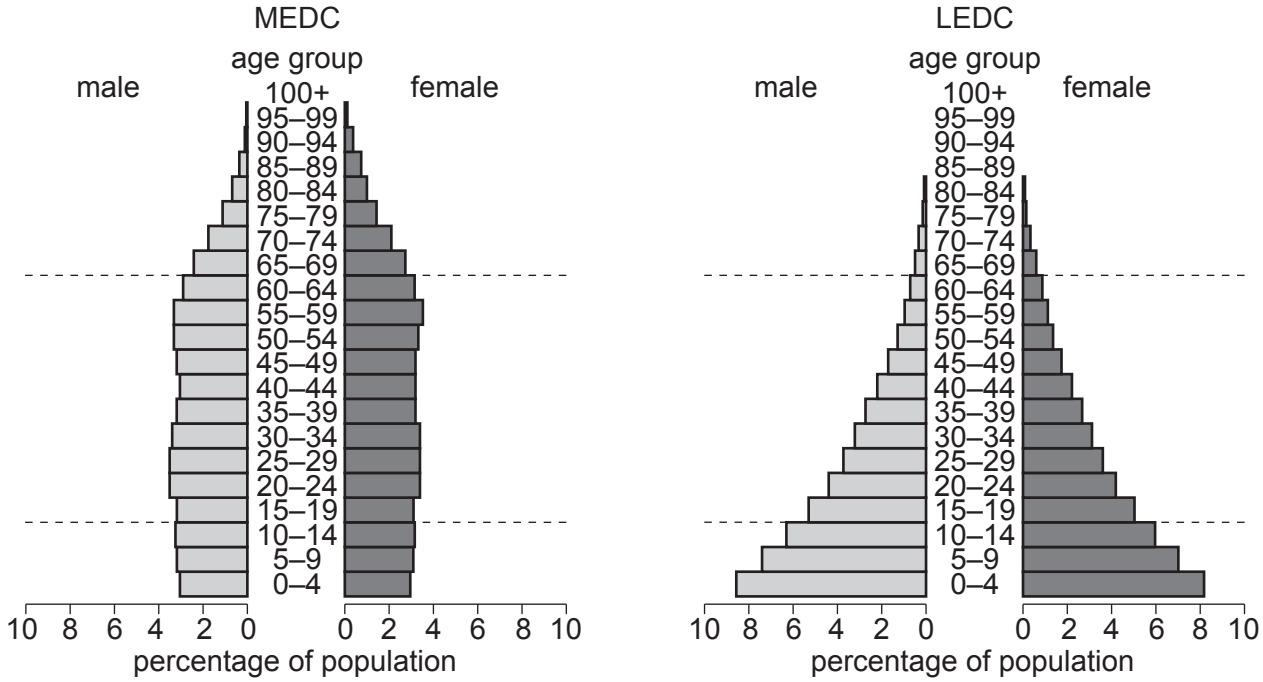
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Section A

1 The diagram shows typical population pyramids for a more economically developed country (MEDC) and a less economically developed country (LEDC).



(a) (i) Explain why the MEDC and LEDC population pyramids have a different shape.

.....

.....

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.....

.....

..... [3]

(ii) Compare the male age groups above 64 with the female age groups above 64 for the MEDC.

.....

.....

.....

..... [2]

(b) Suggest **one** impact an ageing population can have on a country.

.....

..... [1]

[Total: 6]

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2 Flooding can be caused by heavy or prolonged rainfall.

(a) State **one** other cause of flooding.

..... [1]

(b) Suggest **one** positive effect and **one** negative effect of flooding.

positive effect .....

.....

negative effect .....

.....

[2]

(c) Describe strategies for managing the impacts of a flood.

.....

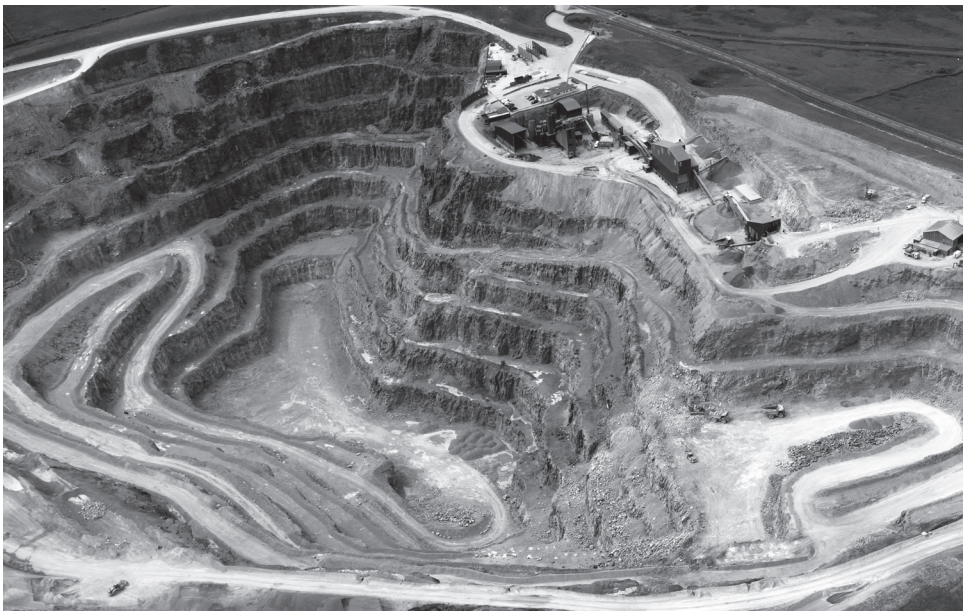
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..... [2]

[Total: 5]

3 The photograph shows a quarry where rock is extracted.



(a) Name the method of rock extraction shown in the photograph.

..... [1]

(b) Describe how the land can be restored after the quarry closes.

.....

.....

.....

.....

.....

..... [3]

[Total: 4]

4 The photograph shows water being collected from a river in Africa.



(a) State **two** infectious bacterial diseases that could be in the water.

1 .....

2 .....
[2]

(b) State **one** way that water can become contaminated with an infectious bacterial disease.

.....

..... [1]

(c) Suggest strategies for improving access to safe drinking water in the area shown in the photograph.

.....

.....

.....

..... [2]

[Total: 5]

Section B

5 **(a)** Fossil fuels are non-renewable energy resources.

(i) Suggest reasons why most of the world's electricity comes from fossil fuels.

.....

.....

.....

.....

.....

..... [3]

(ii) Name **two** renewable energy resources.

1 .....

2 .....
[2]

(b) The table shows the percentage of electricity generated from fossil fuels for six countries from 2010 to 2015.

			year					
			2010	2011	2012	2013	2014	2015
percentage of electricity generated from fossil fuels	MEDC	Australia	91.4	89.6	89.4	86.7	85.1	86.4
		USA	70.3	68.4	68.9	67.8	67.5	67.1
		Italy	73.3	71.4	68.0	60.0	55.5	60.2
	LEDC	El Salvador	35.0	37.1	39.8	39.6	40.3	42.2
		Costa Rica	6.7	8.8	8.2	11.7	10.2	1.0
		Zimbabwe	32.0	42.1	39.6	46.1	44.4	47.3

(i) The range is the difference between the maximum value and the minimum value.

Identify the country with the greatest range in percentage of electricity generated from fossil fuels in the period 2010 to 2015.

State the range for this country.

country .....

range ..... %
[2]

(ii) Compare the percentage of electricity generated from fossil fuels in the MEDCs with the percentage of electricity generated from fossil fuels in the LEDCs, as shown in the table.

.....

.....

.....

.....

.....

..... [3]

[Total: 10]

6 **(a)** A greenhouse is a controlled environment.

(i) State **two** environmental conditions that can be controlled in a greenhouse and explain the benefit of controlling each of these conditions.

condition 1 .....

benefit .....

.....

condition 2 .....

benefit .....

.....
[4]

(ii) Suggest **one** disadvantage of using a greenhouse.

.....

..... [1]

(b) Four different people talk about the use of genetically modified (GM) crops.

A Local farmer

The use of GM crops should be banned. GM crop seeds are expensive and only large companies can afford them. This means small commercial farms are going out of business.

B Government official

We should use GM crops. GM crops increase yield, can be grown faster and can survive in harsher conditions. This makes farmers more money and means there are fewer food shortages.

C Environmentalist

GM crops are a serious risk to the environment. Cross-pollination creates herbicide-resistant weeds that compete with other crops and wild plants. This can have an impact on food chains.

D University professor

Food production must double in the next 35 years to feed the growing world population. The area of farmland is decreasing. The use of GM crops is the only way to increase yields and get more food from the land.

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Do you think the use of GM crops should be increased?

Support your view with reference to the comments made by the four different people.

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..... [7]

[Total: 12]

7 **(a)** **(i)** Explain how air pollution can cause acid rain.

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..... [3]

(ii) State **three** effects acid rain has on the environment.

1 .....

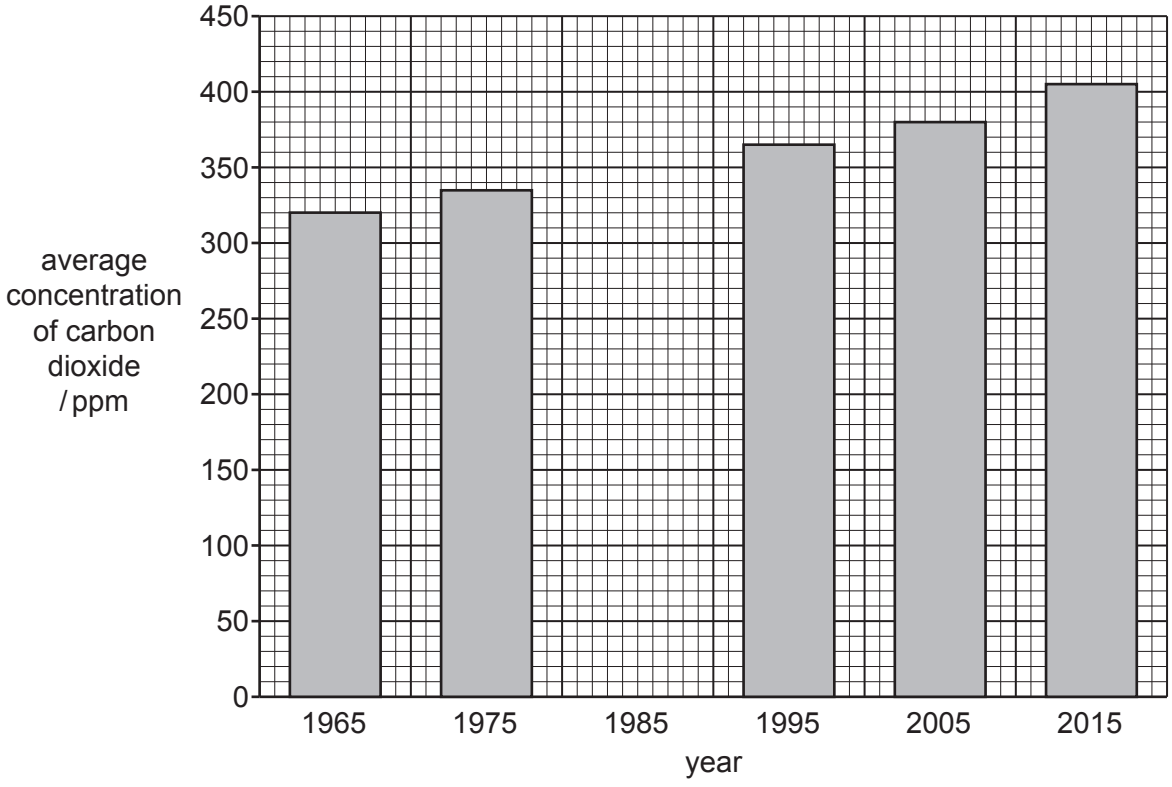
2 .....

3 .....

[3]

(b) The bar chart shows the average concentration of carbon dioxide, CO_2, in the atmosphere every 10 years from 1965 to 2015.

The concentration is in parts per million (ppm).



(i) Complete the bar chart to show that the average concentration of carbon dioxide in the atmosphere in 1985 was 350 ppm. [1]

(ii) The bar chart shows that the concentration of carbon dioxide in the atmosphere is increasing.

State which 10-year period has the greatest increase in concentration of carbon dioxide.

..... [1]

(iii) Suggest why the concentration of carbon dioxide in the atmosphere is increasing.

.....

..... [1]

(c) State **three** strategies for reducing the concentration of carbon dioxide in the atmosphere.

1 .....

.....

2 .....

.....

3 .....

.....

[3]

(d) Carbon dioxide contributes to climate change.

Describe the global impacts of climate change.

.....

.....

.....

.....

.....

..... [3]

[Total: 15]

8 The table shows the number of biosphere reserves in different world regions in 2016 and in 2017.

world region	number of countries in world region	number of reserves in 2016	reserves removed in 2017	reserves added in 2017	number of reserves in 2017
A	28	68	0	7	75
B	11	31	0	0	31
C	24	142	2	7	147
D	36	306	26	7	287
E	21	124	0	5	129
total		.....			669

(a) (i) **Complete the table** to give the total number of reserves in 2016. [1]

(ii) Calculate the percentage of the world's biosphere reserves in region **A** in 2017.

..... % [1]

(iii) Calculate the average number of biosphere reserves per country in region **C** in 2017.

..... [1]

(iv) Suggest reasons why some biosphere reserves were removed in 2017.

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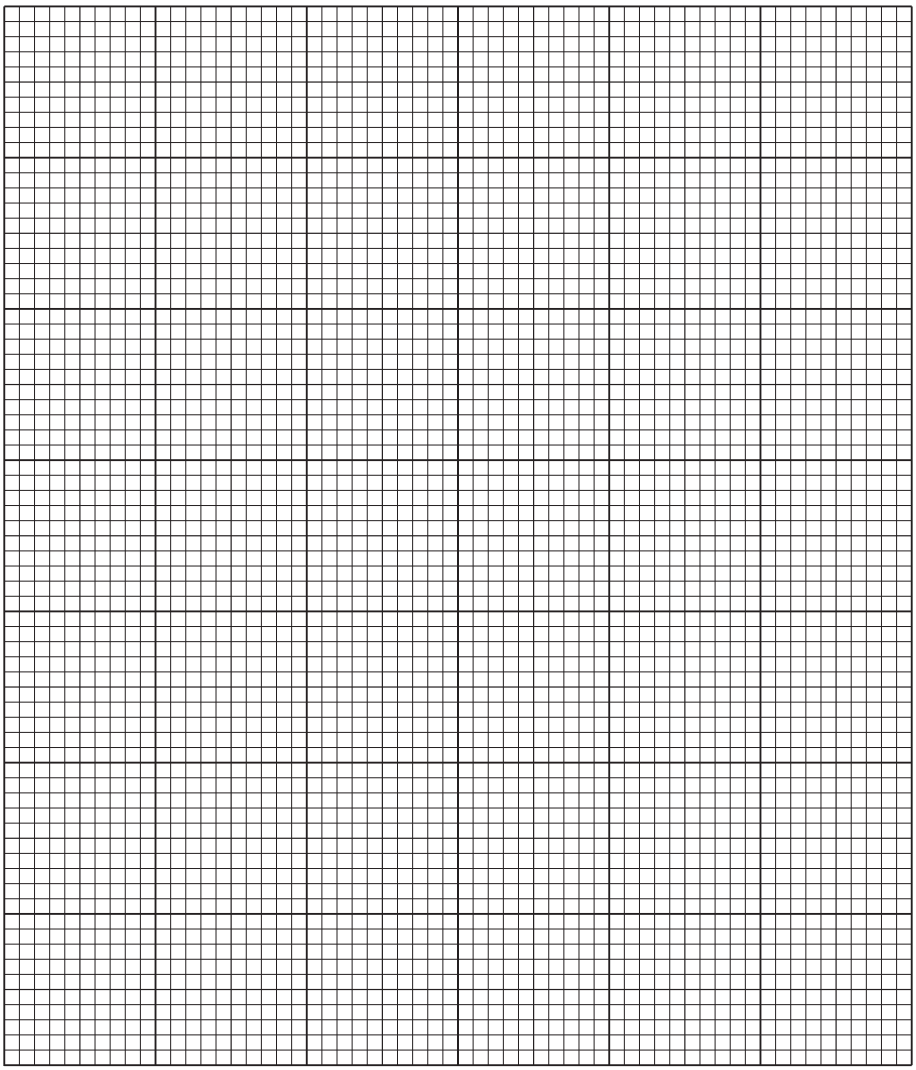
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..... [2]

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(v) Plot a bar chart to show the total number of biosphere reserves in each world region in 2017.



[4]

(b) Biosphere reserves are one way of conserving the biodiversity of a natural ecosystem.

State **two** other strategies to conserve the biodiversity of a natural ecosystem.

1 .....

.....

2 .....

.....

[2]

[Total: 11]

9 A student reads an article about the El Niño Southern Oscillation (ENSO) phenomenon along the Pacific coast of South America.

El Niño

The ENSO phenomenon has three main phases: El Niño (warming phase), La Niña (cooling phase) and neutral (normal phase).

In El Niño years, the numbers of fish caught by local fishermen are different from the numbers of fish caught in neutral (normal) years. Weather systems are affected: drought can occur in some countries, and flooding can occur in other countries.

There is no regular pattern to when El Niño years will happen. Countries monitor the temperature of the surface of the Pacific Ocean to predict an El Niño year. Several months of higher-than-average temperatures indicate an El Niño year will happen.

In the El Niño year of 1982, the Pacific Ocean temperature was 1.0 °C above average for a neutral year. In 1987, it was 1.3 °C higher than a neutral year. In 2015, it was 1.5 °C higher.

(a) (i) Explain why the numbers of fish caught along the Pacific coast of South America change in El Niño years compared to neutral years.

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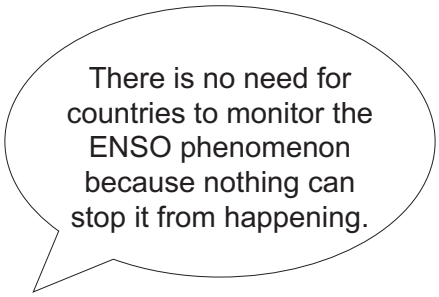
.....

..... [3]

(ii) Present the data from the article in a suitable table to show the increase in average surface temperature of the Pacific Ocean in the El Niño years stated.

[3]

(b) The student says,



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

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..... [6]

[Total: 12]

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