Cambridge Assessment International Education

Cambridge IGCSE™

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

0697181697

ENVIRONMENTAL MANAGEMENT **0680/12**

Paper 1 Theory **February/March 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 [ ].

This document has **20** pages. Blank pages are indicated.

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Section A

1 The rocks on Earth are continually changing as part of the rock cycle.

(a) (i) State the name of **one** sedimentary rock.

..... [1]

(ii) Explain how sedimentary rocks are changed into metamorphic rocks.

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..... [2]

(b) Some types of metamorphic rock are in high demand for industry.

Give reasons why some types of metamorphic rock might **not** be extracted.

.....

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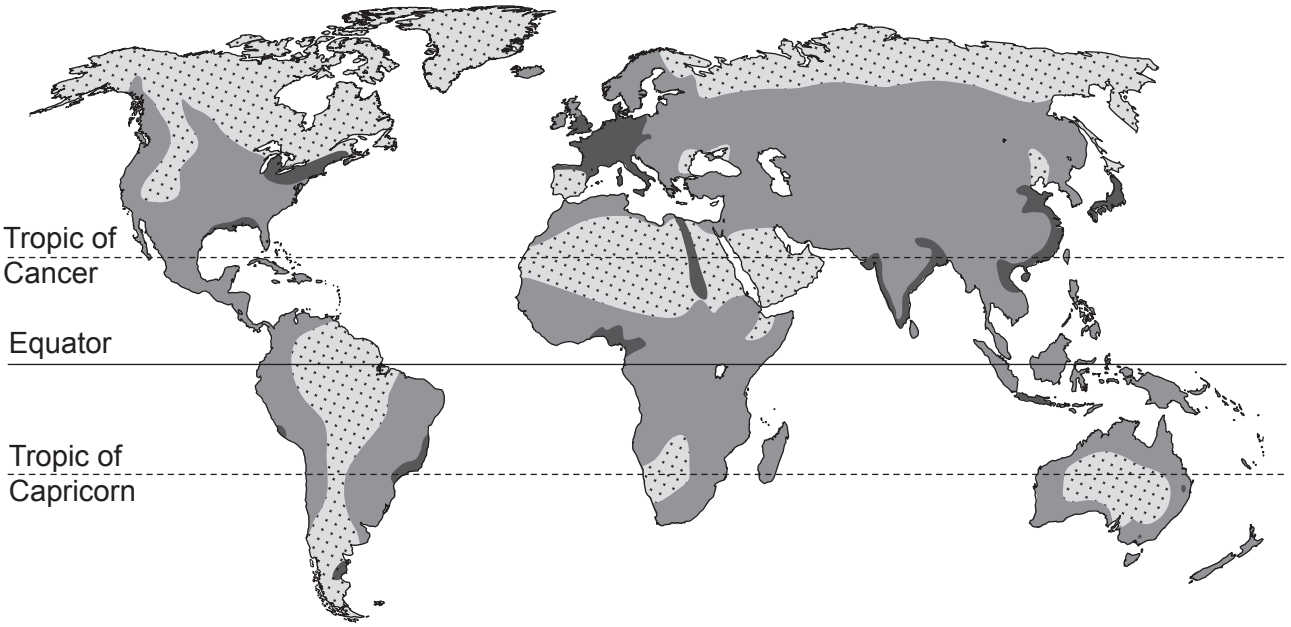
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..... [2]

[Total: 5]

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2 The map shows the human population density of the world in 2018.



Key human population
- low density
- medium density
- high density

(a) Describe the distribution of high human population density in 2018 shown on the map.

.....

.....

.....

.....

.....

..... [3]

(b) Give reasons why some areas of the world have a low population density.

.....

.....

.....

..... [2]

[Total: 5]

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3 The table shows some data for a type of soil.

particle size	air content	water
large	high	quickly drains

(a) (i) State the type of soil described in the table.

..... [1]

(ii) Some types of soil are better suited for growing crops than other types of soil.

Suggest **two** disadvantages of growing crops in a quickly draining soil, compared with a soil that drains more slowly.

1 .....

.....

2 .....

.....

[2]

(b) Describe **two** techniques used to increase agricultural yields.

1 .....

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2 .....

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[2]

(c) People need a clean supply of safe drinking water (potable water).

State **two** ways water can be made potable.

1 .....

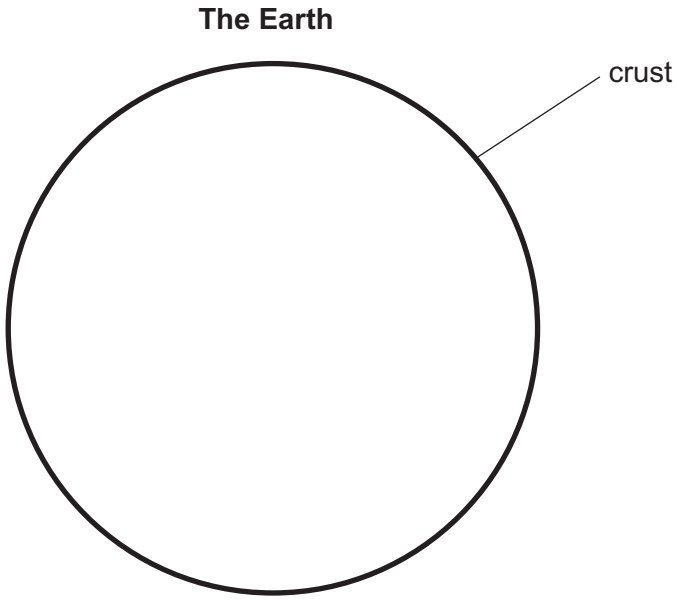
2 .....

[2]

[Total: 7]

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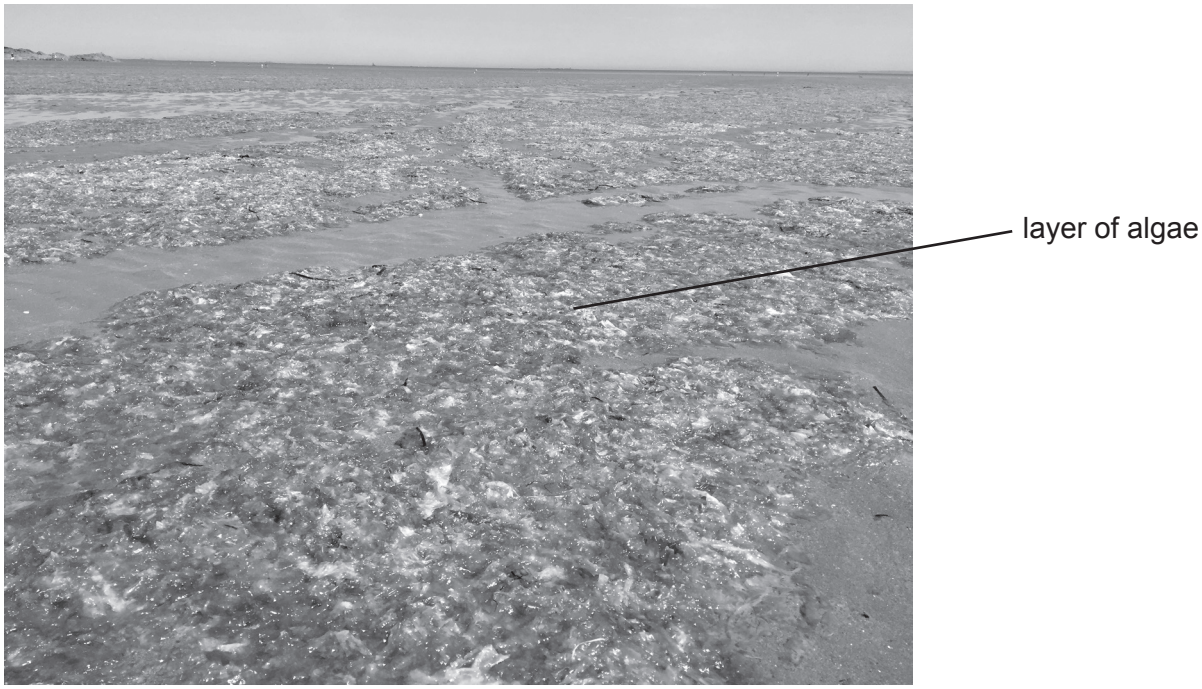
4 **Complete and label the diagram** to represent the structure of the Earth.



[3]

Section B

5 The photograph shows a build-up of algae on a beach in Europe. The beach is next to intensively farmed agricultural land.



The algae cover rocks where birds nest and where shellfish are farmed for food.

The algae are harmless when wet but produce toxic hydrogen sulfide gas as the algae dry and decompose.

Toxic gas is trapped under the dry algae. Some layers of rotting algae are one metre thick.

Many animals have died on the beach and some people have become unconscious when walking over the algae.

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(a) (i) Suggest why an increase in fish deaths has **not** been reported in this coastal area.

.....

..... [1]

(ii) Suggest **two** impacts on local people of the large amount of algae on the beach, other than harming human health.

1 .....

.....

2 .....

.....

[2]

(iii) Suggest **one** impact to the beach ecosystem of the large amount of algae on the beach.

.....

..... [1]

(b) A large build-up of algae is sometimes referred to as an algal bloom.

Describe how algal blooms form.

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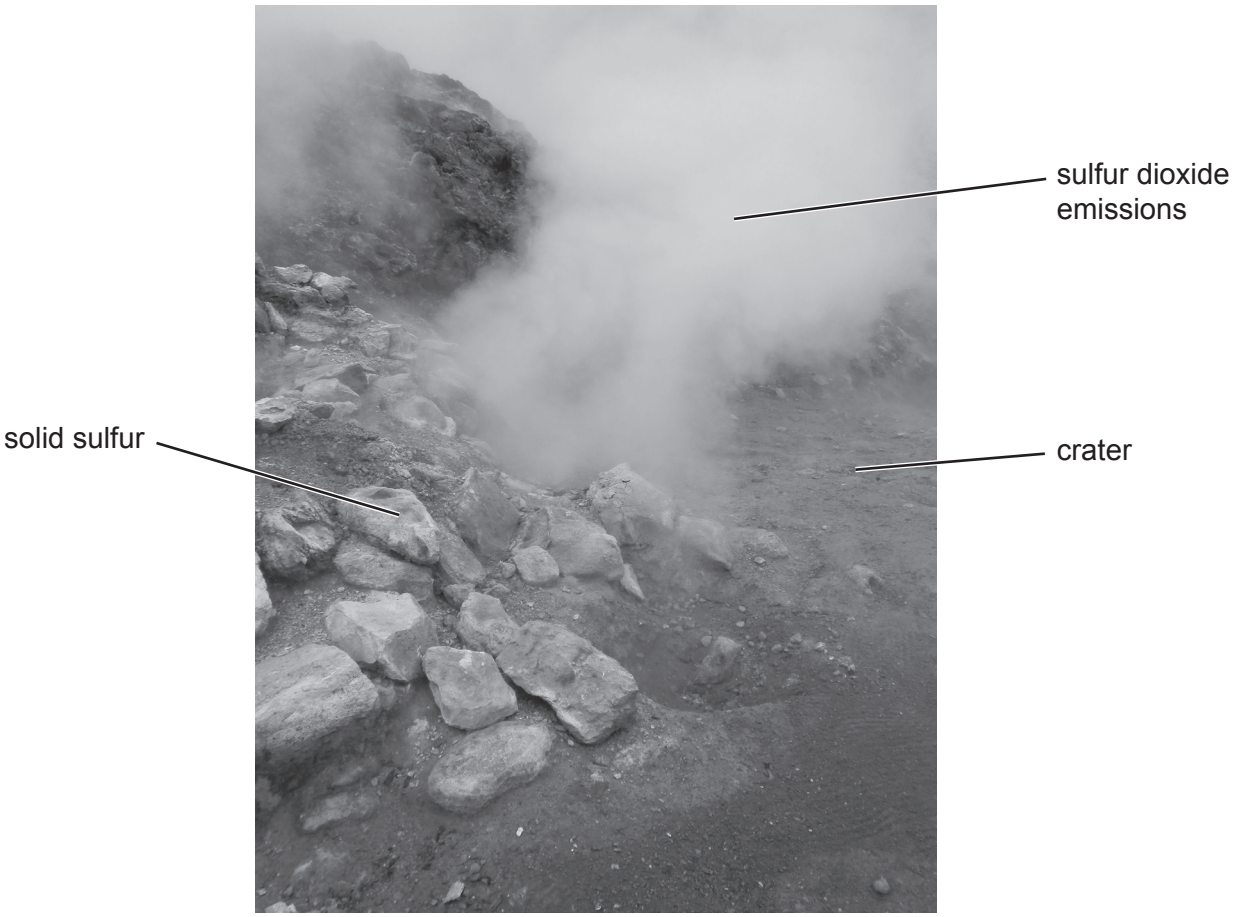
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..... [5]

[Total: 9]

6 The photograph shows the edge of a volcanic crater.



(a) Suggest reasons why people live very close to active volcanoes despite the potential dangers.

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..... [3]

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(b) The activity of the volcano in the photograph is monitored for part of one year.

monitored activity	month		
	January	February	March
number of small earthquakes around the volcano	50	60	150
temperature around the volcano / °C	140	206	590
emissions of sulfur dioxide / tonnes	340	540	16 000

What do the results suggest about the activity of this volcano?
Give reasons for your answer.

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.....

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.....

..... [3]

(c) Some local people talk about preparations for a volcanic eruption.

person **A**

I have lived here for 60 years and the volcano has never erupted. We are safe and there is no need to make any evacuation plans.

person **B**

The government has put a new mobile phone communication mast in the village. I get a good phone signal now.

person **C**

I used to take tourists up the volcano, but I'm not allowed to do this anymore because there is an exclusion zone around the volcano.

person **D**

I have a stock-pile of food and water and extra supplies of my medicines.

person **E**

We had a volcanic-eruption drill at school last week. My grandfather says there is nothing to worry about and he would never leave his home.

Do you think there is an effective strategy in place for managing the impact of a volcanic eruption in this area?

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

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..... [5]

(d) Sulfur dioxide gas from volcanic emissions can lead to atmospheric pollution.

(i) State the name of this type of atmospheric pollution.

..... [1]

(ii) Name **one** other source of sulfur dioxide gas in the atmosphere.

..... [1]

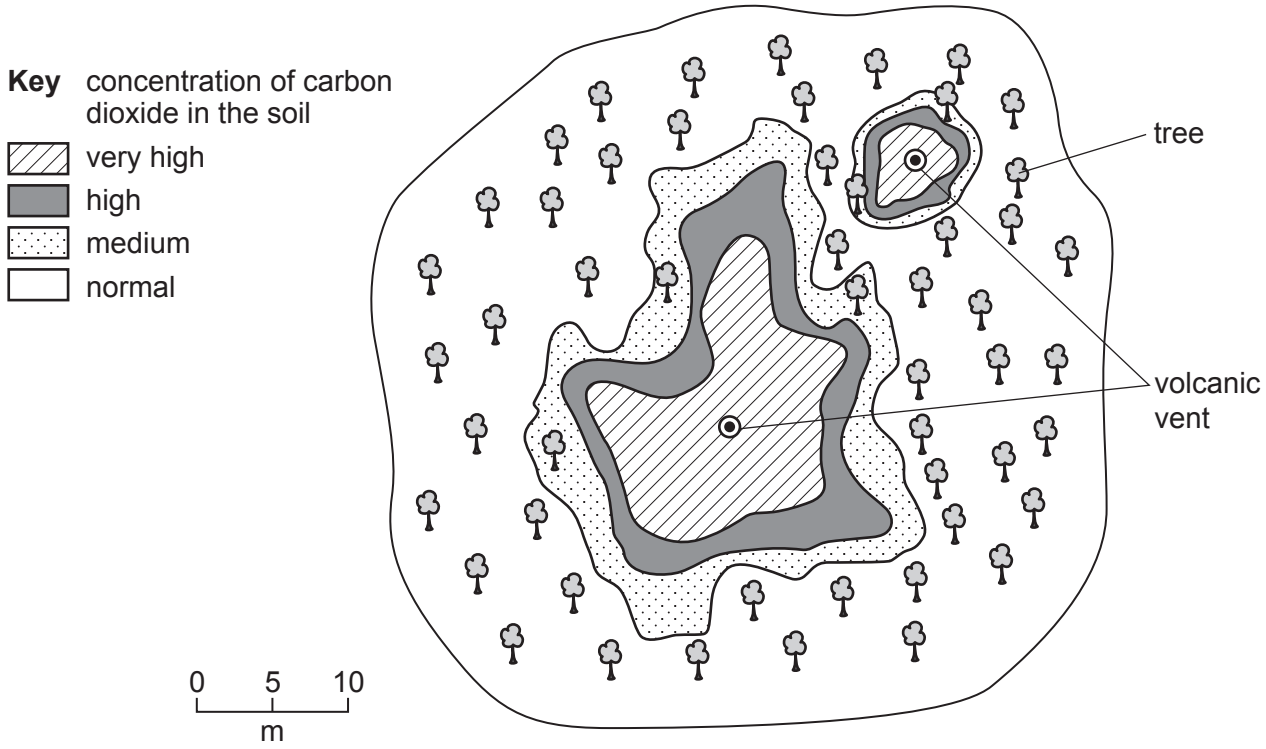
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[Turn over

(e) Trees in a forested area near another volcano have started to die.

Some scientists think the trees were killed by high concentrations of carbon dioxide gas in the soil. This carbon dioxide was emitted from two volcanic vents.

The diagram shows the concentration of carbon dioxide in the soil and the distribution of live trees in the forested area.



(i) How does the information in the diagram suggest that high carbon dioxide concentrations in the soil might have killed trees in the forested area?

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..... [2]

(ii) Carbon dioxide gas is emitted from many volcanoes.

Name **one** environmental problem caused by high levels of carbon dioxide gas in the atmosphere.

..... [1]

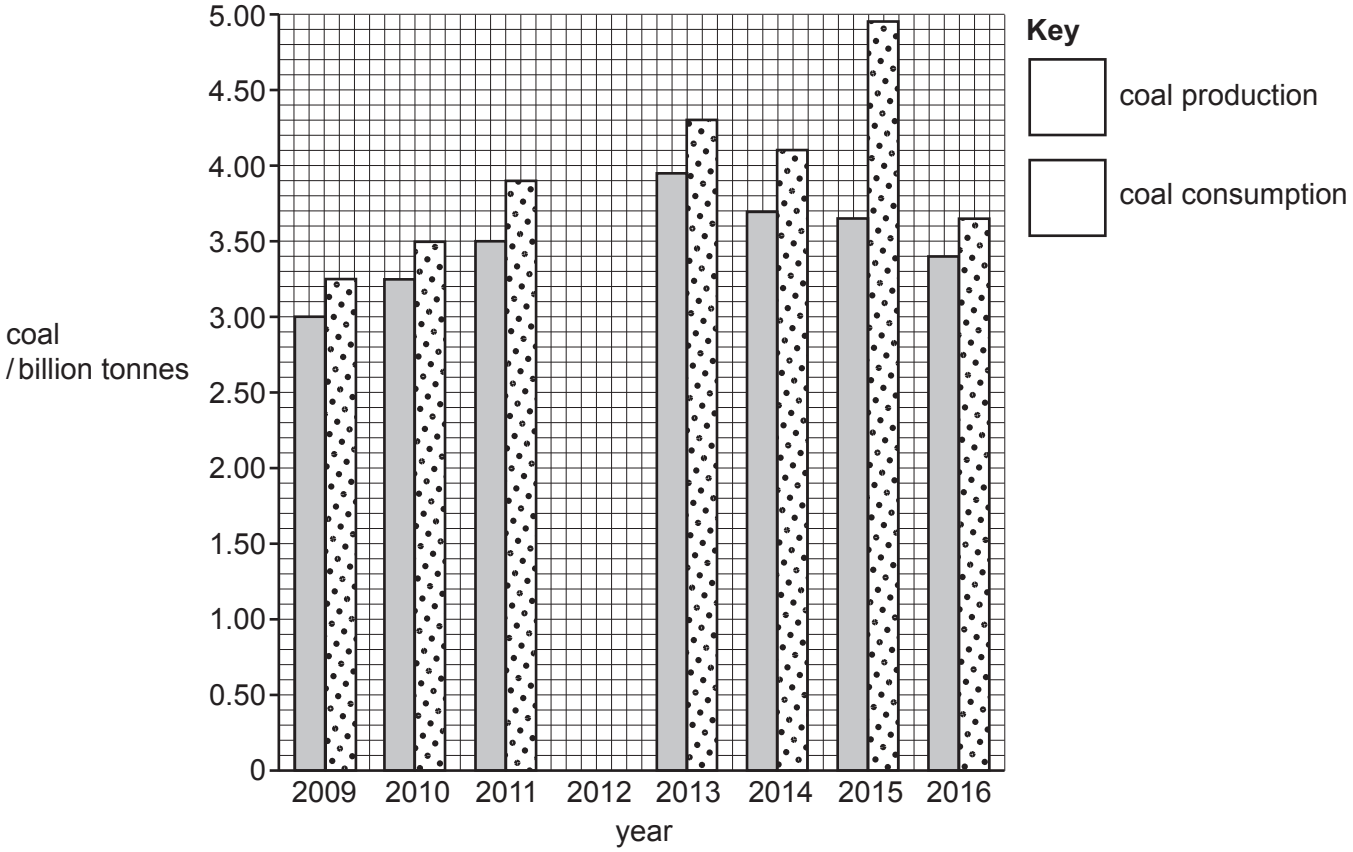
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7 **(a)** The table and bar chart show coal production and coal consumption in China between 2009 and 2016.

	year							
	2009	2010	2011	2012	2013	2014	2015	2016
coal production / billion tonnes	3.00	3.25	3.50	3.60	3.95	3.70	3.65	3.40
coal consumption / billion tonnes	3.25	3.50	3.90	4.10	4.30	4.10	4.95	3.65



(i) **Complete the bar chart** for 2012 and complete the key. [3]

(ii) Use the data to describe the trend in coal production and in coal consumption in China between 2009 and 2016.

.....

.....

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.....

..... [3]

(iii) Suggest whether China imports coal.
Use the data to support your opinion.

.....

..... [1]

(iv) State **two** factors affecting the global demand for energy.

1 .....

.....

2 .....

.....
[2]

(b) Coal is a fossil fuel.

Describe the formation of coal.

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..... [3]

(c) Wave power is a renewable resource.

(i) Name **one** other renewable resource.

..... [1]

(ii) Suggest reasons why some countries do **not** use wave power to generate electricity.

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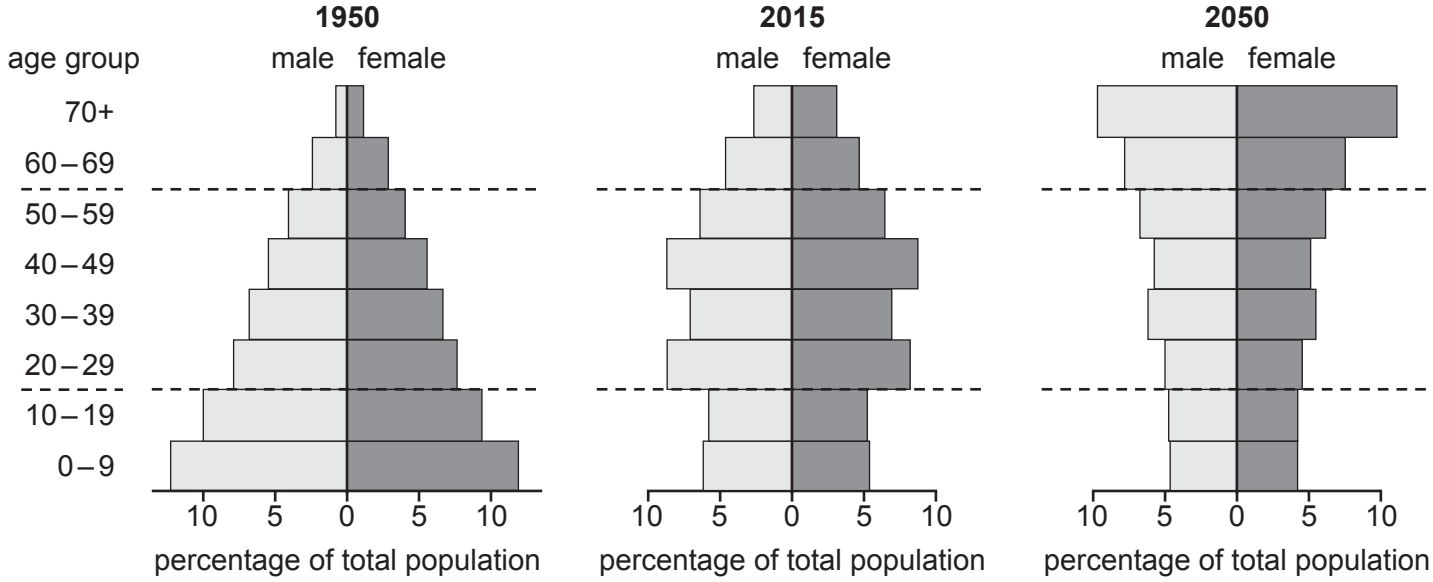
..... [2]

(d) The population of China in 2009 was 1.331 billion and in 2016 it was 1.379 billion.

Calculate the percentage increase in population for China from 2009 to 2016.

..... % [2]

(e) The diagram shows population pyramids for China in 1950, 2015 and the prediction for 2050.



China introduced a policy called the one-child policy in 1979. This actively encouraged families to only have one child.

(i) Suggest why China introduced the one-child policy.
Use the data from the 1950 population pyramid to support your answer.

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..... [2]

(ii) The percentage of the total population aged 20 to 49 years old is higher in the 2015 population pyramid compared with the 1950 population pyramid.

Suggest reasons for this difference.

.....

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..... [2]

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(iii) The population pyramid for 2050 is a prediction.

Describe the shape of the predicted population pyramid for 2050.

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..... [3]

(iv) The one-child policy in China ended in 2015.

Explain what the shape of the 2050 population pyramid indicates about the trend in birth rates in China by 2050.

.....

..... [1]

(v) Suggest reasons why the actual data for the 2050 population may be different from the predicted data.

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..... [2]

(vi) Other than national population policies, describe **two** strategies for controlling human population size.

1 .....

.....

2 .....

.....
[2]

[Total: 29]

8 The photograph shows a dolphin in captivity.



'Zoos and captive breeding programmes are the best way of conserving biodiversity.'

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

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..... [6]

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