Cambridge Assessment International Education

Cambridge IGCSE™

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

2463450041

ENVIRONMENTAL MANAGEMENT **0680/12**

Paper 1 Theory **February/March 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 **24** pages. Any blank pages are indicated.

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[Turn over

Section A

1 **(a)** Ozone depletion occurs in the ozone layer.

(i) Name the layer of the Earth's atmosphere that contains the ozone layer.

..... [1]

(ii) Describe the impacts of ozone depletion.

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..... [2]

(b) Suggest reasons why strategies to prevent further ozone depletion require international agreement.

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..... [2]

[Total: 5]

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2 **(a)** Typhoid is an infectious bacterial disease. People are infected by eating or drinking contaminated food or water.

Give reasons why typhoid is more likely to occur in informal settlements (shanty towns) than in planned urban areas.

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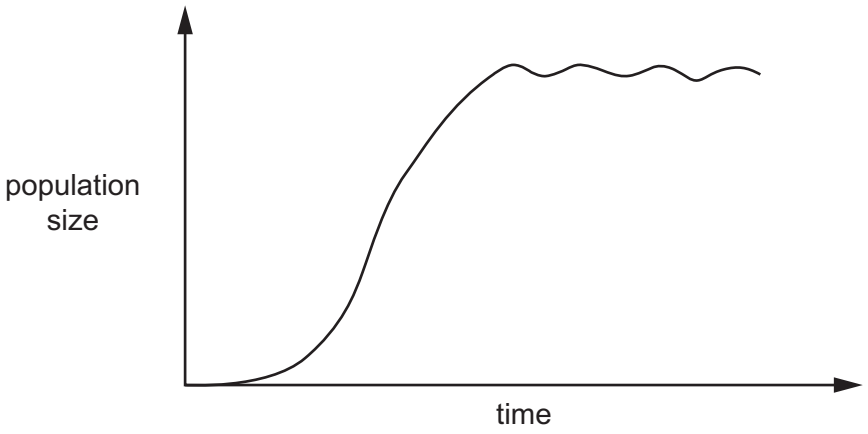
..... [3]

(b) State the name of **one** other infectious bacterial disease that is caused by eating or drinking contaminated food or water.

..... [1]

[Total: 4]

3 **(a)** The graph shows a population growth curve.



The carrying capacity is the maximum population size of a species that the environment can support in the long term.

(i) On the graph, label the population growth curve to show:

- the carrying capacity
- the exponential (log) phase
- the lag phase. [3]

(ii) Suggest why the carrying capacity of the environment can change.

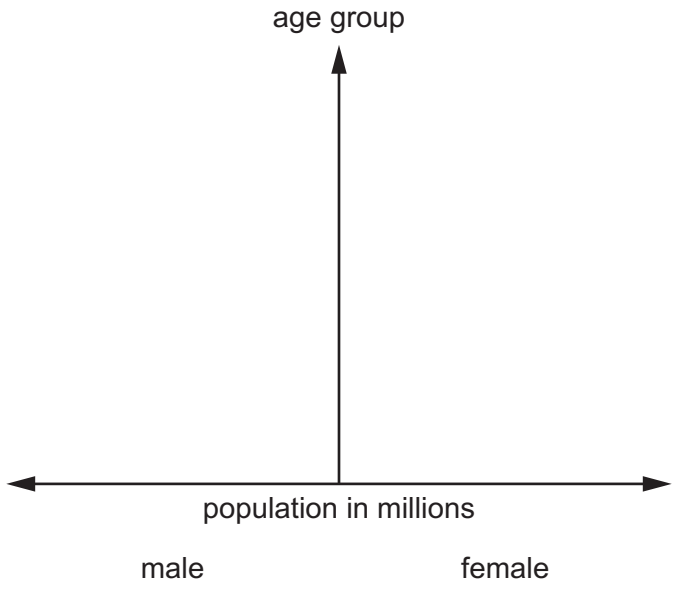
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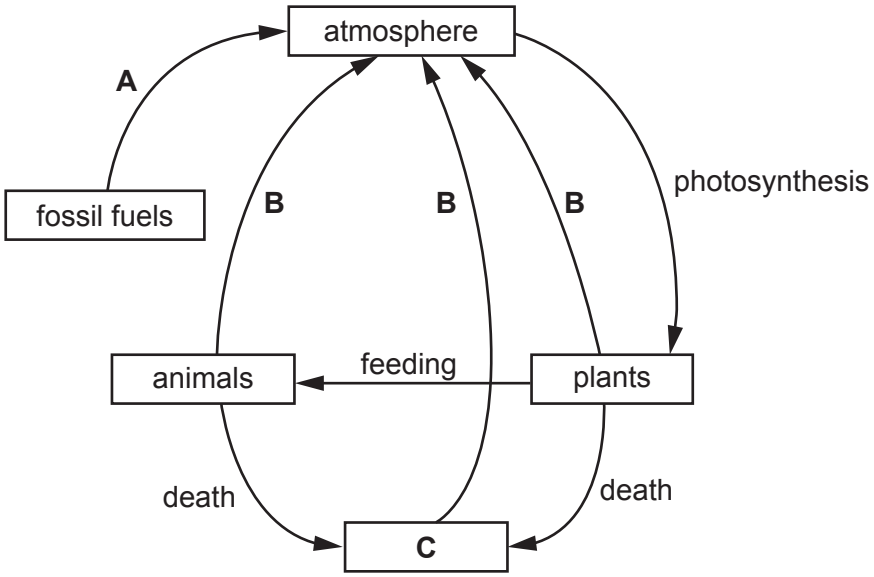
(b) On the axes, sketch the shape of a human population pyramid for a less economically developed country (LEDC).



[2]

[Total: 7]

4 The diagram shows part of the carbon cycle.



(a) Identify the parts of the diagram labelled **A**, **B** and **C**.

A .....

B .....

C .....

[3]

(b) State the energy source for photosynthesis.

..... [1]

[Total: 4]

Section B

5 **(a)** The photograph shows solar panels on the roof of a building. The panels use solar power to generate electricity.



Describe **two** benefits and **one** limitation of using solar power to generate electricity.

benefit 1 .....

.....

benefit 2 .....

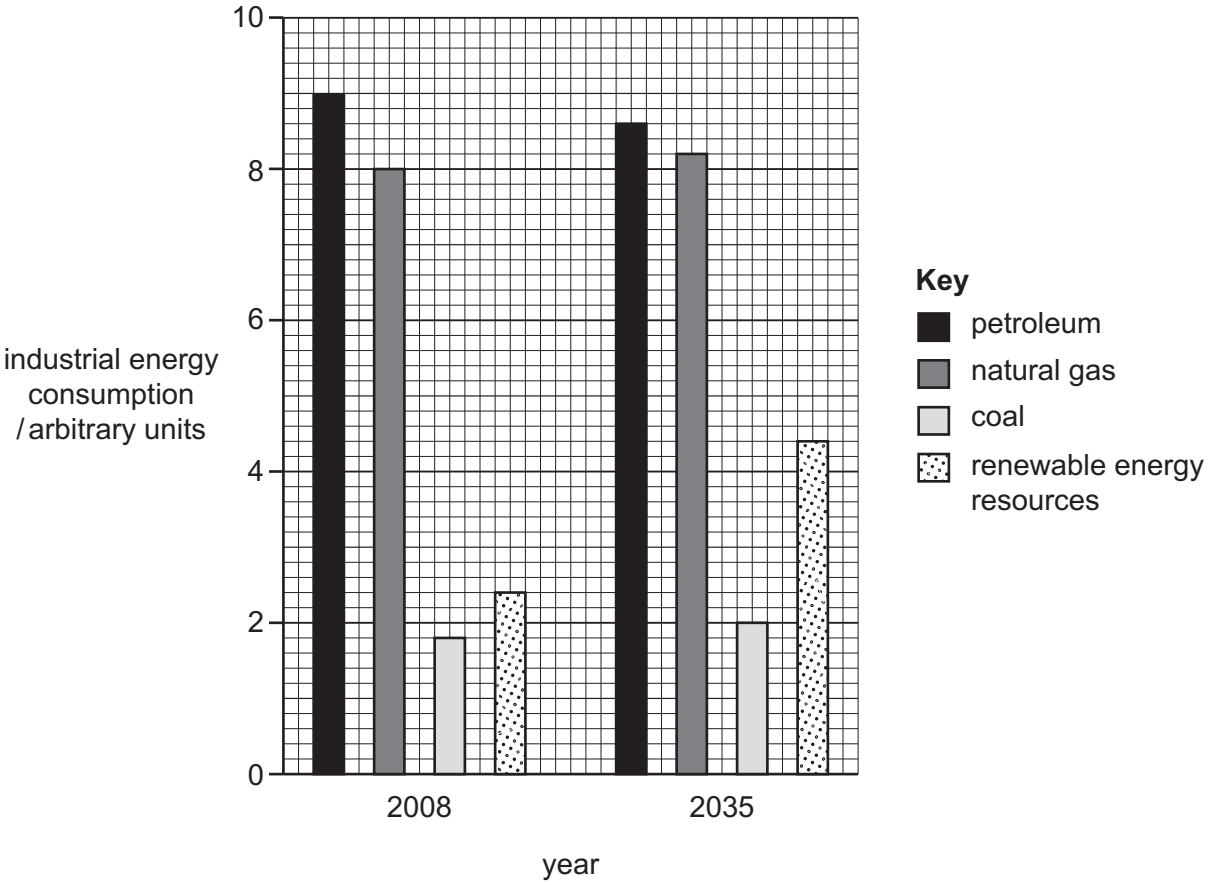
.....

limitation .....

.....

[3]

(b) The bar chart shows global industrial energy consumption by fuel type for 2008 and the predicted values for 2035.



Use the bar chart to describe the predicted trends in global industrial energy consumption from 2008 to 2035.

.....

.....

.....

.....

.....

..... [3]

(c) Suggest reasons why an increase in national wealth can increase energy consumption in a country.

.....

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..... [2]

(d) Describe ways that people can reduce their energy consumption at home.

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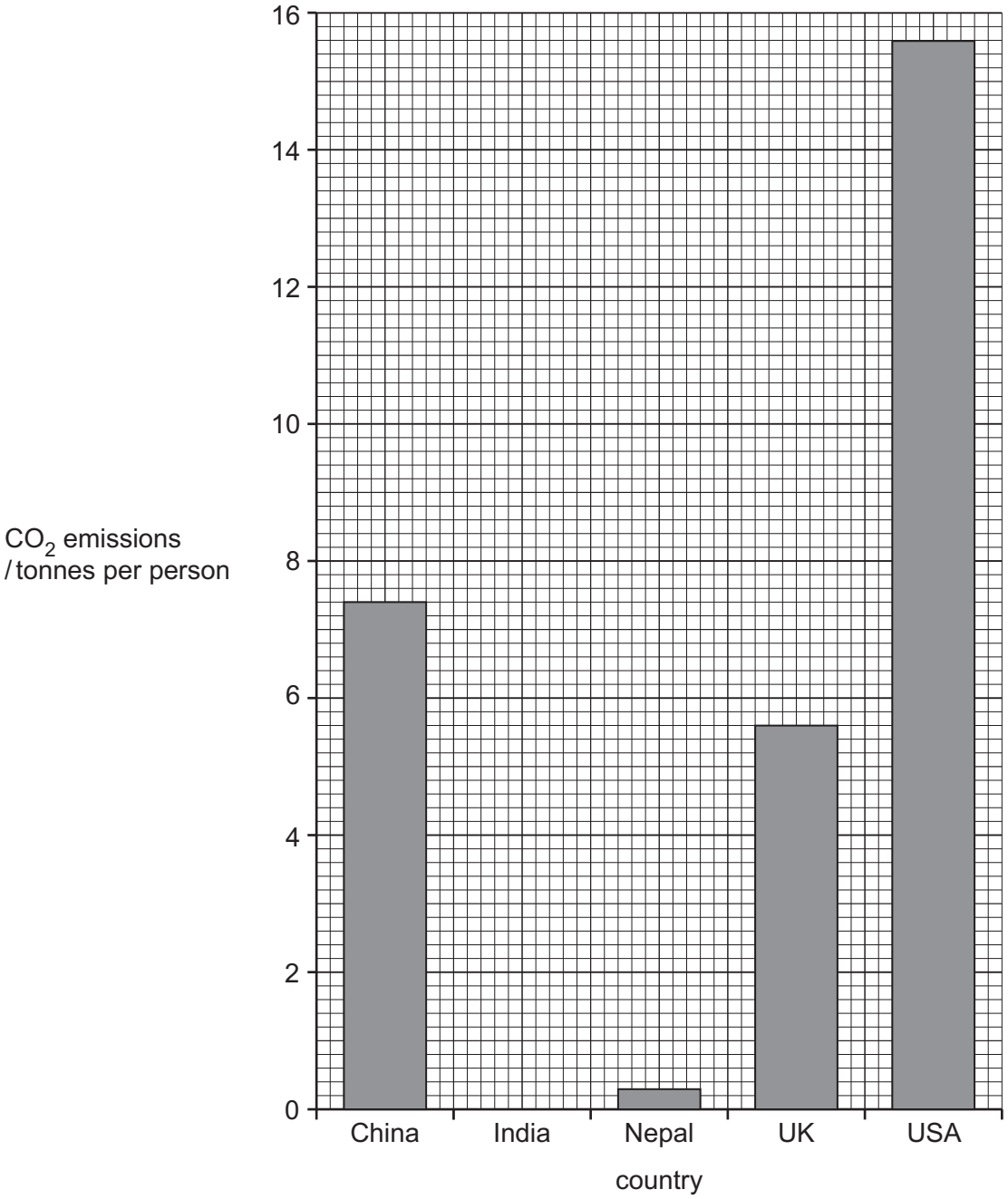
..... [2]

[Total: 10]

6 Nepal is a country in Asia. It is located between China and India.

(a) The bar chart shows the carbon dioxide, CO_2, emissions per person for Nepal and four other countries in 2016.

The bar chart is **not** complete.



(i) Complete the bar chart to show that the CO_2 emissions for India in 2016 were 1.9 tonnes per person. [1]

(ii) Use the bar chart to compare the contribution to climate change of Nepal and the USA.

.....

.....

.....

..... [2]

(b) Flooding and landslides are common in Nepal.

The table shows some climate data for Nepal.

month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
average monthly rainfall / mm	22	26	35	60	141	295	497	423	263	68	12	17

(Circle) the range of months in which Nepal has the greatest number of landslides.

Circle **one** range only.

Jan – Apr **Jun – Sep** **Oct – Dec** **Nov – Feb**

[1]

(c) A student in Nepal sends an email to a friend about the impact of flooding and landslides in 2017.

> The flooding and landslides have been terrible, and 37 out of the 75 districts in Nepal have been impacted. There are 123 people dead, and many more are missing or injured. Emergency teams are still searching for survivors.
>
> The government has given cash grants to some families whose homes were destroyed. More than 100 000 people have been affected in some way. Many homes have been completely destroyed or damaged. It's estimated that 60 000 homes are underwater.
>
> Roads into more than 50 villages have been completely destroyed.

(i) Calculate the percentage of districts in Nepal impacted by the flooding and landslides.

.....% [1]

(ii) Death and injury are impacts of flooding and landslides.

Suggest other impacts of flooding and landslides.

.....

.....

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..... [3]

(iii) Suggest reasons why people continue to live in areas affected by flooding and landslides.

.....

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.....

..... [2]

(d) Scientists carried out an investigation into climate change in Nepal.

The scientists measured monthly rainfall and temperature at weather stations across the country and compared the results with historic data.

The scientists identified some limitations of this investigation:

- the terrain of Nepal is very varied: it has mountains, deep valleys and low-lying land
- there are no weather stations in some mountain districts
- climate data for Nepal were not recorded before 1960.

Suggest reasons why these limitations make it difficult to reach a conclusion about climate change in Nepal.

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..... [2]

(e) An invasive species is a species that is not originally from the local area.

Warmer temperatures can make it easier for some invasive species to grow.

The fact sheet shows information on 'crofton weed', an invasive plant species in Nepal.

Crofton weed fact sheet

Content removed due to copyright restrictions.

Crofton weed reduces crop yield. It spreads very rapidly and sometimes farmers have to leave their farms because the land becomes unworkable.

Crofton weed plants can produce between 10 000 and 100 000 seeds per year. The seeds are very small: 25 000 seeds have a total mass of only 1 g.

Livestock do not like the taste of crofton weed, and horses can develop a disease if they eat it.

(i) Suggest why crofton weed spreads rapidly.

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..... [2]

(ii) Four methods of controlling invasive plant species are:

mechanical control: dig out the plant or cut the plant before it flowers

grazing control: use livestock to eat the plants

biological control: introduce a natural consumer to the area

chemical control: spray the plant with herbicide.

Suggest a different limitation of using each method for the control of crofton weed.

mechanical control .....

.....

grazing control .....

.....

biological control .....

.....

chemical control .....

.....

[4]

(f) In Nepal, food crops such as rice and maize are traditionally grown by subsistence farmers.

(i) Describe the difference between subsistence farming and commercial farming.

.....

.....

.....

..... [2]

(ii) Some subsistence farmers in Nepal belong to a small-scale community-led project. This project aims to improve agricultural practices.

Five local farmers talk about this project.

farmer A:

> The ground water supplies often run dry before the start of the rainy season. Many farming families have had to move to the city to find other work.

farmer B:

> The project is partly funded by an international charity, and we also pay to be part of the project. We must give one day of free labour a year to the project.

farmer C:

> We have been trained in growing a variety of high-yielding crops. We have also been shown how to use intercropping on our farms.

farmer D:

> The project funds polytunnels, which are a type of greenhouse used to grow plants. The project also helps us to buy pest-resistant seeds.

farmer E:

> The project has funded water harvesting using plastic-lined ponds. We can store up to 60 000 litres of water in one pond.

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Do you think this project is an effective way of improving agricultural practices?

Support your view with references to the comments made by the five farmers.

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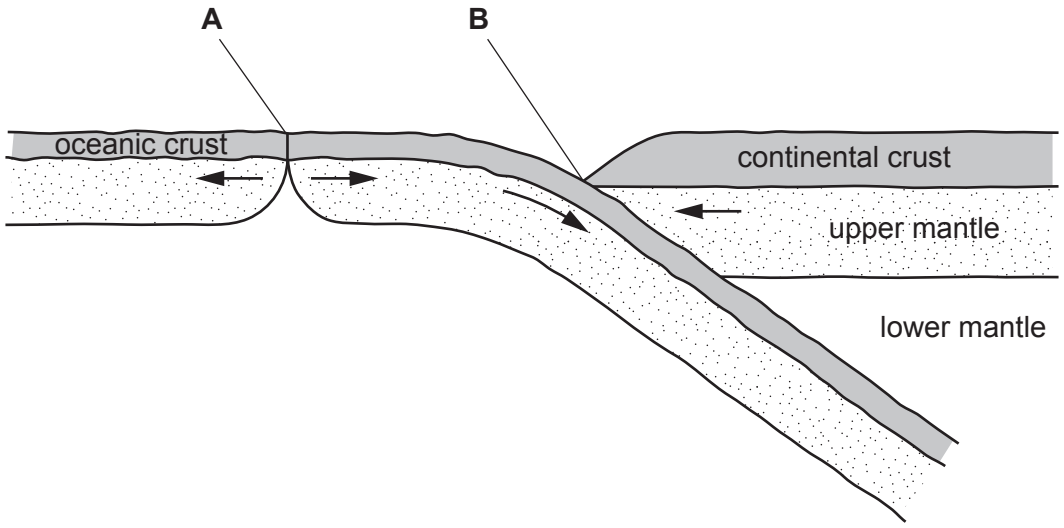
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..... [5]

[Total: 25]

7 **(a)** The diagram shows tectonic plate movement.



Name the type of plate movement at plate boundary **A** and at plate boundary **B**.

A .....

B .....

[2]

(b) Explain what causes an earthquake.

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..... [4]

(c) Tsunamis are a series of enormous waves caused by an underwater tectonic disturbance, such as an earthquake.

(i) The table shows the relationship between ocean depth, wave speed and wave height.

ocean depth / m	wave speed / km per h	wave height
7000	950	
4000	700	
2000	500	
200	150	
50	80	
10	40	increasing

Write a conclusion about the relationship between ocean depth, wave speed and wave height for tsunamis.

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..... [2]

(ii) Describe strategies for managing the impacts of tsunamis.

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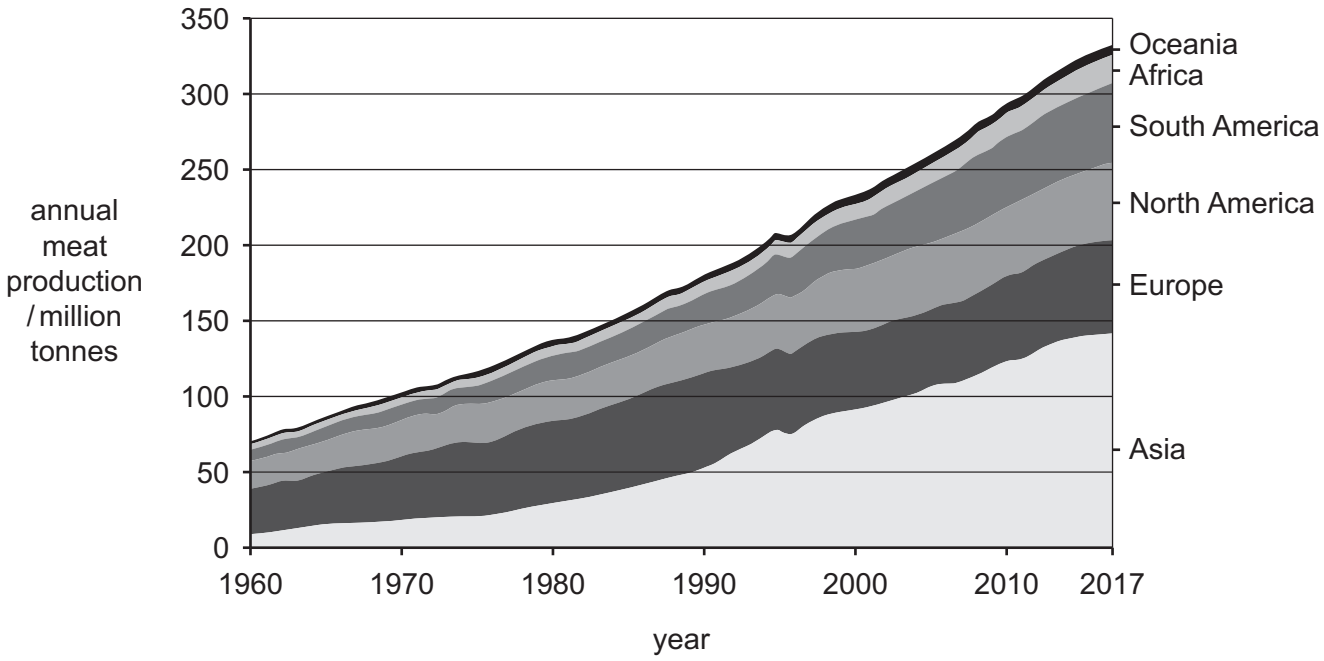
..... [3]

[Total: 11]

8 Two ways that people can reduce their impact on climate change are:

- changing to a plant-based diet
- choosing to have fewer children.

(a) The graph shows data for meat production in six world regions between 1960 and 2017.



(i) Use the graph to describe the global trend in meat production between 1960 and 2017.

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..... [3]

(ii) Suggest reasons for the global trend shown by the graph.

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..... [2]

(b) **(i)** Suggest why changing to a plant-based diet has an effect on climate change.

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..... [1]

(ii) Describe how having fewer children has an effect on climate change.

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..... [2]

(c) 'Improved education of women is the best way of managing human population size.'

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

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[Total: 14]

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