Cambridge Assessment International Education

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CANDIDATE NAME									
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8480585414

ENVIRONMENTAL MANAGEMENT **0680/11**

Paper 1 Theory **October/November 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)** Statements **A** to **G** describe the process of eutrophication.

The statements are **not** in the correct order.

A algae and aquatic plants die

B decomposers use up oxygen

C excess fertiliser runs off into rivers

D fish and other organisms die

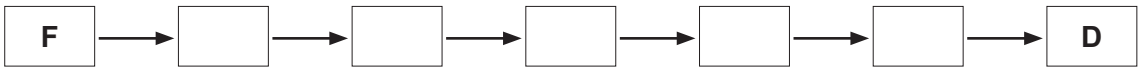
E nutrient enrichment causes algal bloom

F overuse of fertiliser

G sunlight blocked reducing photosynthesis

Write the letters of the statements, **A** to **G**, in the correct order.

Two have been completed for you.



[3]

(b) Water containing toxic substances causes bioaccumulation in organisms.

Describe the meaning of *bioaccumulation*.

.....

.....

.....

..... [2]

[Total: 5]

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2 The photograph shows a quarry where sedimentary rock is extracted.



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

..... [1]

(b) State **two** environmental impacts of the quarry shown in the photograph.

1 .....

2 .....

[2]

(c) Suggest ways this quarry benefits the local community.

.....

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..... [2]

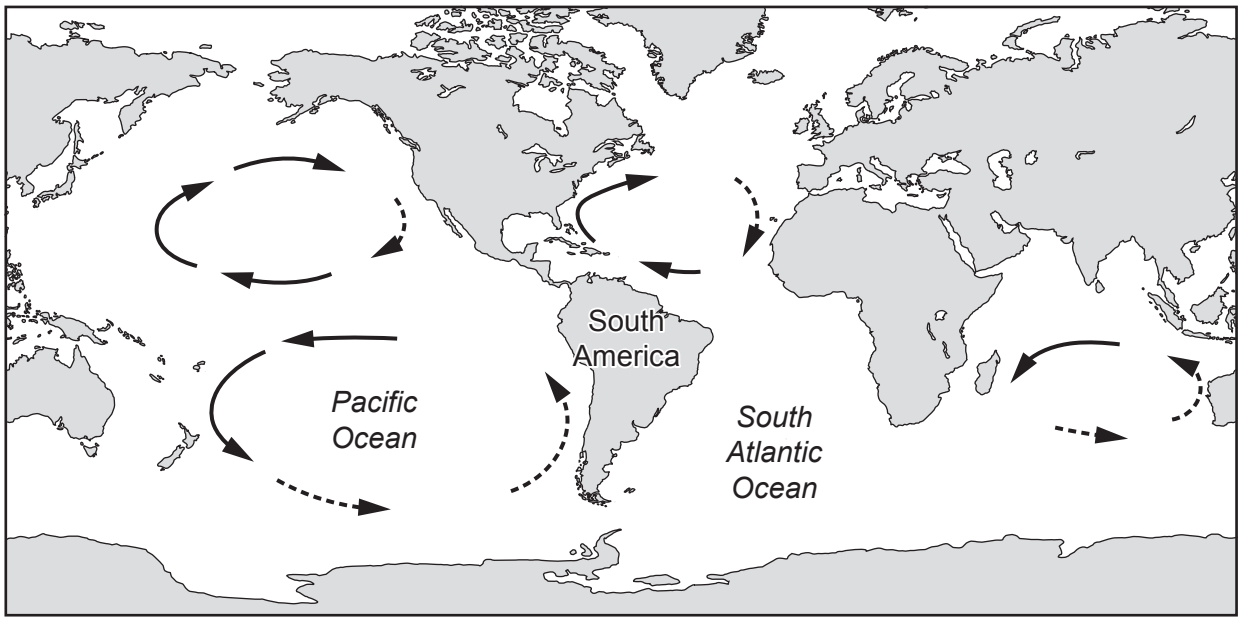
[Total: 5]

3 The map shows some major ocean currents.

Key

warm ocean current

cold ocean current



(a) Use the key to draw the major currents in the South Atlantic Ocean on the map. [2]

(b) Explain why the El Niño Southern Oscillation (ENSO) phenomenon reduces the number of fish along the Pacific coast of South America.

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..... [3]

[Total: 5]

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4 The photograph shows an area of deforestation.



(a) State **two** causes of deforestation.

1 .....

2 .....

[2]

(b) A food chain for a forest is shown.

tree ⟶ caterpillar ⟶ small bird ⟶ hawk

State the name of the producer in this food chain.

..... [1]

(c) Forests provide habitats and food for many organisms.

Explain other reasons why forests should **not** be cut down.

.....

.....

.....

..... [2]

[Total: 5]

Section B

5 **(a)** Soil erosion can occur by mismanagement of land or by natural causes.

(i) State **two** natural causes of soil erosion.

1 .....

2 .....
[2]

(ii) Suggest strategies to reduce soil erosion.

.....

.....

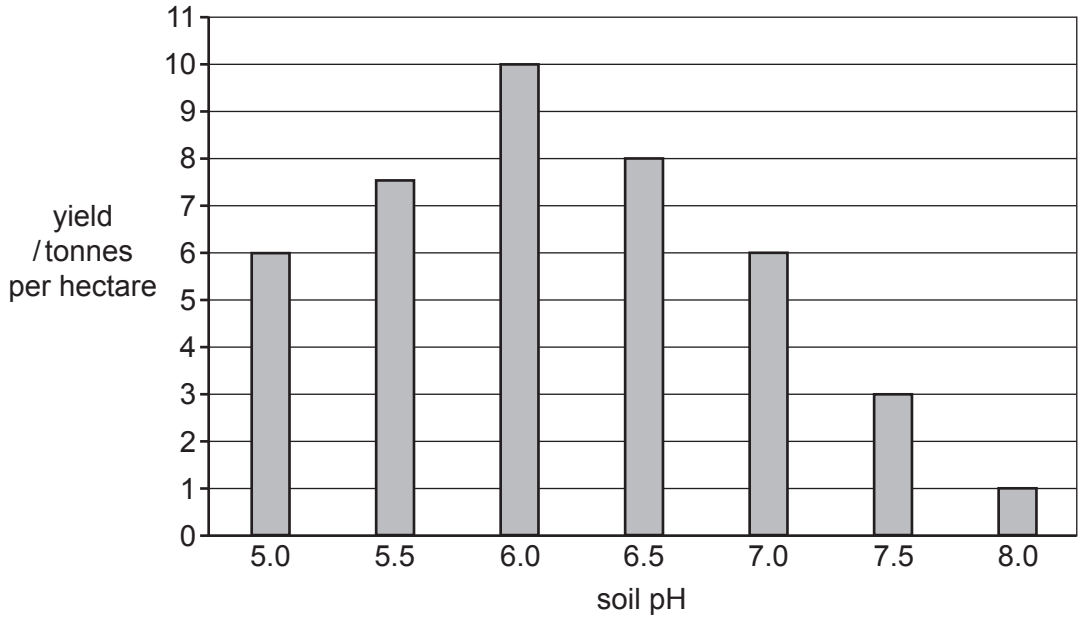
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..... [3]

(b) The bar chart shows the effect of soil pH on the yield of a crop.



(i) The average yield for this crop is 5.9 tonnes per hectare.

Complete the table to show which soil pH values are more than (✓) or less than (✗) the average yield.

soil pH	more than (✓) or less than (✗) the average yield
5.0	
5.5	
6.0	
6.5	
7.0	
7.5	
8.0	

[1]

(ii) Use the bar chart to write a conclusion about the effect of soil pH on this crop.

.....

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..... [3]

(iii) Suggest **one** reason why soil pH affects the yield of crops.

.....

..... [1]

(iv) State **one** other factor that affects soil quality.

.....

..... [1]

[Total: 11]

6 **(a)** The map shows some major tectonic plate boundaries and the distribution of some recent earthquakes.

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(i) Explain the distribution of the earthquakes shown on the map.

.....

.....

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..... [2]

(ii) The map shows the location of the mid-Atlantic ridge.

The mid-Atlantic ridge is a constructive plate boundary.

Draw arrows in the boxes on the map to show the direction of movement of plates at the mid-Atlantic ridge. [1]

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(b) On 12 January 2010, a powerful earthquake caused devastation in Haiti.

Many people were killed or injured on the day of the earthquake. This is called the primary effect.

Other people suffered in the days and months after the earthquake. This is called the secondary effect.

Some of the consequences of the earthquake included:

- About 200 000 people were killed on the day of the earthquake.
- About 300 000 people were injured on the day of the earthquake.
- After the earthquake, 1.5 million people were left homeless and 4000 schools were damaged or destroyed.
- After the earthquake, 216 000 people were infected with cholera and over 5000 died from cholera.
- After the earthquake, people were unable to get food, which led to starvation.

(i) Damage and loss of life were caused by the combined primary and secondary effects of this earthquake.

Discuss whether the primary effects or the secondary effects of the earthquake had a larger impact.

Support your answer with reasons.

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..... [4]

(ii) Four different people in Haiti made comments after the earthquake.

Person A

The government of Haiti had not invested enough in planning and preparation. There were no advanced warnings and no rescue plans.

Person B

There was no money to invest in building earthquake-proof buildings. Many people lived in informal settlements (shanty towns).

Person C

The capital was at high risk because roads, power lines and communication networks were in poor condition.

Person D

There was a lack of coordination among the different aid agencies, so aid was not distributed effectively.

Do you think Haiti was prepared for an earthquake?
Support your view with references to the comments made by the four different people.

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..... [5]

[Total: 12]

7 The map shows the estimated human population of six continents in 2019.



(a) Use the map to describe the distribution of the human population.

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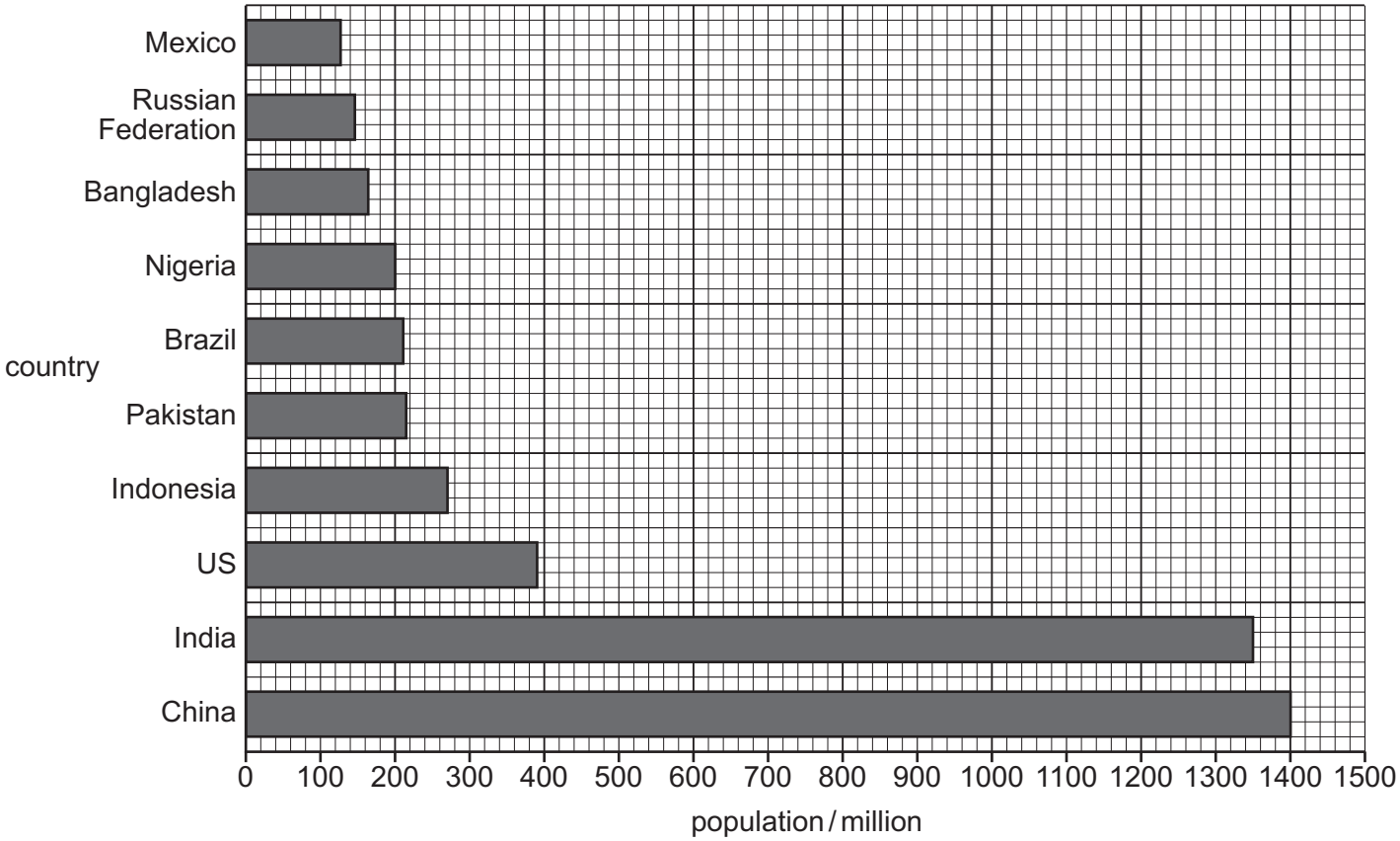
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..... [3]

(b) The bar chart shows the ten countries with the largest populations in 2019.



(i) Use the bar chart to determine the population of Brazil.

..... million [1]

(ii) The total global human population in 2019 was 7715 million. The population of Europe was 743 million.

Calculate the percentage of the global human population in Europe in 2019.

..... % [1]

(c) Most countries in Europe are more economically developed countries (MEDCs).

The population of Europe is predicted to decrease.

Suggest reasons for this decrease.

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.....

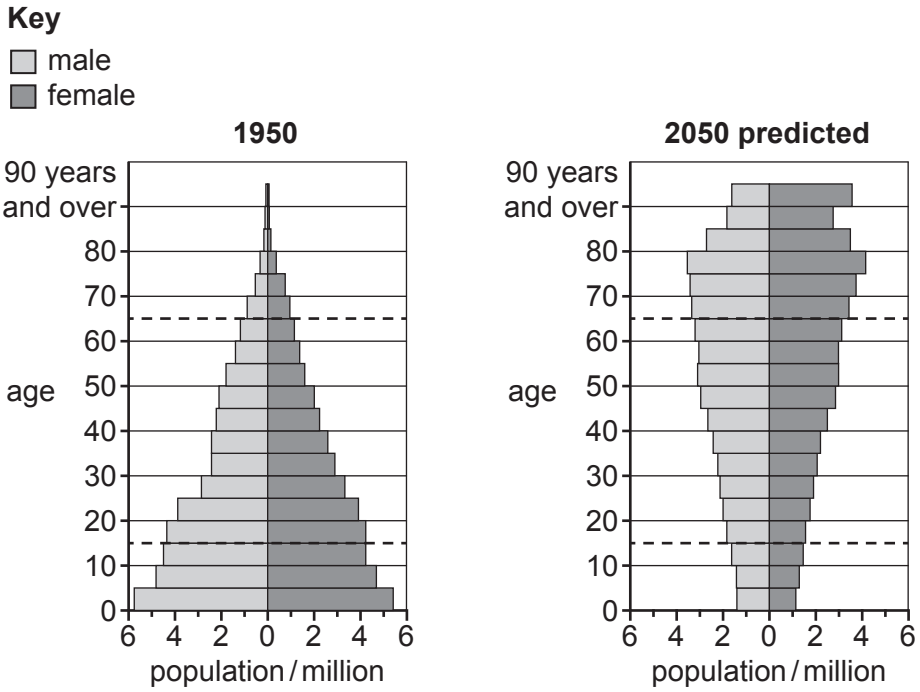
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..... [3]

(d) The diagrams show the population pyramid for a MEDC in 1950 and the predicted population pyramid for the same MEDC in 2050.



Use the population pyramids to suggest the economic challenges for this MEDC in 2050.

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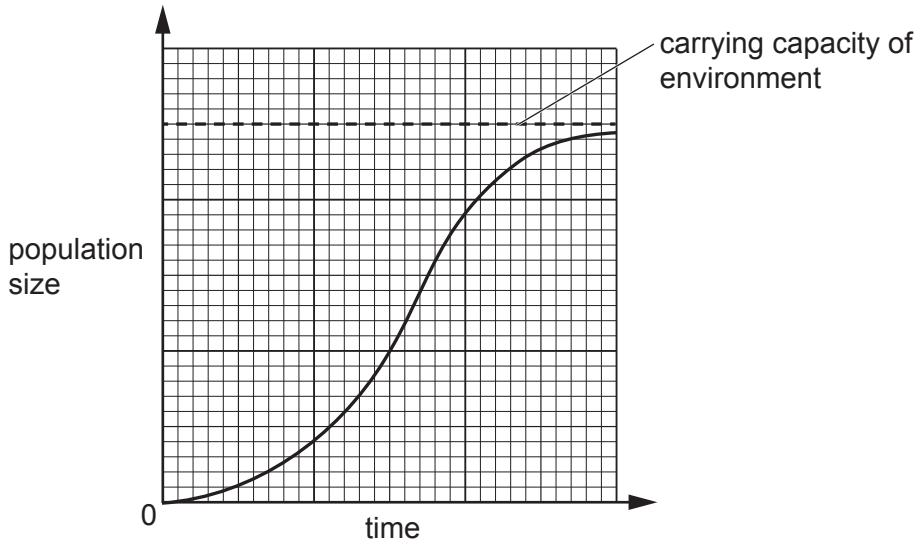
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..... [3]

(e) Suggest **one** strategy a government can use to encourage people to have more children.

..... [1]

(f) The graph shows a population growth curve.



State the meaning of *carrying capacity of environment*.

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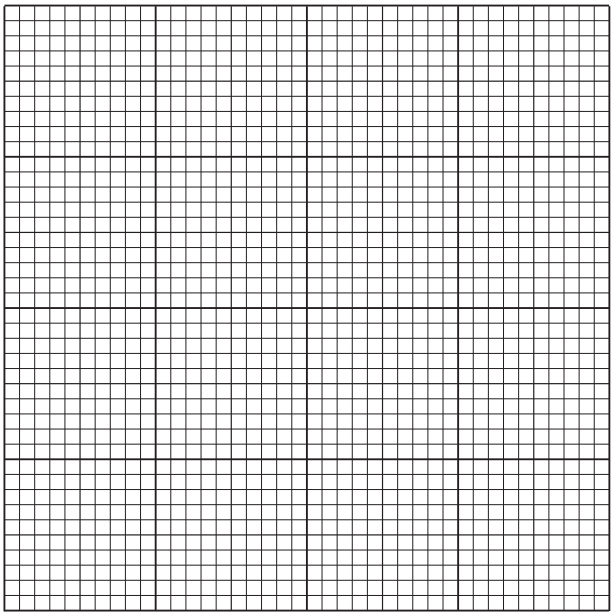
..... [1]

[Total: 13]

8 The table shows the number of large marine oil spills occurring worldwide and the total mass of oil lost in the spills from 1990 to 2019.

time period	number of large marine oil spills	total mass of oil lost /tonnes
1990–1999	358	1 134 000
2000–2009	181	196 000
2010–2019	59	163 000

(a) On the grid, plot a bar chart of the number of large marine oil spills for each time period.



[3]

(b) (i) Calculate the average mass of oil lost in tonnes **per oil spill** for the time period 1990–1999.

..... tonnes [1]

(ii) Describe the trends in large marine oil spills shown in the table.

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.....

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..... [2]

(c) Describe strategies for preventing large marine oil spills.

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..... [2]

(d) The map shows the locations of some large marine oil spills and the names of the oil tankers involved.

Key

mass of oil lost / 1000 tonnes

- < 50
- 50–100
- 101–150
- > 150



(i) Name **two** oil tankers involved in large marine oil spills of > 150 000 tonnes.

1 .....

2 .....

[1]

(ii) Describe the impacts of oil pollution on marine ecosystems.

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..... [3]

[Total: 12]

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9 One impact of climate change is a rise in sea level.

(a) Since 1900, the global sea level has risen by more than 200 mm.

In the last 30 years, the rate of sea level rise has increased from around 1.7 mm per year to 3.3 mm per year.

Calculate the sea level rise from 2021 to 2030 if the sea level continues to rise at 3.3 mm per year.

.....mm [2]

(b) State **two** impacts of climate change other than sea level rise.

1 .....

2 .....
[2]

(c) Describe how some vehicles increase atmospheric carbon dioxide.

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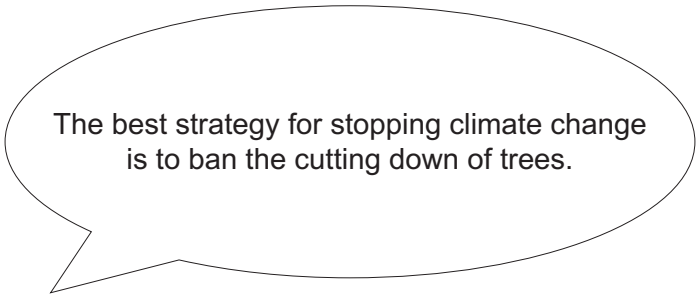
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..... [2]

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(d) A student said:



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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