UNIVERSITY OF CAMBRIDGE INTERNATIONAL EX
International General Certificate of Secondary Educati

CANDIDATE NAME

CENTRE NUMBER | | | | | |

CAN NUMBER

3624174963

ENVIRONMENTAL MANAGEMENT **0680/21**

Paper 2 **May/June 2013**

1 hour 45 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen.
You may use a soft pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Electronic calculators may be used.

Answer **both** questions.

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.

For Examiner's Use	
1	
2	
Total	

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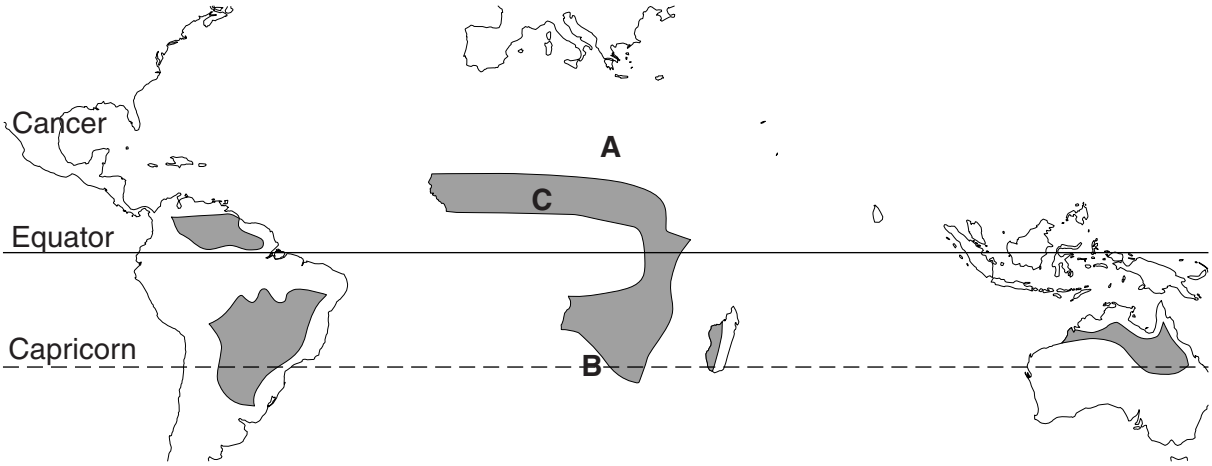
UNIVERSITY of CAMBRIDGE International Examinations

[Turn over

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Answer **both** questions.

1 **(a)** Look at the map showing the world distribution of savanna ve



Key:

Savanna

(i) Name the continent with the largest area of savanna vegetation.

.....[1]

(ii) Describe the other main features of the distribution of savanna vegetation.

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.....[2]

(iii) Name the type of natural vegetation found in the areas marked **A** and **B** on the map.

.....[1]

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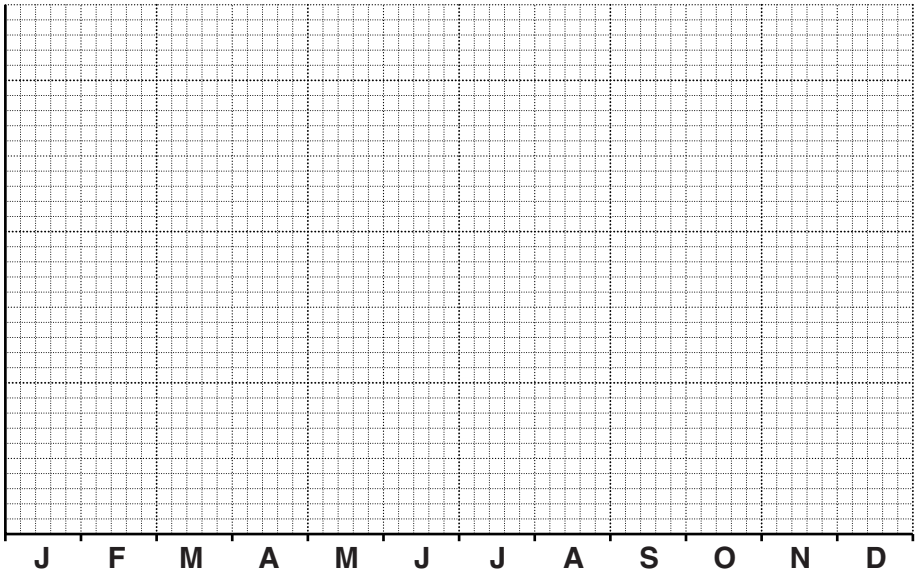
(b) The savanna climate is tropical with a wet and dry season.

Summary of climate in northern Nigeria
(area **C** on the map of savanna vegetation)

Temperature – mean monthly temperatures /											
J	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**			
22	24	28	31	30	28	26	25	26	27	25	22

Rainfall – averages

Wet season (May to September)	844 mm
Dry season (October to April)	26 mm
Total annual rainfall	870 mm



(i) Plot the mean monthly temperatures on the graph paper using a line graph. [3]

(ii) What percentage of total annual rainfall falls in the wet season? Circle **one** answer.

26 **54** **84** **97** [1]

(iii) Describe how the data shows that this area of savanna has a tropical climate.

.....

.....[1]

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(iv) Describe how the appearance of the natural vegetation dry seasons in savanna lands.

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(v) Using both the temperature and rainfall data given, des disadvantages of a savanna climate for farmers growing

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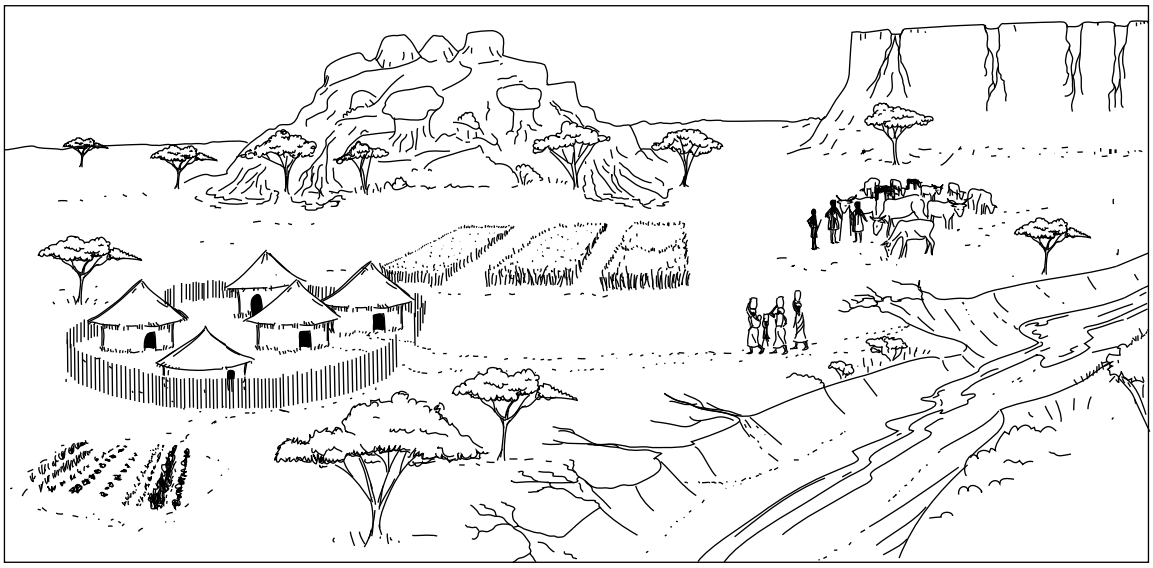
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.....[3]

(c) Look at the sketch which shows how tribal groups use traditional subsistence farming in the savanna lands of West Africa.



(i) State the two ways in which farmers are making their living here.

1 ..... 2 ..... [1]

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(ii) Looking at the sketch, describe how it shows that thi subsistence farming.

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.....[3]

(iii) How different would the sketch look if this was an area of modern commercial farming instead of traditional subsistence farming? Suggest **two** ways.

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.....[2]

(d) Population growth is increasing pressure on the land and the risk of soil erosion in many countries in the savanna lands of West Africa.

(i) State the evidence from the sketch which shows that this area is at high risk of soil erosion.

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.....[2]

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(ii) Four strategies of soil conservation are

D tree planting **E** dry land f

F rural development programmes **G** communi

Choose two of these strategies. For each one, describe soil erosion and helps with soil conservation.

Letter ....

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Letter ....

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.....[4]

(iii) Introducing strategies of soil conservation is difficult in areas like the one shown in the sketch on page 4. Suggest some of the difficulties.

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.....[3]

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(iv) Give reasons why population growth continues to be hi
like those in the savanna land of West Africa.

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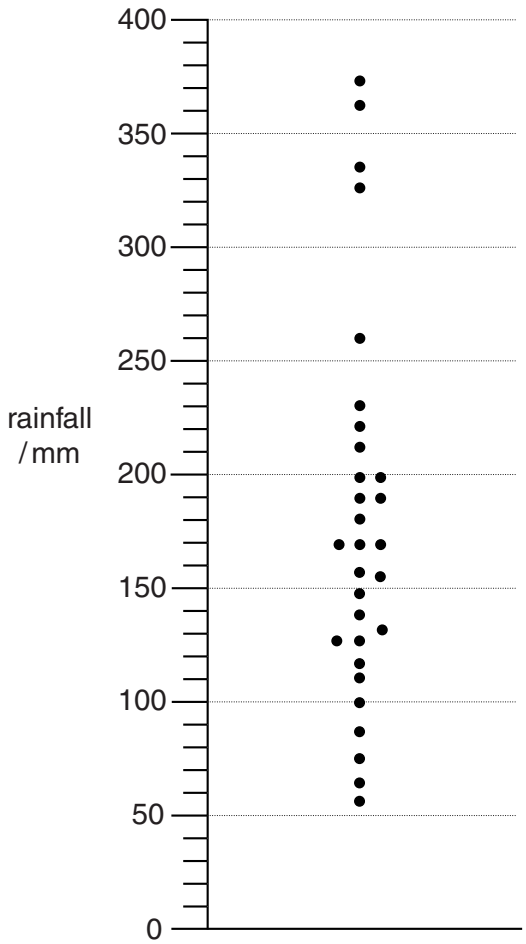
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(e) Look at the rainfall diagram. It shows rainfall totals for the m
Kenya during a period of 30 years. Kisumu has a savanna
middle of the wet season.

Each dot shows a rainfall total for April in one of the 30 years

How August rainfall totals varied during a period o
Kisumu – Kenya



(i) Average (mean) monthly rainfall at Kisumu in April is 188 mm.
Show this average value on the diagram using a cross (**X**). [1]

(ii) What is the size of the difference in the amount of rainfall (in mm) between the wettest and driest months of April during this 30 year period?

..... mm. [1]

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(iii) How and why do rainfall variations from year to year, like cause problems for subsistence farmers living in savann

Refer to years with both higher and lower than average

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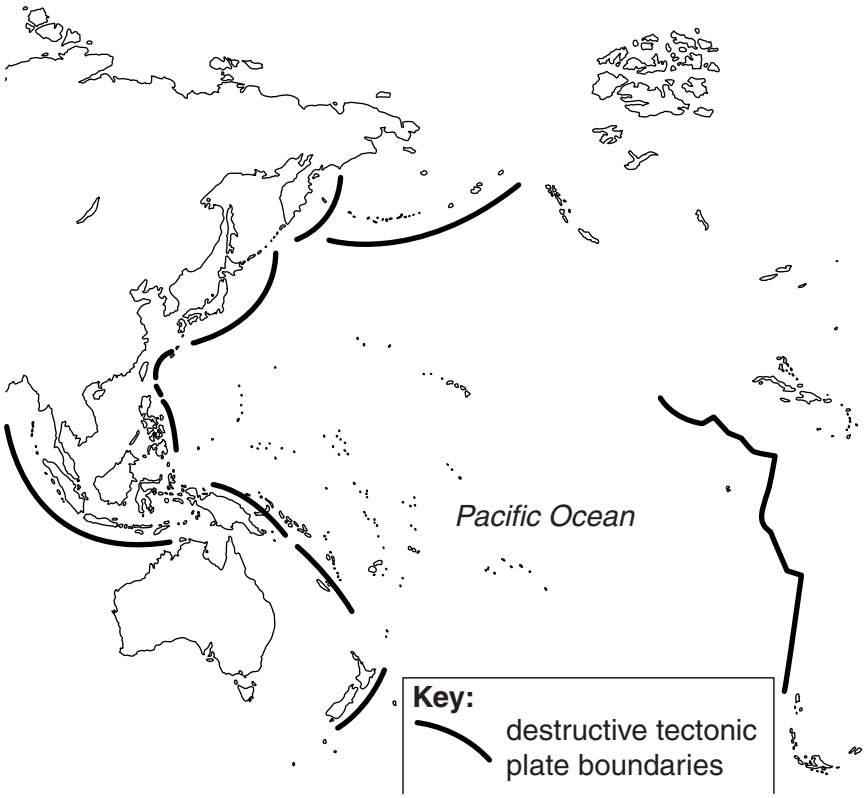
.....[4]

[Total: 40]

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2 **(a)** Look at the map of the Pacific Ocean showing the loc boundaries.



(i) Describe the distribution of destructive plate boundaries in the Pacific Ocean.

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.....[2]

(ii) State what is happening to the plates at destructive plate boundaries.

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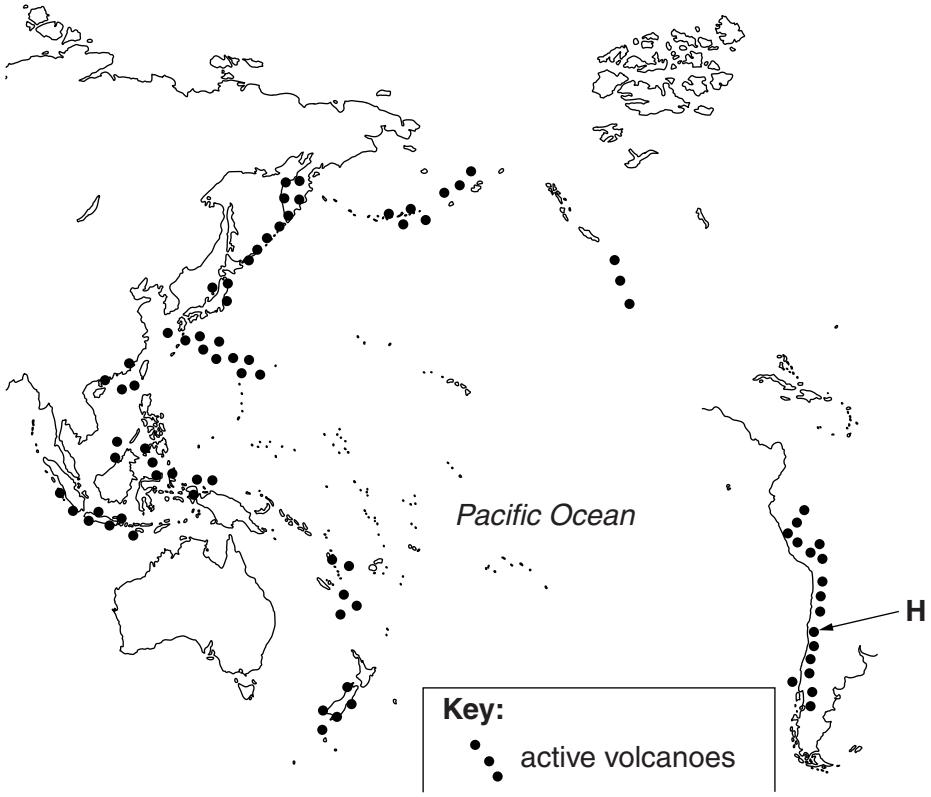
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.....[3]

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(b) Look at the map of the Pacific Ocean showing the location of



(i) Suggest why the distribution of active volcanoes in the Pacific Ocean is known as 'The Pacific Ring of Fire'.

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.....[2]

(ii) Explain how volcanoes are formed along destructive plate boundaries.

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.....[3]

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(c) Read the information about a volcanic eruption in Chile in Ju
map of active volcanoes).

Volcano Puyehue erupts in Chile

Chile is the most volcanic country on Earth with over 3000 volcanoes, up to 80 of them active.

The eruption of the Puyehue volcano in central Chile on 4th June led to the Authorities evacuating 3,500 people to temporary shelters in safe areas. Large columns of smoke and ash, mixed with rocks, were thrown out 10 km into the air. Among the gases released were high levels of SO^2. There were no reports of any injuries. The previous eruptions from this volcano were in 1960 and 1921; these eruptions lasted for about two months.

The prevailing westerly winds took the ash cloud east over the Andes mountains into Argentina. One resident of the ski resort of Bariloche in Argentina said that 'Ash was falling like snow'. Levels of air pollution were high and people complained of sore eyes and skin, an
were advised to stay in

Towns in central Chi
from tourists coming t
scenery, were mostl
Bariloche in Argentina was closed for days. This stopped high spending Brazilians from coming, at the worst time, because it was right in the middle of the main ski season.

By 11th June the ash cloud from Puyehue had reached Australia and New Zealand, over 6,000 km away. The cloud hovered in the air between 4,000 and 7000 metres closing Australia's two biggest international airports in Sydney and Melbourne. As late as 21st June, the ash cloud was still hanging around.

(i) Name all four emissions from the Puyehue volcano during its June 2011 eruption.

1. ..... 2. .....

3. ..... 4. .....

[1]

(ii) Despite this being a major volcanic eruption, no one was killed or even injured. Suggest **three** reasons for this.

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.....[3]

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(iii) The economic effects of Puyehue's eruption were f
neighbouring Argentina, but also thousands of kilometre

Why were the effects from this volcanic eruption internat

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.....[2]

(iv) Were these economic effects greater for the other countries than for Chile? Explain your views on this.

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.....[3]

(v) People living in central Chile and Bariloche complained of health problems caused by the volcano. Explain how these may have been caused.

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.....[2]

(d) Land close to and around the craters of active volcanoes is often barren wasteland, places where nothing will grow. One reason is the very acid ground due to frequent releases of toxic volcanic gases and liquids.

(i) The pH scale is shown below. Put a tick (✓) in **one** of the boxes to suggest the pH of a soil found in areas next to volcanic craters.

pH	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
tick one box															

[1]

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(ii) State and explain **another** reason why areas on th volcanoes cannot usually be used for farming.

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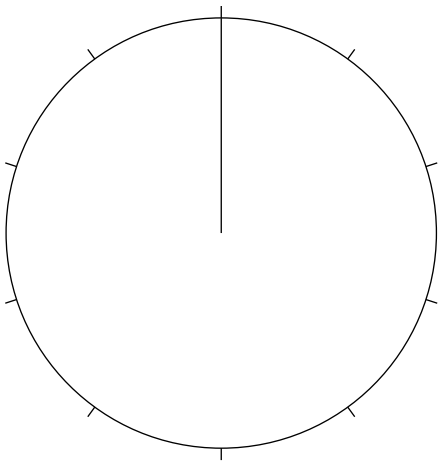
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(iii) In areas further away from the crater, volcanic soils ar soils for growing crops. Many of them have the texture of

33% sand: 33% clay: 34% silt

Complete the pie graph and key to show these characteristics of a loam soil.

Texture of a loam volcanic soil



Key:

Put your answer on the pie chart [3]

(iv) The pH scale is shown below. Put a tick (✓) in **one** of the boxes to suggest the pH of a volcanic soil with a loam texture.

pH	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
tick one box															

[1]

(v) Explain why this soil texture is good for crop growing.

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.....[3]

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(e) The island of Java in Indonesia was made by volcanoes.
volcanoes. Its rich volcanic soils are some of the world's best
It has been suggested that even a stick planted in Java'
Deposits from erosion on the mountains and from new erup
lowlands, forming thick layers of fertile sediment on the islan

(i) Explain why fertile volcanic soils are present almost ever

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.....[2]

(ii) Look at the information about the island of Java.

Java in Indonesia

Area	Population	Population density	Birth rate	Death rate
7% of Indonesia	140 million	1025 per km²	18 per 1000	7 per 1000

The total population of Indonesia is 235 million. Approximately what percentage of these live on the island of Java? Circle **one** answer.

40% 50% 60% 70% [1]

(iii) What information shows that Java is a very overcrowded island compared with the rest of Indonesia?

.....

.....[1]

(iv) What is the rate of natural increase of population in Java?

.....[1]

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(v) The government of Indonesia is increasingly worried ab
in Java as overcrowding forces subsistence farmers to
mountain slopes and forest reserves.

J, **K** and **L** are three ways that have been suggested to t

J	**K**	
Manage the land Educate farmers about strategies of soil conservation	Manage population increase Put more money into family planning programmes	Su

In your view, which one of these ways would be the best for solving the problem of environmental damage in Java? Explain your view.

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[Total: 40]

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