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UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER | | | | | |

CANDIDATE NUMBER | | | | |

8040719476

ENVIRONMENTAL MANAGEMENT **0680/02**

Paper 2 **October/November 2008**

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.

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.

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1	
2	
Total	

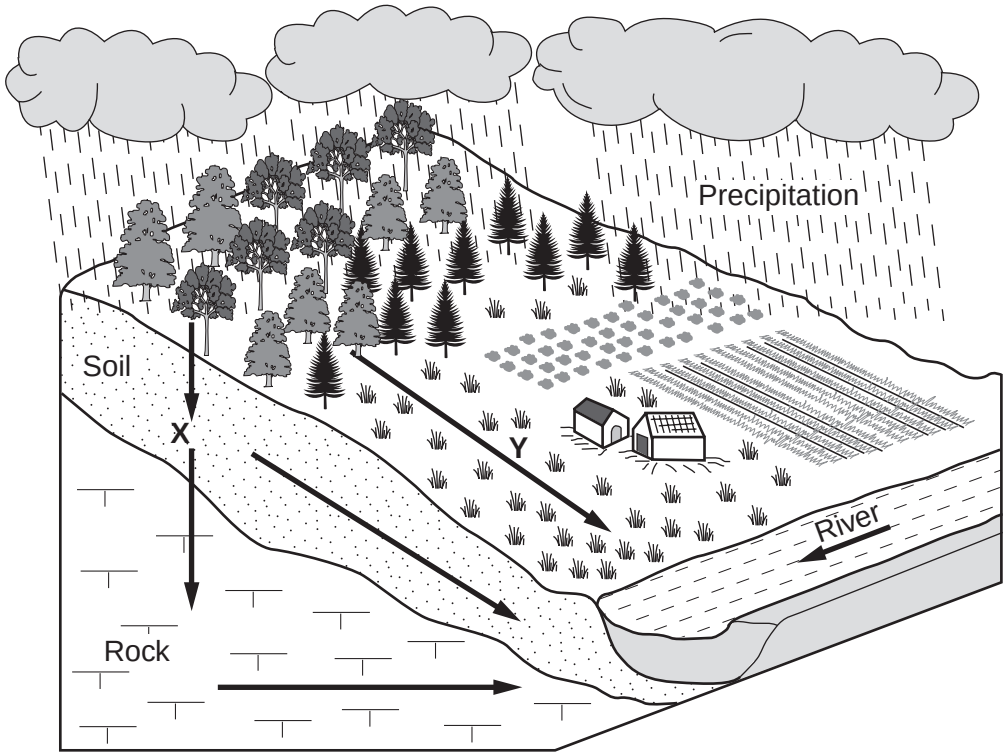
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1 **(a)** The diagram shows ways by which precipitation reaches a river.



(i) Name the processes labelled **X** and **Y**.

X .....

Y .....[2]

(ii) Explain how precipitation reaches the river by process **X**.

.....

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.....[2]

(iii) Add the letter **I** on the diagram where interception of precipitation takes place. [1]

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(iv) In some areas on the diagram precipitation reaches the river quickly, while in other areas it reaches the river more slowly. Explain why.

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.....[4]

(b) State **three** different reasons why people throughout the world live next to rivers.

1 .....

2 .....

3 .....[3]

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(c) There can be disadvantages from living next to rivers. One is pollution. Look at the map of North East China.

3 November 21 2005

City of Harbin (350 km downstream from Jilin) announces it will shut off water to residents

- Harbin is city of 9 million people; 80% of its water comes from the Songhua River
- the reason given by the authorities was 'pipe maintenance'
- no one believed this; panic resulted, city shops sold out of water in hours and all trains and planes out of Harbin were packed with people
- water supply was shut off for 5 days

4 December 8 2005

Toxic slick expected to reach Khabarovsk in Russia, a city of half a million people

- there was a delay of at least one week after the explosion before Russia was informed about toxins in the Songhua River
- after receiving the news, preparations were made to switch off drinking water supplies

2 November 18 2005

Date when information about the toxic slick in the river was given to other authorities down river for the first time

- 80 km long slick was flowing down the Songhua River
- officials remained silent hoping that the chemicals would quickly dilute in the river water doing little harm
- nitro-benzene is dangerous to people; it affects the nervous system and can lead to cancers in the longer term
- chemicals could be absorbed by fish in the river and enter the food chain
- no one is sure how long it will take the bacteria in the water and soil to decompose the pollutants; it depends on levels of concentration of the pollutants and water temperature (it happened in winter)
- an expert living outside China warned that a heavy concentration of chemicals absorbed by sediments on the river bed would be released into the river water for possibly 3 to 5 years



1 November 13 2005

Chemical plant explodes at Jilin

- series of explosions; 5 workers killed and 70 injured
- giant orange cloud of smoke released; 40 000 nearby residents evacuated
- leak of highly toxic nitro-benzene into the Songhua River

(i) Look at box 1 below the map. State two immediate effects of the chemical plant explosion for people living in Jilin.

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.....[2]

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(ii) Although located 350 km away, effects from the toxic leak were still felt in Harbin. Explain why.

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(iii) Explain why this pollution event became an international issue.

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(iv) When the water supply to Harbin was restored after 5 days, it was reported that residents were told that

- the chemicals have now passed the city
- the water is now safe

Were these two statements accurate and reliable? Give your view and explain it.

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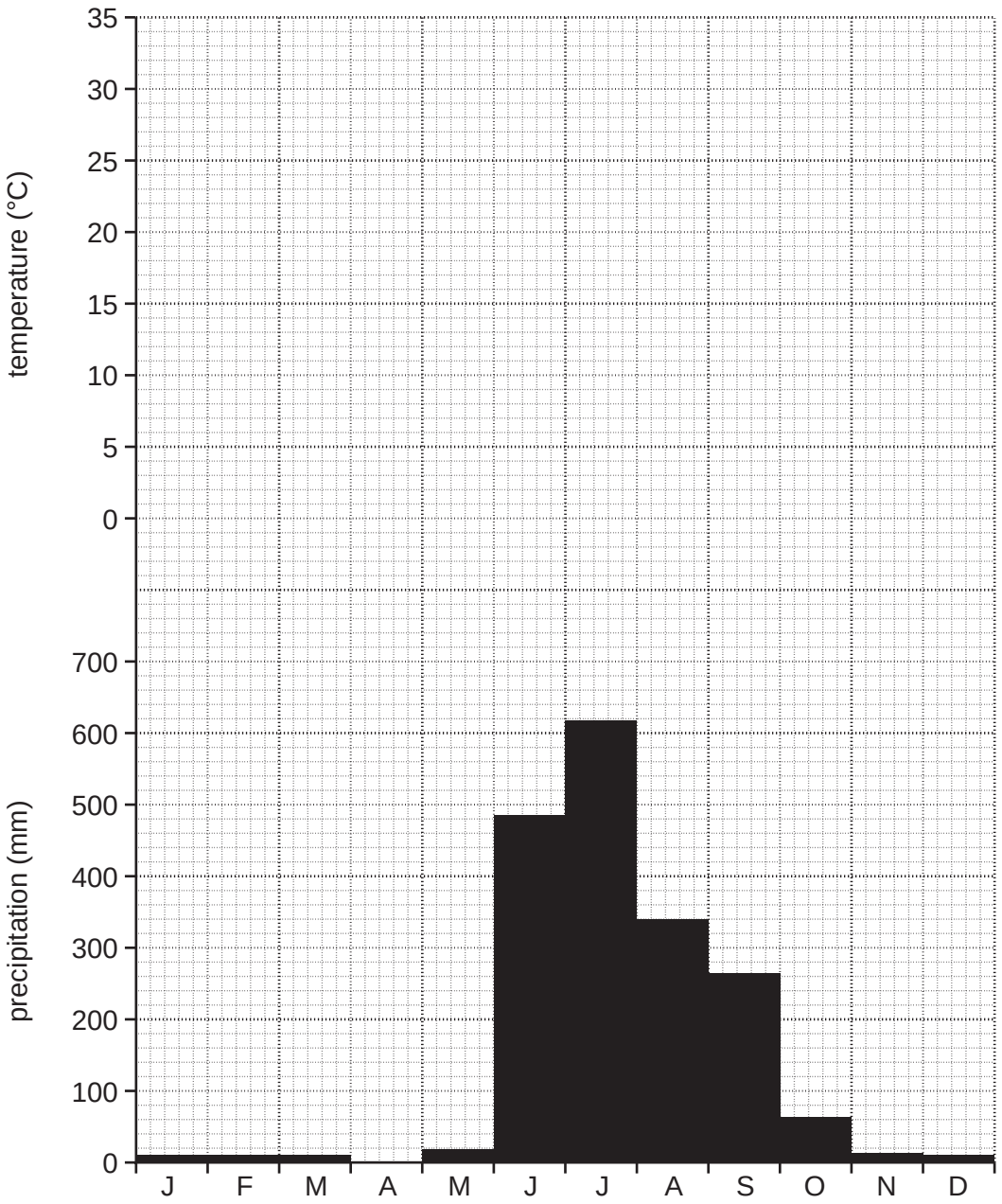
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(d) Another disadvantage from living next to rivers is flooding. River floods are common in tropical climates such as savanna and monsoon during the wet season.

Mumbai – tropical monsoon climate



(i) Average monthly temperatures for Mumbai

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
°C	24	24	26	28	30	29	27	27	27	27	28	26

In the space above precipitation, complete the climate graph for Mumbai by drawing a line graph to show average monthly temperatures. [3]

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(ii) When is the wet season in Mumbai?

.....[1]

(iii) River floods in surrounding farming areas are more widespread during September and October than in June and July. Use the precipitation values to suggest why the worst flooding happens in these two months.

.....

.....

.....[2]

(iv) Look at both temperature and precipitation. In which month is drought likely to be the most serious for farmers? Explain your choice.

Month .....

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.....[2]

(v) Describe one method used by farmers to allow cultivation to continue during dry periods of the year.

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(e) The benefits of high rainfall and river floods can be greater than the bad effects.

(i) State two benefits of high rainfall and river floods for farmers.

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.....[2]

(ii) Do you agree that the benefits of river floods can be greater than the bad effects for people living close to large rivers? Explain your view.

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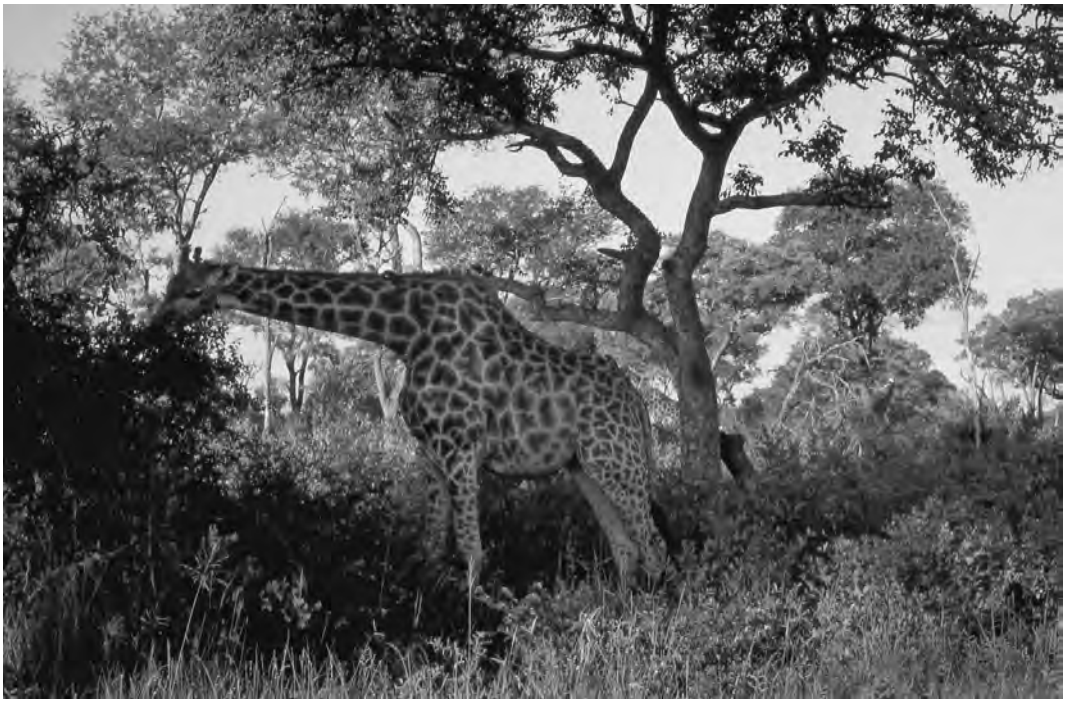
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2 **(a)** Look at the photograph of savanna vegetation in Africa.



Describe the features of the vegetation shown.

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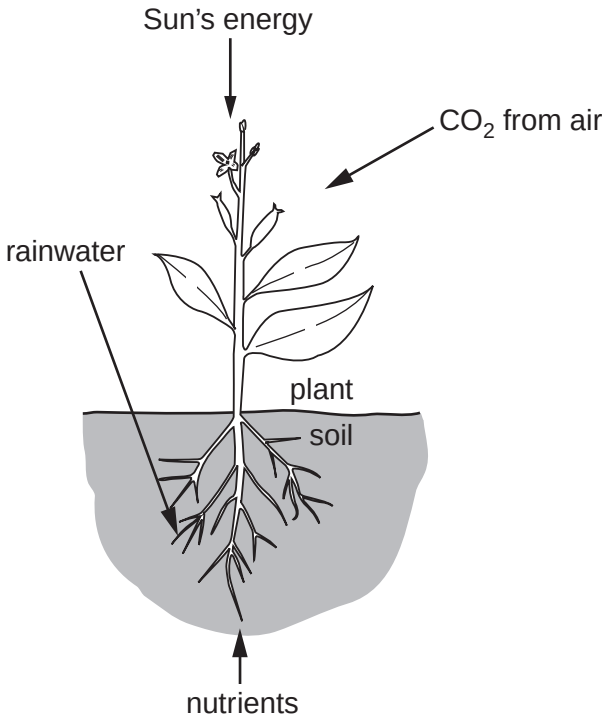
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(b) The plant and animal life shown in the photograph is only possible because of air, water and minerals.



(i) Explain how green plants trap the sun's energy to create living matter.

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(ii) Where do continued supplies of nutrients for plant growth come from?

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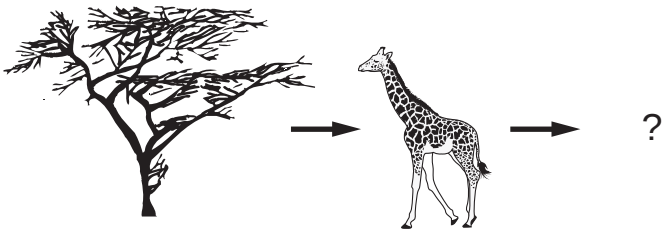
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(c) The diagram shows part of a food chain based upon what can be seen in the photograph.



(i) Explain how it shows part of a food chain.

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(ii) Describe how further links might be added to this food chain.

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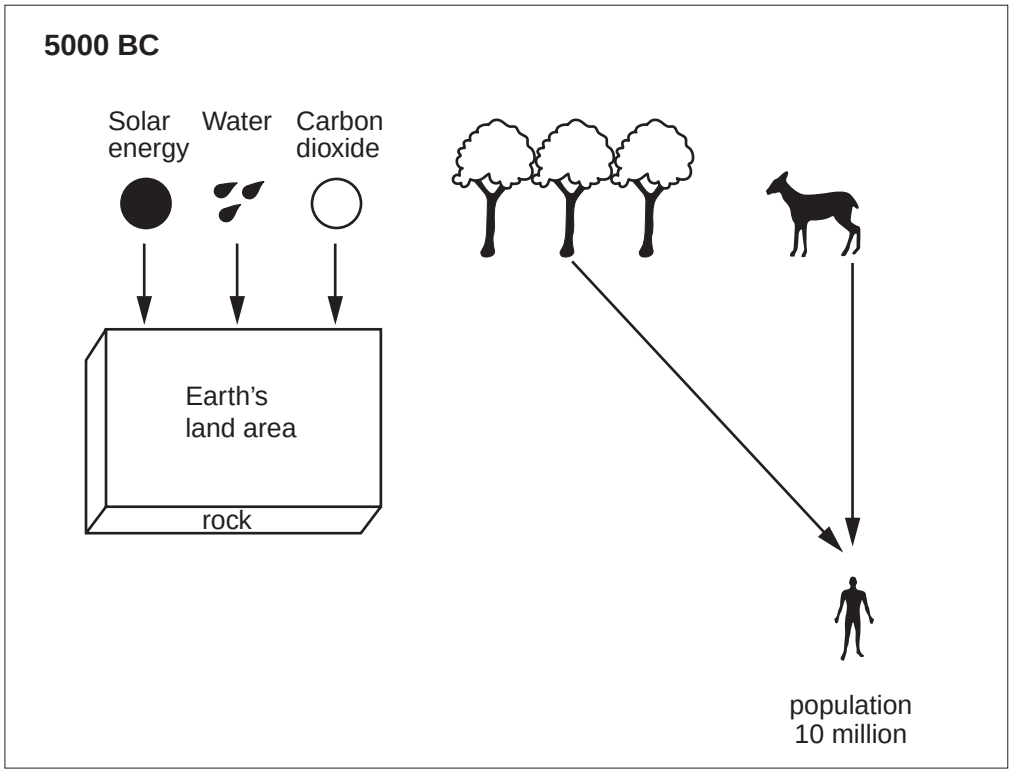
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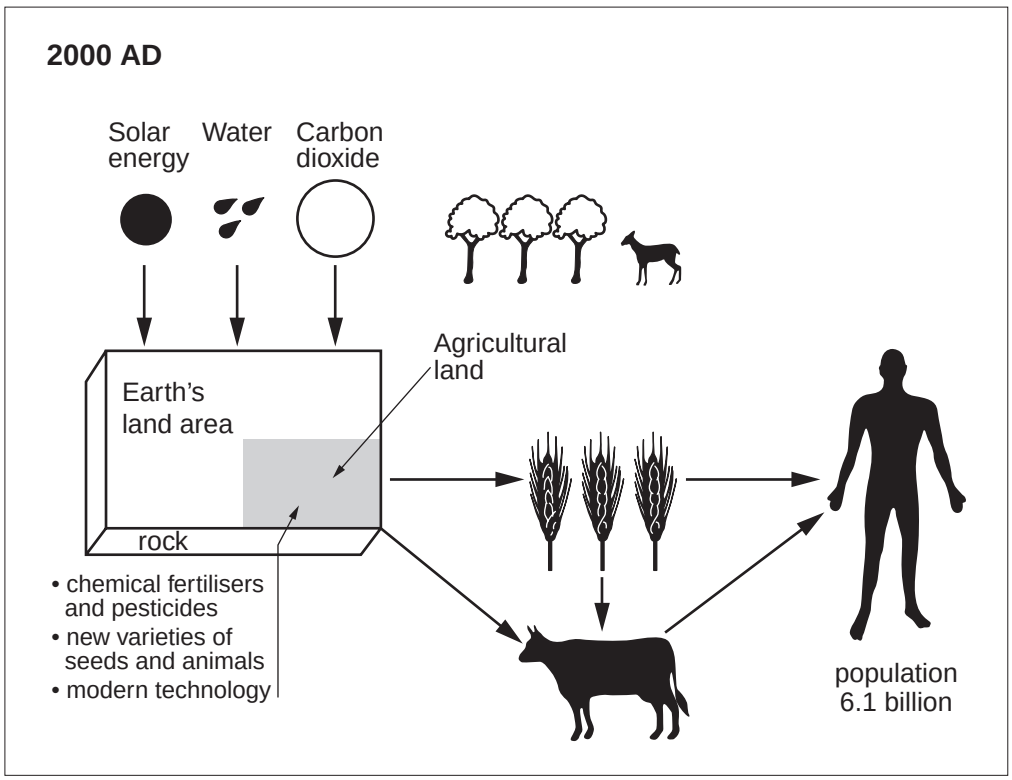
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(d) Look at the diagram which shows the growth of the human population in the last 7000 years and its effects.





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Between 5000 BC and 2000 AD state what has

(i) remained the same;

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(ii) decreased in size and numbers.

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..... [2]

(iii) What is the evidence from the diagram that there was increased pressure on the Earth's natural resources and ecosystems between the two dates?

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.....[2]

(e) (i) In 5000 BC how did humans survive? State two ways.

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.....[2]

(ii) State one advantage and one disadvantage of survival by these ways.

Advantage .....

.....

Disadvantage .....

.....[2]

(iii) Approximately what percentage of the Earth's land area was agricultural land in 2000?

.....[1]

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(iv) Three reasons are given on the diagram for the great increase in agricultural land and food output by 2000. Choose two of them and describe in more detail how each has increased food output.

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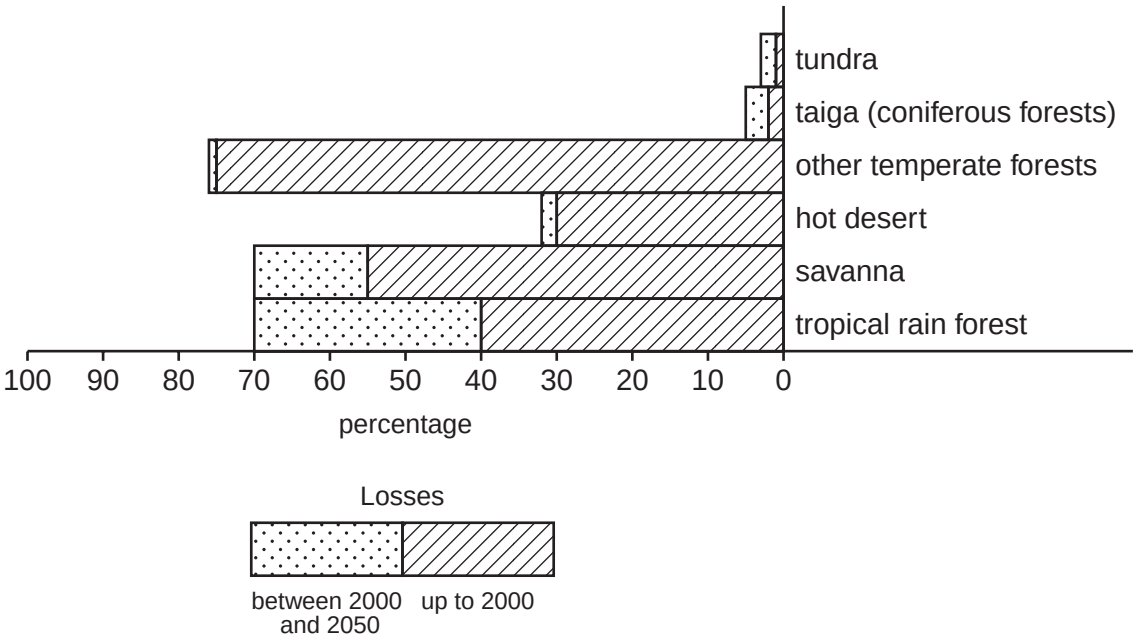
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(f) Great ecosystem losses result from increases in the human population and agricultural output.

Ecosystem losses (up to 2000 and predicted for 2000 to 2050)



(i) Which ecosystem suffered the greatest percentage loss up to 2000?

.....[1]

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(ii) Losses up to 2000 varied from 1% to 75% between the different ecosystems. Suggest reasons why percentage losses before 2000 varied so much between ecosystems.

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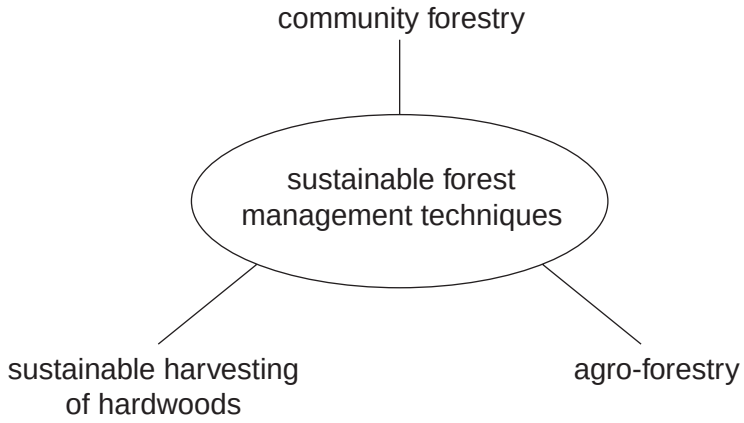
.....[3]

(iii) Name the ecosystem expected to have the greatest percentage loss between 2000 and 2050.

.....[1]

(iv)

Sustainable forest management techniques



Choose one technique. Describe how it can be used for sustainable forest management.

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(v) Are these techniques easy or difficult to carry out? Explain your views on this.

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[Total: 40 marks]

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