

Candidate Name _____

Centre Number	Candidate Number

**International General Certificate of Secondary Education
CAMBRIDGE INTERNATIONAL EXAMINATIONS**

**NATURAL ECONOMY
PAPER 2**

0670/2

MAY/JUNE SESSION 2002

2 hours

Candidates answer on the question paper.
Additional materials:
Ruler (cm/mm)

TIME 2 hours

INSTRUCTIONS TO CANDIDATES

Write your name, Centre number and candidate number in the spaces at the top of this page.

Answer **both** questions.

Write your answers in the spaces provided on the question paper.

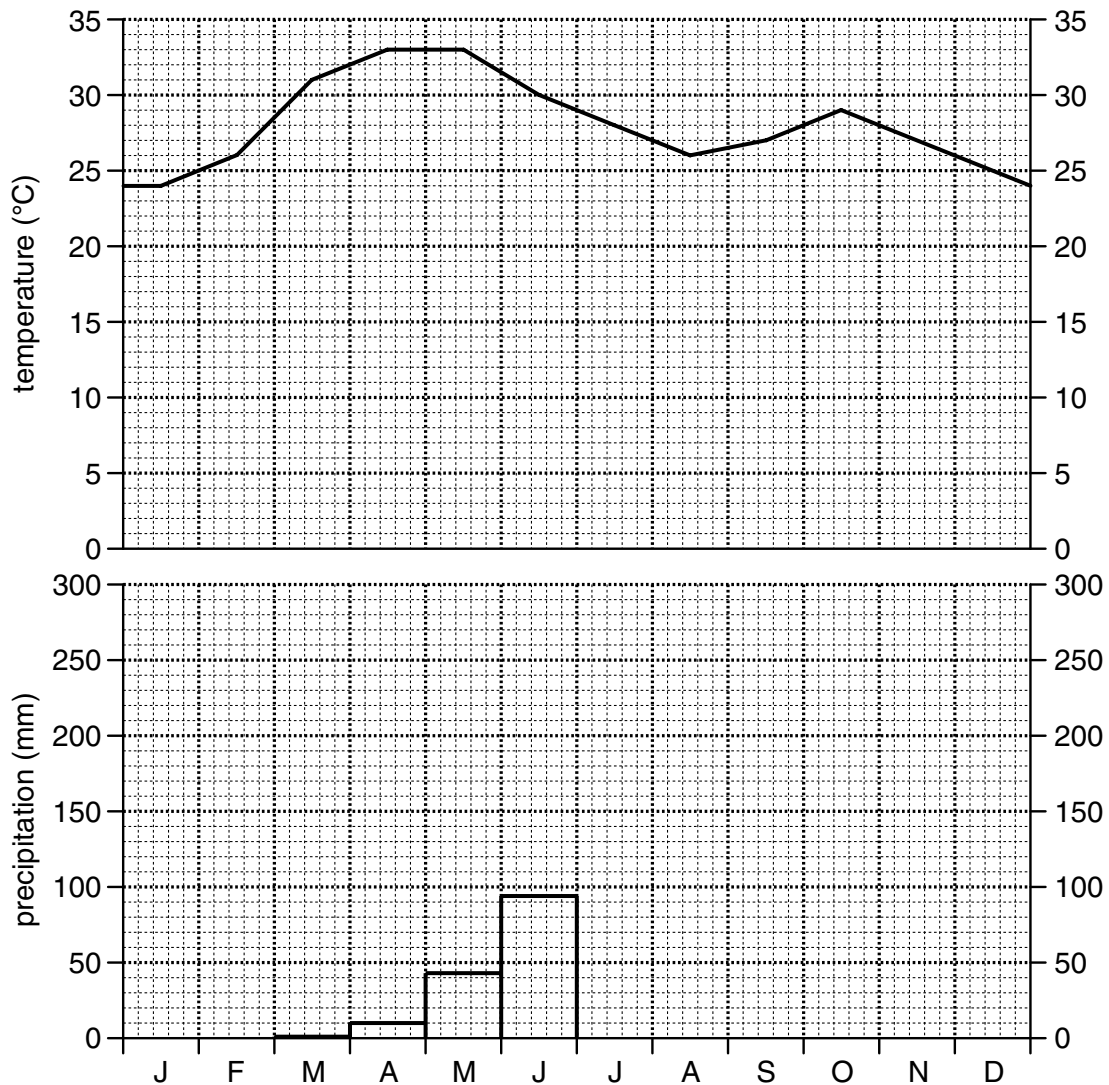
INFORMATION FOR CANDIDATES

The number of marks is given in brackets [] at the end of each question or part question.

FOR EXAMINER'S USE	
1	
2	
TOTAL	

This question paper consists of 18 printed pages and 2 blank pages.

- 1 Look at the climate graph below for a weather station in the savanna lands of Nigeria, a country in West Africa.



(a)

Month	Precipitation (mm)
July	150
August	250
September	130
October	20
November	0
December	0

Using the data, complete the climate graph.

[3]

(b) In this part of Nigeria it is hot all year. There are two seasons, a wet season and a dry season.

Describe how the climate graph shows that

(i) it is hot all year;

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

(ii) there is both a wet season and a dry season.

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

(c) The climate shown is tropical savanna.

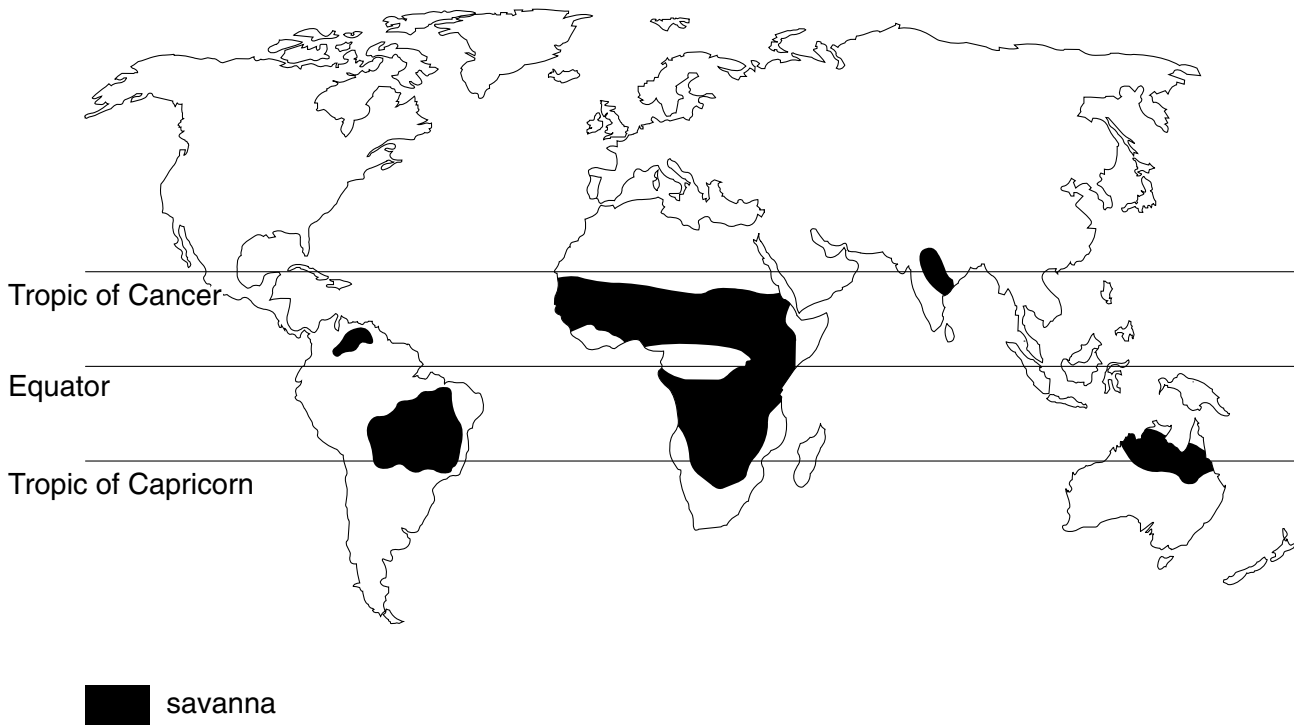
(i) What is different about the shape of the temperature line compared with that for most other types of climate?

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

(ii) Suggest **one** reason why the temperatures in August and September are lower than those in the months before and after.

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.....[1]

(d) Look at the world distribution of savanna vegetation on the map below.



Describe the distribution of savanna vegetation shown on the map.

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.....

.....

.....[2]

(e) Read the information below about the vegetation and animals found in the African savannas.

Savannas are tropical grasslands. Grasses, which grow in clumps or tufts, cover most of the surface. They sprout and grow quickly in the wet season; in places some grow up to 3.5 metres high and are known as elephant grasses. During the dry season the grasses dry out, turn brown and wither. By the end of the dry season they burn easily. Great herds of grazing mammals such as zebra and antelopes are present.

In between the grasses are some trees. Most savanna trees shed their leaves during the dry season to reduce water loss through them. The new leaves appear just before the wet season begins, so that the trees can start to grow as soon as the rains arrive. There are two distinctive types of tree on the African savannas. One is the acacia, which has a flat top and umbrella shape. Some acacia trees have thorns and only small leaves to reduce water loss. The giraffe with its long neck grazes on the leaves. The second is the baobab, which has a huge trunk (up to nine metres in diameter), thick branches and small leaves. Their trunks are soft and spongy inside and can store large quantities of water. Deep roots allow them to tap into water sources underground.

The African savannas are home to great numbers of wild animals. Large herds of grazing animals are the food supply for the carnivores such as lions and cheetahs. After the large carnivores have finished, hyenas and vultures eat the remains. Most of the local people are farmers keeping cattle and goats and growing subsistence crops such as millet and maize. Some of them also hunt wild animals and eat their meat, known as 'bush meat', to supplement their food supply. As the human population has increased greatly, the number of wild animals has decreased. This is despite the creation of game parks and reserves in some African countries.

(i) Describe **two** ways in which the appearance of savanna vegetation in the wet season changes from that in the dry season.

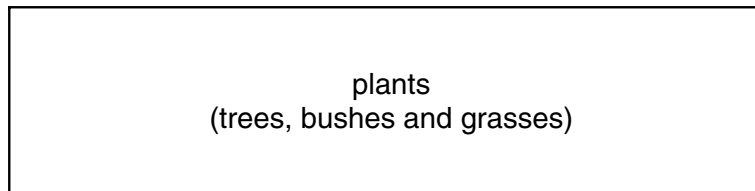
- 1.
-
- 2.
-[2]

(ii) Explain why baobab trees have deep roots, large trunks and thick branches, and small leaves.

- Deep roots
-
-
- Large trunks and thick branches
-
-
- Small leaves
-
-[4]

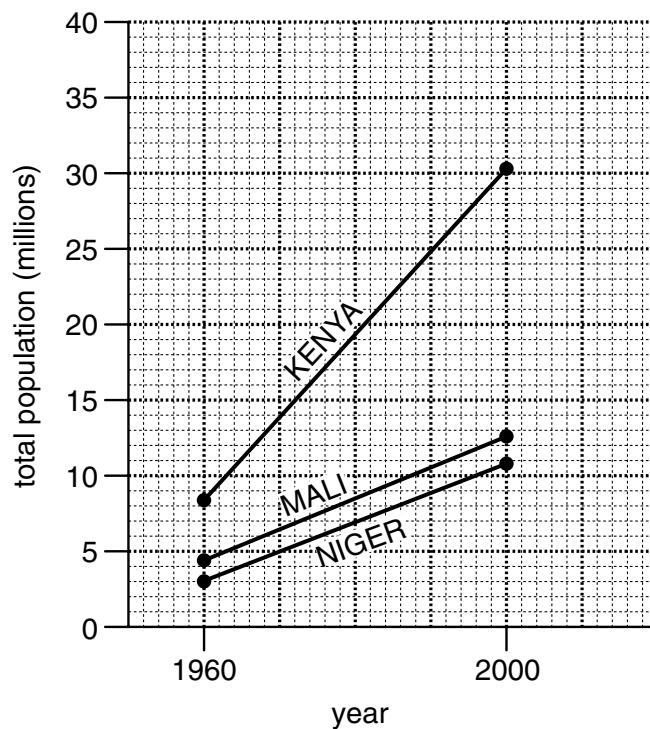
(iii) List all the **wild** animals in the African savanna mentioned in the article.
.....
.....[1]

- (iv) Complete the diagram below to draw one food chain for the African savannas to show the feeding relationships between some of the wild animals named.



[3]

- (f) The graph below gives population data for three countries in the savanna regions of Africa.



- (i) In Tanzania, the population in 1960 was 10 million. By 2000, it had grown to 34 million. Plot this data on the graph above.

[2]

(ii) State and explain **two** different ways of controlling population growth in a country.

- 1.
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- 2.
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.....[4]

(iii) In China, the population in 1960 was 650 million.
By 2000 it had grown to 1300 million.

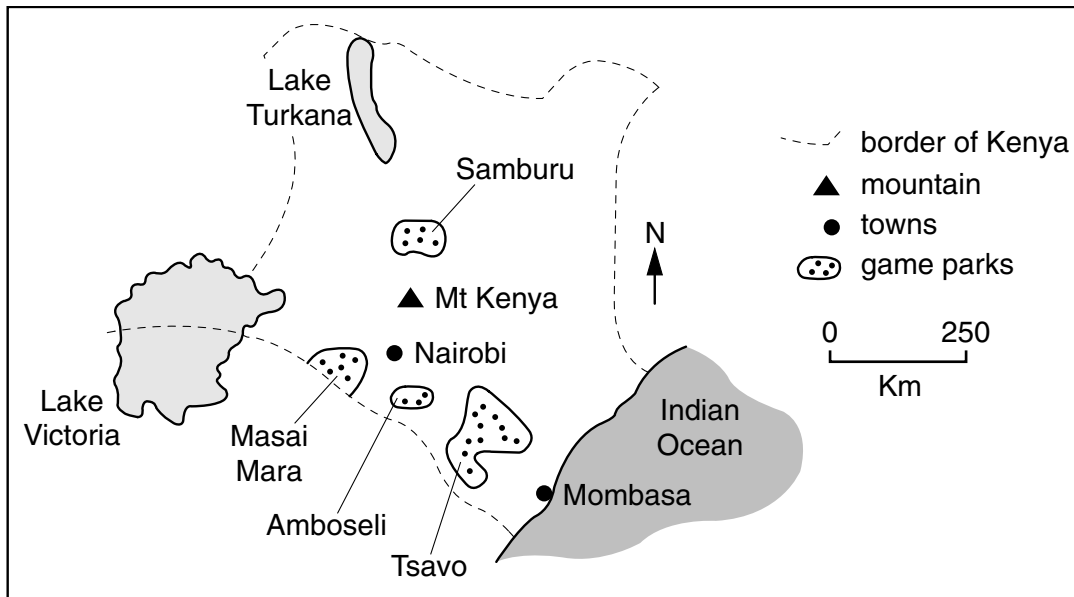
The data for China shows that it has been more successful in reducing the rate of population increase than Tanzania and the other three African countries. How does it show this?

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.....[1]

(iv) Why have some countries been more successful at reducing rates of population increase than others?

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.....[2]

(g) Look at the map of Kenya and other information below.



Information

There are conflicts over land between the government of Kenya and the people of local tribes such as the Masai. When the game parks were created to protect areas for wild animals and for tourists to visit, the Masai and their herds of cattle and goats were driven off lands where they had always lived. Severe shortages of grazing land, made worse by rapid population growth, forced farmers to move nearer park borders. There are no fences around the parks. Elephants, which trample over crops, have increased in numbers in the parks where they are safe from hunters. Cattle are eaten by lions. People in the villages are injured, or sometimes killed, by wild animals, but they are not permitted to kill them. Only a small percentage of local people make money out of the thousands of visitors who come to Kenya every year.

(i) Where in Kenya are most of the game parks located?

.....
[1]

(ii) State an economic reason for creating the game parks in Kenya.

.....
[1]

(iii) Why are environmentalists usually in favour of the creation of game parks in developing countries such as Kenya?

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.....[3]

(iv) How does the information on Kenya suggest that creating the game parks has been a success?

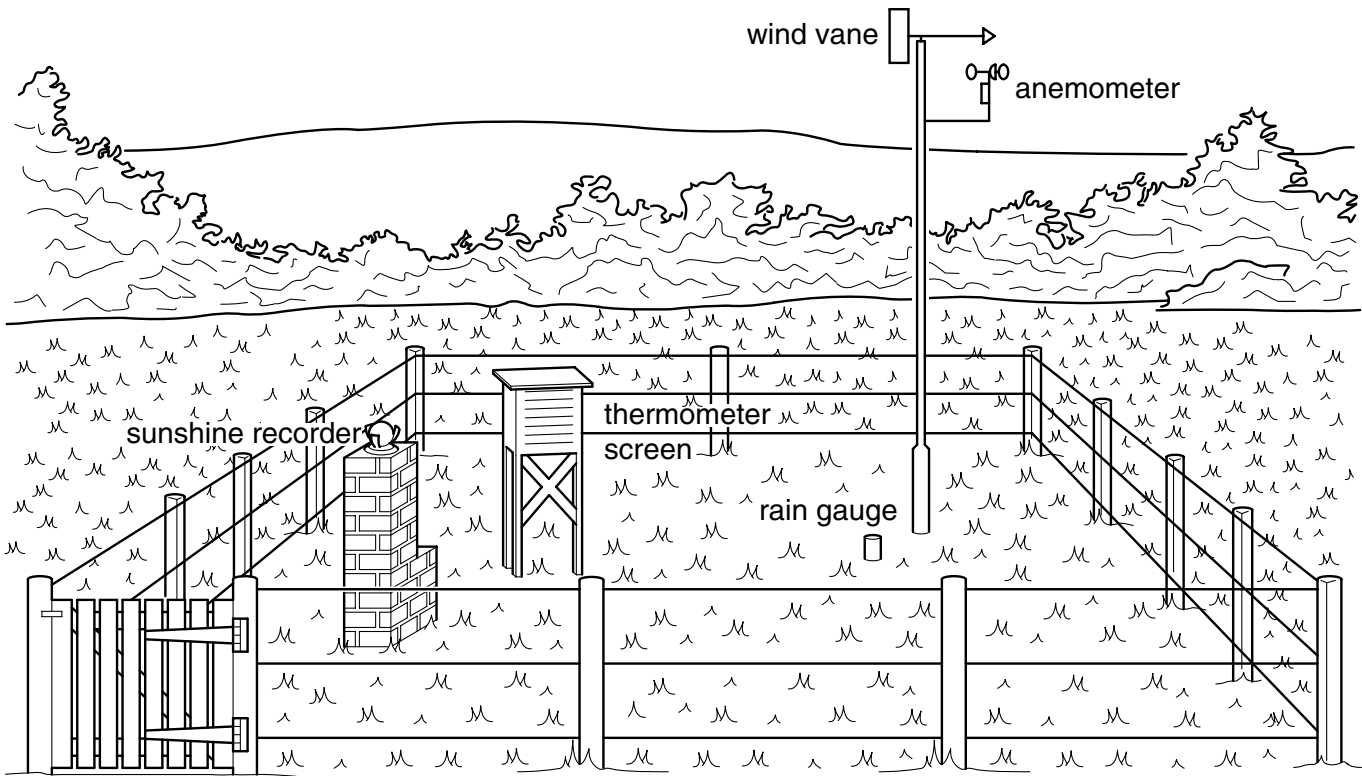
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.....[1]

(v) Why were tribespeople and villagers against game parks being created in Kenya? Explain as fully as you can.

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.....[4]

[Total : 40]

2 Look at the sketch of the weather station below.



(a) Name the instrument shown which measures each of the following;

- (i) wind direction;
- (ii) wind speed;
- (iii) precipitation.

[3]

(b) (i) Describe the site of this weather station.

.....

(ii) Why do you think this site has been chosen?

.....

[3]

(c) (i) In the space below, draw one of the instruments shown or named at the weather station. Label its main features.

(ii) Explain how you would take an accurate reading from it.

.....

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.....

[4]

(d) After weeks of heavy rains during January 2000, the country of Mozambique in southern Africa was hit by cyclones in early February. It was a major disaster for one of Africa's poorest countries.

(i) During cyclones in Mozambique, rain gauges measured only 50 mm of rain in 24 hours. Some people estimated that between 120 and 200 mm of rain actually fell in 24 hours.

Give **one** reason why a rain gauge, like the one shown in the sketch of the weather station, does not always give an accurate measurement when rainfall is very heavy.

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

(ii) Reports from Mozambique in late February 2000 showed the great impact of the floods.

- * 1 million out of 19 million people were forced to move from their homes
- * 100 000 people were trapped on roof tops, on small areas of high ground and in trees by rising waters
- * Outbreaks of malaria were four times higher than normal
- * The best farming land on valley floors was flooded

Describe **three** types of disaster relief aid urgently needed in Mozambique at that time.

1.
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2.
.....
3.
.....[3]

(iii) Which **one** of the three types of aid was needed most urgently to save lives? Explain your answer.

Type of aid
Explanation
.....[2]

(iv) In April 2000, more than a month after flood waters had drained away, there were still major problems in Mozambique.

- * 500 000 people were still homeless
- * 10% of the crop land was still unable to be used
- * There were 20 000 fewer cattle than there had been
- * Schools, health clinics and roads were in urgent need of repairs

Were the types of aid needed in Mozambique in April the same as, or different from, those needed in late February?
Explain your answer.

Answer

Explanation

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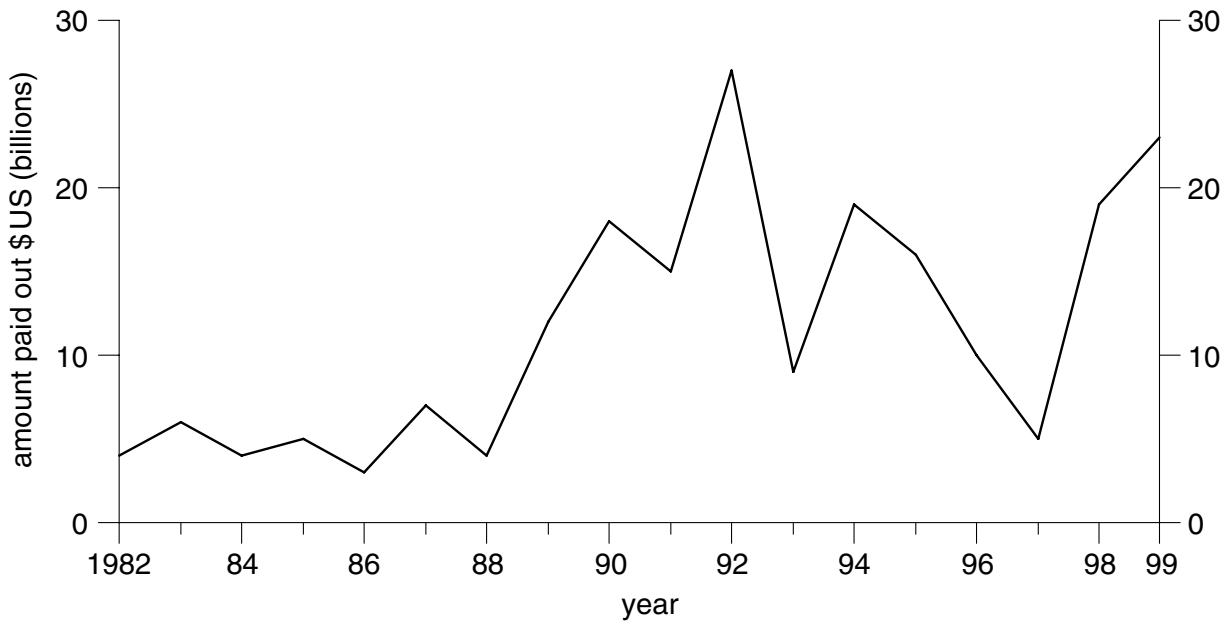
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.....[4]

(e) Look at the graph below which shows how much insurance companies paid out to repair damage caused by natural disasters such as cyclones, earthquakes and volcanoes.



(i) How much did they pay out in 1999?
.....[1]

(ii) In which year did they pay out the most money?
.....[1]

(iii) Why does the amount of money paid out by the insurance companies change from year to year?
.....
.....
.....[2]

- (f) Below is a list of big natural disasters in 1999 and the amount insurance companies paid out.

Natural disaster	Area affected	Amount (US \$ billion)
Storm Lothar (high winds and floods)	Europe	4.5
Typhoon Bart (cyclone)	Japan	3.0
Hurricane Floyd (cyclone)	USA	2.4
Storm Martin (high winds and floods)	Europe	2.2
Earthquake	Turkey	2.0
Earthquake	Taiwan	1.0
Hailstorm	Sydney	1.0
Snowstorm	USA	0.8

- (i) How many of the eight natural disasters in the list were caused by the weather?

.....[1]

- (ii) How many of them were caused by earth movements?

.....[1]

- (iii) Choose **one** type of natural disaster from the list.

Outline the preventative measures which people and governments can take in advance to reduce its effect.

.....

[4]

- (g) The country of Bangladesh suffers from many natural disasters. Now there is a new problem for its people.

Read the newspaper report below.

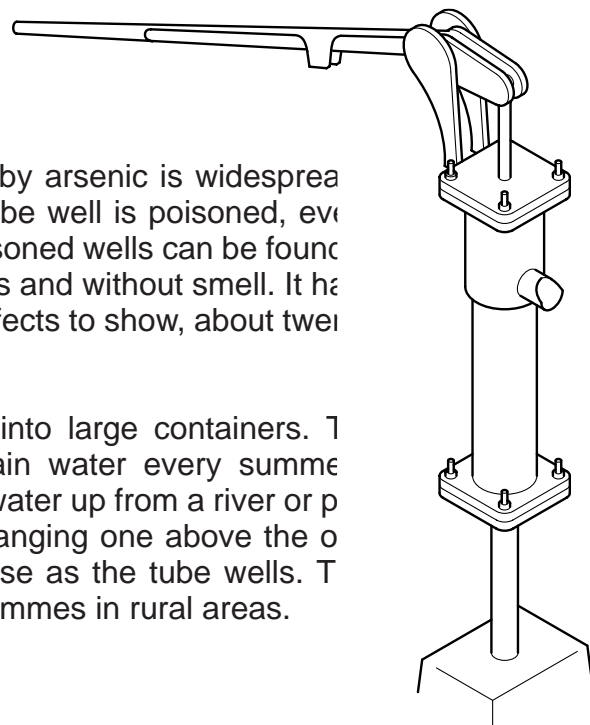
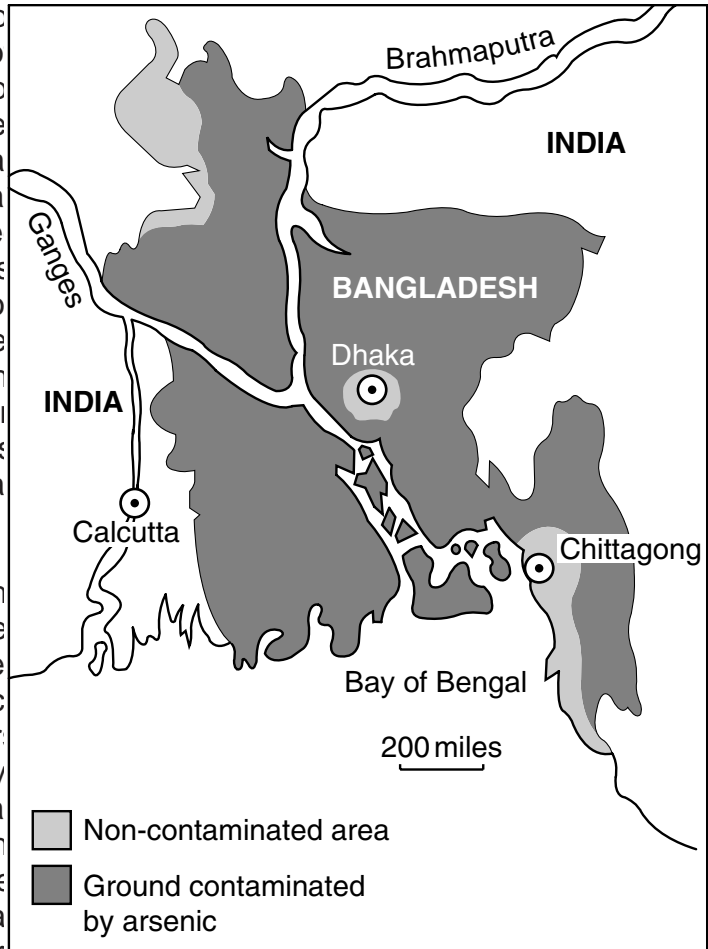
Danger from the poisoning of drinking water supplies in Bangladesh.

For 30 years the government and people of Bangladesh have sunk millions of tube wells. These provide an easy supply of drinking water. Unlike the surface water, this water from underground was free from contamination by bacteria. More than 250 000 children a year die from drinking surface water. Tube wells are easy to sink into the country's soft soils. For millions of rural dwellers tube wells have made a big difference. For the first time people have water in their houses. Tube wells have become so popular that they are often given as presents to newly married couples.

For many years it was believed that the underground water was safe. However, water from the wells was never tested for contamination by arsenic. Arsenic, which is a poison to people, occurs naturally in ground water. The only areas in Bangladesh without arsenic are the hilly areas and the area around Dhaka, the capital city, where the geology is different. It is estimated that 1 in 10 people who drink water containing arsenic over a long period of time will die of lung, bladder or skin cancer.

Although underground water contaminated by arsenic is widespread in Bangladesh, it does not mean that every tube well is poisoned, even in danger areas. In many villages safe and poisoned wells can be found close to each other. Arsenic is tasteless, colourless and without smell. It has no immediate ill effects. It takes time for its ill effects to show, about two years in the case of skin cancer.

One option is to collect water from roofs into large containers. The monsoon provides massive amounts of rain water every summer in Bangladesh. Another option is to pump the water up from a river or pond and put it through filters using three pots hanging one above the other. Neither of these solutions are as easy to use as the tube wells. That is why both options are little used in aid programmes in rural areas.



(i) State **two** reasons why there are millions of tube wells supplying drinking water in Bangladesh.

1.

.....

2.

.....[2]

(ii) From the map of Bangladesh, approximately what percentage of the country is at risk from water contaminated by arsenic?

.....[1]

(iii) Explain why it has taken a long time for the government and people of Bangladesh to realise that there is a problem with drinking water from tube wells.

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.....[3]

(iv) A government official spoke at a village meeting in Bangladesh. He advised everyone to change from tube wells to other ways of collecting water.

All the village people spoke against changing.

Write down some of the arguments used by the village people against changing to alternative ways of water supply.

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.....[4]

[Total : 40]

