Cambridge International AS Level

Cambridge International Examinations
Cambridge International Advanced Subsidiary Level

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

ENVIRONMENTAL MANAGEMENT **8291/21**

Paper 2 Hydrosphere and Biosphere **October/November 2014**

1 hour 30 minutes

Additional Materials: Answer Booklet/Paper

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 an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Electronic calculators may be used.
You may lose marks if you do not show your working or if you do not use appropriate units.

Section A
Answer **all** questions.
Write your answers in the spaces provided on the question paper.

Section B
Answer **one** question from this section.
Answer the question on the separate answer paper provided.

At the end of the examination,
1. fasten all separate answer paper securely to the question paper;
2. enter the question number from Section B in the grid opposite.

	For Examiner's Use
Section A	
1	
2	
Section B	
Total	

This document consists of **13** printed pages and **3** blank pages.

CAMBRIDGE International Examinations

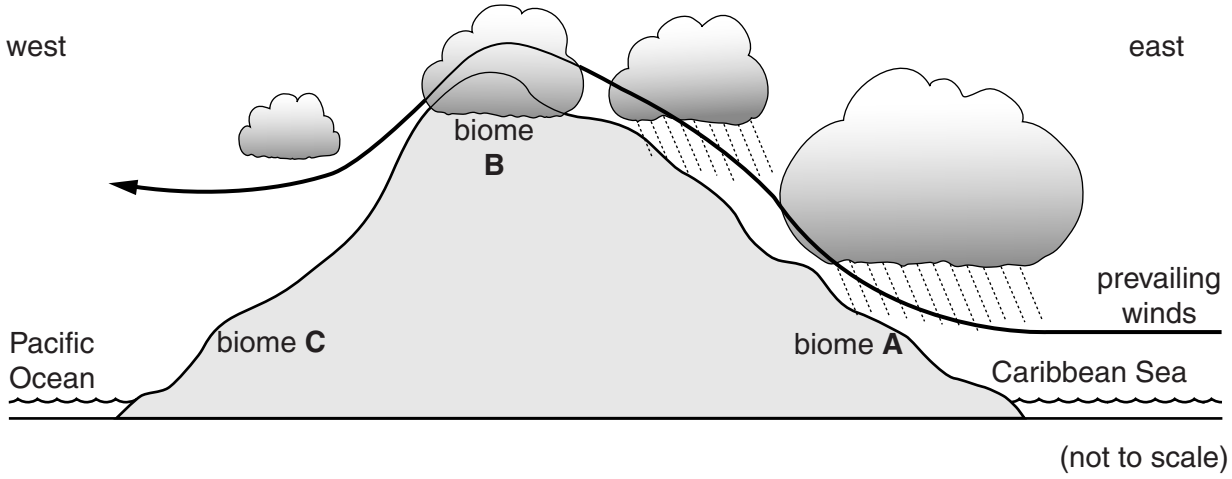
[Turn over

Section A

Answer **all** questions in this section.

Write your answers in the spaces provided.

1 Fig. 1.1 shows the distribution of three forest biomes (**A**, **B** and **C**), the topography and the weather pattern for northern Costa Rica.



cloud forest
biome **B**

dry forest
biome **C**

tropical rainforest
biome **A**

Fig. 1.1

(a) (i) Describe the characteristics of the vegetation in each of the biomes labelled **A**, **B** and **C** shown in Fig. 1.1.

A .....

.....

.....

.....

B .....

.....

.....

.....

C .....

.....

.....

.....[6]

(ii) Briefly describe the conditions which have enabled the formation of biomes **A** and **B** shown in Fig. 1.1.

.....

.....

.....

.....

.....

.....

.....

.....[4]

(iii) Fig. 1.2 shows a climate diagram for the area where biome **C** occurs.

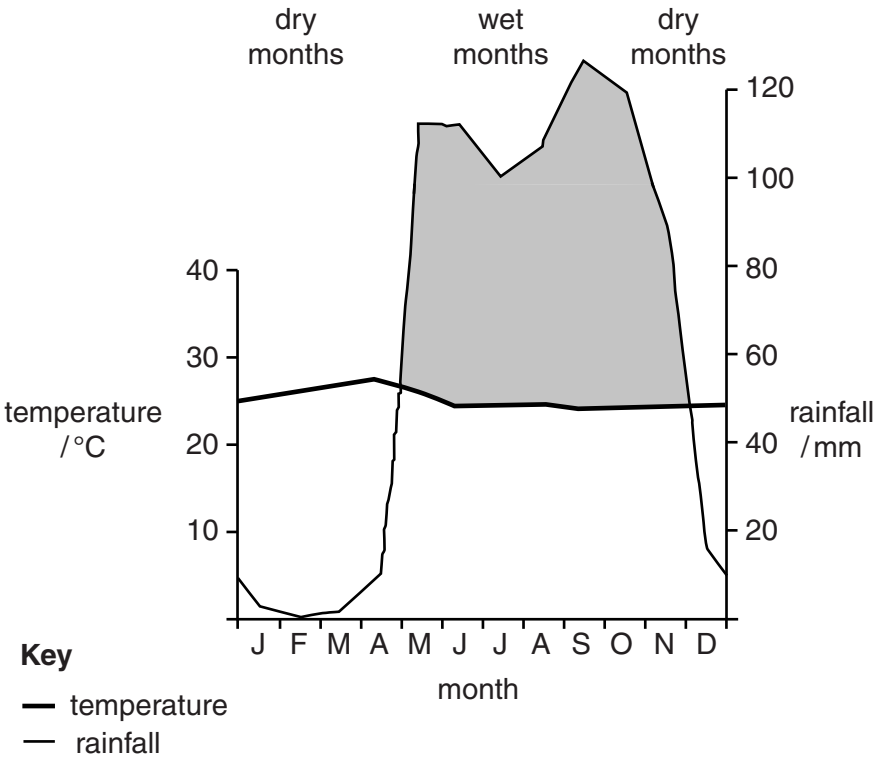


Fig. 1.2

For each of the months of February and September briefly explain how rainfall and temperature shown in Fig. 1.2 would affect plant growth in biome **C**.

.....

.....

.....

.....

.....

.....

.....

.....[4]

(b) Guanacaste National Park in Costa Rica, located within biome **C** shown in F[illegible] created in 1989 to conserve this biome, using forest restoration from remaining patches of forest.

Suggest what measures could be taken to encourage sustainable use of forest within the Guanacaste National Park.

.....

.....

.....

.....

.....

.....

.....

.....

.....

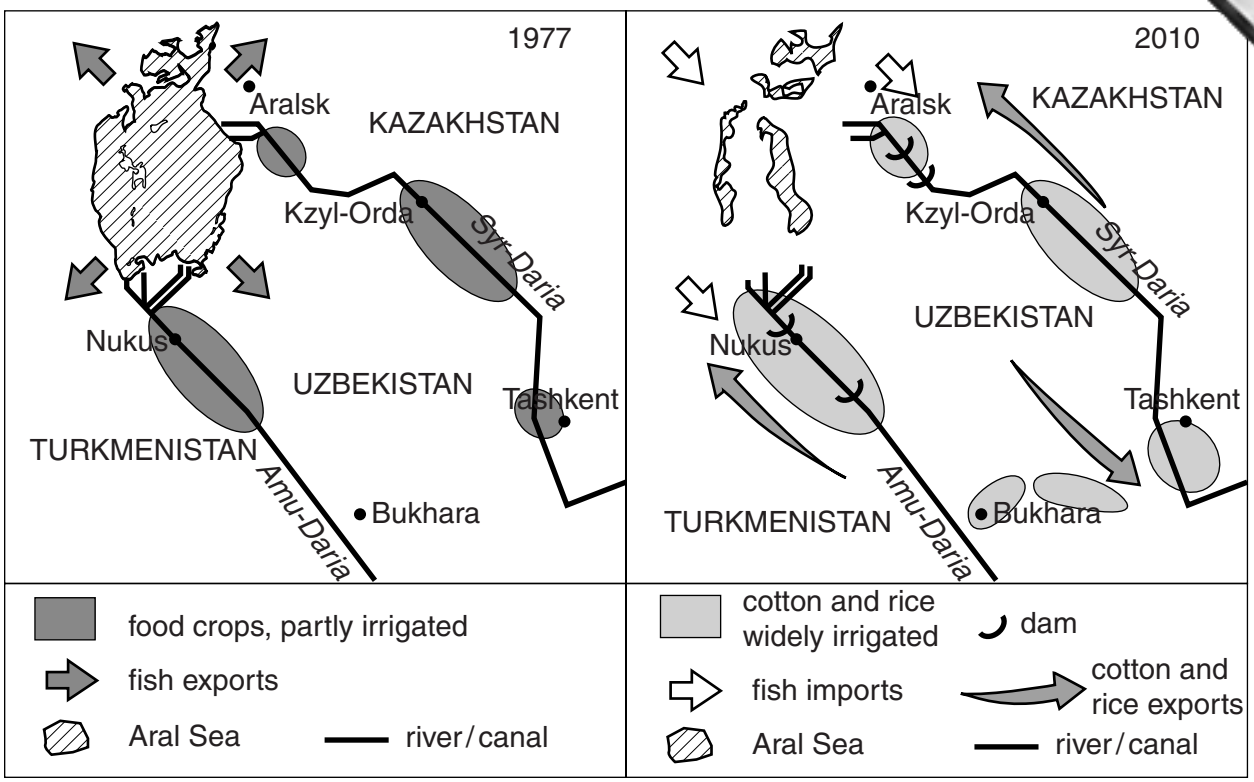
.....

.....

.....[6]

[Total: 20]

2 Fig. 2.1 shows the changing extent of the Aral Sea from 1977 to 2010. The Aral S[illegible] centre of a basin of inland drainage within an arid climatic area.



Satellite images of the Aral Sea.

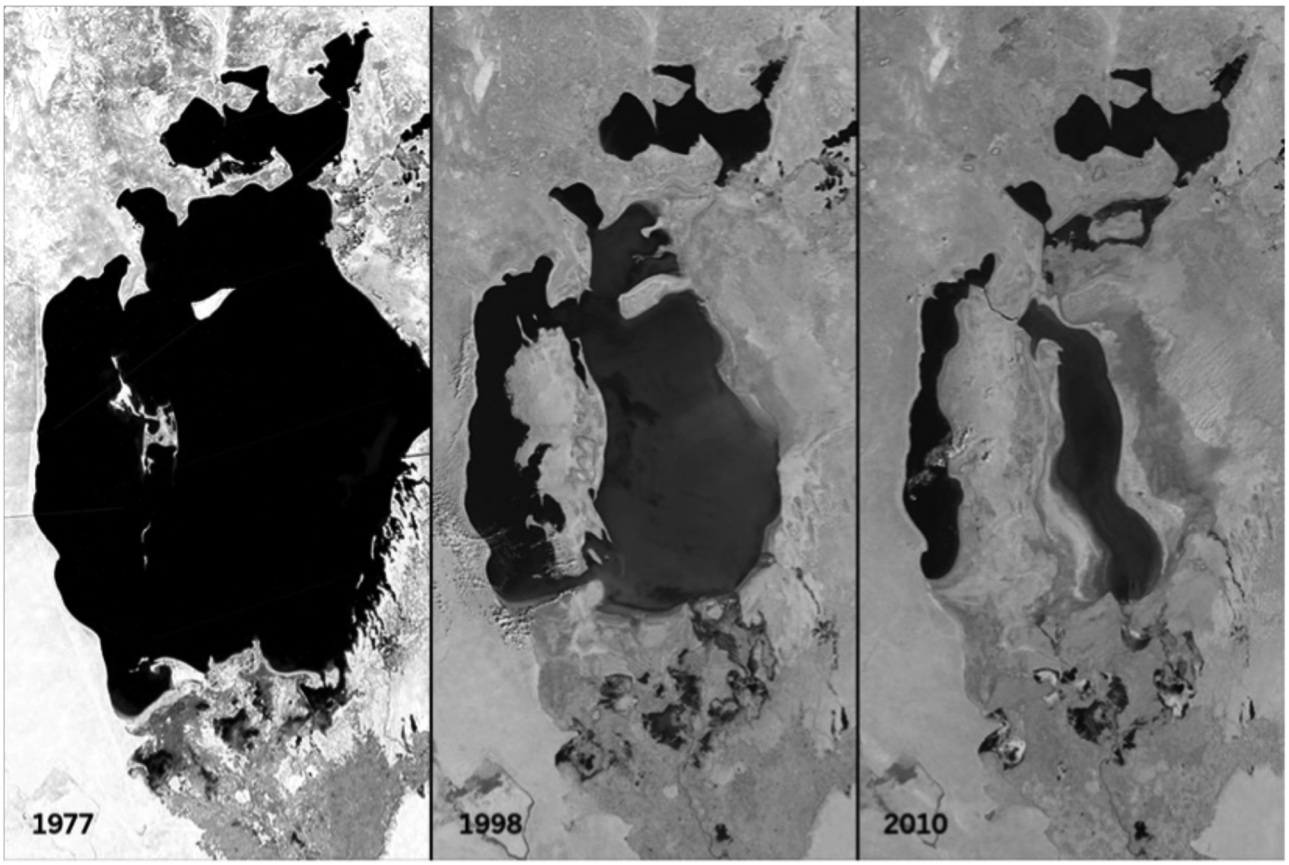


Fig. 2.1

(a) (i) Describe the changes shown in the extent of the Aral Sea in Fig. 2.1.

.....

.....

.....

.....[2]

(ii) Suggest reasons for the changes to the extent of the Aral Sea.

.....

.....

.....

.....

.....

.....

.....

.....[4]

(iii) Suggest the possible impact of these changes on aquatic species.

.....

.....

.....

.....[2]

(iv) Describe the possible socio-economic impact of these changes on societies living around the edge of the Aral Sea since 1977.

.....

.....

.....

.....

.....

.....

.....

.....[4]

(b) Fig. 2.2 shows the amount of water extracted from rivers leading into the Aral Se to 2010, with two possible scenarios, **A** and **B**, for the future.

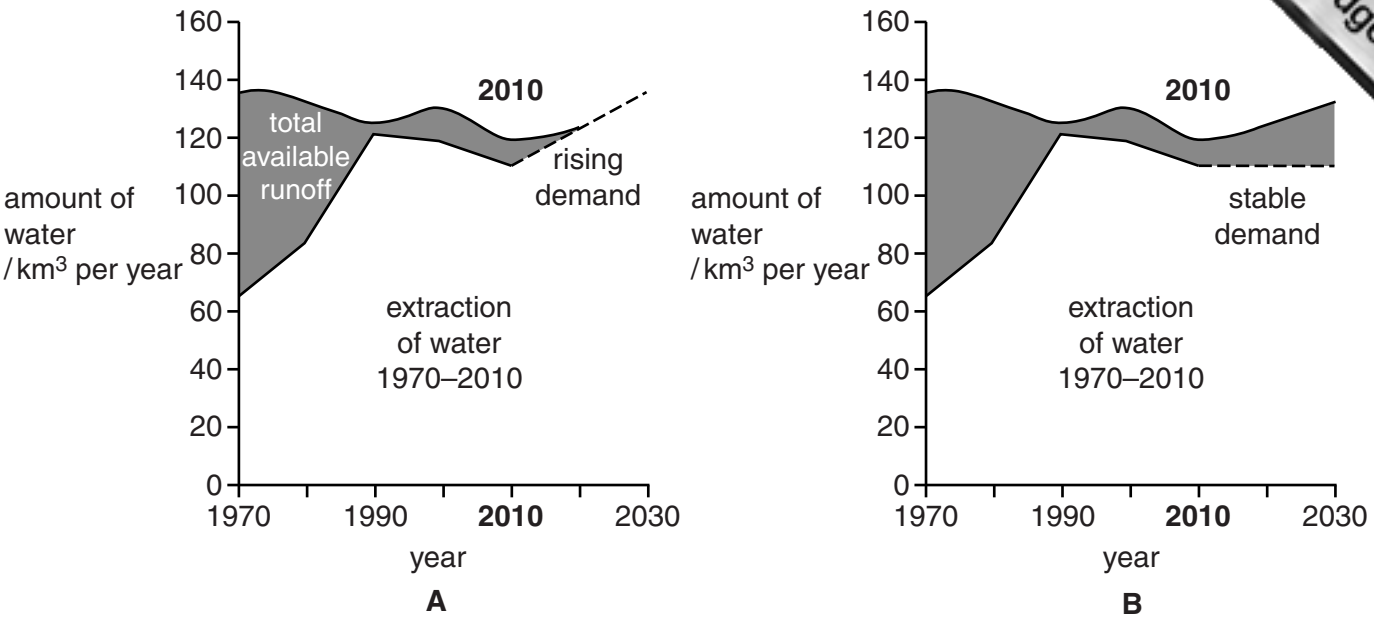


Fig. 2.2

(i) Describe the changes from 1970 to 2010 in the extraction of water shown in Fig. 2.2.

.....

.....

.....

.....[2]

(ii) Describe and explain the possible effect of the two future scenarios, **A** and **B**, on the extent of the Aral Sea.

A .....

.....

.....

.....

.....

.....

B .....

.....

.....

.....

.....

.....[6]

[Total: 20]

Section B

Answer **one** question from this section.

3 Fig. 3.1 shows a map of the Ngorongoro Conservation Area in Tanzania.

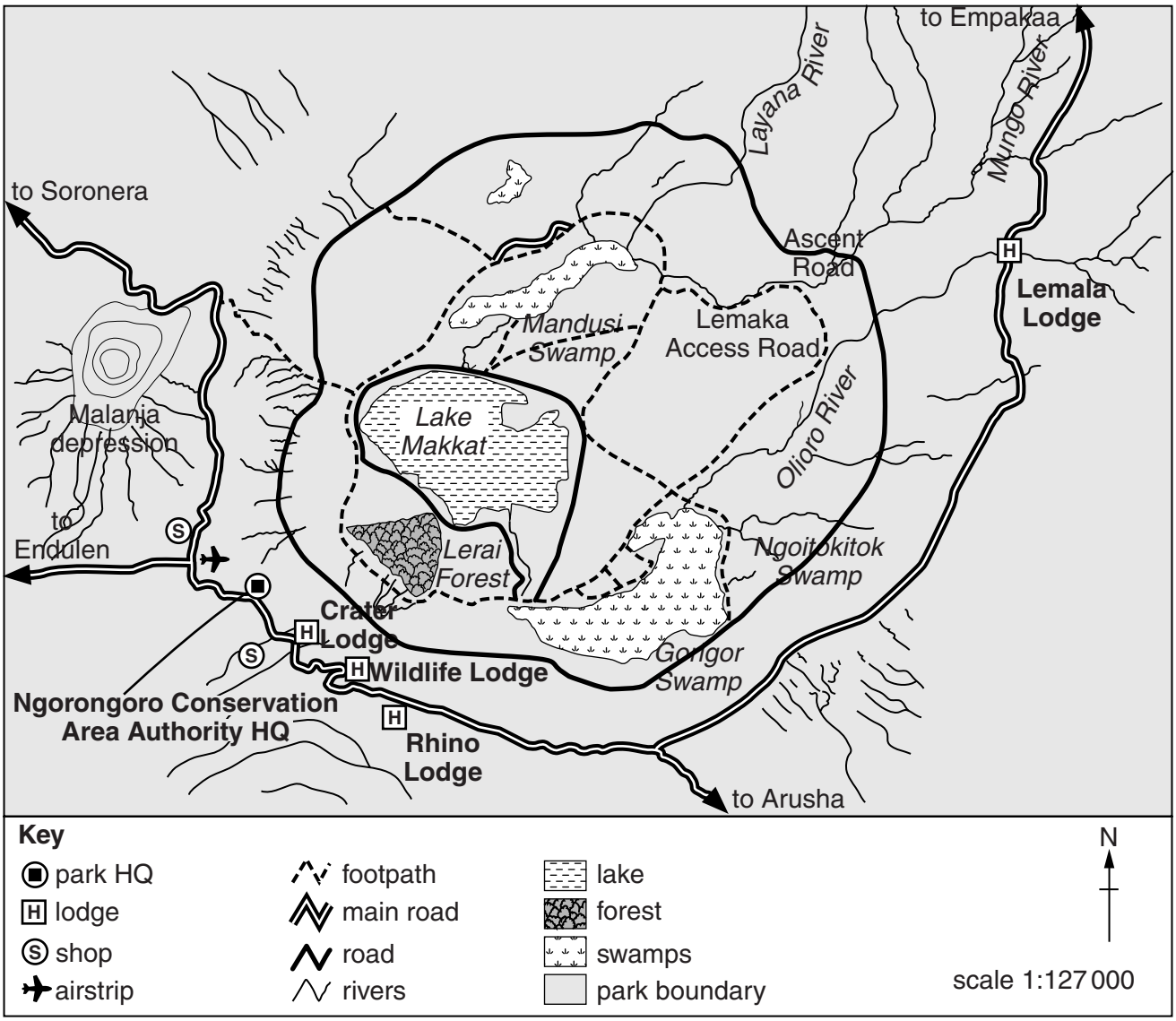


Fig. 3.1

Fig. 3.2 shows the numbers of tourists visiting the area from 1962 to 2002.

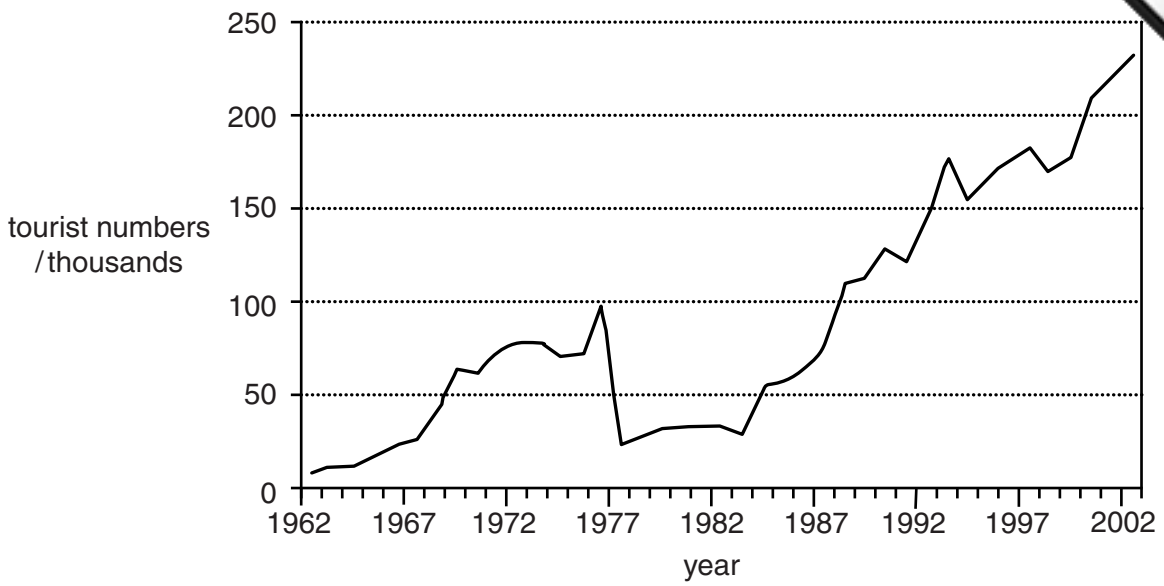


Fig. 3.2

(a) With reference to Figs. 3.1 and 3.2, briefly discuss why this area is in need of conservation and outline how this may be achieved. [10]

(b) Using examples with which you are familiar, explain how wildlife management helps to conserve ecosystems. Assess the extent to which this has been successful in achieving the objectives. [30]

[Total: 40]

4 Fig. 4.1 shows the profile of the River Ganges in India, together with the concentration of industrial pollutants.

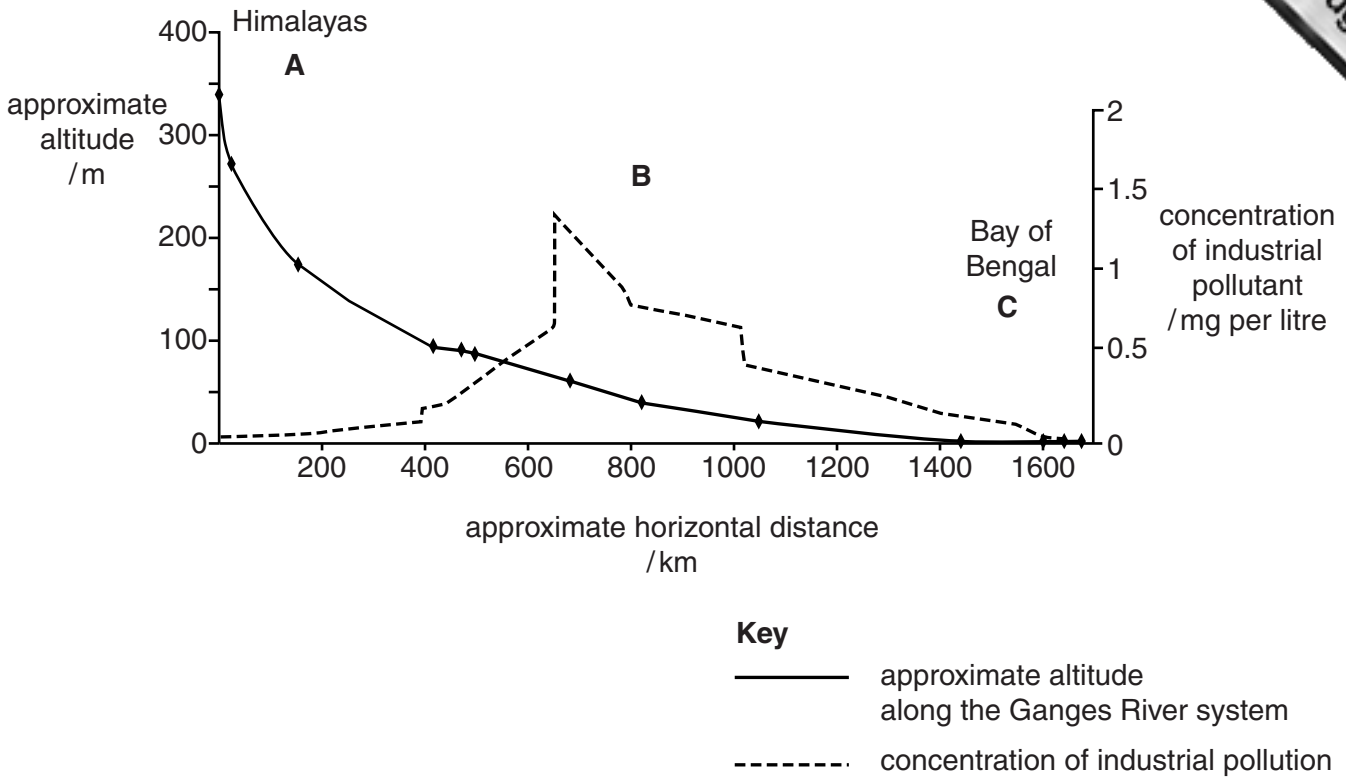


Fig. 4.1

(a) Suggest reasons for the changes in the concentration of industrial pollutants at **A**, **B** and **C** shown in Fig. 4.1. [10]

(b) With reference to examples with which you are familiar, describe other human activities which may affect river pollution. Assess the strategies that could be adopted to manage river pollution. [30]

[Total: 40]

5 Fig. 5.1 shows a solar powered sea water desalination process.

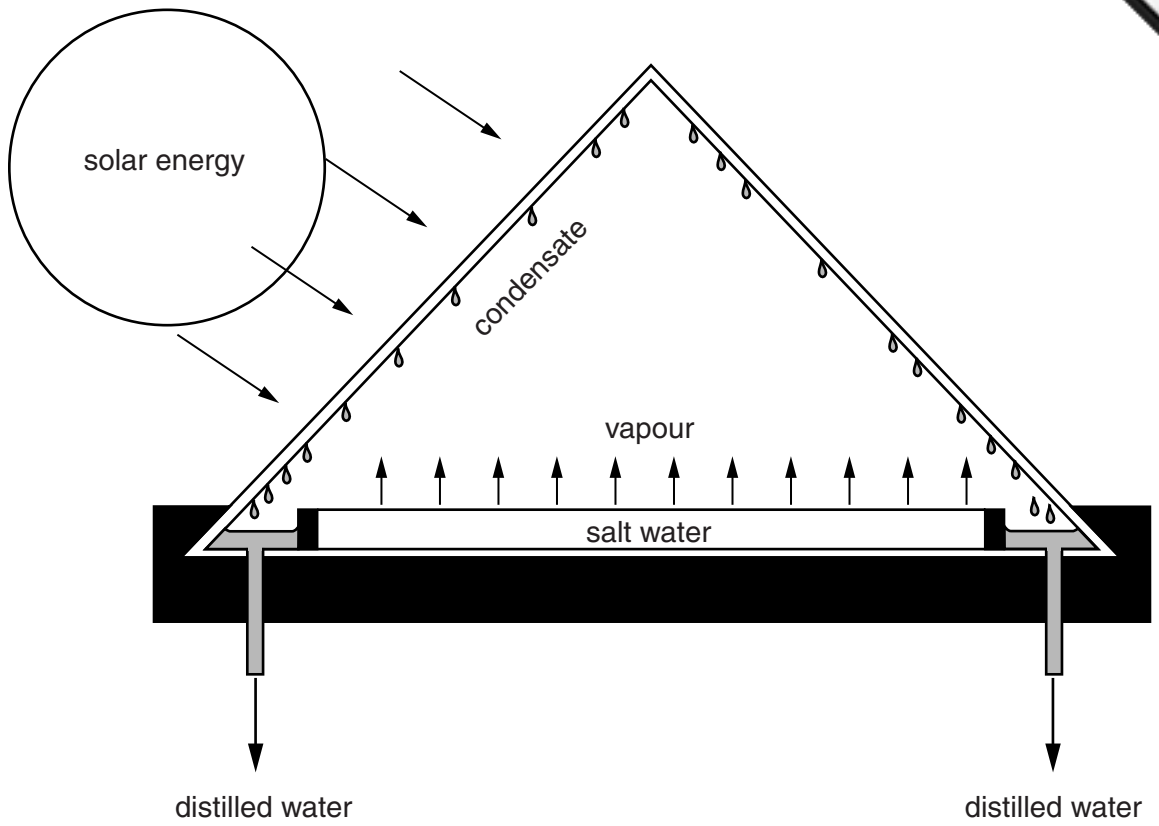


Fig. 5.1

(a) Describe and explain how the desalination process shown in Fig. 5.1 works and suggest one advantage **and** one disadvantage of using this method of desalination. [10]

(b) Using examples with which you are familiar, assess the extent to which MEDCs cope with the issue of water supply, in contrast to many LEDCs. [30]

[Total: 40]

BLANK PAGE

BLANK PAGE

BLANK PAGE