

Centre Number	Candidate Number	Name
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UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

ENVIRONMENTAL MANAGEMENT

5014/01

Paper 1

October/November 2005

2 hours 15 minutes

Candidates answer on the Question Paper.
Additional Materials: Ruler (cm/mm)

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 in the spaces provided on the Question Paper.
You may use a soft pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **all** questions.
The number of marks is given in brackets [] at the end of each question or part question.
All questions in Section A carry **10** marks.
Both questions in Section B carry **40** marks.

FOR EXAMINER'S USE

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TOTAL	

If you have been given a label, look at the details. If any details are incorrect or missing, please fill in your correct details in the space given at the top of this page.

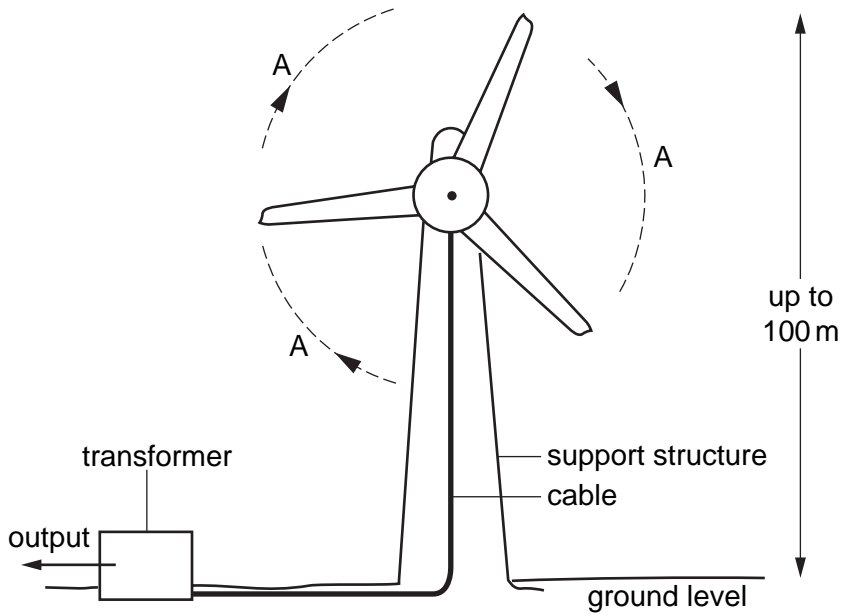
Stick your personal label here, if provided.

This document consists of **23** printed pages and **1** blank page.



Section A

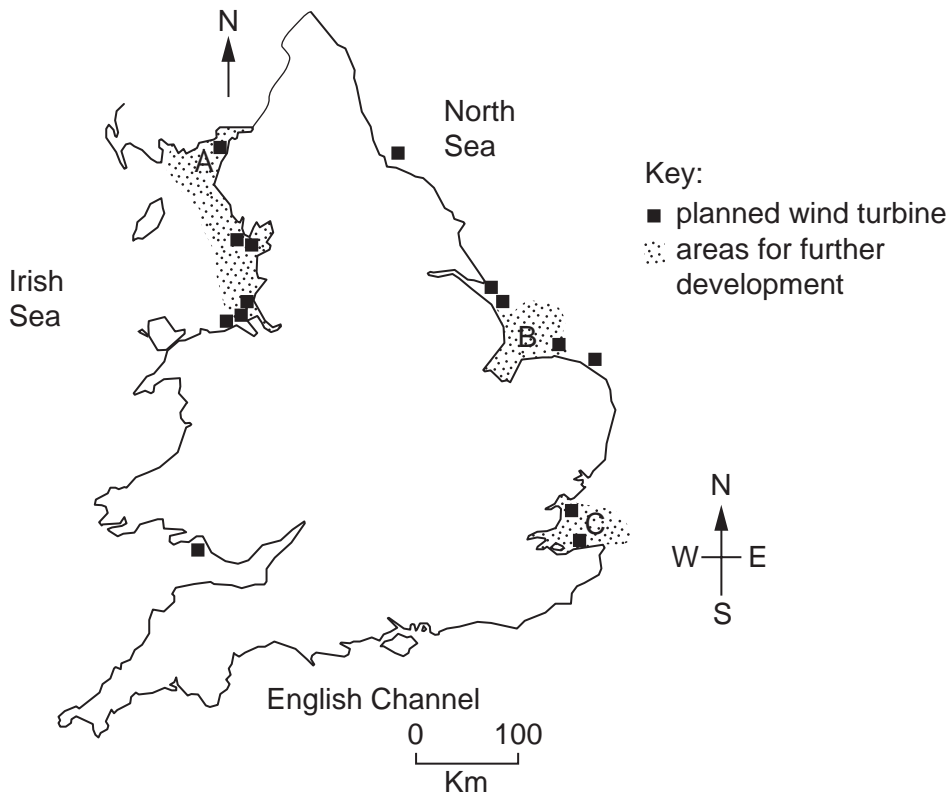
1 (a) The diagram shows a wind turbine.



(i) What is shown by the arrows lettered A? [1]

(ii) What is the output from the transformer? [1]

(b) The map shows where it is planned to build new wind turbines in the U.K.



(i) Describe the location of the wind turbines.

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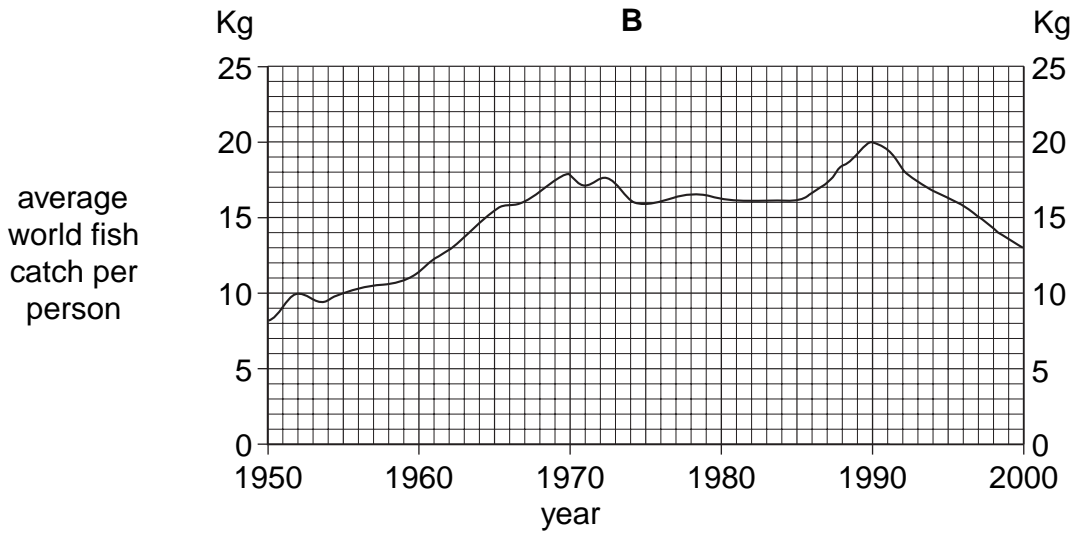
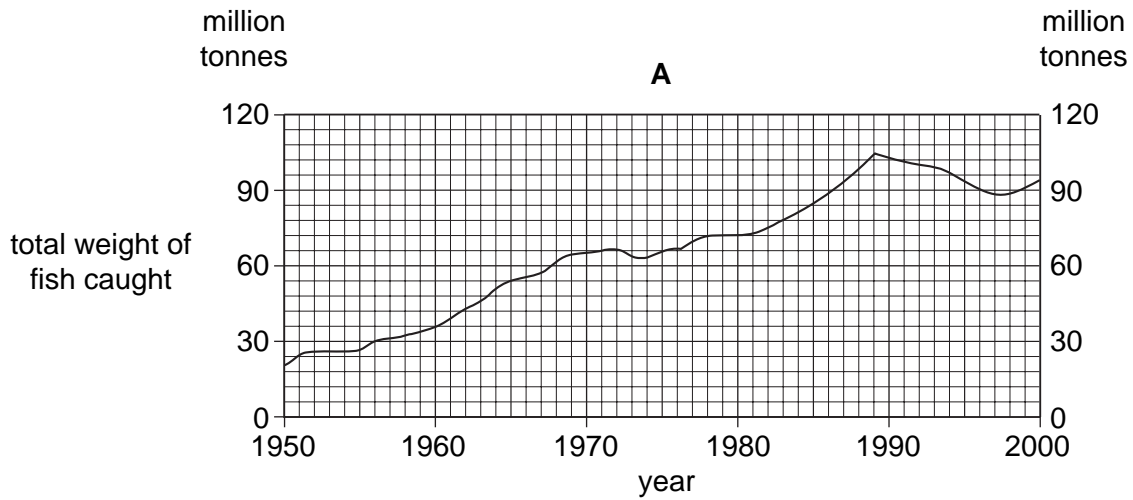
(ii) Local people often disagree with energy providers about where wind turbines should be located. Why?

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.....[3]

(c) Why are some countries reducing their production of nuclear power?

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.....[2]

2 (a) The graphs show information about world fish catches.



(i) By approximately how much did the total weight of fish caught increase between 1950 and its peak in 1989?

..... million tonnes [1]

(ii) Compare the general trend in total weight of fish caught with the average catch per person between 1970 and 1985.

.....
[1]

(iii) Why should the trend shown by graph **B** after 1990 be a cause for concern?

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.....[1]

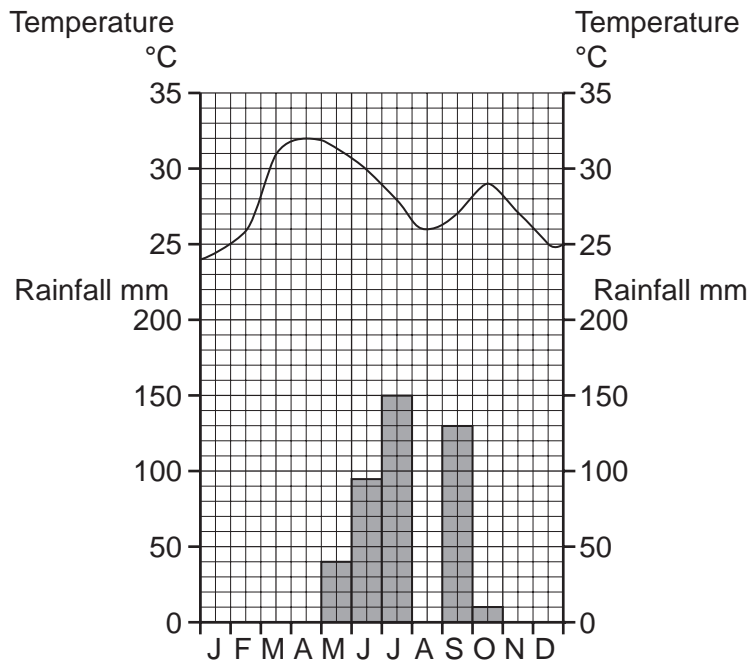
(b) (i) Describe measures being used to try to conserve and increase marine fish stocks.

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.....[4]

(ii) Suggest why attempts to conserve marine fish stocks are not always successful.

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.....[3]

3 (a) The climate graph is for a Tropical savanna area in the northern hemisphere.



(i) Complete the graph to show the rainfall of 210 mm in August. [1]

(ii) Describe the rainfall distribution at this weather station.

.....

.....

.....[2]

(b) The savanna vegetation in the area is grassland with scattered trees.

(i) How and why does the grass change during a year?

.....

.....

.....[2]

(ii) State one way in which the trees are adapted to survive between October and April.

.....

.....[1]

- (c) Some areas of Tropical savanna grassland are used by nomadic pastoralists. Suggest how and why their way of life could damage the vegetation and soils in the areas they use.

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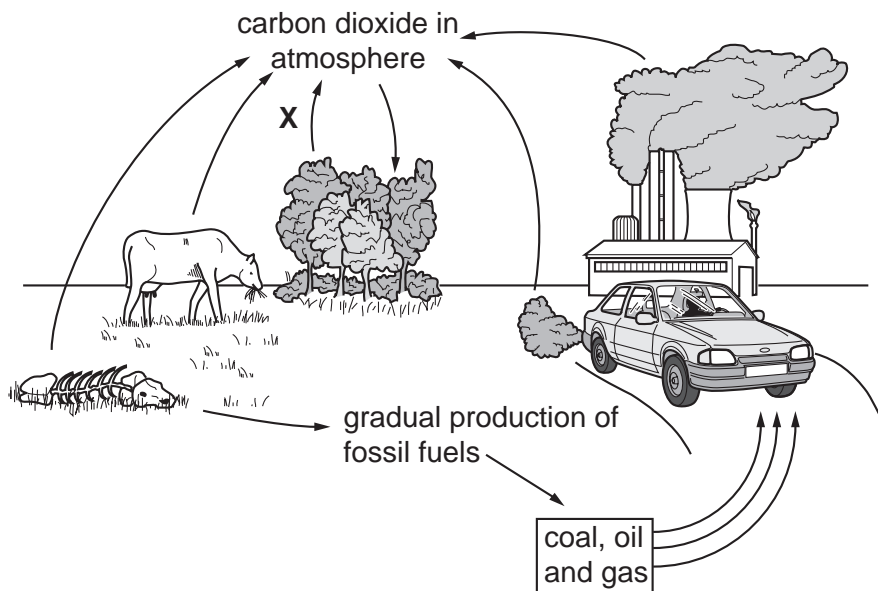
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.....[4]

- 4 (a) The diagram shows the carbon cycle.



- (i) Where does the carbon in plants come from?

- (ii) Name the process shown by the arrow labelled X.

- (iii) With the help of the diagram, explain how carbon dioxide is transferred to the atmosphere by human activity.

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.....[2]

(b) (i) Strategies are being used to reduce the rate at which carbon dioxide levels in the atmosphere are rising. Describe two of these strategies.

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.....[2]

(ii) Suggest why some governments do not support international attempts to reduce carbon dioxide emissions.

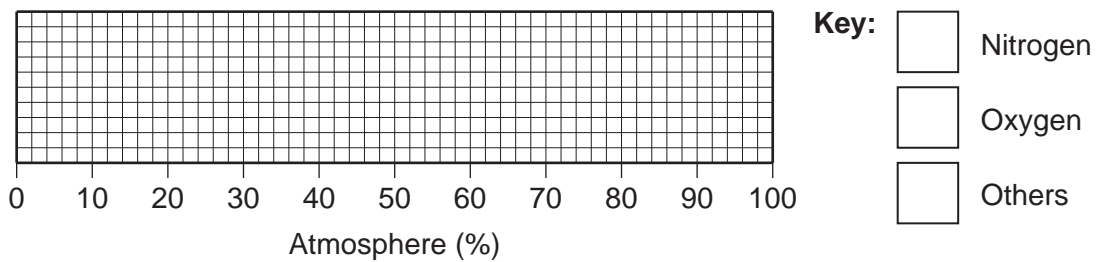
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Section B

5 Composition of the lower atmosphere

1 Nitrogen	78.0%
2 Oxygen	20.9%
3 Argon (an inert gas)	0.9%
4 Small and variable amounts of water vapour and carbon dioxide	} 0.2%
5 Solid particles – dust, smoke and salt crystals	

(a) (i) Complete the divided bar graph and key to show the composition of the lower atmosphere.



[3]

(ii) Which gas is present in the atmosphere as a result of evaporation?

.....[1]

(iii) Choose **one** of the solid particles in the atmosphere. Name a source for this type of particle. State where its concentration in the atmosphere is likely to be greater than average.

Source

Greater concentration

.....[2]

(iv) Amounts of carbon dioxide and water vapour in the atmosphere are small, but they are very important. Explain why.

Carbon dioxide

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Water vapour

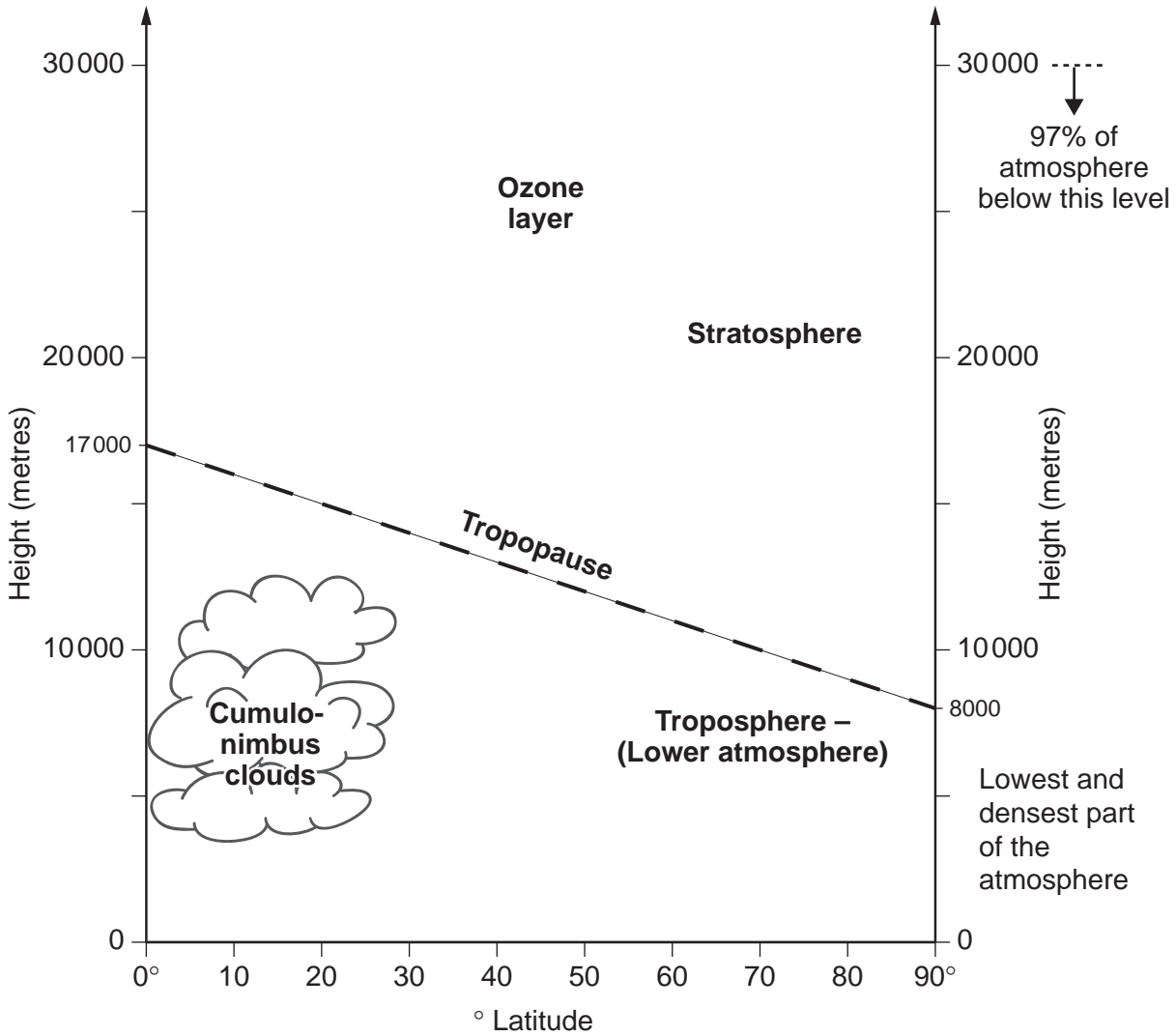
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.....[4]

(b) More information about the Earth's atmosphere is given below.



(i) How much thicker is the lower atmosphere at the Equator than at the Poles?

.....[1]

(ii) Where is the ozone layer found?

.....

.....[1]

(iii) Explain why the ozone layer is important to life on Earth.

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.....[2]

(c) (i) What is meant by the 'ozone hole'?

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(ii) Why are international strategies needed to reduce the pollution that has caused the hole in the ozone layer?

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.....[4]

(d) Motor vehicles are a major cause of atmospheric pollution, especially in big cities.

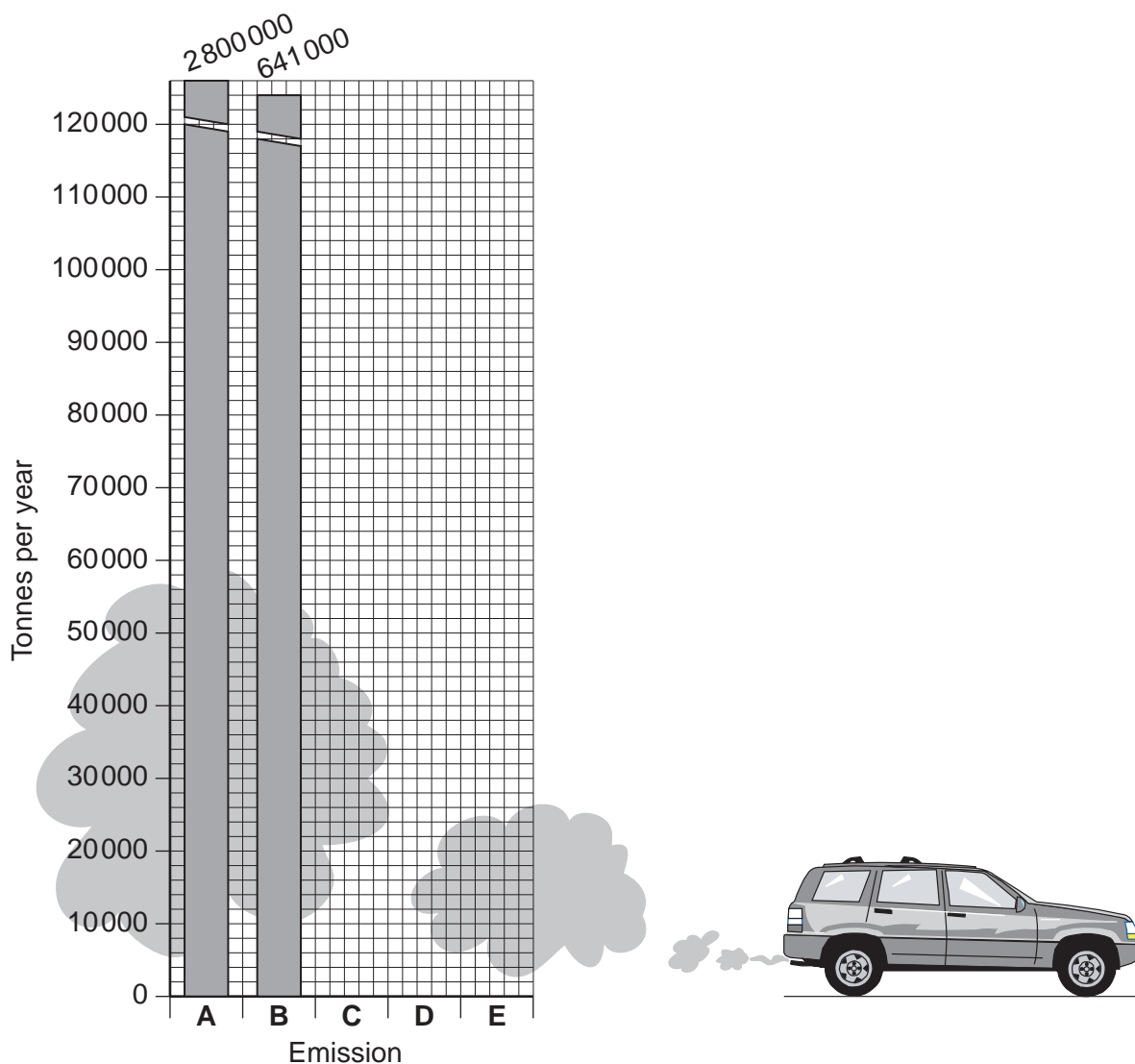
Traffic pollution

Total emissions from traffic in one large city during one year (tonnes)

Emission	Tonnes per year
A Carbon dioxide	2 800 000
B Carbon monoxide	641 000
C Nitrogen oxides	112 000
D Black smoke and soot particles	19 000
E Sulphur dioxide	6 000

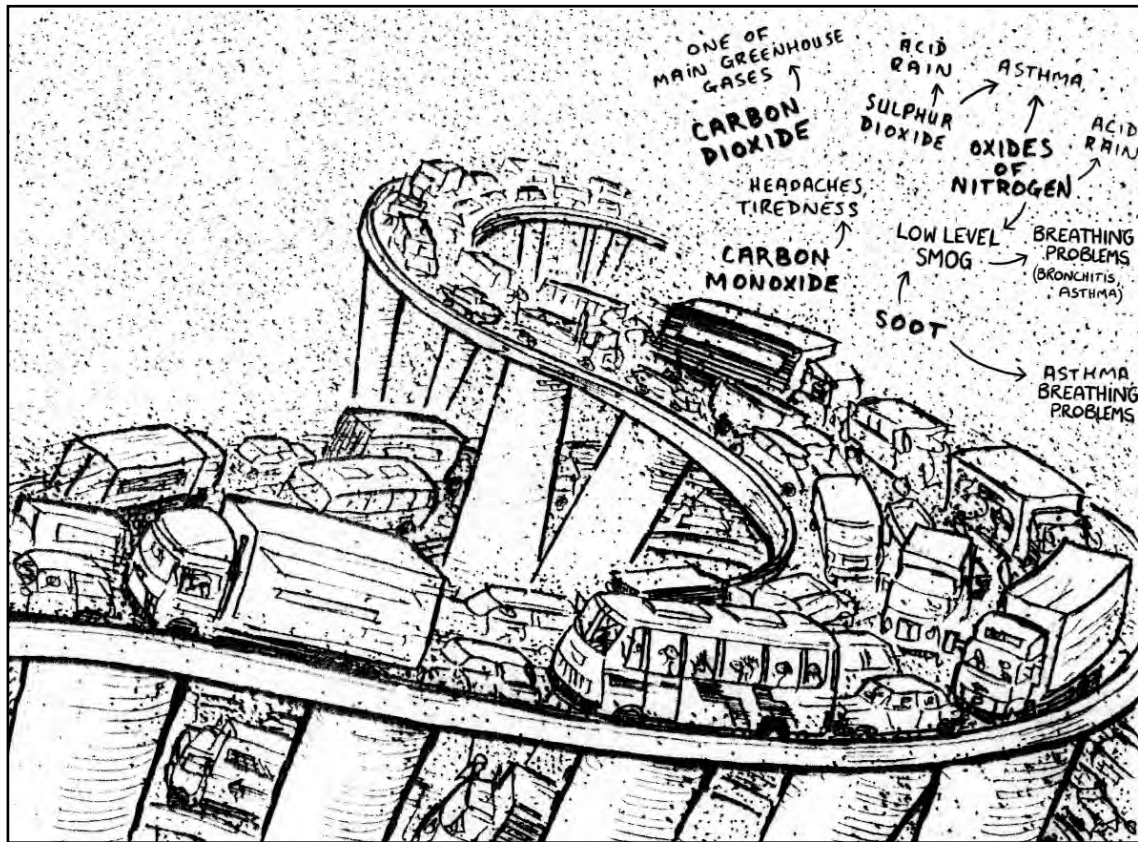
Complete the graph below.

[2]



(e) The sketch below shows some of the effects of these emissions.

Traffic pollution



(i) Name the **two** emissions that cause acid rain.

.....[1]

(ii) Describe the evidence from the sketch which shows that traffic pollution damages peoples' health.

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

(iii) Which **one** of the emissions shown is **not** usually a danger to health? Explain your answer.

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.....[2]

(f) Look again at the graph in part (d) and the sketch in part (e).
In your view, which one of the five emissions is the worst for

(i) people living in large cities

emission

(ii) people living elsewhere in the world?

emission

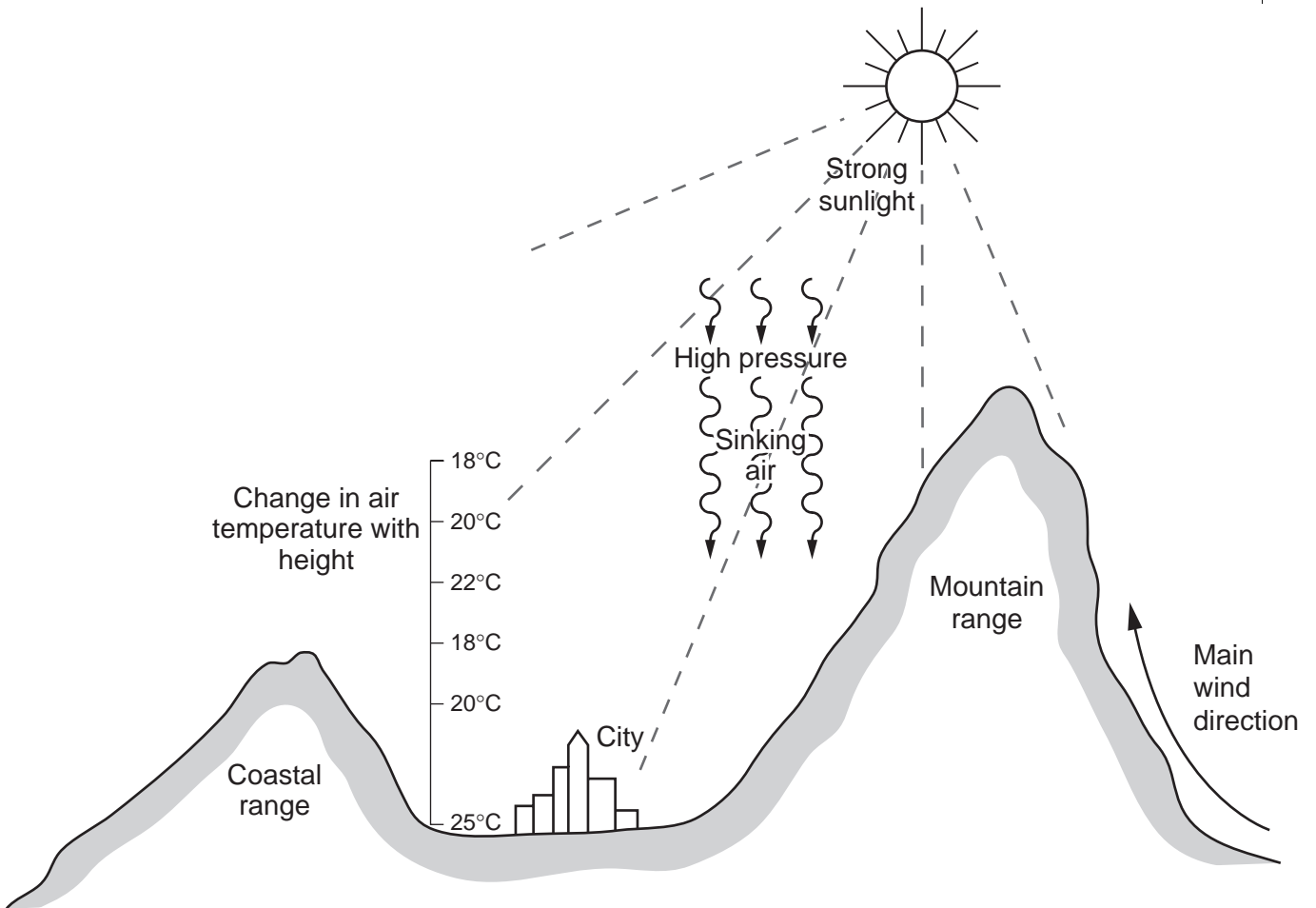
[1]

(iii) Explain your choices.

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.....[3]

- (g) Some of the world's big cities are known for high levels of air pollution. Many have locations and weather conditions similar to those shown on the diagram below.

Location and weather conditions that favour air pollution



- (i) Choose **three** features shown on the diagram. Explain how each increases the chances of high levels of air pollution in big cities.

1

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.....[4]

(ii) Describe **two** strategies for reducing air pollution in large cities.

1

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2

.....[2]

(iii) Why is it difficult to reduce levels of air pollution in large cities? Explain as fully as you can.

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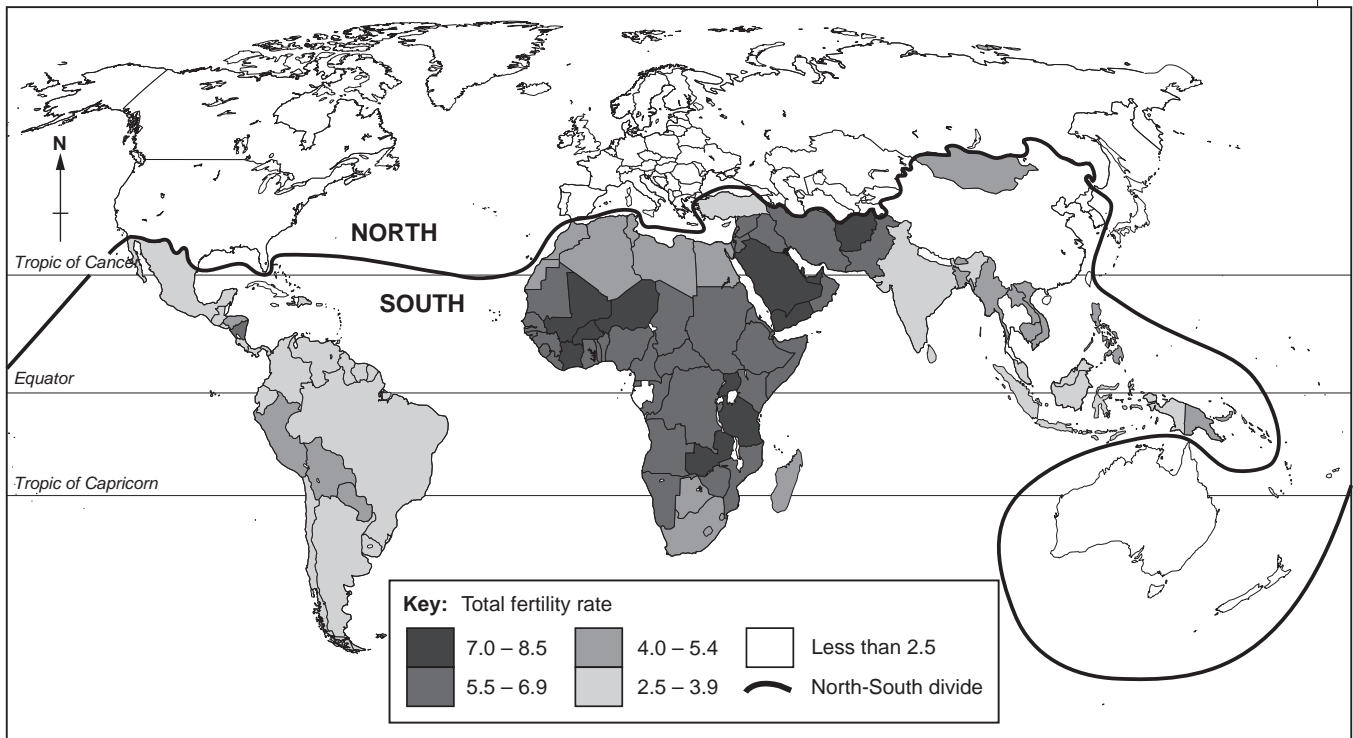
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.....[5]

[Total: 40]

- 6 (a) Look at the world map showing total fertility rates.
Total fertility rate is the number of children for each woman.

World total fertility rates



- (i) Where are most of the countries with high fertility rates (5.5 and above) located?

.....

.....

.....[2]

- (ii) The North-South divide, which is the line that separates developed and developing countries, is marked on the map.
State the main difference in fertility rates shown between the developed North and developing South.

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.....[2]

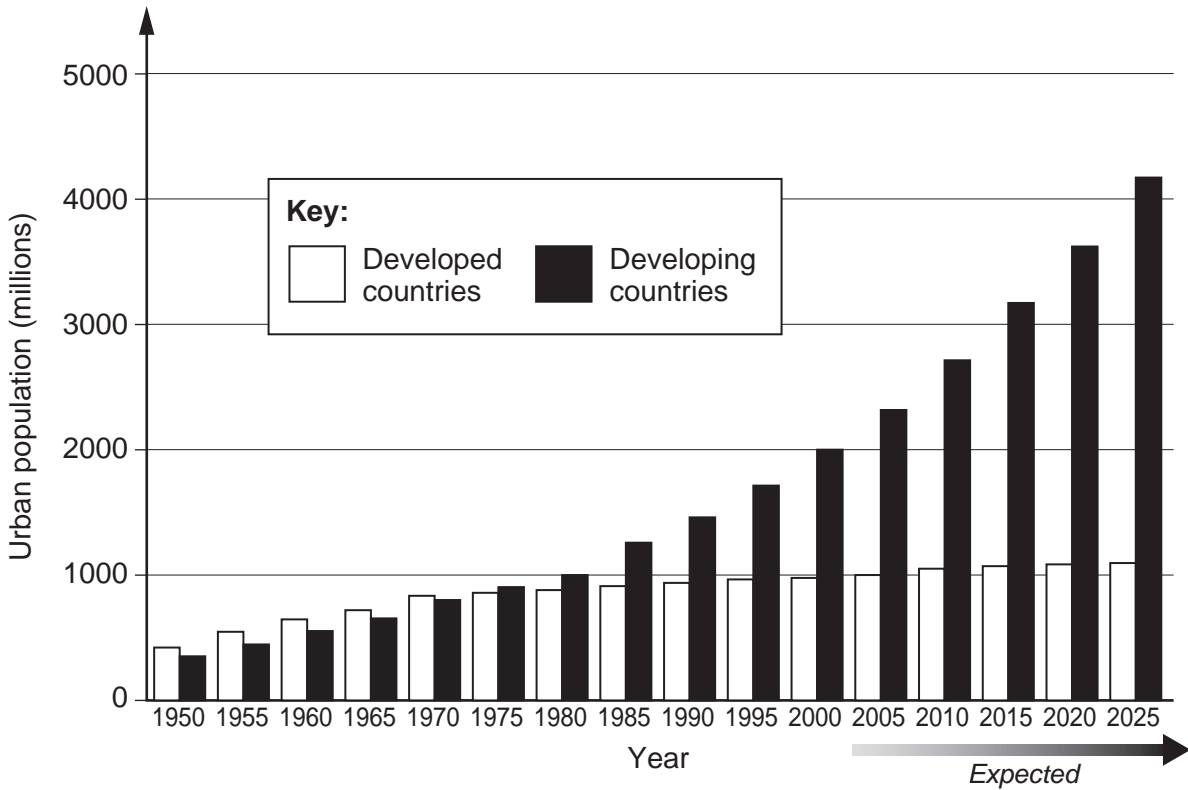
(iii) Explain why fertility rates are very high in some countries and low in others.
Refer to named countries in your answer.

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[5]

(b) Look at the graph below which shows the results of world urbanisation.

Urban population in developed and developing countries



(i) Describe what the graph shows about changes in urban population in **developed** countries.

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[2]

(ii) The graph shows that a major change occurred in 1975. What was it?

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[1]

(iii) Describe what the graph shows about expected urban population in **developing** countries from 2005 onwards.

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[2]

- (c) One of the causes of urban growth is rural to urban migration.
Look at the examples below of differences between rural and urban areas in the year 2000.

Egypt

	Cairo (capital city)	Rural areas
Average income per year (£ Egyptian)	3500	2400
Infant mortality rate (per 1000)	50	68

Brazil

	Urban areas	Rural areas
People with access to safe supplies of drinking water (%)	95	53
People with access to improved sanitation (%)	84	43

- (i) State an **economic** reason why people migrate from rural areas to Cairo.

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[1]

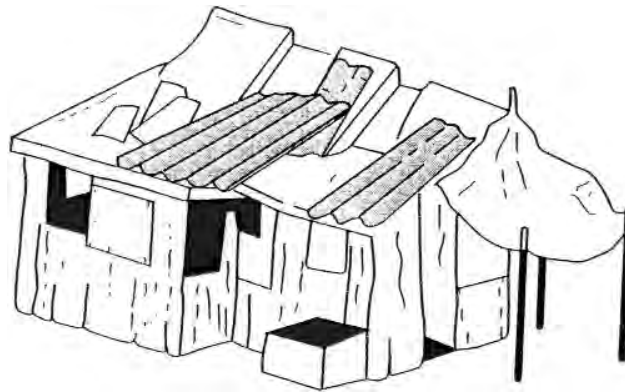
- (ii) In both countries people living in urban areas are likely to be more healthy than those living in rural areas.
Using evidence from the table above, describe and explain this.

.....

[4]

- (d) Many new migrants into cities in developing countries live in housing similar to that shown in sketch A below.

Sketch A



Describe how sketch A shows that people living here are

- (i) newcomers to the city;

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.....

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- (ii) short of money.

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.....[3]

- (iii) This type of housing is found most often around the edges of cities. Why?

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.....[1]

- (iv) Describe **one** problem resulting from a location around the edge of a big city.

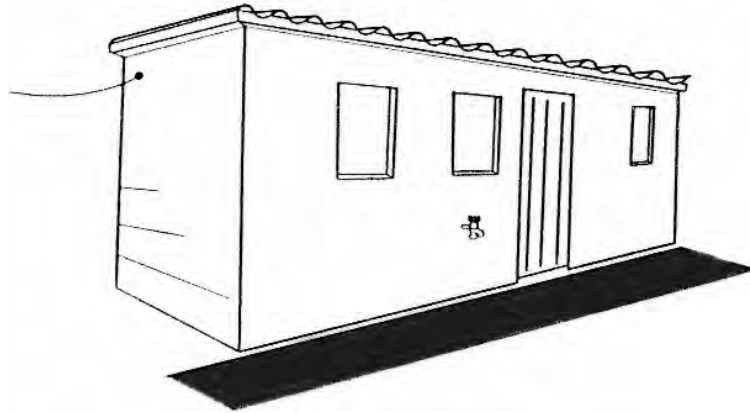
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- (e) Sketch B shows housing in an area where people have lived for more than twenty years since migrating from rural areas.

Sketch B



- (i) What improvements can be seen compared with the housing on sketch A?

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.....[2]

- (ii) State **two** reasons why improvements like these are made.

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- (f) Housing is only one of the many urban problems caused by rural to urban migration. Some people believe that it would be better to improve farming in rural areas and reduce the numbers wanting to migrate to the cities.

New agricultural techniques to increase output

- A Irrigation
- B New seeds (e.g. the Green Revolution)

- (i) Choose **one** of these new agricultural techniques and name an area where it is used by farmers.

TechniqueArea.....[1]

- (ii) Explain how it has increased output in the area named.

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- (iii) Is it ever going to be possible to reduce the numbers of people migrating from rural to urban areas in developing countries? Explain your views about this.

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[Total: 40]

[Total for paper: 120]

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