



Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE
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ENVIRONMENTAL MANAGEMENT

0680/21

Paper 2

May/June 2014

1 hour 45 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
 Insert

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.

Answer **both** questions.

Electronic calculators may be used.

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

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.

This document consists of **15** printed pages, **1** blank page and **1** Insert.

- 1 (a) Very large cities with populations over 10 million are called 'mega-cities'. Look at the maps showing the distribution of mega-cities in 1975 and 2010.

mega-cities in 1975



mega-cities in 2010



- (i) Look at the table giving a summary of the distribution of mega-cities in 1975.

date	continents						total	ratio	
	Europe	Africa	Asia	Australasia (Oceania)	North America	Latin America		developing countries	developed countries
1975	0	0	1	0	1	1	3	1	: 2
2010	20	:

Complete the table using the map for 2010.

[3]

- (ii) When comparing the world map of mega-cities in 2010 with that in 1975, three important differences can be seen.

One difference is stated below. State **two** other important differences.

1 Mega-cities are increasingly concentrated in developing countries.

2

3

[2]

- (iii) One cause of the increasing concentration of mega-cities in developing countries is the higher rate of natural increase of population than in developed countries.

State and explain **two** different reasons for the higher rate of natural increase in developing countries.

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[4]

- (iv) Why are rates of rural to urban migration much higher in developing countries than in developed countries?

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.....[2]

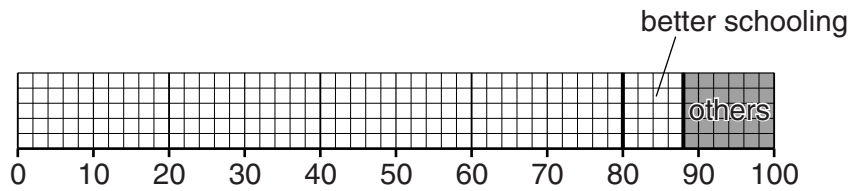
(b) A survey was carried out among people living in an informal settlement (shanty town) in Mexico City. These people had recently migrated from rural areas and were asked the following question. “What was the **main** reason why you migrated from the countryside?”

The results are shown below.

reason	percentage (%) of total answers
A to find work	33
B to live near relatives	17
C for more and better public services	12
D to get away from poverty	10
E food shortages	8
F better chance of schooling for the children	8
G other reasons	12

(i) Use the percentages to complete and label the divided bar graph below.

summary of answers



Key  other reasons

[3]

(ii) List the letters on the lines below to show which are the push and which are the pull factors.

push factors

.....

pull factors

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[3]

- (iii) State a different reason that some migrants might have given, which could have been included among the answers for 'other reasons'.

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.....[1]

- (iv) What do the answers given by these migrants suggest about the relative importance of push and pull factors when they decided to migrate from the countryside to the city? Use the data in the table to support your answer.

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.....[2]

- (c) Many recent migrants from rural to urban areas live in poor housing areas in the big cities of developing countries (known as informal settlements, shanty towns or squatter settlements). Kibera in Nairobi, the capital city of Kenya, is an example of a shanty town.

Read the information about Kibera.

Kibera is home to between 700 000 and 1 million people. It is the largest shanty town in sub-Saharan Africa. Crowded, noisy and polluted, most families lack even the most basic amenities.

Even so, it is a place of great activity, full of people on the move, working, selling goods on the street, sorting through rubbish and looking after livestock.

- (i) Name an example of a basic amenity (service) that is likely to be lacking in shanty town areas like Kibera.

.....[1]

- (ii) Explain why the lack of this amenity can have serious consequences for the people in the shanty town.

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.....[2]

(iii) Use your knowledge of shanty towns in cities of developing countries to describe fully:

1 characteristic features of the houses in which most people live

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2 types of places where shanty towns are located

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[4]

(iv) Suggest how people living in shanty towns might improve their standard of living.

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[2]

(v) Suggest how city authorities can improve shanty towns.

Explain your answer as fully as you can.

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[4]

2 (a) Look at the world map showing the location of land with a tundra climate.

location of land with a tundra climate



Key
■ tundra climate

(i) Describe the location of land with a tundra climate in the northern hemisphere.

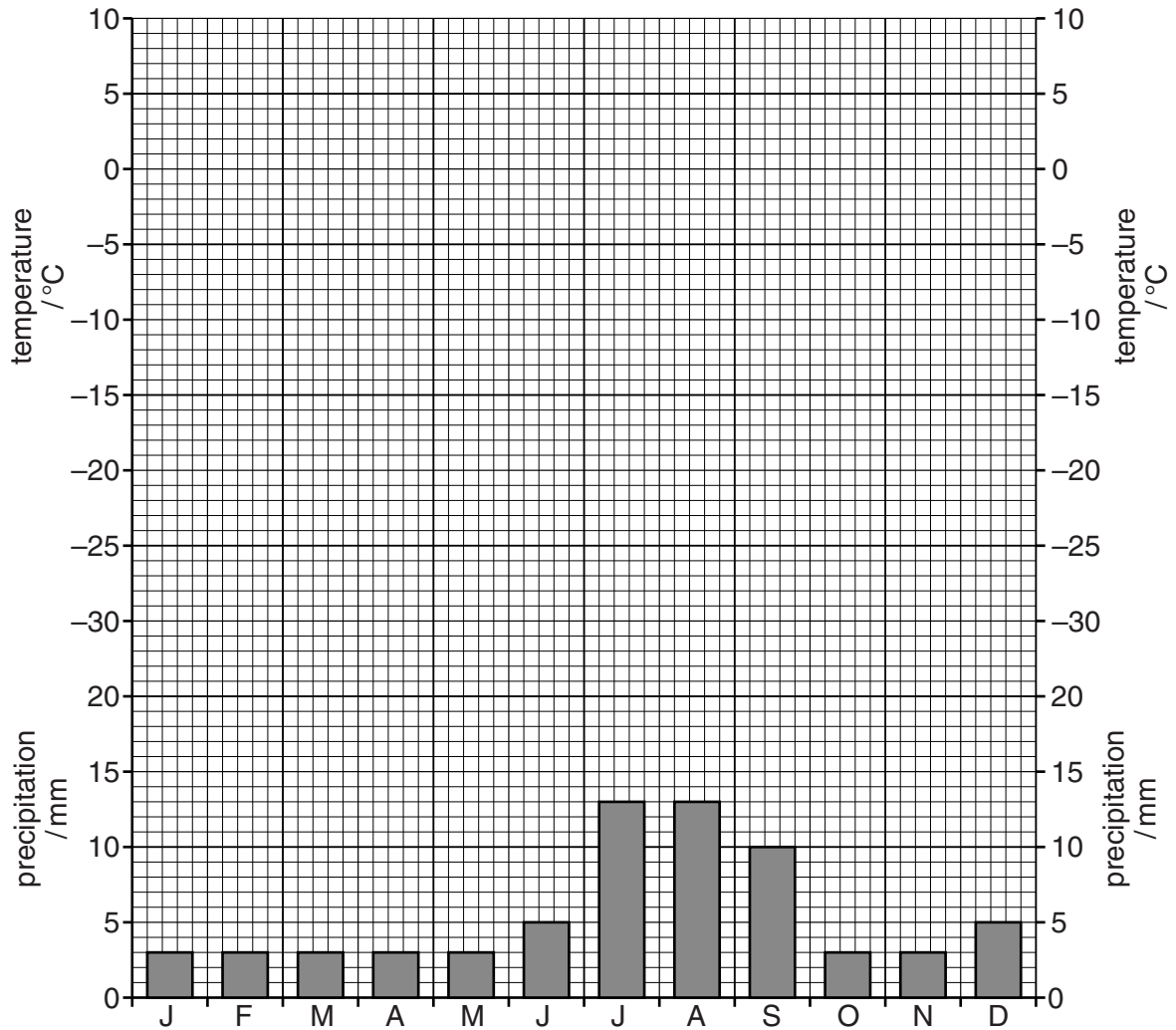
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.....[3]

(ii) Why are there no large areas of tundra in the southern hemisphere?

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.....[1]

(b) The climate graph below is for the small coastal settlement of Qaanaaq in north west Greenland.

tundra climate: Qaanaaq, Greenland (76°N)



(i) Mean monthly temperatures for Qaanaaq are:

	J	F	M	A	M	J	J	A	S	O	N	D
°C	-22	-24	-23	-18	-5	+2	+5	+3	-2	-9	-15	-22

Complete the climate graph for Qaanaaq. [2]

(ii) Calculate the annual range of temperature in Qaanaaq.

.....°C [1]

(c) Look at the Insert photograph taken in summer near the coast in western Greenland.

(i) Describe what the photograph shows about tundra vegetation and its distribution in this area.

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.....[3]

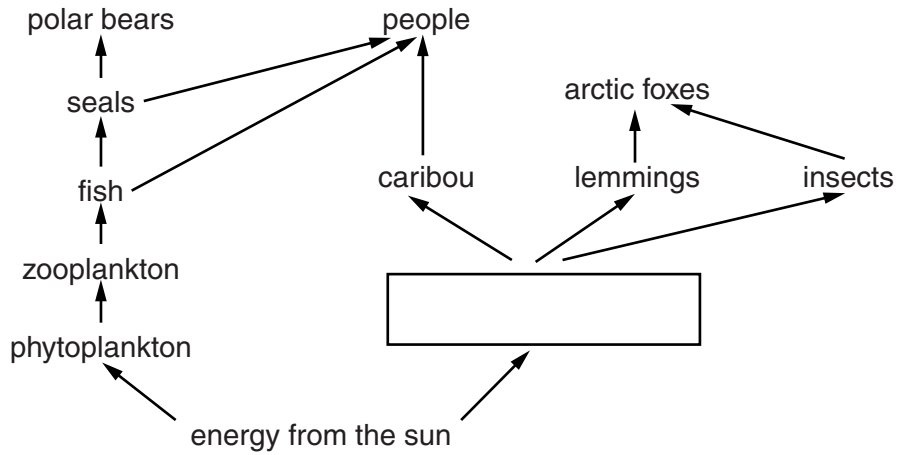
(ii) In western Greenland, the traditional way to make a living is from the sea, by fishing, hunting seals and whaling.

Look at both the climate data on page 9 and the Insert photograph. Explain why it is not possible to make a living from farming the land in western Greenland.

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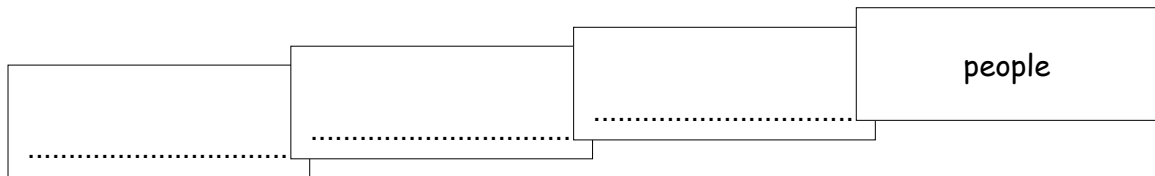
(d) The diagram below shows part of a food web in the Arctic.

a food web in the Arctic



(i) Complete the food web by writing in the box. [1]

(ii) Use the food web above to complete the food chain below.



[2]

(iii) Describe and explain the effects of a decline in fish numbers on the food web above.

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 [3]

(e) For many years, oil companies showed little interest in searching for oil under the sea bed in the Arctic Ocean off the coast of western Greenland.

(i) One reason for this was the high cost of searching for oil here.

Suggest reasons why searching for oil off the coast of Greenland is difficult and expensive.

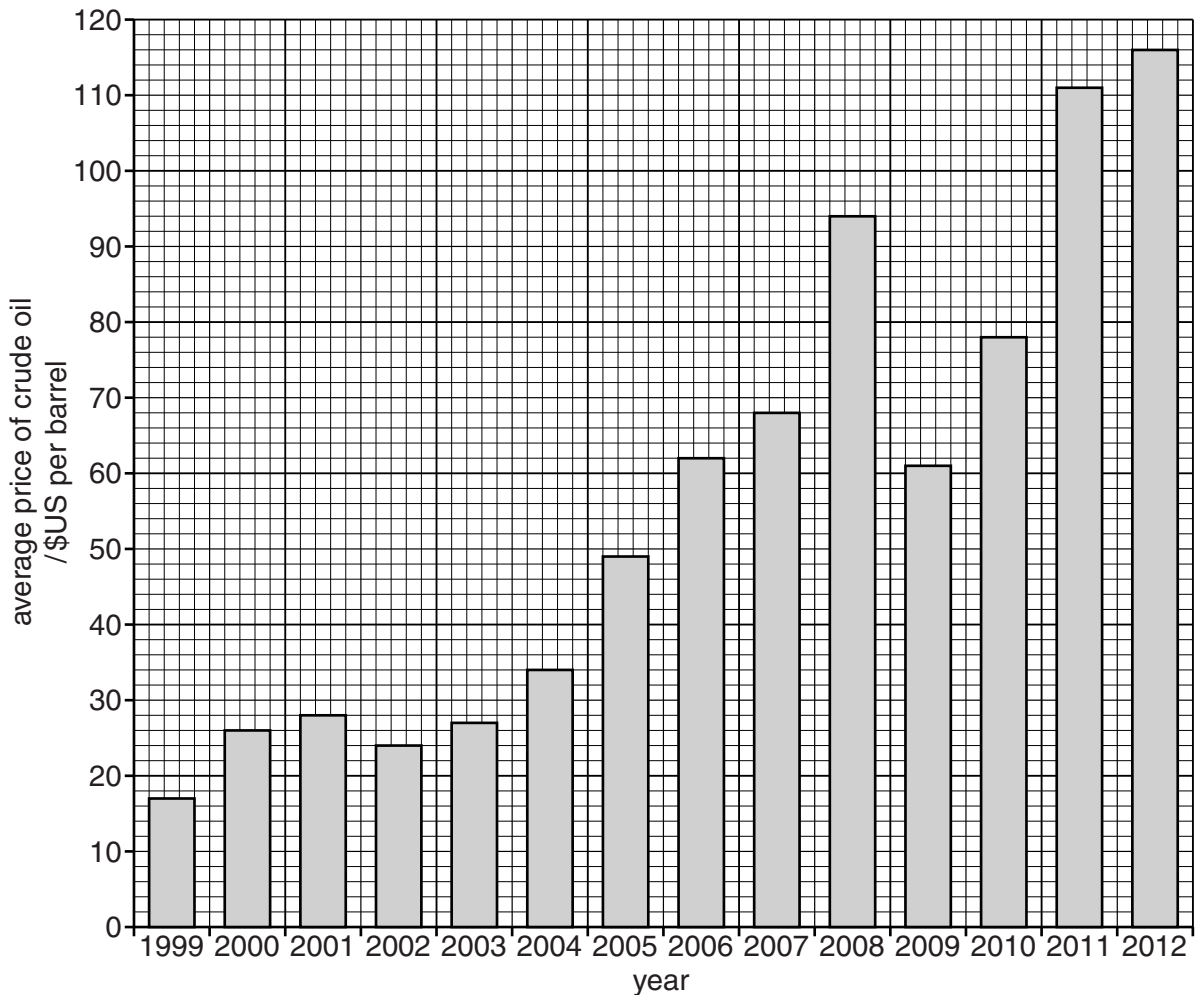
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(ii) The rush for oil exploration in the Arctic since 2005 is being driven by the world price of crude oil. The bar graph below shows average price of oil on world markets 1999–2012.



How many times higher was the average price of oil in 2012 than in 1999?
Circle one answer.

- 4–5 times 6–7 times 8–9 times 10–12 times

[1]

- (iii) Oil company interest in searching for oil under the Arctic Ocean has greatly increased since 2005. Use data from the bar graph on page 13 to explain why.

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.....[2]

- (f) People in Greenland have strong views about oil companies coming to the Arctic Ocean to search for oil. Some typical views are shown below.

'Most people here think that developing an oil industry can only be good for Greenland.'

'We have been waiting for something like this to happen for years. I hope it will provide income for Greenland so that we have the money to become a more independent nation.'

'We are very dependent on fishing, a small amount of tourism and one working gold mine. Without the \$US 500 million Denmark gives us every year, we would not be able to afford our modern health and education services.'

'Environmental groups are not popular here because they are opposed to the oil industry in Greenland.'

- (i) What is the general opinion of the people of Greenland about developing an oil industry off the coast of Greenland? Explain why most people in Greenland have this opinion.

opinion

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explanation

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.....[4]

- (ii) Environmental groups are against any development in the Arctic. The Arctic is one of the world's last remaining wilderness regions, largely untouched by humans.

Explain the problems for the environment of developing an oil industry in the Arctic.

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- (iii) Should the people in Greenland take more seriously the arguments made by environmental groups? Explain your views.

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.....[3]

[Total: 40]

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