UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

4616659814

ENVIRONMENTAL MANAGEMENT **0680/21**

Paper 2 **May/June 2011**

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.

For Examiner's Use	
1	
2	
Total	

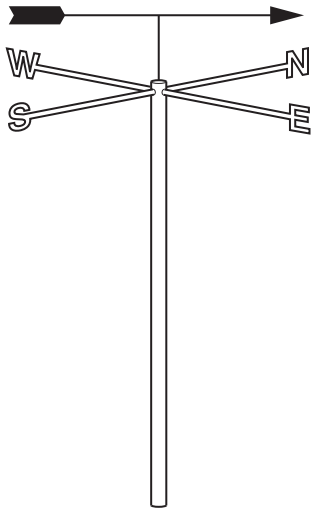
This document consists of **15** printed pages and **1** blank page.

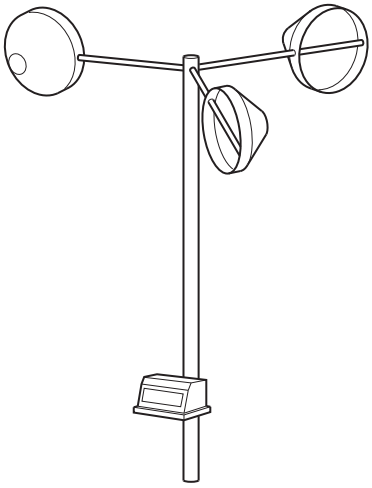
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1 **(a)** **(i)** In the spaces, name the two weather instruments and state what each one measures.

For Examiner's Use

Instruments for measuring the weather





name ....

measures .... [2]

(ii) What is similar about how the two instruments work and where they are sited?

work .....

.....

site .....

.....[3]

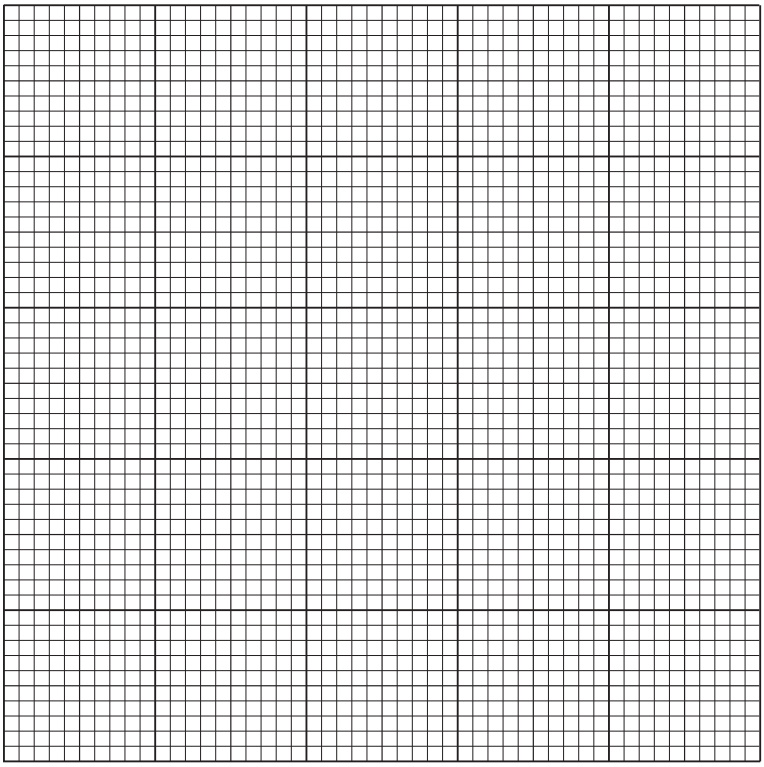
(b) Wind can be used as a power resource.

For Examiner's Use

Costs of electricity generation in the UK in 2005 by power sources

power source	cost (US cents per kilowatt hour)
fossil fuels	5
nuclear	7
wind	8
wave and tidal	22
solar	72

(i) Draw a bar graph to show these values.



[4]

(ii) Looking at the graph, how likely is it that further use will be made of wind power to generate electricity in the UK in the future? Explain your view.

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For Examiner's Use

(iii) In other countries the cost of generating electricity from these sources may be different.

Suggest reasons for this.

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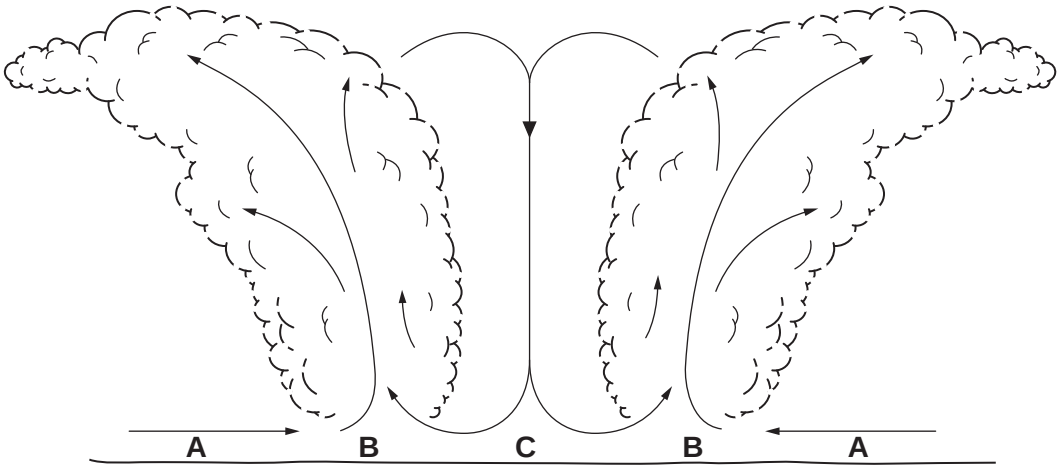
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.....[2]

(c) The strongest winds in the world occur in cyclones. Look at the section through a tropical cyclone.

Section through a tropical cyclone



(i) In which one of the locations labelled **A**, **B** and **C** on the section will the winds be strongest?

Explain your choice of location.

location …….

explanation .....

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.....[3]

For Examiner's Use

(ii) Where, when and why do cyclones form?

where .....

when .....

why .....

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.....[4]

(iii) Describe how very strong winds in cyclones can cause loss of life and injuries to people.

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.....[2]

(iv) Cyclones which affect the Caribbean are called hurricanes. Look at the summary of the 2005 hurricane season in the Caribbean.

named storms	expected number per year	actual number in 2005	difference between expected and actual number in 2005	previous record number
total number at all strengths	10	26		21 (in 1933)
number at hurricane strength	6	14		12 (in 1969)
number at highest hurricane strength (category 5)	1	3		2

Complete the table by filling in the differences for the number in 2005 compared with the number expected. [1]

(v) Describe what the table shows about the 2005 hurricane season in the Caribbean.

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.....[2]

(d) Information about the effects of four of the hurricanes in the 2005 season is given below.

For Examiner's Use

2005 Hurricane season in the Caribbean

Hurricane Katrina (USA)
A direct hit on the city of New Orleans left 1321 people dead and thousands homeless; most were poorer people who did not have cars or the money to escape inland before Katrina arrived. Production from oil and gas fields in the Gulf of Mexico was disrupted. But the USA as a whole was little affected because the Gulf States contribute only 2 per cent to the total economy.

Hurricane Rita (USA)
Millions of Texans from large cities such as Houston got into their cars and tried to go north, further inland, to escape the threat of Hurricane Rita. They caused traffic jams more than 150km long.

Hurricane Stan (El Salvador and Guatemala)
Very heavy rains set off mudslides and avalanches, killing up to 1000 people as homes and villages were destroyed.

Hurricane Wilma (Mexico)
The country counted the cost in lost tourist dollars as thousands of visitors from overseas were driven home early when Wilma destroyed beaches and hotels.

(i) Give examples of the human costs of the 2005 hurricane season using the headings social and economic.

social .....

.....

economic .....

.....[3]

(ii) Describe how the evidence from the 2005 hurricane season shows that, as usual with climatic hazards, the poor (both people and countries) were more badly affected than the wealthy.

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.....[3]

(iii) How can the negative impact of climatic hazards be reduced? Describe strategies that can be used before the hazard happens.

For Examiner's Use

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.....[4]

(iv) Is it ever going to be possible to stop people dying from the effects of climatic hazards?

Give your views on this and explain them as fully as you can.

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[Total: 40 marks]

For Examiner's Use

2 **(a)** **(i)** Water is essential for life on Earth. Why?

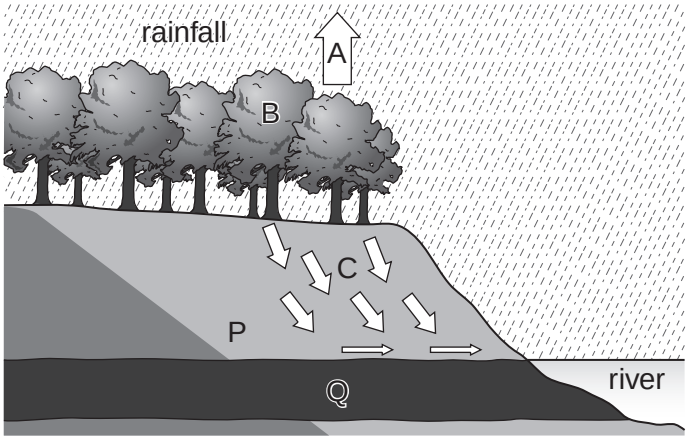
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(ii) Look at the diagram which shows part of the water cycle.



Name the water cycle processes at **A**, **B** and **C**.

A …… **B** ……

C …… [3]

(iii) Rock layers **P** and **Q** have different effects on water movement underground. How and why are they different?

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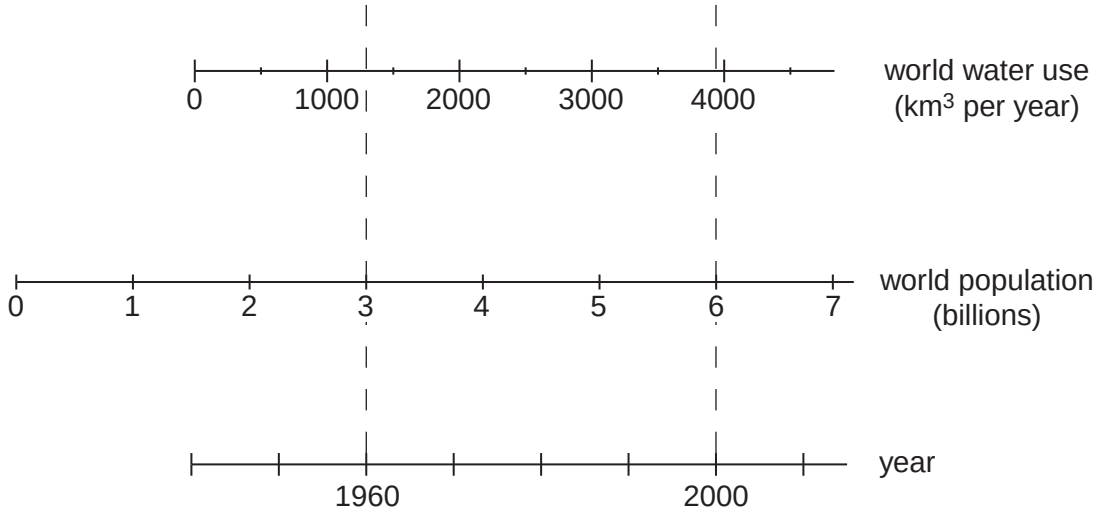
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(b) Look at the information on world population and water use.

For Examiner's Use



(i) By how many times did world population increase between 1960 and 2000?

.....[1]

(ii) By how many times did world water use increase between the same dates?

.....[1]

(iii) Why is it very likely that world water demand will increase even more between 2000 and 2025?

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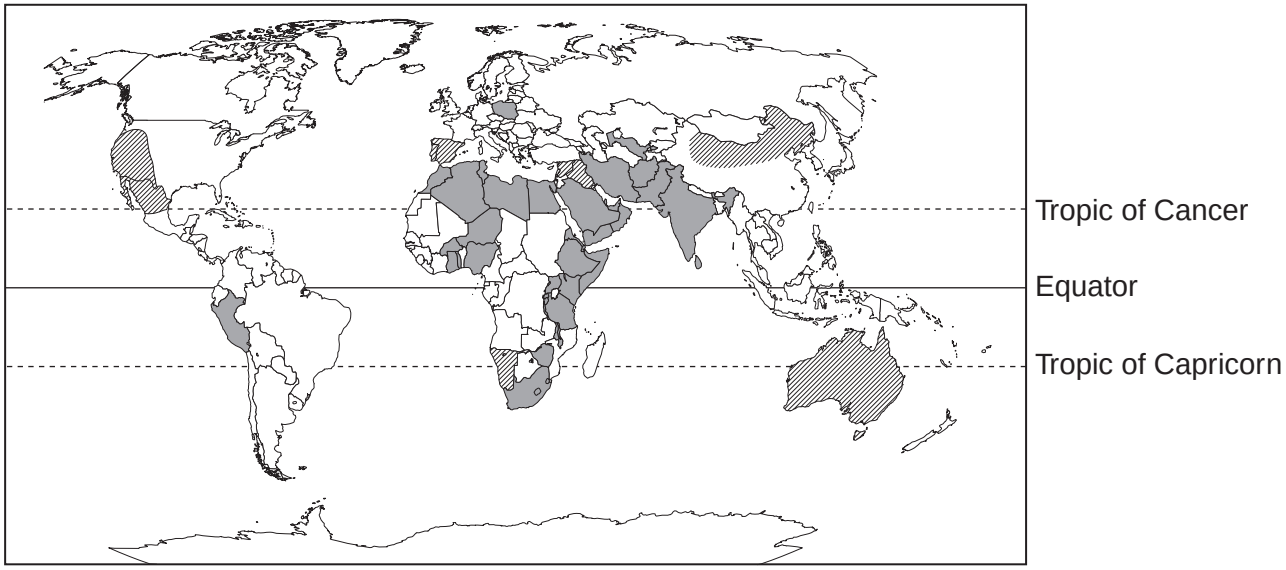
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(c) Look at the world map of water availability. It shows

- areas already at risk from severe water shortages
- countries expected to be at risk from severe water shortages by 2025, likely to be bad enough to restrict water use.

For Examiner's Use

Water shortages



key:

areas in 2005 already at risk from severe water shortages

countries expected to be at risk from severe water shortages by 2025

Describe the distribution of areas and countries with water shortages (already and expected by 2025).

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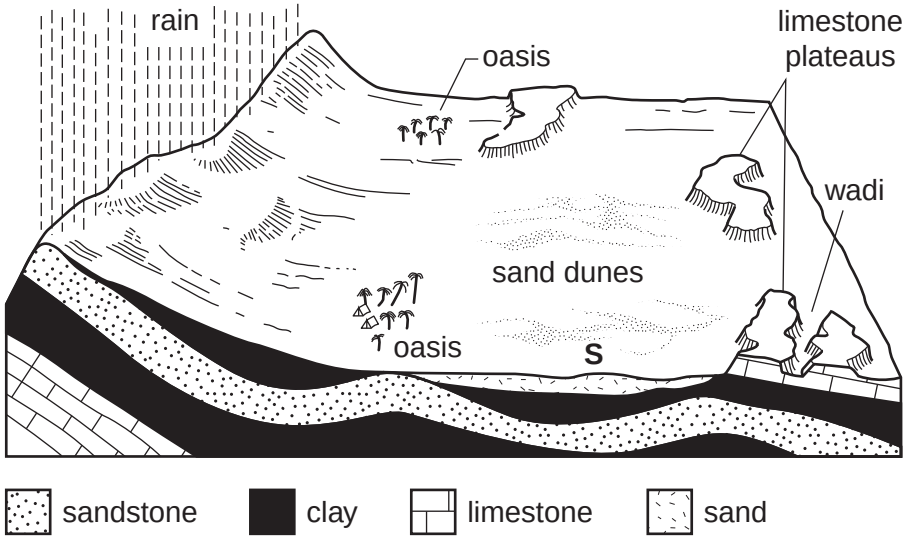
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(d) Most places at risk from severe water shortages have climates which are dry for all or part of the year. One possible source of water for farmers in these areas is from underground stores.

For Examiner's Use

Look at the section across part of the Sahara Desert.



(i) On the diagram, shade or colour in the water-bearing layer of rock (the aquifer). [1]

(ii) Give the source of the water and explain why the water is trapped to form an underground store.

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.....[3]

(iii) Explain why oases (areas of cultivation and settlement) are located in the areas shown and not in other areas such as the one labelled **S**.

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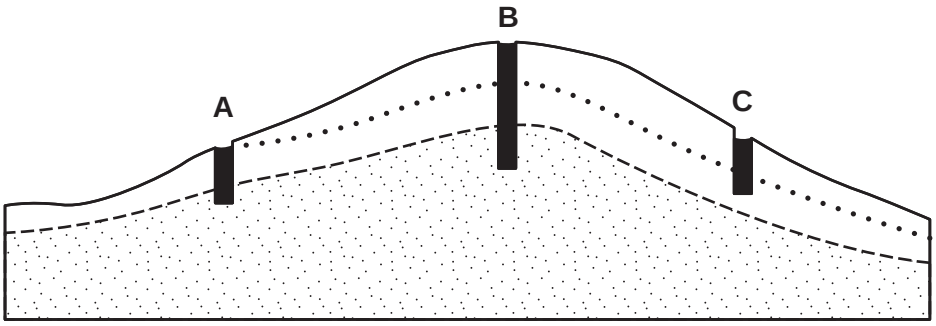
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(iv) Some wells are better than others for reliability and low cost water supply. Look at the diagram showing three wells.

For Examiner's Use



well / borehole

present day wet season water level (water table)

present day dry season water level (water table)

permanent water bearing rock

Which well is the best for water supply? Why is it better than the other two?

best well …….

why .....

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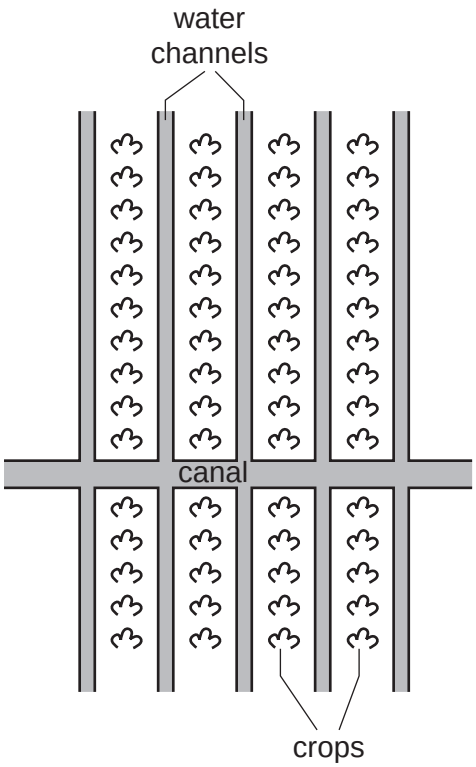
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(e) Many environmentalists believe that there should be improved efficiency in water use for irrigation, before farmers look for new supplies of water.

For Examiner's Use

Look at the sketch showing channel (furrow) irrigation.



(i) How is water lost and wasted when this method of irrigation is used?

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.....[2]

(ii) An environmental problem which often results from using this method of irrigation is salinisation.

For Examiner's Use

Below is a partly completed flow diagram to show how and why the problem of salinisation occurs.

How and why salination occurs

over-use of irrigation water in hot climates

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a hard crust of salt forms on the ground surface

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crops can no longer be grown on the land

Use the statements below to fill the four empty spaces and complete the flow diagram.

high concentrations of salt accumulate around crop roots

moisture in the soil is evaporated

most crops cannot tolerate high levels of salt

salts are drawn up to the top of the soil

[3]

(iii) Draw a labelled diagram to show a different method of irrigation, which makes more efficient use of water than channel irrigation. Describe how it makes better use of the water available.

For Examiner's Use

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.....[4]

(iv) Is salinisation more or less likely to occur with this method than with channel irrigation? Explain your answer.

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.....[2]

(v) When supplies of irrigation water run out, what other farming methods can be used to make sure that crops can still be grown?

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.....[3]

[Total: 40 marks]

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