UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

7983239828

ENVIRONMENTAL MANAGEMENT **0680/12**

Paper 1 **October/November 2013**

1 hour 30 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 **all** 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.

For Examiner's Use	
1	
2	
3	
4	
5	
6	
Total	

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

1 The diagram shows some of the layers of rock that form the bulk of the Grand Canyon in Arizona, USA.

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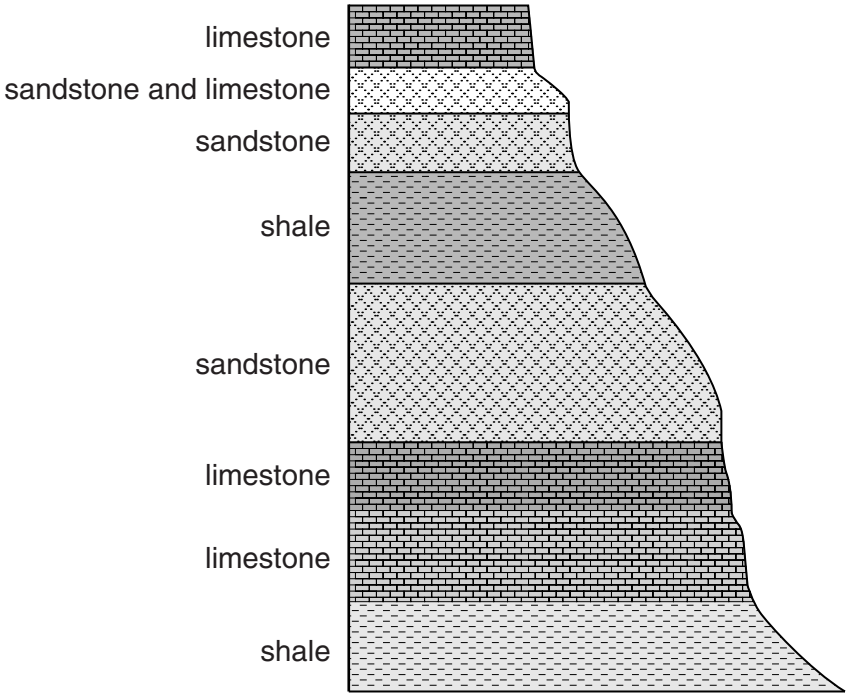

(a) (i) On the diagram, mark with an **X** the oldest layer of rock shown. [1]

(ii) Put a circle around the type of rock that is shown in the diagram.

sedimentary **igneous** **metamorphic**

[1]

(iii) Choose **one** of the rocks named in the diagram and suggest an industrial use for it.

rock type .....

industrial use .....

.....

[1]

(iv) One of the rock types named in the diagram has been changed, by natural processes, into marble in some other parts of the world. Explain how marble is formed.

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.....[2]

(b) (i) Describe how coal is formed.

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.....[2]

(ii) The table below shows changes in the various energy sources used in a country between 1995 and 2005.

energy source	1995 / million tonnes oil equivalent	2005 / million tonnes oil equivalent
coal	228	205
oil	156	225
natural gas	64	93
nuclear	13	16
renewables	2	25

Describe what the table shows about the changing importance of coal compared with the other energy sources between 1995 and 2005.

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.....[2]

(iii) Suggest **one** reason for the changes.

.....

.....[1]

[Total: 10]

[Turn over

2 Between 1951 and 1974 crop yields increased due to the Green Revolution. Look at the table which shows changes in crop yields.

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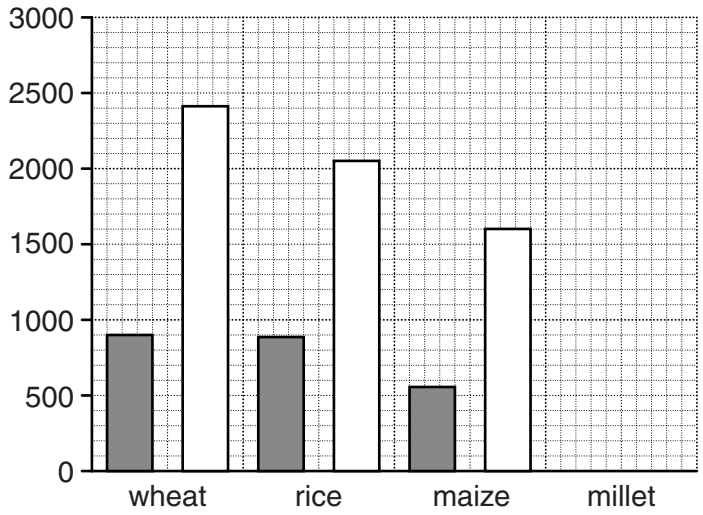
year	average yields / kg per hectare			
	wheat	rice	maize	millet
1951	901	892	565	300
1974	2408	2045	1610	1100

(a) (i) Use the data to complete the following bar graph, including labels for both axes and a suitable key.



[2]

(ii) Which crop shows the greatest increase in yield between 1951 and 1974, and what was that increase in yield?

crop ..... increase ..... [1]

(b) Suggest what changes in agriculture and farming practice have led to these increased crop yields.

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.....[3]

(c) Describe and explain problems for farmers in achieving these high yields.

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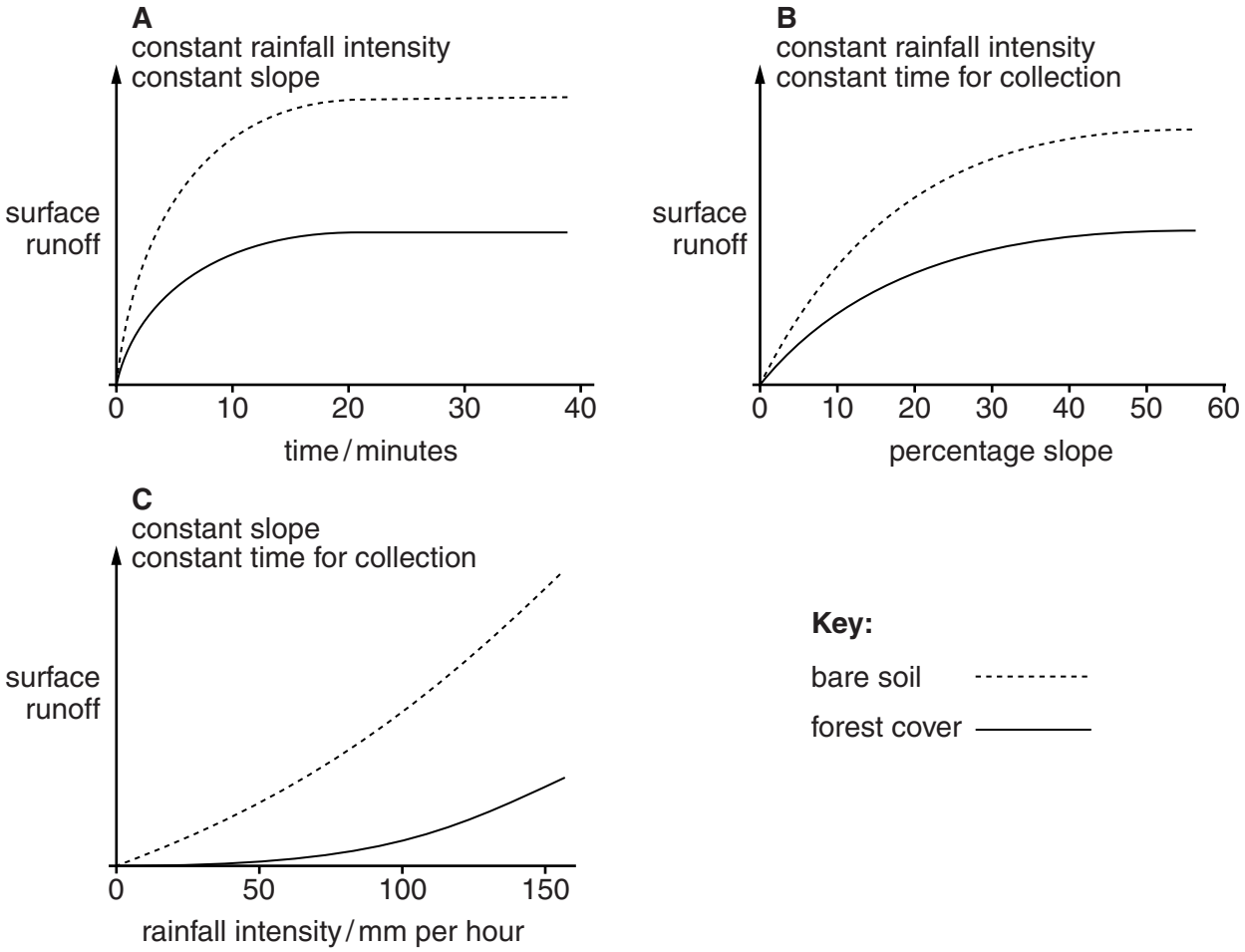
.....[4]

[Total: 10]

3 The graphs below give information about the effect of various factors on soil erosion by wind and water.

For Examiner's Use



(a) (i) Describe the factors which increase the risk of soil erosion by water for each of **A**, **B** and **C**.

A .....

.....

B .....

.....

C .....

.....

[3]

(ii) Soil erosion can be reduced by effective land management. One strategy is contour ploughing.
Describe and explain how contour ploughing can reduce soil erosion.

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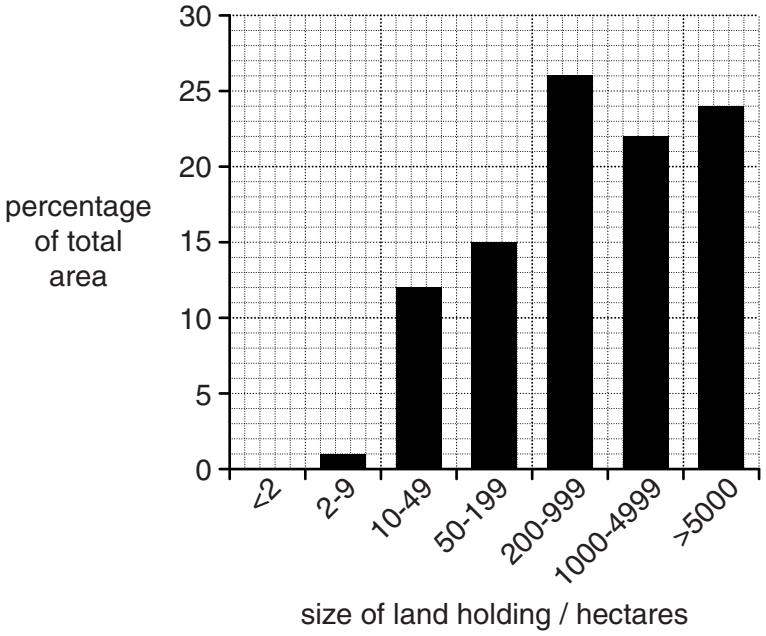
.....[3]

(b) (i) Study the bar graph showing the sizes for farms in Brazil.



Describe what the graph shows about the size of farms in Brazil.

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.....[2]

(ii) Suggest whether you think that large farms make soil conservation more or less likely than small farms. Explain your answer.

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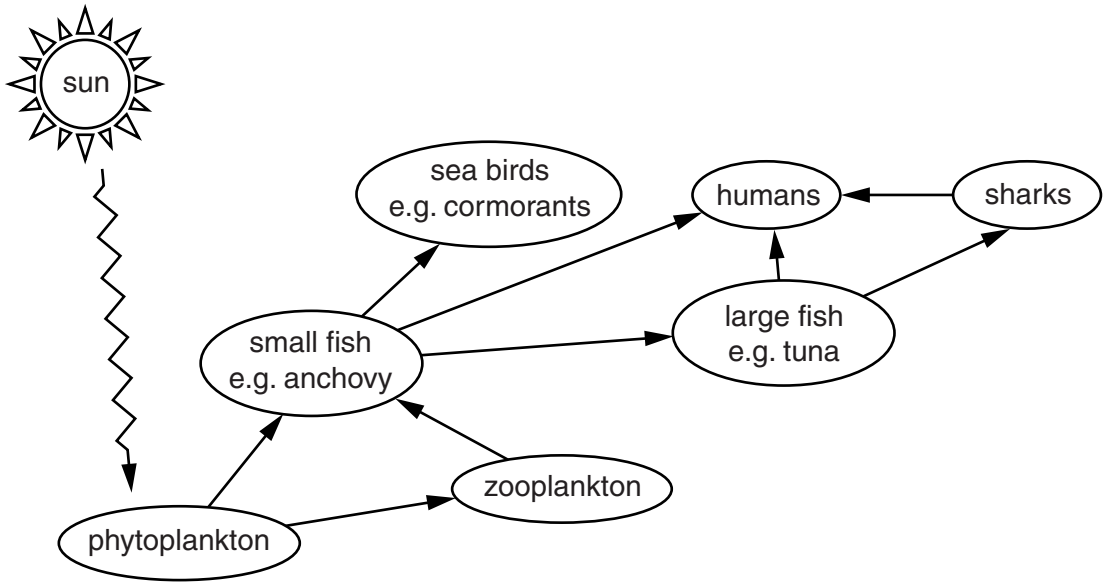
.....[2]

[Total: 10]

4 Look at the diagram below, showing a food web in the Pacific Ocean, off the coast of Peru.

For Examiner's Use



(a) From the diagram name:

a producer .....

a carnivore .....

a fish eaten by people ..... [3]

(b) In El Niño years the upwelling of nutrient-rich cold water off the coast of Peru is replaced by a current of nutrient-poor warm water.

Suggest and explain what effects this will have on this food web.

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..... [3]

(c) In the 1970s, the anchovy fish were seriously over-fished, resulting in a collapse of the population of anchovy.

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Explain the different effects that this will have had on the populations of zooplankton and sea birds e.g. cormorants.

zooplankton .....

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sea birds .....

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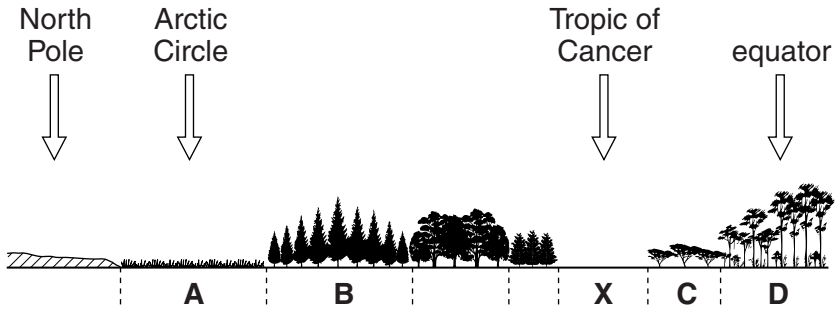
..... [4]

[Total: 10]

5 The diagram shows natural vegetation zones (biomes) between the North Pole and the equator.

For Examiner's Use



(a) (i) Name zones (biomes) **A**, **B**, **C** and **D**.

A .....

B .....

C .....

D .....

[2]

(ii) The following table shows the adaptations of plants living in biome **X**. Complete the table.

adaptations of plants living in biome **X**	
adaptation	purpose
spikes instead of leaves	....
....	store water
long, deep roots	....
....	collect water, even when amount of rain is low

[4]

(b) Biome **X** can be extended into areas of biome **C** in a process called desertification. Describe the human and physical factors which explain this.

For Examiner's Use

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.....[4]

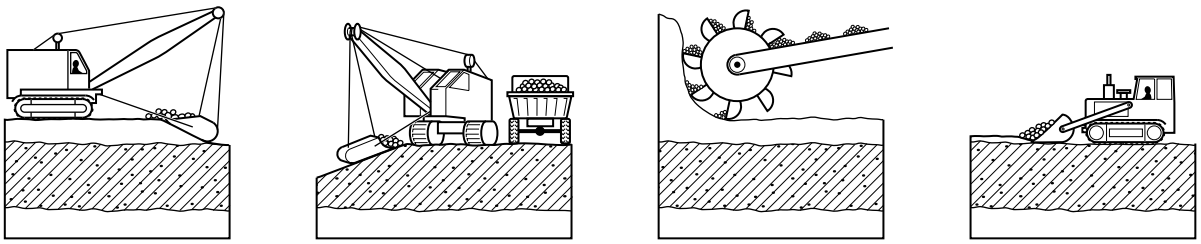
[Total: 10]

For Examiner's Use

6 (a) (i) The diagrams show 4 stages in the extraction of a mineral, such as coal, from the ground. They are not in the correct order. Put the letters **A**, **B**, **C** and **D** in the correct order and state the type of mining.

Key

seam of a mineral such as coal



A **B** **C** **D**

correct order ☐ ☐ ☐ ☐

type of mining .....

[3]

(ii) Describe how land could be restored after such mining.

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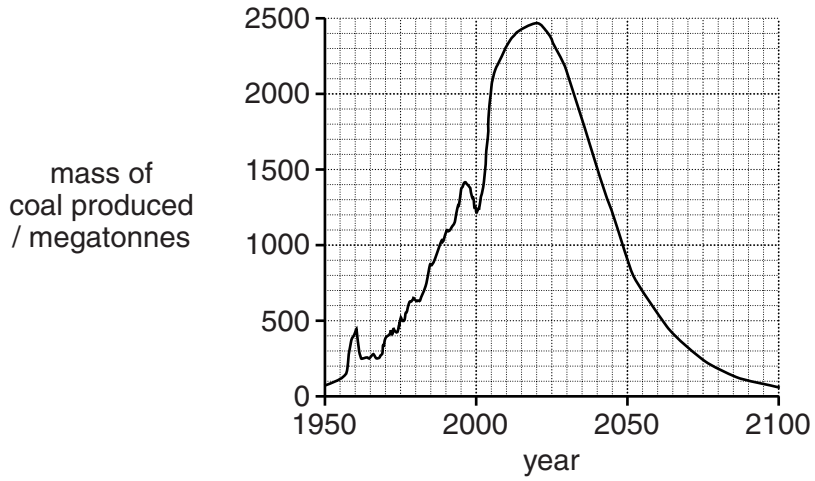
.....[3]

(b) The graph below shows past and expected coal production for China.

For Examiner's Use



(i) Give the date of the expected peak production from this graph.

..... [1]

(ii) What could be done to extend the life of the known coal reserves in China?

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.....[3]

[Total: 10]

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