UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

4841090726

ENVIRONMENTAL MANAGEMENT **0680/13**

Paper 1 **May/June 2012**

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.
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 **13** printed pages and **3** blank pages.

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Answer **all** the questions.

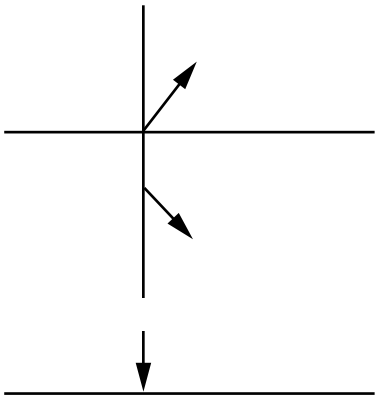
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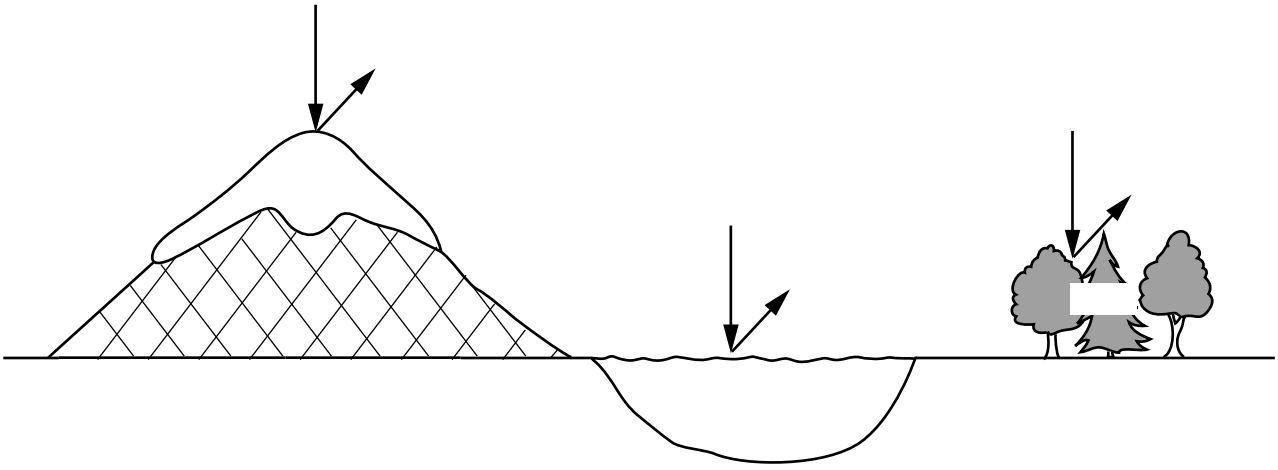
1 Read the passage about what happens to the Sun's energy as it enters and passes through the atmosphere and finally hits the surface of the Earth.

The upper diagram shows that 33% of all the solar radiation reaching the atmosphere is reflected back into space. The remaining 67% passes into the atmosphere. A further 14% is absorbed on the way through the atmosphere so that 53% hits the Earth's surface.

The lower diagram shows what happens to the solar radiation that hits snow, lake water and vegetation. In each case some of the radiation is absorbed and some of it is reflected. Of the solar radiation hitting snow, 80% is reflected. Of the solar radiation hitting lake water only 5% is reflected. When solar radiation hits vegetation, 15% of it is reflected.

(a) (i) Use the information from the passage to complete the diagrams below with the missing percentage values.





(ii) What name do we give to the solar radiation received by the Earth?

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..... [1]

(b) (i) Reflected long wave radiation can be trapped by gases in the atmosphere which insulate the Earth making it warmer than it would otherwise be.

What is the general name for these insulating gases? .....

Name two of them. .....

..... [2]

(ii) Give **one** strategy that individuals living in urban areas might use to reduce the production of these insulating gases.

.....

..... [1]

(iii) Describe **two** human activities which might cause global warming.

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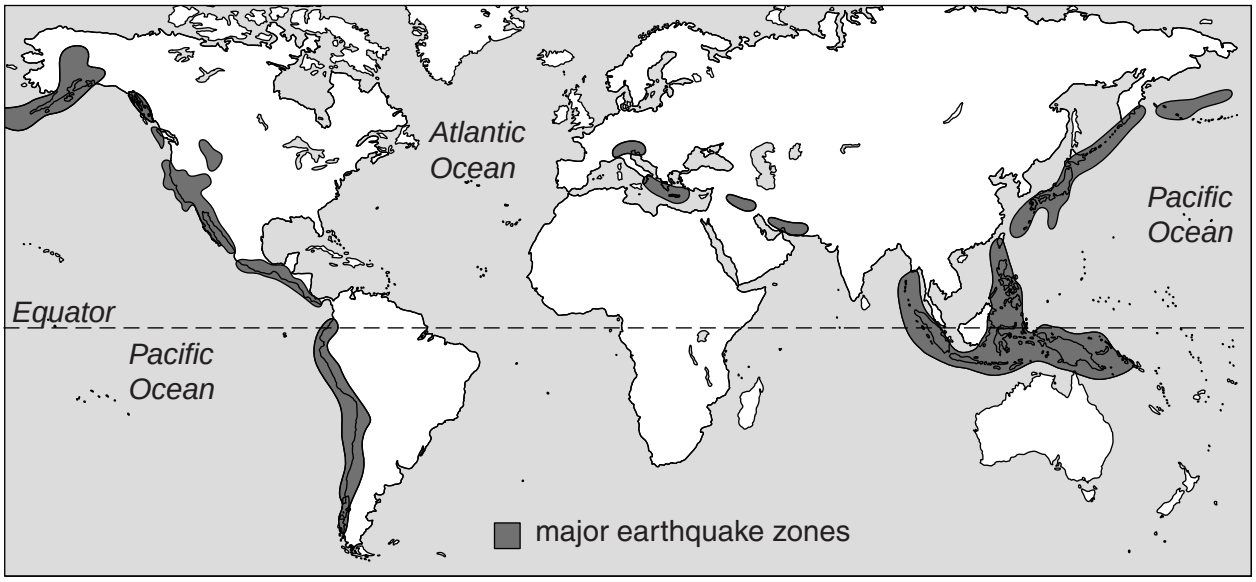
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..... [4]

2 The diagram shows some of the major earthquake zones of the world.

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(a) (i) Describe **two** major features of the distribution of the earthquake zones shown on the map.

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..... [2]

(ii) Explain the distribution of the earthquake zones shown on the map.

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..... [2]

(b) (i) Living in an earthquake zone can be dangerous, and so can living near an active volcano. However, millions of people choose to live near volcanoes. Suggest **two** reasons for this.

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..... [2]

(ii) Fewer people die from the eruption of volcanoes than from earthquakes. Explain why.

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..... [2]

(iii) How can the impacts of volcanic eruptions and earthquakes be reduced?

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..... [2]

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[Turn over

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3 Precipitation is water falling onto the Earth's surface.

Some of this precipitation:

A does not reach the ground because of trees and plants,

B flows over the surface and ends up in streams and rivers,

C re-enters the atmosphere,

D seeps into the ground.

(a) (i) Give the letter to link each of the above pathways of water to the correct term below:

evaporation and transpiration .....

infiltration .....

interception .....

run-off .....

[2]

(ii) Describe how plants take up water into their bodies and name the process by which they use it to make food.

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..... [2]

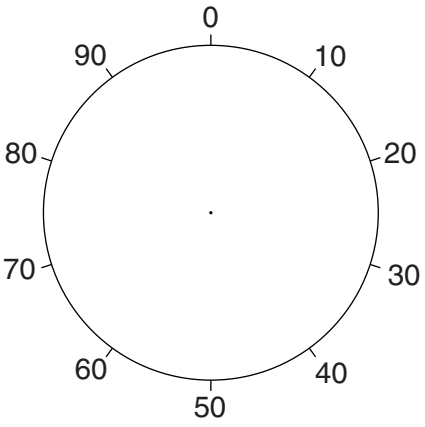
(b) (i) Water is a precious commodity in many parts of Australia.

Look at the table.

Water use in one state of Australia
(% of total)

irrigation	80
domestic	13
industry	7

Key:



Complete the pie graph **and** the key to show water use in one state of Australia. [2]

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(ii) Using the pie graph explain why salinisation is likely to be a problem.

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..... [2]

(iii) How does salinisation happen?

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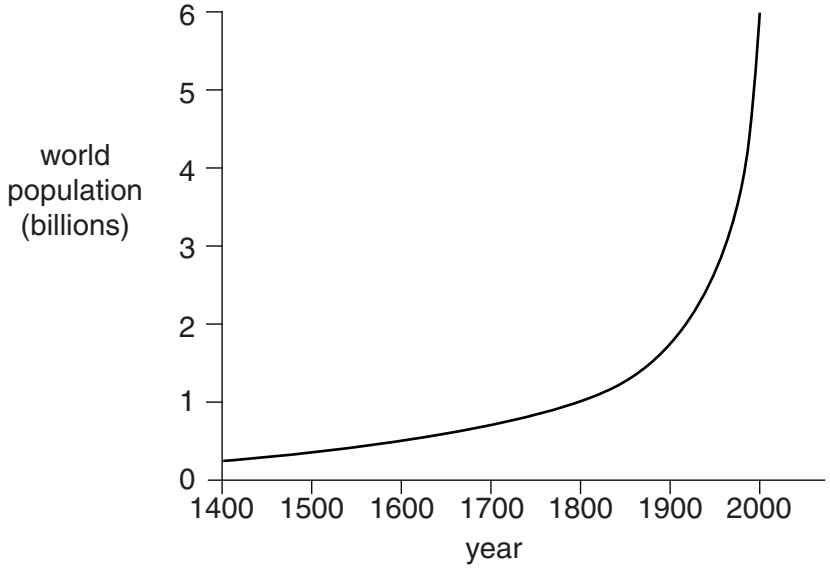
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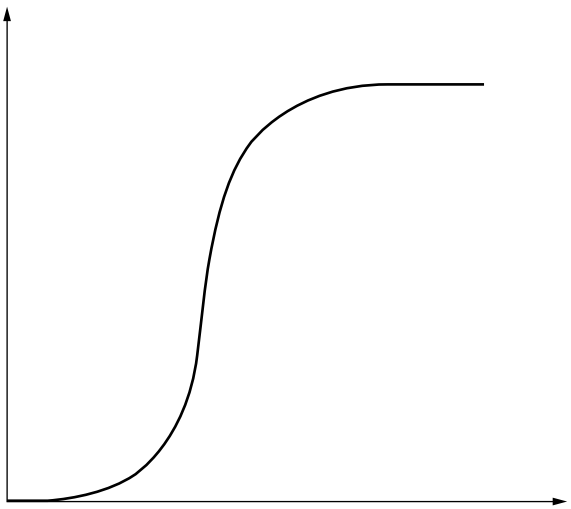
4 Look at graph **A**, showing how the population of humans on Earth has grown over the last 600 years.

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Compare this with graph **B**, showing a standard population growth curve for another animal.



graph **A**



graph **B**

(a) (i) Describe **two** similarities and **one** difference between the shape of graphs **A** and **B**.

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..... [3]

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(ii) Explain the difference you have described in **(a)(i)**.

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..... [2]

(b) Human life expectancy has been changing over the late 20th and early 21st Centuries. The table shows life expectancies and trends in life expectancy between 1970 and 2005 for 5 of the inhabited continents.

continent	life expectancy (years, average for men and women)	trends in life expectancy between 1970 and 2005
Africa	52	falling
Asia	68	rising
Europe	75	rising
Oceania	75	rising
North America	74	rising

(i) How much longer would a person living in North America expect to live than a person living in Africa?

..... [1]

(ii) Explain why life expectancy is rising in four of the five listed continents.

.....

.....

..... [2]

(iii) Suggest why life expectancy is falling in many parts of Africa.

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..... [2]

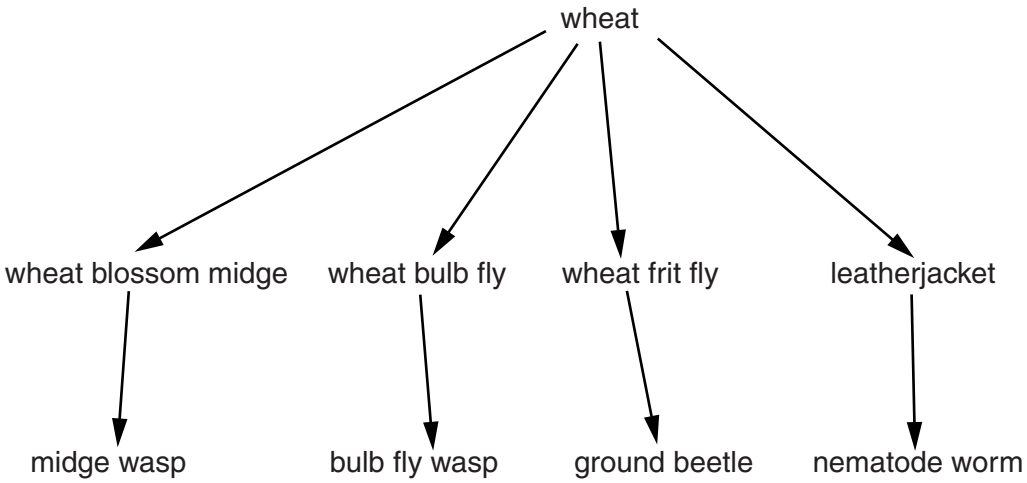
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5 Crops grown in a field form part of a food web.

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Look at the example shown for a wheat crop.



(a) (i) Using the information in the diagram, complete the following passage. Use each term either once, more than once, or not at all.

carbon consumer energy herbivores nitrogen photosynthesis pollination predators producer respiration

Wheat is the ..... in this web, making food by a process called ..... . The midges, flies, leatherjackets, wasps, beetles and worms are ..... . Wheat traps ..... which is passed on to the next level in feeding, as are ..... and ..... . [3]

(ii) Draw a food chain which has nematode worms in it.

[2]

(b) (i) The animals that eat wheat are regarded by the farmer as pests. Name the class of chemicals which farmers can use to control pests.

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..... [1]

(ii) Describe the environmental problems of using these chemicals.

.....

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..... [3]

(iii) People have looked for non-chemical methods to control pests. Using the information in the food web diagram on page 10, suggest a way that one pest of wheat might be controlled.

.....

..... [1]

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[Turn over

6 Good soil is vital for crop growth.

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Read this information.

Soils contain mineral particles (clay, silt and sand), organic matter, air, nutrients and water.

(a) (i) For photosynthesis plants need light, water and carbon dioxide. For respiration they need oxygen and sugar.

Which of these do they get from the soil for:

respiration of root cells, ...

photosynthesis? ..... [1]

(ii) Cereal crops such as maize and wheat grow best in fertile agricultural soils.

Tick the box which gives a pH value for such a fertile agricultural soil.

pH 3.9	pH 5.0	pH 6.8	pH 9.0
☐	☐	☐	☐

[1]

(iii) Which of the three types of mineral particle (clay, silt and sand) is most important in making a cultivated soil:

A well drained, ...

B rich in nutrients, ...

C easy to dig? ..... [3]

(b) The addition of water to desert soils can allow extensive, subsistence farming to become intensive and commercial.

Explain what each of these terms means.

extensive .....

.....

intensive .....

.....

subsistence .....

.....

commercial .....

.....

..... [4]

(c) State **one** way in which the nutrient content of soils might be improved.

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..... [1]

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