UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

9335152472

ENVIRONMENTAL MANAGEMENT **0680/11**

Paper 1 **May/June 2011**

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.

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1	
2	
3	
4	
5	
6	
Total	

This document consists of **12** printed pages and **4** blank pages.

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1 Natural gases in the atmosphere include oxygen, carbon dioxide, nitrogen, argon and water vapour.

(a) (i) Name the **two** most abundant gases in the atmosphere.

.....

..... [2]

(ii) Which atmospheric gas is used by plants in photosynthesis?

..... [1]

Many gases enter the atmosphere due to human activity and can cause pollution. The photographs below show sculptures made of the same rock in two different areas in the UK. The sculptures are about the same age.



Sculpture in Area A



Sculpture in Area B

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(b) (i) One of the sculptures has been more affected by atmospheric pollution than the other. Give the evidence for this.

.....

..... [1]

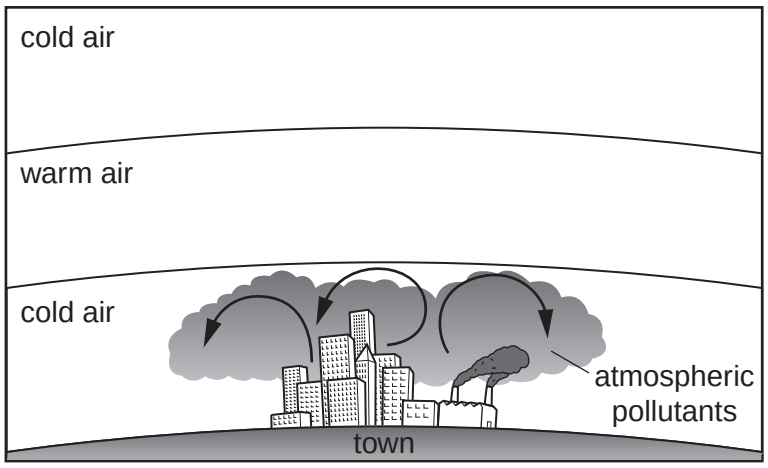
(ii) Name the gases likely to be responsible and explain how they could have caused these differences.

.....

.....

..... [3]

(iii) The diagram below shows a situation which arises in large cities such as Los Angeles. Pollutants are trapped near the ground causing problems for people.



Explain why the pollutants are trapped near the ground.

.....

.....

..... [3]

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2 At the Kola Institute in Russia scientists drilled for more than 15 years through the Earth's crust to a depth of over 12 km. This was an attempt to reach the layer of the Earth below the crust. It failed, as did a similar attempt by the Americans, called the MoHo Project.

(a) (i) What is the name of the layer below the Earth's crust?

..... [1]

(ii) State **two** ways in which rocks in the layer below the Earth's crust are different from those in the crust.

.....

.....

.....

..... [2]

(iii) The Russian project was land based, whereas the American project began drilling at the bottom of the sea. Why was it thought more likely that the American project would be successful?

.....

..... [1]

(b) (i) The crust contains fossil fuels used by humans. Describe the ways in which oil is discovered and extracted from the crust.

.....

.....

.....

.....

.....

.....[4]

(ii) During transport of the oil in ships, there may be an oil spill. State **one** way in which a spill might be avoided and **one** way in which its effects might be reduced.

avoided .....

.....

effects reduced .....

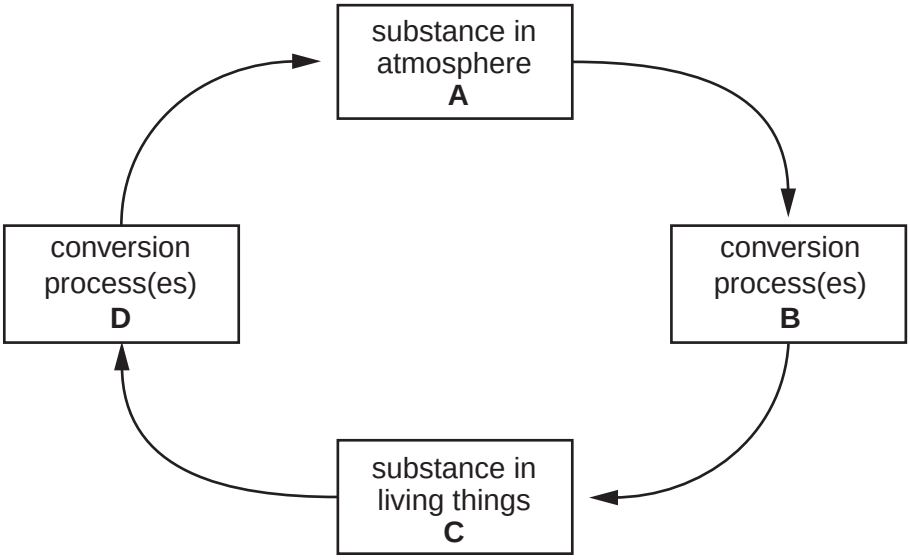
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[2]

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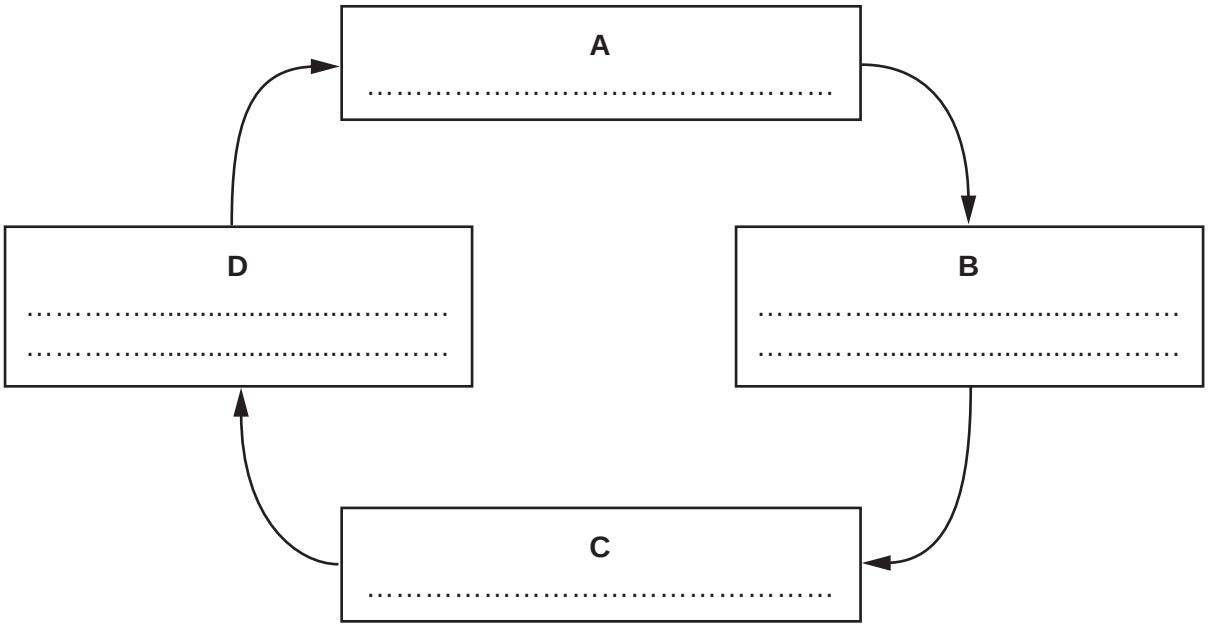
3 The elements nitrogen and carbon both move between the living and non-living worlds in a simple cycle as shown in the diagram below.

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(a) (i) For **either** the carbon **or** the nitrogen cycle, complete the diagram. Write down the processes in the cycle and the names of the substances that contain the element. [3]

the ..... cycle



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(ii) Crops need a good supply of both nitrogen and carbon. Which of these can crops obtain from a fertiliser?

..... [1]

(iii) Describe **one** environmental problem caused by the overuse of fertilisers.

.....

.....

.....

..... [2]

(b) Overuse of another group of agricultural chemicals, pesticides, can also cause problems.

(i) Explain how the overuse of pesticides can harm wildlife.

.....

.....

.....

..... [2]

(ii) Describe another way of controlling pests which would cause less damage to the environment than using pesticides.

.....

.....

.....

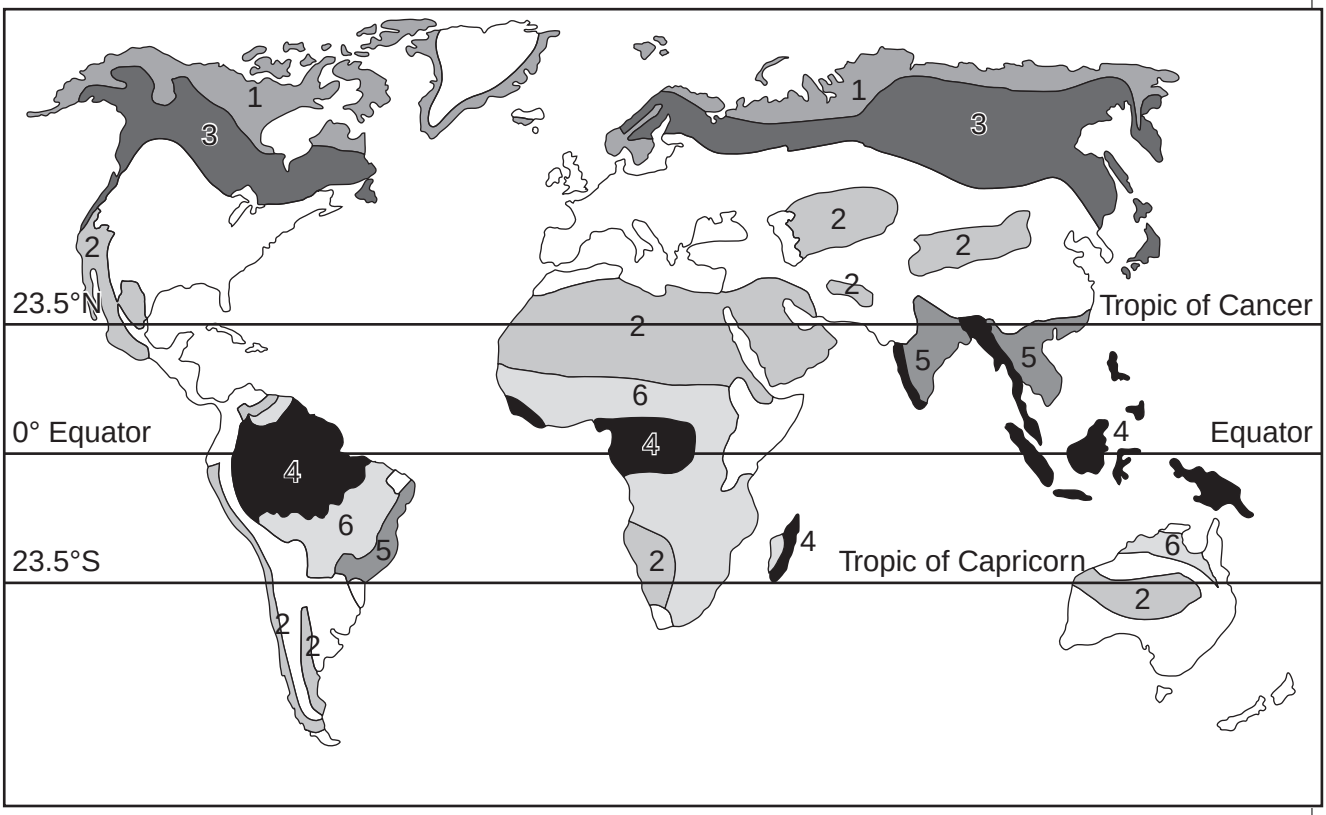
..... [2]

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4 Look at the map of the world below. It shows the location of some major natural vegetation zones (biomes).

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(a) (i) Write down the numbers which show:

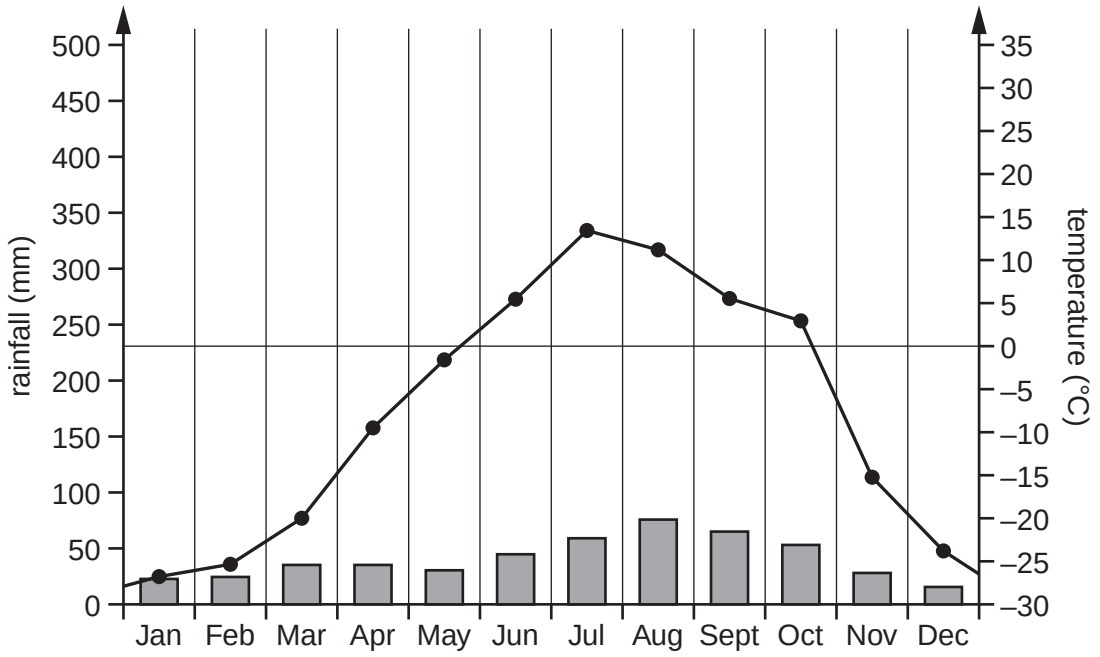
Taiga .....

Tropical Rainforest .....

Desert ..... [3]

The graph below shows climate data for one of the biomes on the map.

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(ii) Which of the numbered biomes on the map has this climate?

number ..... [1]

(b) (i) The climate determines the type of vegetation found in a biome. How are plants of the desert biome adapted to living in the climate there?

.....

.....

.....

..... [3]

(ii) Overgrazing is a major problem in the savannah biome. It can lead to desertification. Explain how overgrazing might lead to desertification.

.....

.....

.....

.....

..... [3]

5 **(a)** **(i)** What is insolation?

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.....

.....

.....

..... [2]

(ii) Which of the following is the main factor causing variation in rates of insolation in the world? Explain your answer.

A. cloud cover
B. precipitation
C. temperature
D. latitude

.....

.....

.....

..... [4]

(b) Solar radiation can be used as a source of power for the generation of electricity and for the heating of water.

(i) Which aspect of the Sun's energy is used for each of these functions?

electricity generation .....

heating water .....

[1]

(ii) The use of solar power is sometimes put forward as an example of alternative energy. To what is it an alternative?

..... [1]

(iii) Give **two** reasons why such alternatives are needed.

.....

.....

.....

..... [2]

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6 World cereal production has greatly increased in the last 30 years. This is a result of intensive farming methods and the green revolution. Over the years scientists have developed new varieties of wheat by selective breeding

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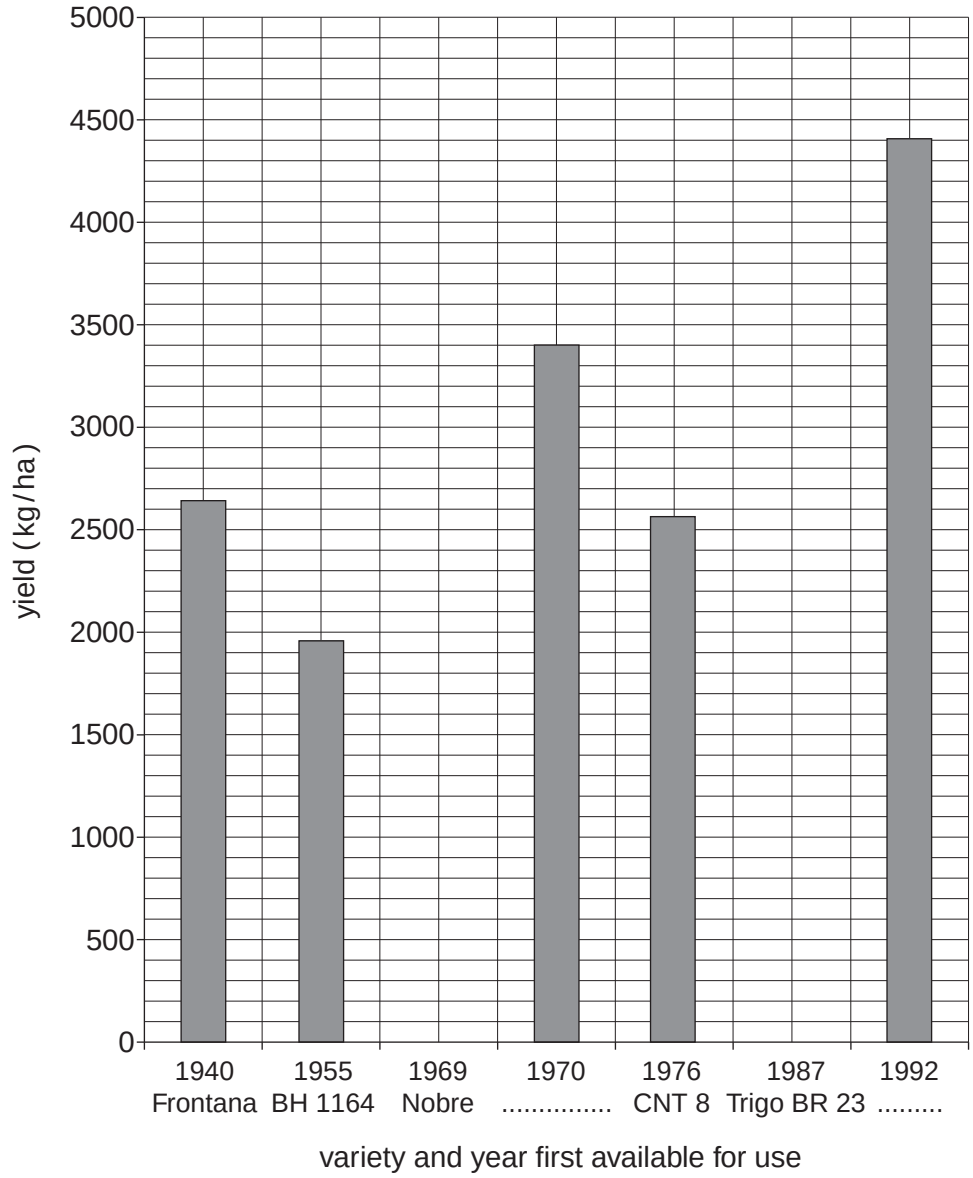
A research team in Brazil grew seven of these varieties in identical conditions and recorded the yield. The results are shown in the table.

variety of wheat	first year variety available for use	yield (kg/ha)
Frontana	1940	2647
BH 1146	1955	1959
Nobre	1969	2900
IAS 54	1970	3411
CNT 8	1976	2569
Trigo BR 23	1987	4000
Embrapa 16	1992	4417

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(a) (i) Complete the bar graph **and** axes below by adding the missing data from the table. [3]

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(ii) Describe the general trend shown by the bar chart.

..... [1]

(iii) Suggest an explanation for this trend.

.....

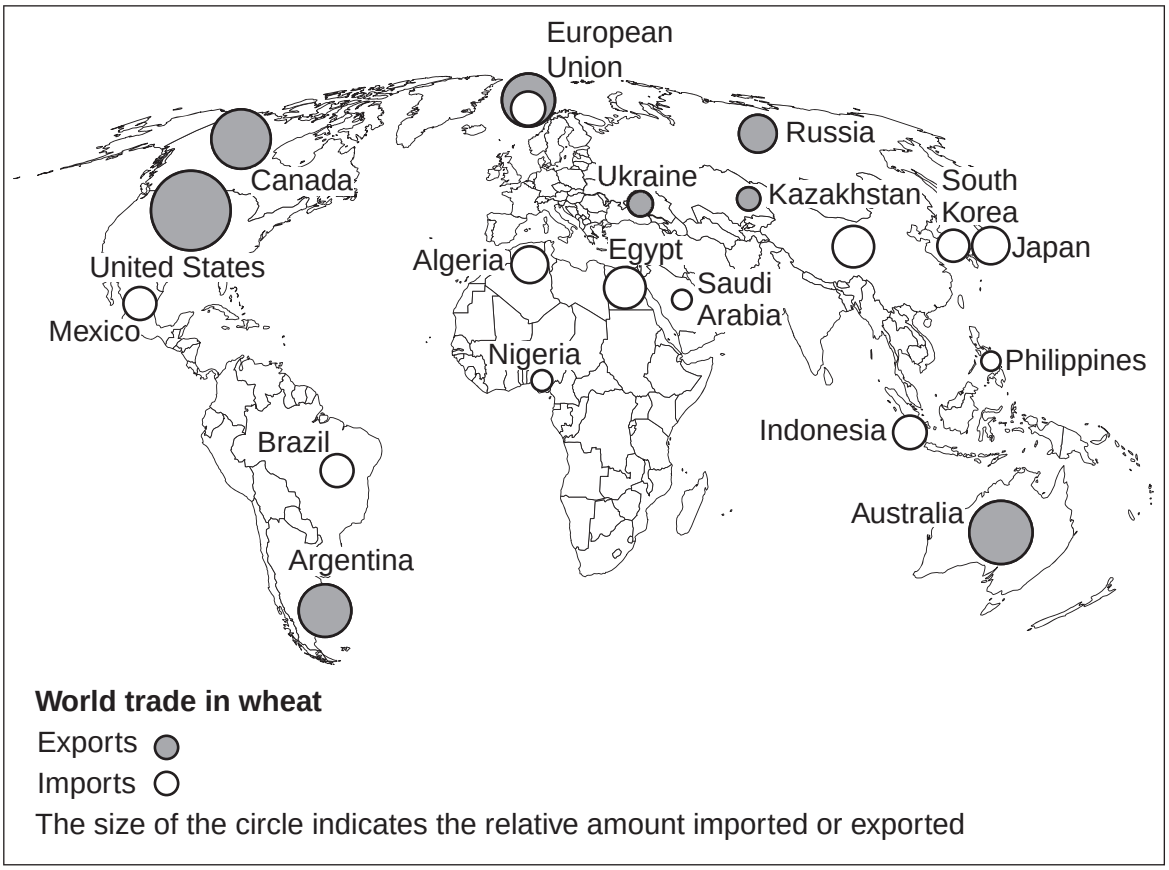
.....

.....

..... [2]

(b) Despite increase in wheat yield (and also that of other crops) there are still food shortages. This is because some countries produce far more food than they need, whereas others do not even meet basic requirements. The map shows world trade in wheat.

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(i) Which is the biggest wheat exporting region or country?

..... [1]

(ii) Which country or region both imports and exports wheat?

..... [1]

(iii) Is trade in wheat an example of North-South trade? Explain your answer.

.....

.....

..... [2]

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