Cambridge O Level

Cambridge International Examinations
Cambridge Ordinary Level

CANDIDATE NAME	

CENTRE NUMBER						CANDIDATE NUMBER				

6586281388

ENVIRONMENTAL MANAGEMENT **5014/11**

Paper 1 **May/June 2018**

2 hours 15 minutes

Candidates answer on the Question Paper.

No Additional Materials are required.

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 **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.

Write your answers in the spaces provided on the Question Paper.

All questions in Section A carry 10 marks.
Both questions in Section B carry 40 marks.

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 **23** printed pages and **1** blank page.

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CAMBRIDGE International Examinations

Section A

Answer **all** the questions.

1 The photograph shows land with a tundra climate that has been mined for iron ore.

(a) **(i)** Name the type of mining that was used in the area shown in the photograph.

.....[1]

(ii) Describe the impact of this mining on the area shown in the photograph.

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.....[3]

(b) Suggest why the area shown in the photograph has **not** been restored and landscaped.

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.....[3]

(c) Describe strategies for reducing the quantity of minerals needing to be mined.

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.....[3]

2 The map shows changes in the incidence of malaria in countries of North and South America from 2000 to 2015.

Key

- increase in incidence of malaria, 2000–2015
- less than 50% change in incidence of malaria, 2000–2015
- >75% decrease in incidence of malaria, 2000–2015
- cases of malaria reduced to zero between 2000 and 2015
- no transmission of malaria

(a) **(i)** State the main difference in the incidence of malaria between the North and South American continents.

.....

.....[1]

(ii) Name a country in South America where:

- there was no transmission of malaria between 2000 and 2015 .....
- the incidence of malaria has increased. .....

[2]

(b) Suggest why some countries have been more successful in reducing the incidence of malaria than others.

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.....[3]

(c) Explain why it is important to reduce the incidence of water-related diseases.

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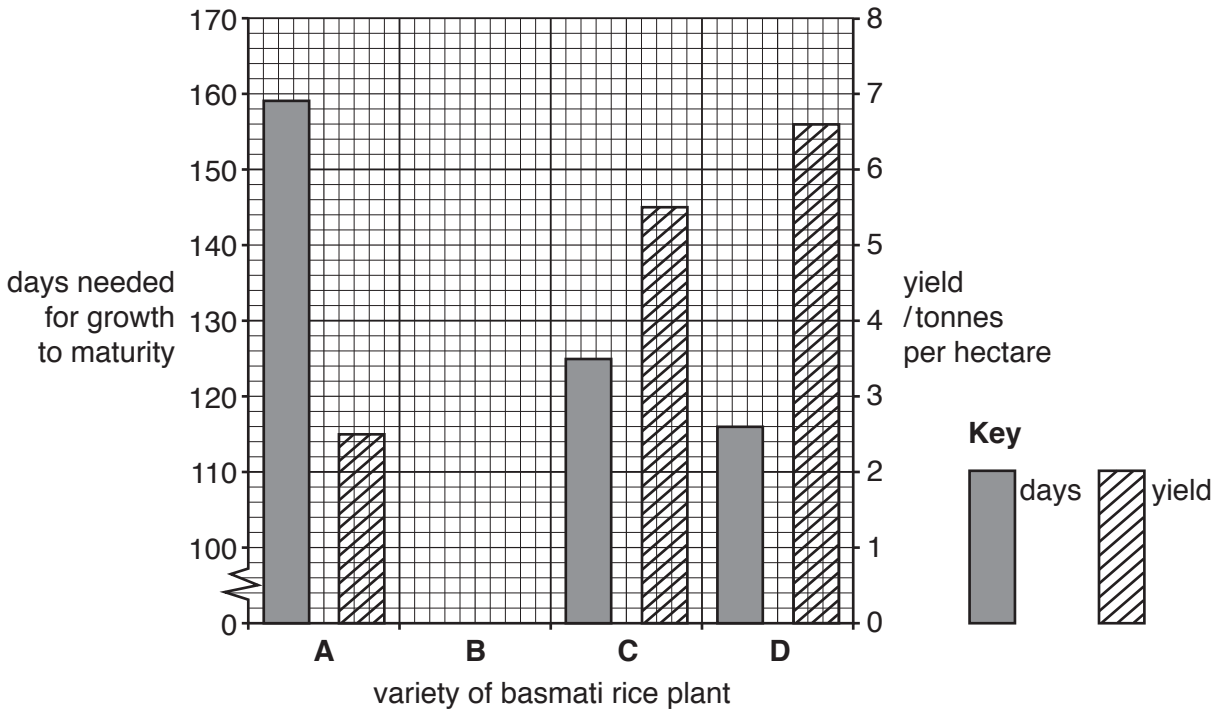
.....[4]

3 **(a)** The graph shows information about four varieties of basmati rice plant, **A**, **B**, **C** and **D**, developed by a breeding programme in a research institute.



(i) Complete the bar graph by plotting the values in the table for variety **B**.

days needed for growth to maturity	140
yield/tonnes per hectare	4.5

[2]

(ii) Suggest the aim of this breeding programme.

.....

.....[1]

(b) Explain why the Green Revolution had disadvantages for some farmers.

.....

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.....[3]

(c) New agricultural methods, such as integrated pest control, have been developed since the Green Revolution.

(i) Describe **two** methods that could be used for an integrated pest control scheme.

1 .....

.....

2 .....

.....
[2]

(ii) Explain why integrated pest control is thought to be sustainable.

.....

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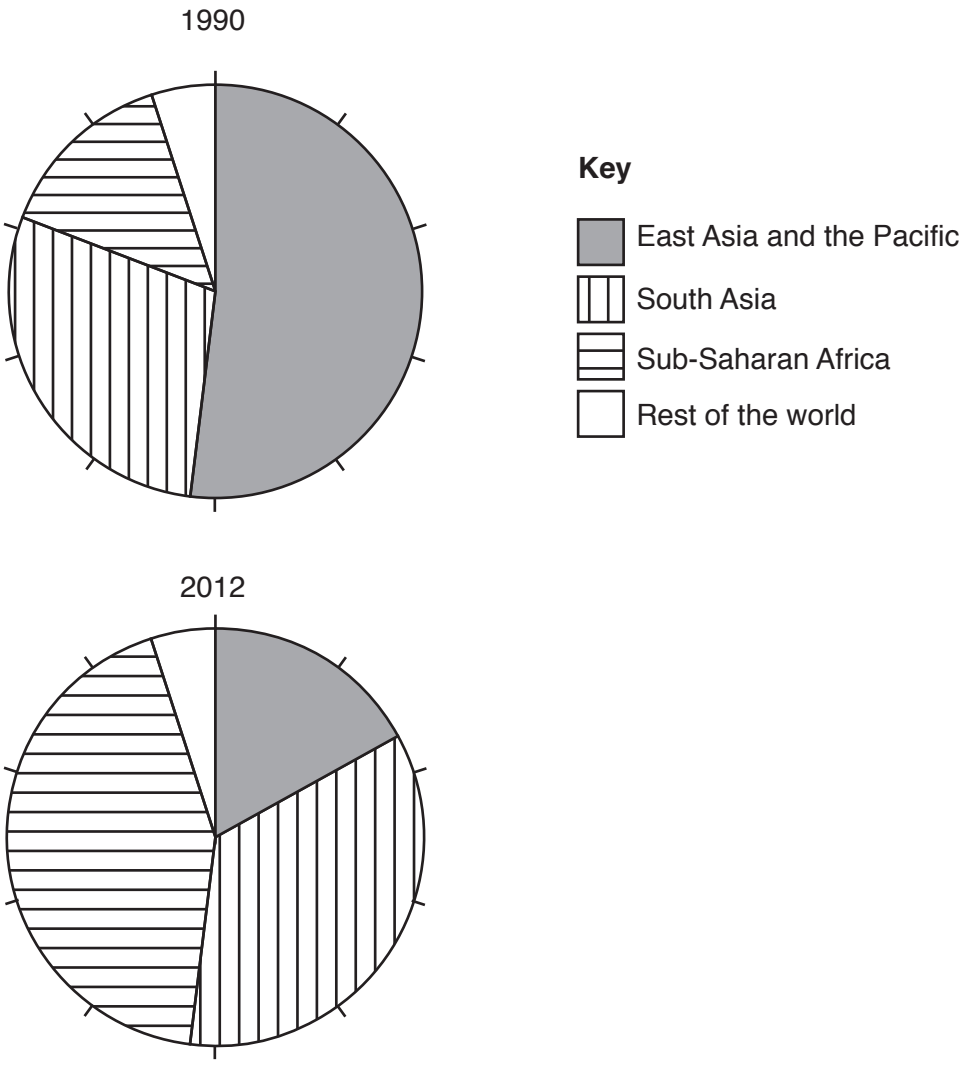
.....[2]

4 **(a)** The pie graphs show the percentage share of global poverty in some regions of the world for 1990 and 2012.

For this survey, a person was considered to be living in poverty if their income was less than 1.9 USD a day.



Describe the **three** main changes in the percentage share of global poverty between 1990 and 2012.

1.....

.....

2.....

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3.....

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[3]

(b) List **four** measures of poverty.

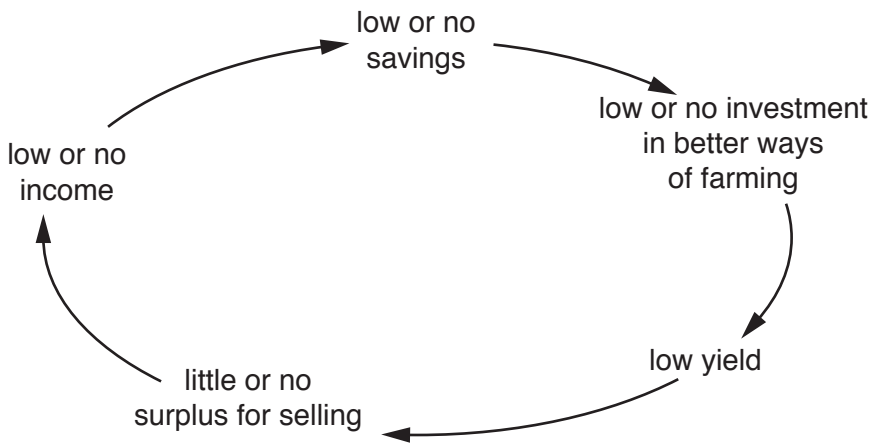
1.....

2.....

3.....

4.....
[4]

(c) The diagram shows the cycle of poverty for farmers in a developing country.



Suggest ways in which developed countries could help to break this cycle of poverty in developing countries.

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.....[3]

Section B

Answer **both** questions.

5 **(a)** The table shows climate data for the city of Ndola in Zambia.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
mean monthly temp /°C	20.8	20.8	21.0	20.5	18.6	16.5	16.7	19.2	22.5	23.7	22.5	21.0
mean monthly rainfall /mm	293	249	170	46	4	1	0	0	3	32	130	306

Use the table to complete the following paragraph.

The wettest month is ....., which has a mean monthly rainfall of ..... mm. Temperatures are highest in ..... and the annual range of temperature is ..... °C. Ndola has a savanna climate and is located in the ..... hemisphere. [5]

(b) The diagram shows two types of savanna vegetation.

tree savanna

shrub savanna

(i) Describe **two** differences between the two types of savanna vegetation.

1 .....

.....

2 .....

.....
[2]

(ii) State the type of vegetation between the trees in the tree savanna.

.....[1]

(iii) Explain how desertification can occur in savanna regions.

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.....[4]

(c) The sentences give five definitions.

A A diagram of energy flows among species in an ecosystem.

B The area or type of environment in which a particular kind of animal or plant usually lives.

C The process by which green plants and some other organisms use sunlight to synthesise glucose from carbon dioxide and water.

D When individuals or seeds move from one site to a breeding or growing site.

E An interaction between organisms that require the same limited resource.

Match the terms to the definitions, **A**, **B**, **C**, **D** and **E**.

term	**letter**
dispersal	.....
competition	.....
food web	.....
habitat	.....
photosynthesis	.....

[4]

(d) Some environments have been affected by tourism. The photograph shows part of a tourist resort.

(i) Suggest why this was a good location to build a tourist resort.

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.....[3]

(ii) Suggest the environmental impacts of building a resort such as this one.

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.....[4]

(iii) The resort faces environmental challenges:

- a shortage of water – the average daily use is 880 litres per tourist and there are 30 000 swimming pools in the area
- a massive amount of waste and sewage to process.

Describe how these environmental challenges can be managed.

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.....[3]

(iv) The resort receives 1.75 million tourists per year, at least half from other countries.

Explain how this tourism will cause air pollution.

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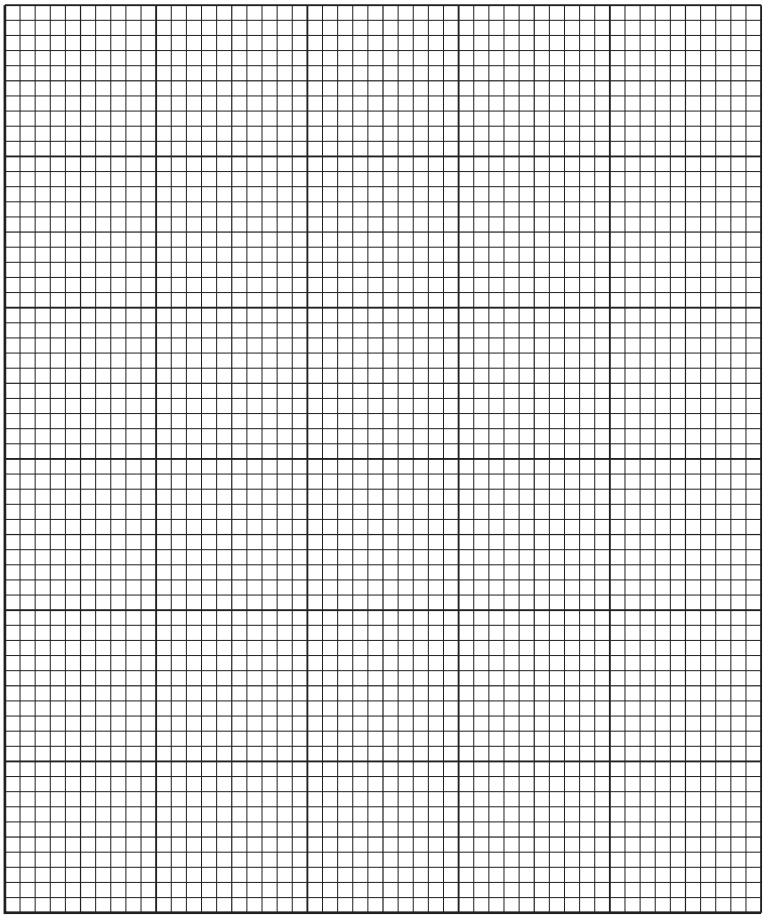
.....[4]

(e) The table shows the number of tourists travelling abroad from 2000 to 2014.

year	number of tourists / million
2000	680
2004	730
2008	900
2012	1040
2014	1130

Draw a line graph on the grid to show this data.



[4]

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(f) 'Tourism is good for the economy, but bad for the planet.'

How far do you agree with this statement? Give reasons for your answer.

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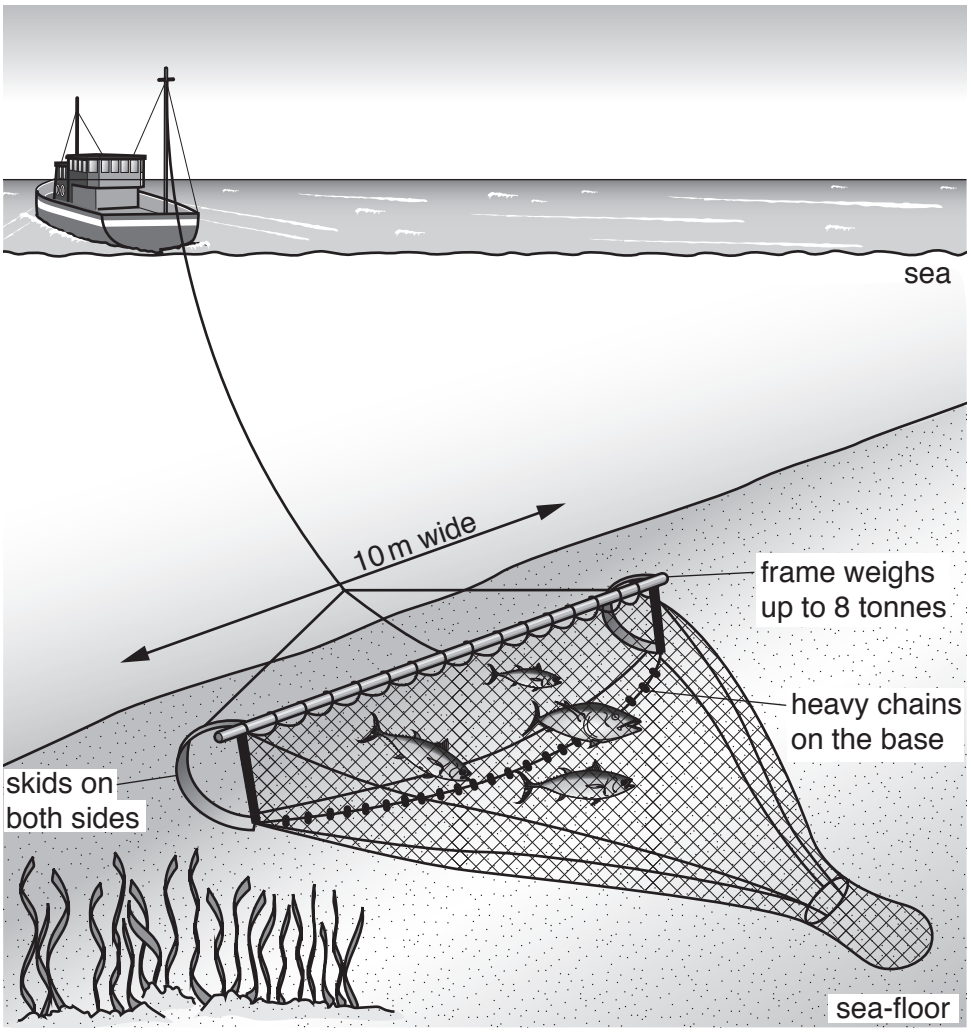
.....[6]

6 **(a)** The diagram shows a trawler and its net (trawl).



not to scale

(i) Describe how fish are caught by a trawler.

.....

.....

.....

.....[2]

(ii) Describe how trawling can damage the sea-floor.

.....

.....

.....

.....[2]

(iii) What is meant by the term *overfishing*?

.....

.....[1]

(iv) Explain why overfishing has occurred in many of the world's oceans.

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.....

.....[3]

(v) Suggest how overfishing can impact a marine food web.

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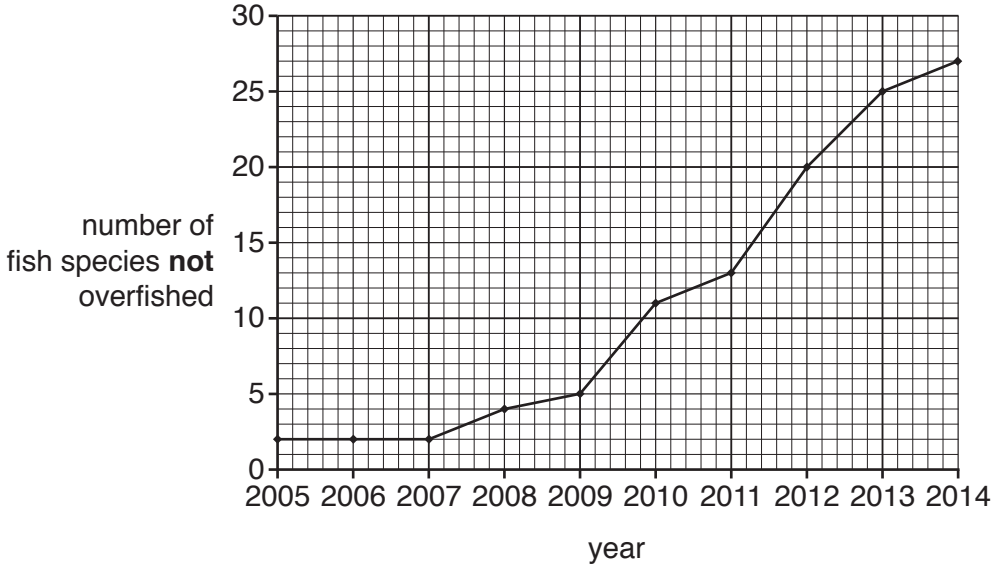
.....[3]

(b) The graph shows the number of fish species that are **not** overfished in the north east Atlantic Ocean and North Sea from 2005 to 2014.



(i) State the number of fish species that are **not** overfished in 2012.

.....[1]

(ii) Describe what the graph shows about the changes in fish species that are **not** overfished from 2005 to 2014.

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.....[3]

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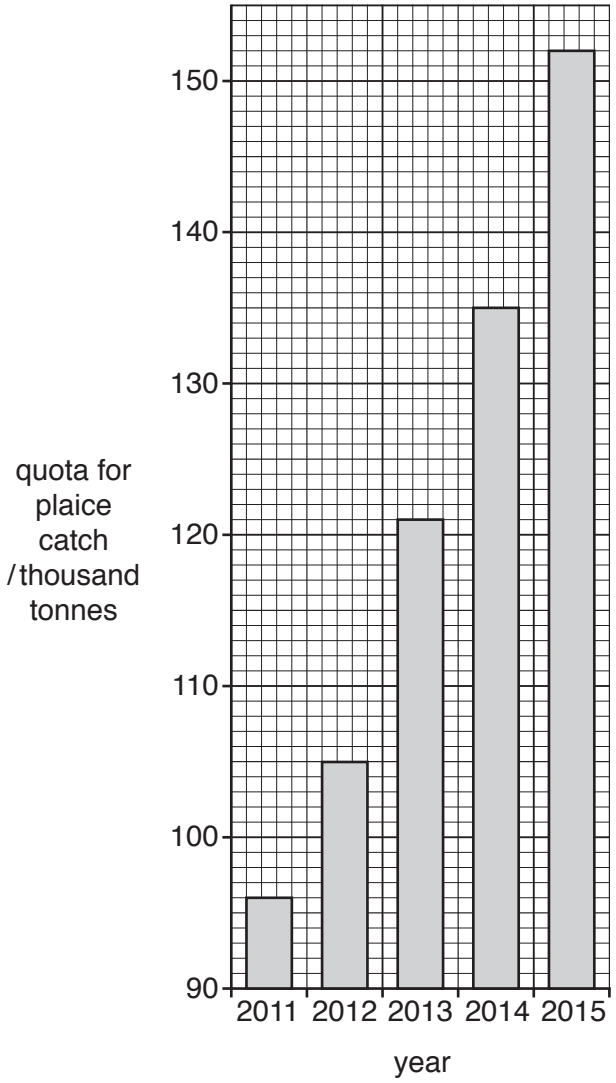
(c) The graph shows the quotas for the plaice catch in the north east Atlantic Ocean and North Sea from 2011 to 2015. Plaice are a species of fish.



(i) State the quota for the plaice catch in 2015.

..... thousand tonnes [1]

(ii) Calculate the increase in the quota for the plaice catch from 2011 to 2015.

Show your working.

..... thousand tonnes [2]

(iii) Suggest why governments have increased the quota for the plaice catch since 2011.

.....

.....[1]

(iv) Describe **three** ways in which fish stocks can be managed to reduce overfishing, other than by using quotas.

1 .....

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2 .....

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3 .....

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[3]

(d) The table shows information about tropical cyclones (hurricanes) in the Atlantic Ocean and Caribbean Sea from 2000 to 2009.

year	number of cyclones	approximate number of deaths	cost of damage /billion USD
2000	8	79	1.2
2001	9	105	7.1
2002	4	23	2.6
2003	7	92	4.4
2004	9	3100	50.0
2005	15	2280	159.0
2006	5	14	0.5
2007	6	423	3.0
2008	8	1047	42.0
2009	3	6	77.0

(i) State the year with the lowest cost of damage.

..... [1]

(ii) State the three-year period with the most cyclones.

..... [1]

(iii) Calculate the average number of cyclones per year for this ten-year period.

..... [1]

(iv) Suggest why some cyclones caused more damage than other cyclones.

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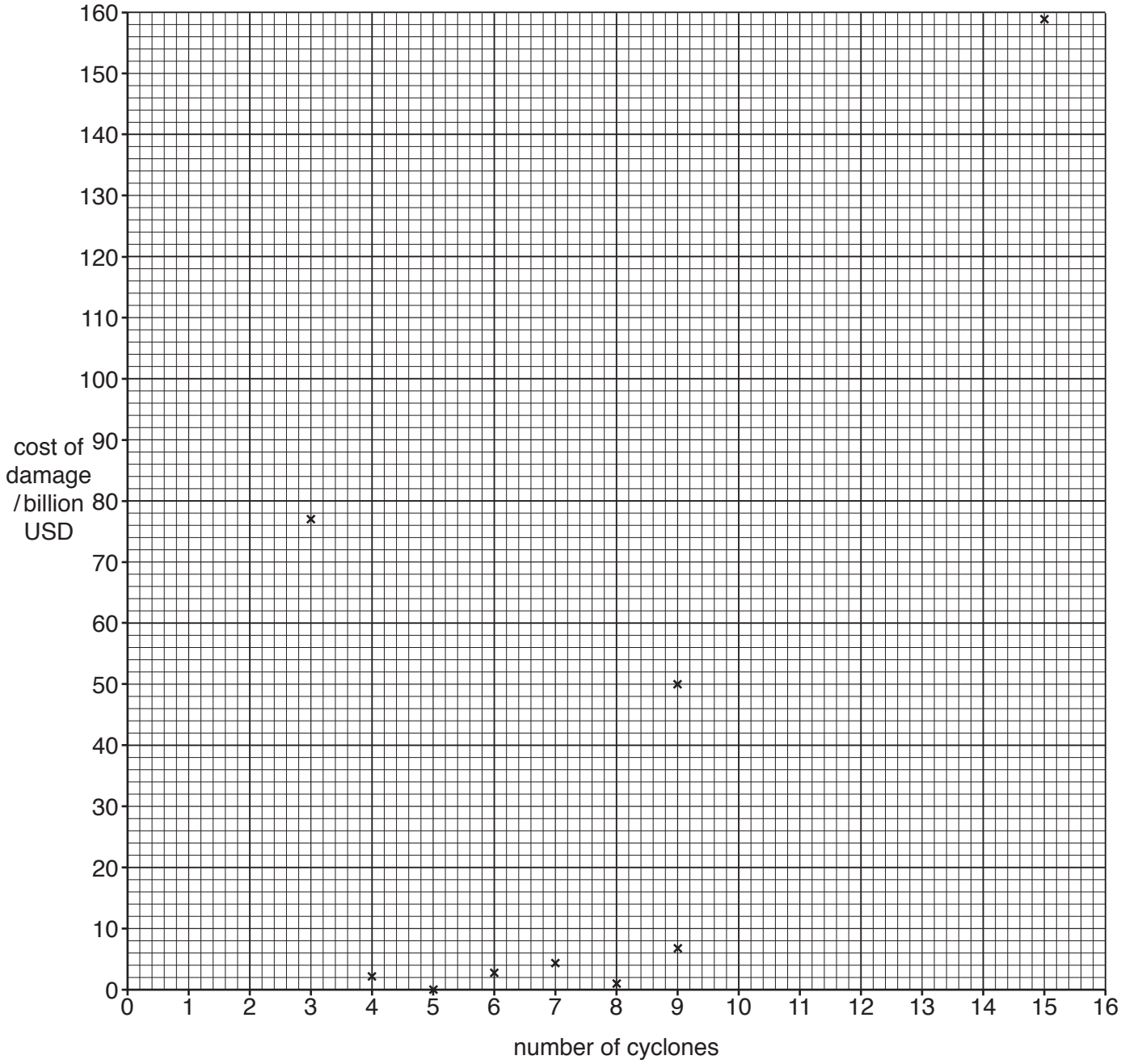
.....[3]

(v) The graph shows the number of cyclones and the cost of damage in billion USD.

Complete the graph, by adding the data for 2008 from the table in **(d)**.



[1]

(vi) Is there a relationship between the number of cyclones and the cost of damage? Justify your answer.

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.....[2]

(vii) Describe the causes of cyclones.

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.....[3]

(e) Is it possible to reduce the pollution in the oceans? Explain your answer.

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.....[6]

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