

Cambridge International Examinations

Cambridge Ordinary Level

CANDIDATE NAME					
CENTRE NUMBER			CANDIDATE NUMBER		

9 1 9 9 4 6 8 3 8 6

ENVIRONMENTAL MANAGEMENT

5014/11

Paper 1

October/November 2015
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.

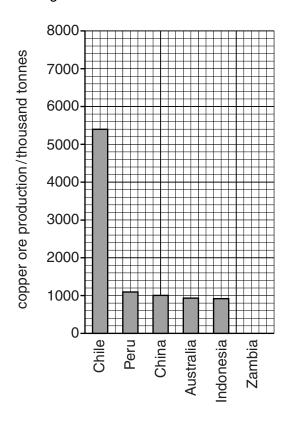
The number of marks is given in brackets [] at the end of each question or part question.

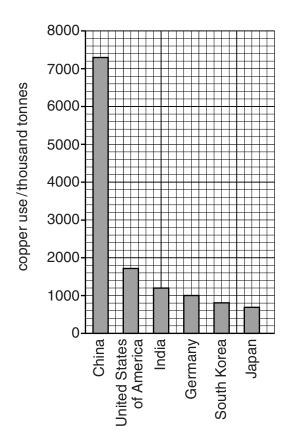


Section A

Answer all the questions.

1 (a) Look at the bar graphs, which show the main copper ore producing and the main copper using countries.





- (i) Complete the bar graph to show that copper ore production in Zambia was 800 thousand tonnes. [1]
- (ii) State the name of the country which is both a main copper ore producer and a main user of copper.

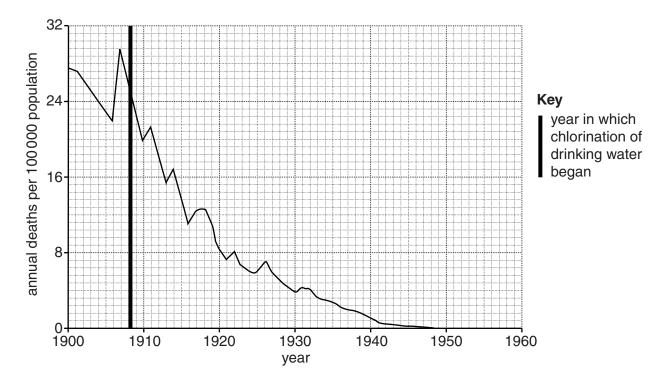
[1]

(iii) State the evidence that India has to import large amounts of copper to meet its needs.

[1

(b)	(i)	Some countries export copper to developed countries. Explain how this will benefit the government and people of the exporting country.
		[4]
	(ii)	Suggest other reasons why some countries export most of their copper ore, rather than using it within their own country.
		[3]

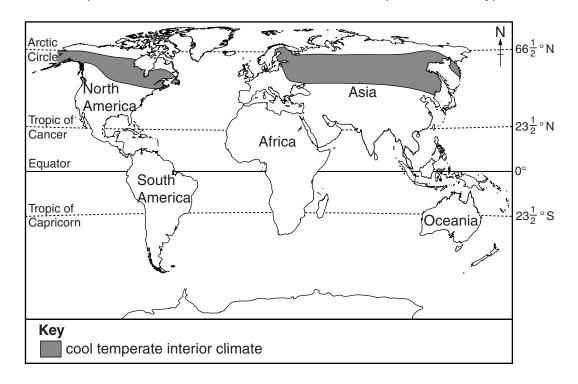
2 (a) Look at the graph, which shows annual deaths from typhoid between 1900 and 1960 in the United States of America (USA).



(i)	State the highest number of deaths per 100 000 population from typhoid in the USA in a year between 1900 and 1960.
	per 100 000 population [1]
(ii)	State the year when chlorination of drinking water started in the USA.
	[1]
(iii)	Describe the trend in the death rate from typhoid in the USA after the drinking water was chlorinated.
	[1]
(iv)	Other than chlorination, describe ways in which typhoid can be controlled.

	(V) Name one other water-borne disease.
	[1]
(b)	Explain why governments in some countries find it difficult to reduce death rates during outbreaks of diseases.
	[3]

3 Look at the map, which shows the distribution of the cool temperate interior type of climate.



(a)	Describe the distribution of the cool temperate interior type of climate.					
	[2					

(b) The table shows the temperatures for a weather station with a cool temperate interior climate.

month	J	F	М	Α	М	J	J	Α	S	0	N	D
mean monthly temperature /°C	-19	-15	-4.5	6	14.5	20	23	21	14	5	-7	-16

(i)	State the annual range of temperature at this weather static						
	Space for working.						

	00 [4]
 	. Մ[1]

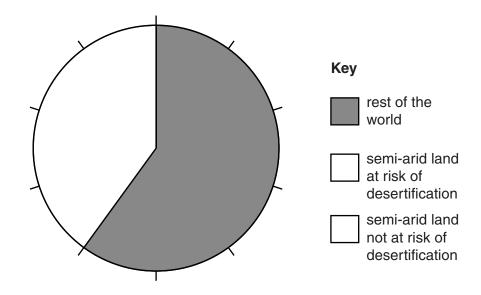
(ii)	Suggest one difficulty caused by this climate for each of the following. Give a different reason for each.
	open-pit (opencast) mining
	farming
	people
	[3]
(iii)	Explain why some people who live in this climate might welcome an increasing level of carbon dioxide in the atmosphere.
	[1]
(iv)	Name two other important gases that occur naturally in the atmosphere. Explain the importance of each for life on Earth.
	gas 1
	explanation
	gas 2
	explanation
	[3]

4 (a) Desertification occurs when soil is damaged by human activity so plants cannot grow in it. Semi-arid lands are found next to hot deserts and have an average annual rainfall between 250 and 500 mm.

The pie graph shows the percentage of the world's total land area that is semi-arid.

Complete the pie graph and key, using the information below.

	percentage of the world's total land area
semi-arid land at risk of desertification	28
semi-arid land not at risk of desertification	12
rest of the world	60



(b) Look at the information below.

The Sahel is a semi-arid region on the southern edge of the Sahara Desert. It is frequently affected by desertification during droughts but after a series of wetter years the area recovers. Images from satellites suggest the Sahara Desert is not expanding permanently, as was once thought.

(i) State the compass direction in which the Sahara Desert will expand during several years of drought.

.....[1]

[2]

(ii) Circle below the **one** climate in which there is the greatest risk of desertification.

cool temperate interior equatorial savanna tundra [1]

(c)	Exp	plain how desertification can result from:						
	(i)	poor farming practices						
		[3]						
		[0]						
	(ii)	overpopulation.						
		[1]						
(d)		igest how providing a water well in the Sahel for nomadic pastoralists to use could ult in:						
	(i)	a change in their way of life						
		[1]						
	(ii)	damage to the ecosystem.						
		[1]						

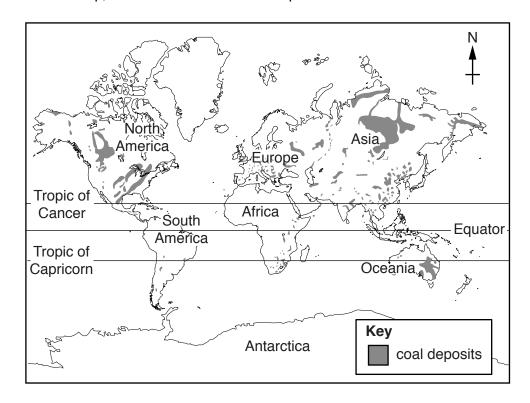
Section B

Answer **both** questions.

5 (a) Look at the graph below which shows the percentage of world energy that came from different sources in 2013.

Key	coal natural gas oil nuclear power alternative sources	
(i)	State the energy so	urce that was used most in 2013.
(ii)	Calculate the percer Space for working.	ntage of world energy that came from fossil fuels in 2013.
(iii)	Using evidence from made to world energ	n the graph, describe the contribution that alternative energy sources

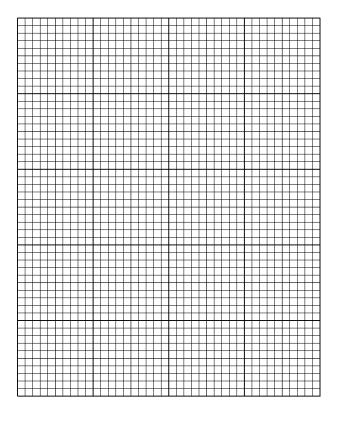
(b) Look at the map, which shows where coal deposits are found in the world.



(1)	Describe the distribution of coal deposits snown on the map.	
		[3
(ii)	Explain how coal was formed.	
		[3

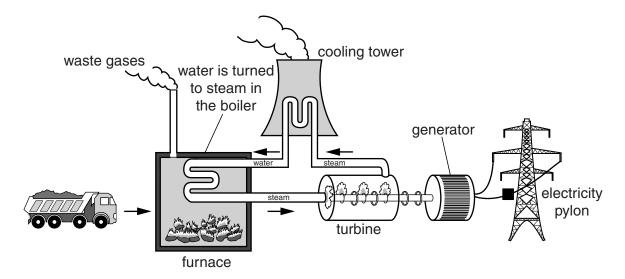
(iii) The table shows information about how fossil fuels are used to generate electricity in the United States of America. Draw a bar graph on the grid below using the data in the table. Label your axes.

fossil fuel	percentage of electrical production
oil	2
gas	25
coal	42



[4]

(c) Look at the diagram, which shows a power station that produces electricity using coal.



(1)	Using the diagram, explain now electricity is produced in the power station.	
(ii)	Suggest the environmental impacts a power station that uses coal might cause.	[0]
()		
		[4]

(d) Look at the map below, which shows a world distribution of acid rain.

	N ♠	Key
	+	acid rain
North	Asia	
America		
Tropic of Africa		
Cancer	Equator-	
_ Tropic ofAmerica	and it	
Capricorn	Oceania A	
was not		
0 6000 Antarctica		
(i) Using the map, state the name of two co	ontinents which are affecte	d by acid rain.
1		
2		ı

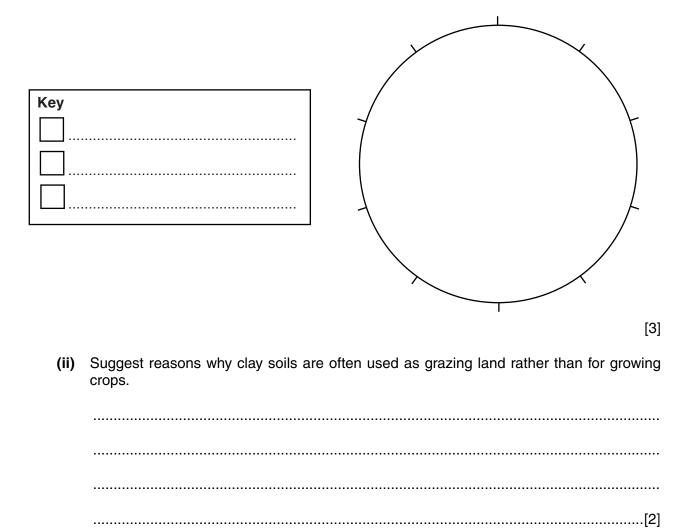
(i)	Using the map, state the name of two continents which are affected by acid rain.	
	1	
	2	2]
(ii)	Using the map, identify one continent that is not affected by acid rain. Suggest a reason for this.	'n
	continent	
	reason	
	·	 2]
(iii)	Explain how acid rain is formed.	-]
		••
		••
	[2	4]

Suggest why countries around the world do not use more alternative energy.	. ,	Explain why international agreements are needed to solve the problem of acid ra	
Suggest why countries around the world do not use more alternative energy.			
Suggest why countries around the world do not use more alternative energy.			
Suggest why countries around the world do not use more alternative energy.			
Suggest why countries around the world do not use more alternative energy.			
Suggest why countries around the world do not use more alternative energy.			
Suggest why countries around the world do not use more alternative energy.			
Suggest why countries around the world do not use more alternative energy.			
Suggest why countries around the world do not use more alternative energy.			
Suggest why countries around the world do not use more alternative energy.			
Suggest why countries around the world do not use more alternative energy.			

6 (a) (i) A student investigating soil types found out that a sample of soil contained the following particles.

soil particles	percentage composition
clay	70
sand	18
silt	12

Use this information to complete the pie graph and key below.

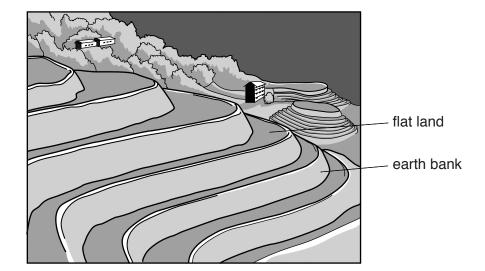


(b) Look at the information below taken from a student textbook.

Parts of northern China experience some of the worst soil erosion in the world. The soil is being washed and blown away at a very rapid rate. It is estimated that 1.6 billion tonnes of soil reach the nearby Huang He River each year. Removal of natural vegetation to grow crops is thought to be one of the causes of this soil erosion.

(i)	Suggest reasons why the development of crop farming has led to soil erosion in northern China.
	[4
(ii)	Describe two ways, other than soil erosion, in which crop farming could damage the environment.
(ii)	

(c) Look at the sketch below, which shows some terraced fields in Nepal.



,	Suggest how the terracing shown in the sketch might help to prevent soil erosion.	
		•••
		•••
		[2

© UCLES 2015 5014/11/O/N/15

(i)

(ii) Look at the diagram below, which shows other methods for preventing soil erosion.

dry land farming	rural development / programmes
methods to reduce soil erosion	
land reform	contour ploughing

Describe and explain how **two** of these methods help to reduce soil erosion.

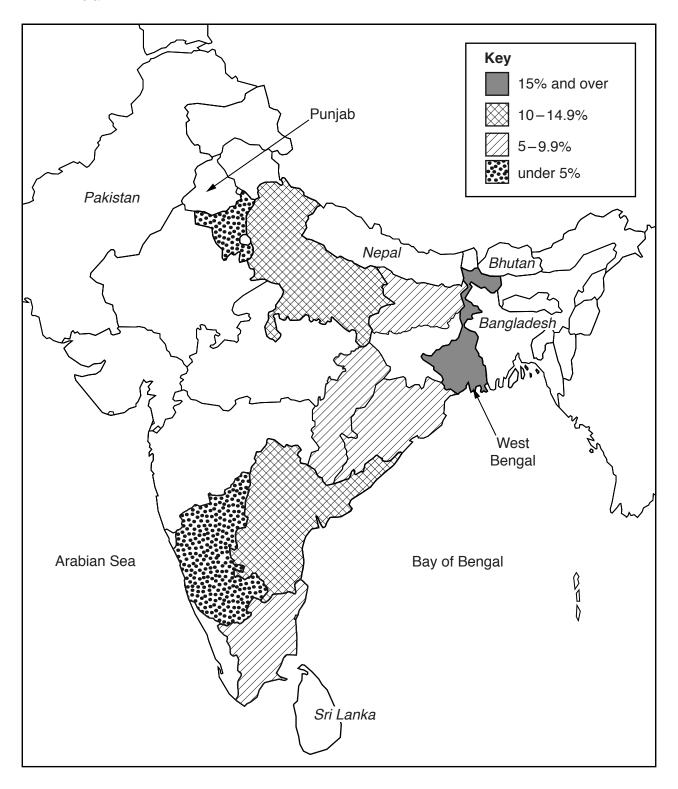
method 1

method 2

[4]

(d) Many people in India and the Ganges Valley survive through subsistence farming. Farmers grow rice in flooded fields.

Look at the map below, which shows rice production for the major rice producing states in India.

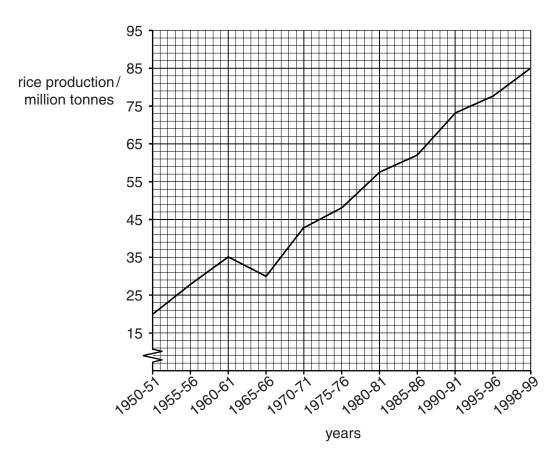


(i)	The Punjab produces 10.5% of India's rice. Use the key to complete the shading for	the
	Punjab region on the map.	[1]

(ii) State the rice production for West Ber	gal
---	-----

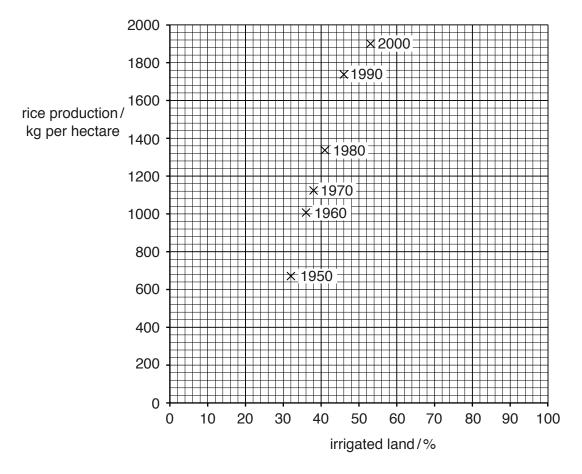
% [1]

(iii) Look at the graph below, which shows total rice production in India between 1950 and 1999.



Using evidence f between 1950 and	describe how	total rice pro	duction in India	changed
	 			[3]

(iv) Look at the graph below, which shows rice production and the area of irrigated land for another country.



Use the graph to complete the table below.

rice production in 2000	kg per hectare
irrigated land in 2000	%

- 1	-
	''
	_

(v) Calculate the increase in irrigated land from 1950 to 2000.

Space for working.

.....% [1]

Using evidence from the graph, describe the relationship between rice production and irrigated land. Suggest an explanation for the relationship.
[3]
he Green Revolution was introduced to modernise agriculture. Describe the advantages on the Green Revolution.
[4]

(f)	Suggest strategies for sustainable agriculture. Explain how these might be less damaging to the environment than other farming methods.
	[6]

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced online in the Cambridge International Examinations Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at www.cie.org.uk after the live examination series.

Cambridge International Examinations is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.