

Cambridge International Examinations Cambridge International General Certificate of Secondary Education

	CANDIDATE NAME			
	CENTRE NUMBER		CANDIDATE NUMBER	
	ENVIRONMEN	TAL MANAGEMENT		0680/21
	Paper 2		Oc	tober/November 2016
				1 hour 45 minutes
0	Candidates ans	swer on the Question Paper.		
	No Additional M	laterials 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 both 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.

This document consists of **15** printed pages and **1** blank page.



1 (a) Look at the map below, which shows the tundra biome.



(b) Look at the climate graph and data below, which show the temperature and precipitation for a weather station in the tundra region of Alaska.



(i) Using the data in the table, complete the temperature line graph for January and February. [2]

(ii) Look again at the climate graph and data on page 3 and complete the information in the table below. [3]

number of months below freezing	months
the month with the highest precipitation	
annual temperature range	°C

(iii) The tundra climate has very cold winters and cool summers and there is little precipitation. Most precipitation falls as snow. It is also windy and there is little daylight in the winter.

Describe and explain **two** ways in which plants have adapted to survive these harsh conditions.

[4]

(c) Look at the diagram below, which shows part of a tundra ecosystem.



(i) State what is meant by the term *consumer*.

[1]	

(ii) Read the information in the text box.

Some animals are moving further north into tundra regions as a result of global warming. One example is the red fox, which is a secondary consumer.

Suggest ways in which the tundra ecosystem could be affected by the movement of the red fox.

- (d) In 1968 a large oil field was discovered in the Alaskan tundra.
 - (i) Explain how the oil was formed.

 (ii) Look at the map below, which shows information about oil in Alaska. Use information from the map to complete the paragraph below.



In 1968 oil was discovered in northern Alaska. A pipeline was built to transport the oil. The pipeline runs from on the south coast of Alaska. Here the oil is taken away to markets by supertankers. The pipeline crosses the River and passes close to the town of Fairbanks. In total the pipeline is 1241 km long. [3]

(iii) Suggest why the pipeline was built rather than transporting the oil from the north of Alaska by sea in supertankers.

.....[1]

(e) Look at the photograph, which shows an oil pipeline in Alaska, and read the information.



(i) Suggest why there were concerns that building the pipeline could damage the environment.

(ii) In some places the pipeline was raised above the ground. Suggest **two** reasons why the pipeline was raised above the ground.

(f) Fossil fuels such as oil have provided much of the world's energy in the past.

Suggest reasons why some countries are developing alternative sources of energy but other countries are continuing to rely on fossil fuels.

 [6]

2 (a) Look at the bar graph below, which shows world human population growth.



- (b) Population growth is a cause of deforestation.
 - (i) Look at the photograph, which shows an area of tropical rainforest that is being cleared.



Using the photograph and your own knowledge, explain why areas of tropical rainforest such as this are being cleared.

 	 	 [5]

(ii) Look at the table below, which shows the amount of tropical rainforest cleared in South America in four different years.

year	amount of tropical rainforest cleared/km ²
2003	25247
2006	14109
2009	7464
2012	4571

Calculate the difference between the amount of tropical rainforest cleared in 2003 and 2012.

Space for working.

	km² [1]
(iii)	Describe the trend in the amount of rainforest cleared in South America. Use data from the table to support your answer.
	[2]
(iv)	Suggest a reason to explain the trend identified in (b)(iii).
	[1]
(c) (i)	Suggest how deforestation can increase global warming.
	[3]

(ii) Look at the diagram.



Using the diagram and your own knowledge, explain how deforestation would affect the soil of the tropical rainforest.

|
 |
|------|------|------|------|------|------|------|------|------|---------|
|
 |
|
 |
|
 |
|
 |
|
 |
|
 |
|
 |
[4] |

(d) Deforestation results in the destruction of habitats. Suggest other ways in which human activity can result in the destruction of habitats.

(e) National parks are set up to protect habitats. Look at the table below, which shows the number of national parks in some countries in East Africa.

country	number of national parks
Ethiopia	13
Kenya	23
Malawi	9
Uganda	10

(i) Draw a bar graph on the grid below to show the information in the table.

[4]



0680/21/O/N/16

	(ii)	Name the country with the highest number of national parks.
	(iii)	[1] Suggest why some countries have more national parks than other countries.
		[1]
	(iv)	Name one strategy, other than national parks, that can be used to conserve the biodiversity of an ecosystem.
		[1]
(f)		cribe the strategies that can be used to manage forests and their resources in a a ainable way.
		[6]

BLANK PAGE

16

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.