Surname	Centre Number	Candidate Number
Other Names		0

GCSE – NEW

3110U20-1

S18-3110U20-1

GEOGRAPHY

Unit 2: Environmental and Developmental Issues

TUESDAY, 5 JUNE 2018 – AFTERNOON

1 hour 30 minutes

	For Examiner's use only		
		Maximum Mark	Mark Awarded
	Question 1	28	
	Question 2	28	
	Writing accurately	3	
either	Question 3	24	
or	Question 4	24	
	Total	83	

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ADDITIONAL MATERIALS

In addition to this paper you may use a calculator and a ruler if required.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen. Do not use gel pen. Do not use correction fluid.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **both** questions in Section A.

Answer **one** question from Section B.

Write your answers in the spaces provided in this booklet.

If additional space is required you should use the continuation pages at the end of this booklet. The question number(s) should be clearly shown.

INFORMATION FOR CANDIDATES

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

Your ability to communicate and organise your ideas will be assessed in questions that are worth 6 or 8 marks. The accuracy of your writing will be assessed in your answer to question 2*(c)*(iv).

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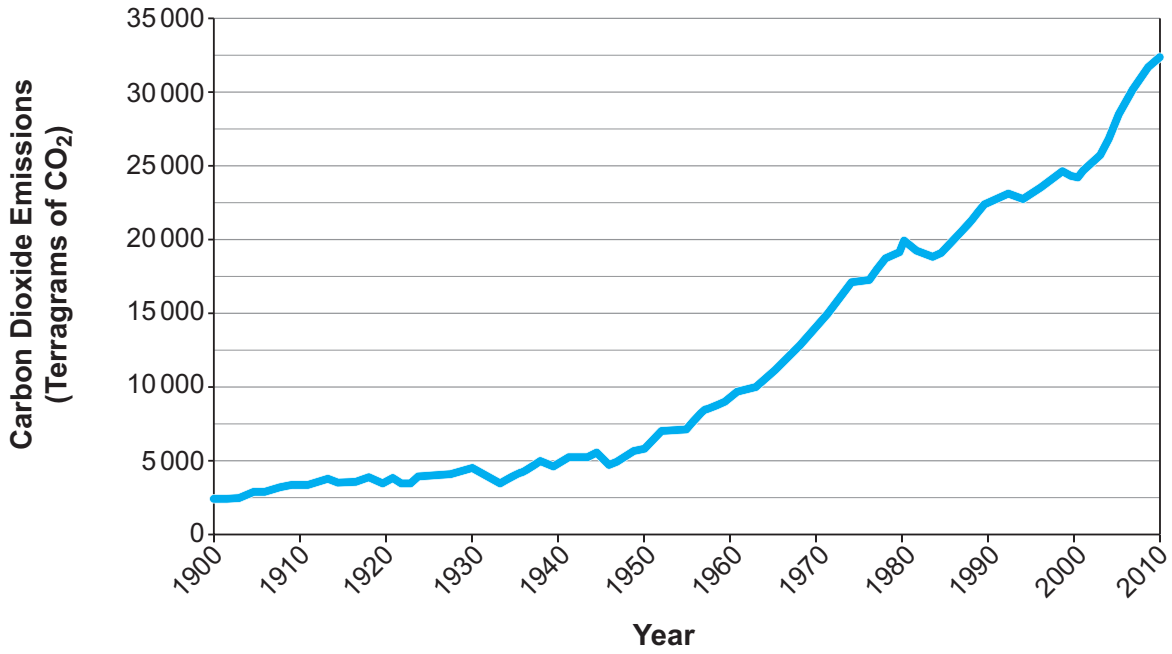
SECTION A – CORE THEMES

Answer **all** *of the questions in this section.*

THEME 5: Weather, Climate and Ecosystems

1. *(a)* Study the graph below.

Global Carbon Dioxide emissions 1900-2010



(i) Give the total increase in carbon dioxide emissions between 1900 and 2000. Tick (✓) **one** box from the options below. [1]

	Tick (✓)
25,000 terragrams	☐
17,000 terragrams	☐
21,500 terragrams	☐

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(ii) Complete the sentences by selecting the correct word from the box below. **Use each word only once.** [3]

respiration	factory	atmosphere
decomposition	forest	photosynthesis

The carbon cycle is the movement of carbon between the ..... , land (including vegetation) and the oceans.

An example of a natural carbon store is ..... .

One way that carbon moves from living things into the atmosphere is by

..... .

(iii) Ice cores can be used as evidence of climate change. Give **one** other piece of evidence that climate change is taking place. [1]

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(iv) Explain why ice cores are evidence of climate change. [4]

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(b) Study the photograph below.

Volcanic eruption in Iceland

Suggest why this eruption could contribute to climate change.
Use evidence from the photograph. [3]

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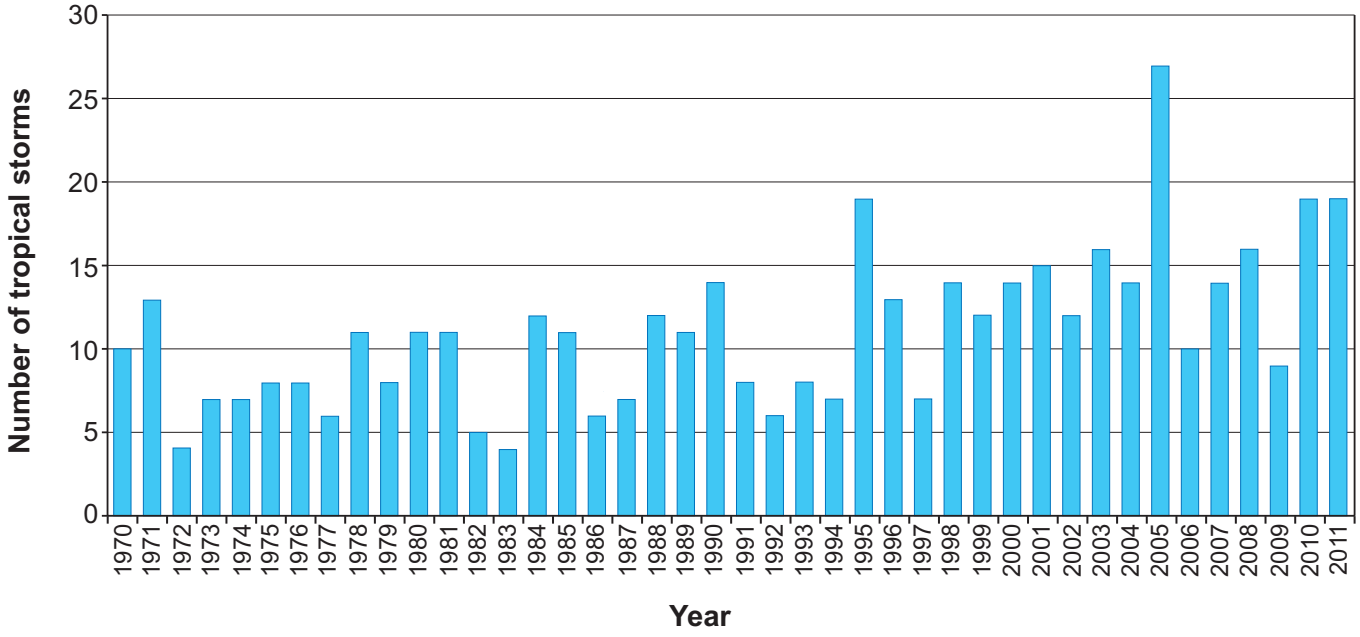
(c) Study the graph below.

The number of tropical storms in the North Atlantic (1970-2011)



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(i) Describe the trend in the number of North Atlantic tropical storms between 1970 and 2011. [2]

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(ii) Calculate the percentage increase in the number of tropical storms in the North Atlantic between these years. Show your working in the space below. [2]

Year	Number of tropical storms
1970	10
2010	19

..... % increase

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(iii) Give **one** reason why the intensity of storms may increase due to climate change. [2]

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(iv) Tick (✓) **one** box which describes the location where tropical storms begin. [1]

Tick (✓)

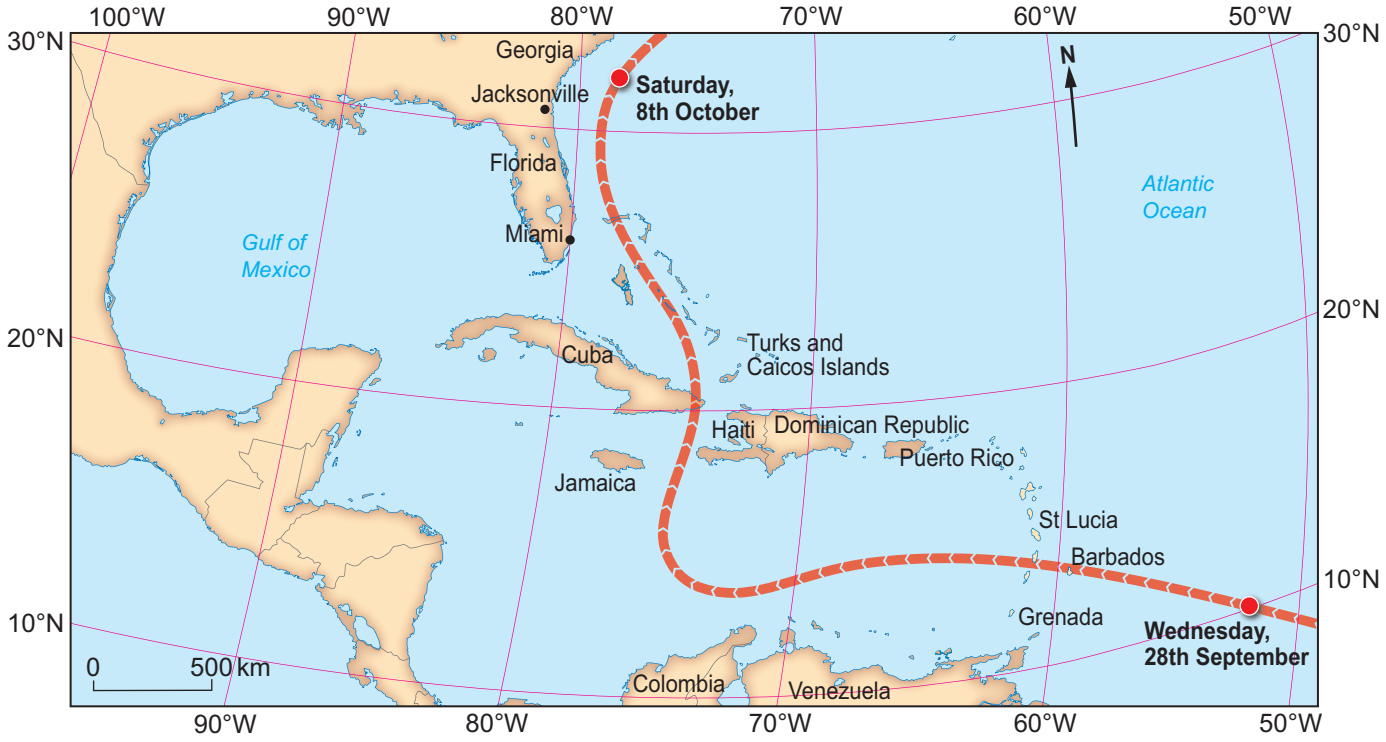
☐ North of the Tropic of Cancer

☐ South of the Tropic of Capricorn

☐ Between the Tropic of Cancer and the Tropic of Capricorn

(d) Study the map below.

The path of Hurricane Matthew in October 2016



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(i) Complete the gaps in the paragraph below to describe the path of Hurricane Matthew. [3]

Hurricane Matthew forms over the Atlantic Ocean and the first island that it affects is ..... . After travelling in a westerly direction the hurricane turns northwards and passes to the west of Haiti. On passing Cuba the hurricane turns and travels in a ..... direction. It reaches latitude ..... on Saturday 8th October.

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(ii) Study the photograph and fact box below.

The impact of Hurricane Matthew in Haiti (2016)

Population of Haiti is 10.9 million.
Total GDP of Haiti is US$8.7 billion.
Hurricane Matthew:

- caused damage estimated at US$1.89 billion;
- destroyed entire coffee and cocoa plantations;
- destroyed one hospital and damaged four others;
- left 1.4 million people in need of emergency aid;
- caused 1,600 deaths;
- led to a cholera outbreak that killed 29 people.

To what extent did Hurricane Matthew impact on people's lives and the economy of Haiti? Use evidence from the photograph and fact box. [6]

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End of Question 1

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THEME 6: Development and Resource Issues

2. *(a)* Study the table below.

Top 10 countries by Total Gross Domestic Product (GDP) 2016

Country	Total GDP ($Billion)
United States	18,562
China	11,392
Japan	4,730
Germany	3,495
United Kingdom	2,650
France	2,488
India	2,251
Italy	1,852
Brazil	1,770
Canada	1,532

(i) Calculate the range of GDP values shown in the table.
Show your working in the space below. [2]

..... $ billion

(ii) Give **two** limitations of using Total GDP as a measure of economic development. [2]

1. .....

.....

2. .....

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(iii) Complete the paragraph by selecting the correct word or phrase from the box below. [3]

development gap	Human Development Index	higher
lower	continuum of economic development	middle

Placing countries in rank order of their GDP along a line is known as the

..... .

Multinational Corporations (MNCs) are more likely to have their headquarters in countries towards the ..... part of this scale. Whereas agriculture is more likely to be the main source of income for countries towards the ..... part of this scale.

(b) Study the photograph below.

A high street in China

Suggest **one** way in which the photograph shows that China is closing the development gap. [2]

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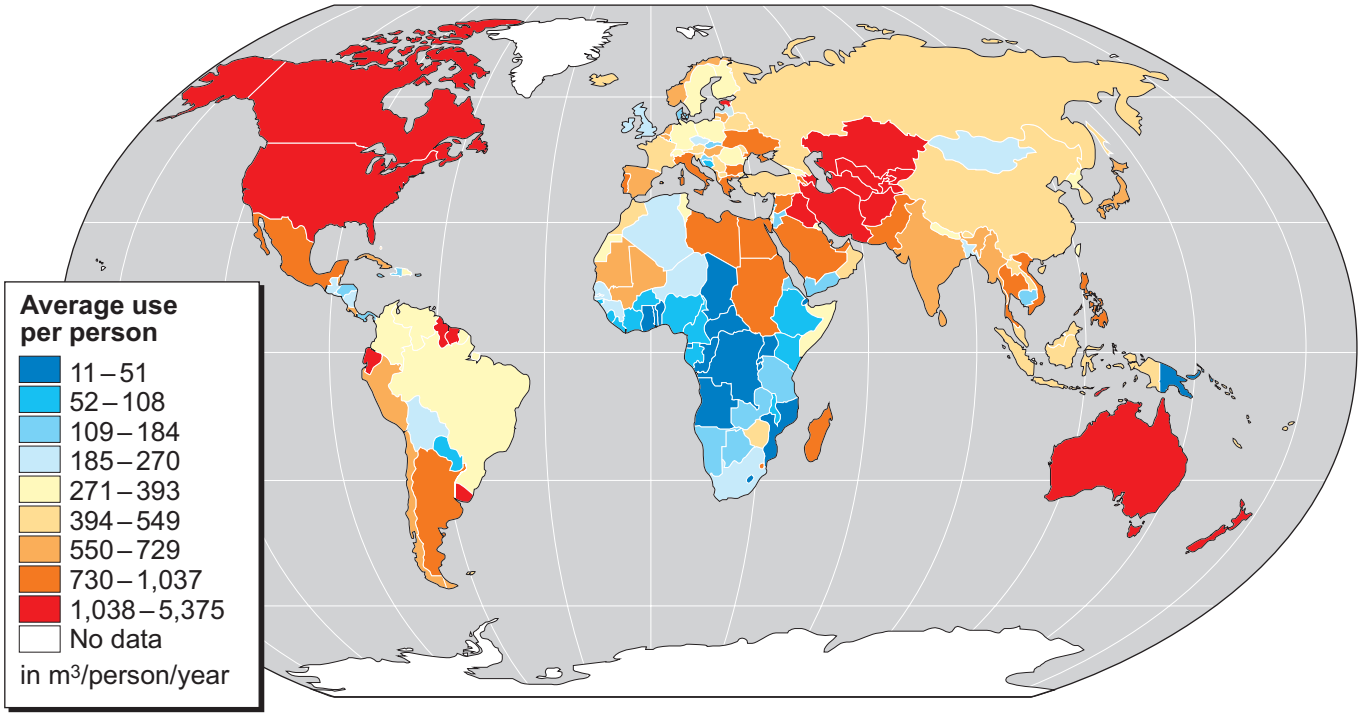
(c) Study the map below.

Water Use by country



(i) Name the mapping technique shown above. [1]

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(ii) Give **three** ways in which the map could be adapted so that it is easier to understand. [3]

1. .....

2. .....

3. .....

(iii) What is irrigation? Tick (✓) **one** box below. [1]

Tick (✓)

☐ Supplying water to land to help crops grow.

☐ Removing excess water from the land.

☐ Protecting water sources from illegal use.

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(iv) Explain why population growth and agricultural change lead to increasing demand for water. [8]

The accuracy of your writing will be assessed in your answer to this question. [3]

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(d) The Lesotho Highlands Water Project (LHWP) is a large scale international water transfer scheme. It moves large amounts of water from the mountains in Lesotho to the neighbouring country of South Africa. Study the resources below.

We have lost our land due to it being flooded when the reservoir was created. We received very little money in compensation. We have to walk to collect our water and carry it in buckets.

Villager in Lesotho

The income we receive from selling our water to South Africa is around 75% of our income. This pays for such things as medical centres and roads. The LHWP scheme is vital to our country.

Lesotho government minister

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'The advantages of the LHWP are greater than the disadvantages for Lesotho.'
To what extent do you agree with this statement?
Use evidence from the resources. [6]

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SECTION B – OPTIONS

Answer **one** *question in this section, either Question 3 or Question 4.*

THEME 7: Social Development Issues

3. *(a)* Study the table below.

Population data for Angola (2000-2014)

Year	Literacy Rate	Death Rate	Birth Rate	GDP per capita ($)
2000	57.0	25.0	46.9	1,000
2001	67.1	24.7	46.5	1,300
2002	67.5	24.3	46.2	1,600
2003	67.8	25.8	45.5	1,900
2004	68.0	25.8	45.1	2,100
2005	68.0	25.9	44.6	3,800
2006	68.3	24.2	45.1	4,400
2007	68.5	24.8	44.5	7,800
2008	69.6	24.4	44.1	8,800
2009	69.8	24.0	43.7	8,300
2010	70.1	23.7	44.3	8,200
2011	70.4	23.4	42.9	6,000
2012	70.4	12.0	39.3	6,500
2013	72.9	11.8	39.1	6,300
2014	73.1	11.6	38.9	6,500

(i) Define birth rates. Tick (✓) **one** box below. [1]

☐ The number of births in a country.

☐ The average number of children a woman has in her lifetime.

☐ The number of births per thousand of population per year in a country.

(ii) Give the median literacy rate for Angola between 2000 and 2014. [1]

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(iii) Describe the changes in death rates in Angola between 2000 and 2014. [4]

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(iv) Analyse the relationship between GDP per capita, literacy rates and natural population change in Angola. Use evidence from the table. [6]

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(b) (i) Study the box below. Give **three** more factors that lead to a change in birth rates. [3]

Factor affecting birth and death rates in sub-Saharan Africa
Age that women start a family
Availability of contraception

1. .....

2. .....

3. .....

(ii) Give **one** reason why the age at which women start a family will affect birth rates. [2]

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(c) In Angola many children work rather than go to school.

Children in Angola

Activity	**%**
Working children aged 5-14	25.7
School attendance aged 5-14	65.4
Children aged 5-14 who do not work or attend school	
Total	**100**

(i) Give the percentage of children aged 5-14 who do not work or attend school. [1]

..... %

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(ii) Study the photograph below.

Children working in Angola

Suggest **one** consequence of work for these children in Angola. Use evidence from the photograph. [2]

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(iii) Explain why it is difficult to increase the percentage of girls in education in sub-Saharan Africa. [4]

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End of Question 3

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If you have answered Question 3 **do not** *answer Question 4.*

THEME 8: Environmental Challenges

4. *(a)* Study the table below.

Ecological footprint, Population and GNI per person data

Country	Ecological Footprint 2016 (gha/person)	Population 2016 (millions)	GNI per Capita 2015 (US$)
Qatar	11.68	2.2	138,480
Kuwait	9.72	4.0	84,360
United Arab Emirates	8.44	9.2	70,020
Denmark	8.25	5.6	49,240
USA	7.19	324.1	57,540
Australia	6.68	24.3	45,320
Canada	6.43	36.3	43,900
Netherlands	6.34	16.9	49,410
Ireland	6.22	4.7	54,610
Botswana	2.84	2.3	15,510
South Africa	2.59	55.0	12,870
Egypt	2.06	93.3	10,710
Namibia	2.03	2.5	10,380
Tunisia	1.78	11.3	11,100
Mali	1.76	18.1	1,970

(gha = global hectares)

Key to **groups** of countries

- oil producing countries
- HICs
- countries in sub-Saharan Africa
- North African countries

(i) Define the term ecological footprint. Tick (✓) **one** box below. [1]

Tick (✓)

- ☐ A measurement of the number of plant species in a square metre.
- ☐ A measure of the amount of environmental damage tourists make when walking in the countryside.
- ☐ A measure of the impact each person has on the environment.

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(ii) Give the median ecological footprint for the countries shown in the table. [1]

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(iii) Describe the variations in ecological footprints between the **groups** of countries shown. [4]

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(iv) Analyse the relationship between ecological footprint, population and GNI per capita. Use evidence from the table. [6]

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(v) Give **three** factors that are measured when calculating a country's ecological footprint. [3]

The amount of land needed for

1. .....

2. .....

3. .....

(vi) Give **one** reason why consumerism has led to destruction of ecosystems. [2]

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(b) Climate change is one consequence of increasing ecological footprints.

In 2003, Europe suffered a severe heatwave. The countries which suffered the most deaths were France, Germany and Spain.

Country	**% of total deaths**
France	55.7
Germany	27.7
Spain	
Total	**100**

Use the table to give the percentage of deaths in Spain. [1]

.....%

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(c) Study the photograph below, which was taken in Spain.

(i) Suggest **one** consequence of climate change. Use evidence from the photograph. [2]

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(ii) Explain why it is difficult for governments to reduce greenhouse gas emissions. [4]

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End of Question 4

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