Centre Number						Candidate Number				
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For Examiner's Use	
Examiner's Initials	
Question	Mark
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General Certificate of Education
Advanced Subsidiary Examination
January 2010

Geography GEOG1

Unit 1 Physical and Human Geography

Friday 15 January 2010 9.00 am to 11.00 am

You will need no other materials.
You may use a calculator.

Time allowed
- 2 hours

Instructions
- Use black ink or black ball-point pen. Use pencil only for drawing.
- Fill in the boxes at the top of this page.
- You must answer the questions in the spaces provided. Answers written in margins or on blank pages will not be marked.
- Answer Question 1 and **one other** from **Section A** and Question 5 and **one other** from **Section B**.
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information
- The marks for questions are shown in brackets.
- The maximum mark for this paper is 120.
- Each question is worth 30 marks.
- You are expected to use a calculator where appropriate.
- You will be marked on your ability to:
  – use good English
  – organise information clearly
  – use specialist vocabulary where appropriate.

Advice
- Where appropriate, sketch maps and diagrams should be used to illustrate answers and reference made to examples and case studies.
- You are advised to spend about 60 minutes on Section A and about 60 minutes on Section B.

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SECTION A

Answer **Question 1** and **one other** question from this section.

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1 RIVERS, FLOODS AND MANAGEMENT

1 (a) Describe how water reaches a river channel in a drainage basin.

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1 (b) Shawbury is situated in the drainage basin of the River Severn.
Information on rainfall for two separate periods is shown in **Figures 1a** and **1b**.

Figure 1a

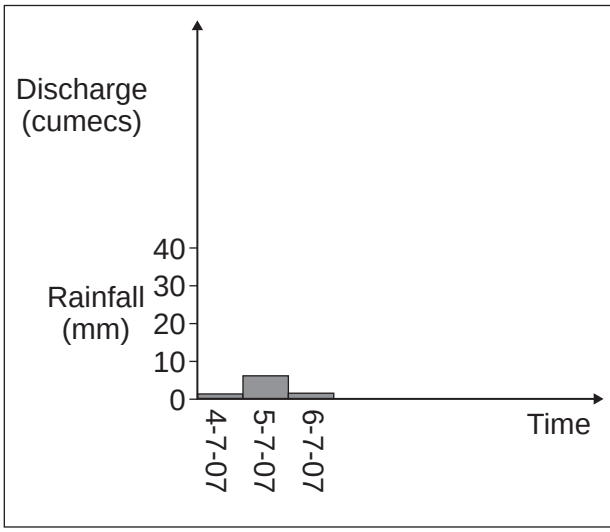
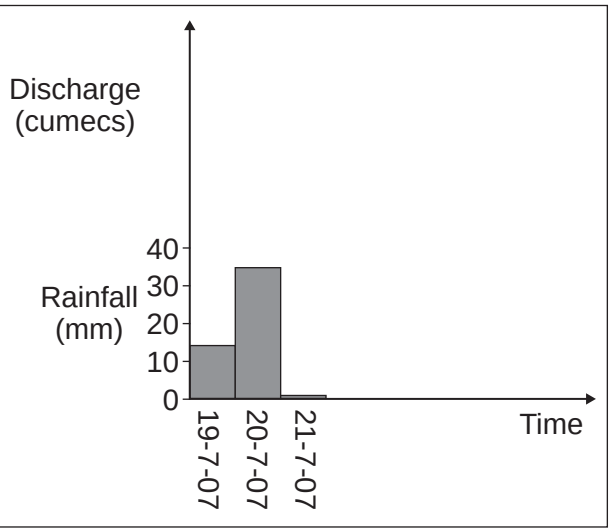


Figure 1b



1 (b) (i) Draw sketch hydrographs on **Figures 1a** and **1b** to show the contrasting effects of **each of the two** rainfall periods on river discharge.

(3 marks)

1 (b) (ii) Suggest reasons for the differences in the shapes of the hydrographs that you have drawn in 1(b)(i).

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1 (c) Study **Figure 2** which shows an area of deciduous forest.

Figure 2

1 (c) Explain likely effects of the forest on river discharge.

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1 (d) Discuss the advantages and disadvantages of hard engineering as a flood management strategy.

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2 COLD ENVIRONMENTS

2 (a) Outline the global distribution of alpine cold environments.

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2 (b) Study **Figure 3** which shows a landscape formed by glacial erosion in Glacier National Park, USA.

Figure 3

2 (b) (i) Describe the landforms resulting from glacial erosion shown in **Figure 3**.

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2 (b) (ii) Choose **one** of the landforms of glacial erosion shown in **Figure 3**.

Name the landform and explain its formation.

Name of landform .....

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2 (c) Study **Figure 4** which is an extract from a news report on the use of a cold environment.

Figure 4

Save our blighted Everest, says Sir Edmund Hillary

Sir Edmund Hillary, who died last Thursday, had become concerned in recent years with the piles of rubbish left by climbing parties on Everest – estimated to weigh as much as 200 tonnes – as well as the risks presented to the native population by vast lakes formed by melting glaciers as a result of climate change.

The glacier where Sir Edmund and Tensing Norgay pitched their base camp before their assault on the 8848 metre summit has retreated 4.8 km in the past 20 years. The rate of glacial melt accelerated from an average of 40 metres a year in the 40 years to 2001 to 74 metres a year in 2006.

The Himalayan Trust has applauded recent efforts to remove much of the rubbish, including large amounts of empty oxygen bottles, which litter the trail to the summit. But the creeping commercialisation of the pristine mountain which Sir Edmund would have seen continues unabated.

Some 1700 people are estimated to have reached the summit since Sir Edmund and Norgay. Growing numbers of people are willing to pay an average of £27 000 to join one of dozens of expeditions each year. At one point in 2007, more than 100 people reached the summit in a single day.

2 (c) Using **Figure 4** and your own knowledge, explain why many cold environments are fragile and how they can be cared for to ensure sustainability.

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3 COASTAL ENVIRONMENTS

3 (a) Study **Figures 5a** and **5b** which show part of Happisburgh, Norfolk, in 2002 and 2007 respectively.

Figure 5a

Figure 5b

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3 (a) (i) Outline evidence that suggests marine erosion is occurring along this coast.

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3 (a) (ii) **Figure 5a** shows revetments.

Suggest reasons why revetments were ineffective in protecting this coast.

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3 (b) Describe processes of transportation on a beach.

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3 (c) Explain the causes of sea level change and the formation of resultant coastal landforms.

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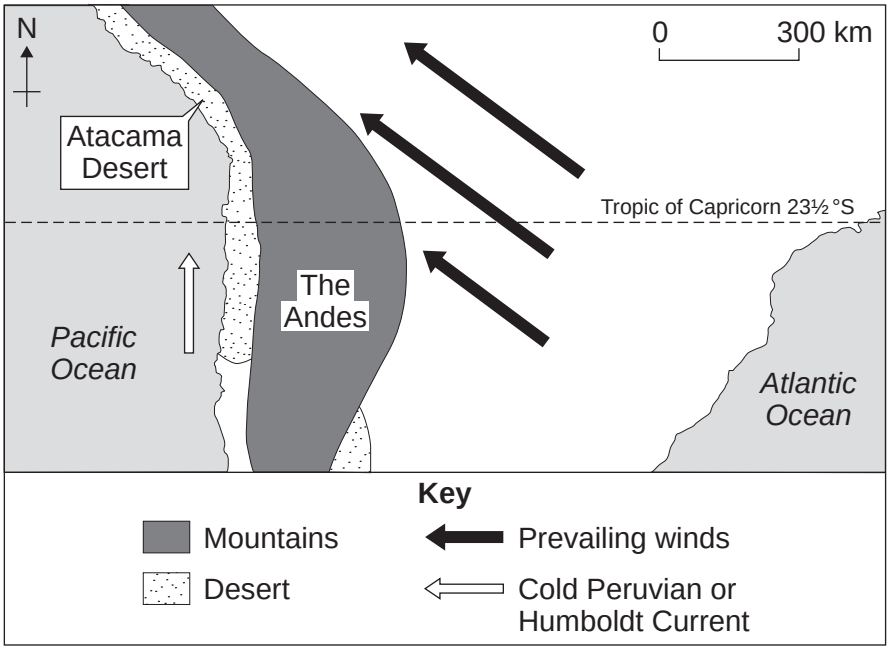
4 HOT DESERT ENVIRONMENTS AND THEIR MARGINS

4 (a) Study **Figure 6** which shows some causes of aridity in the Atacama Desert, South America.

Figure 6



4 (a) Outline how the cold ocean current and the mountains are responsible for aridity in the Atacama Desert.

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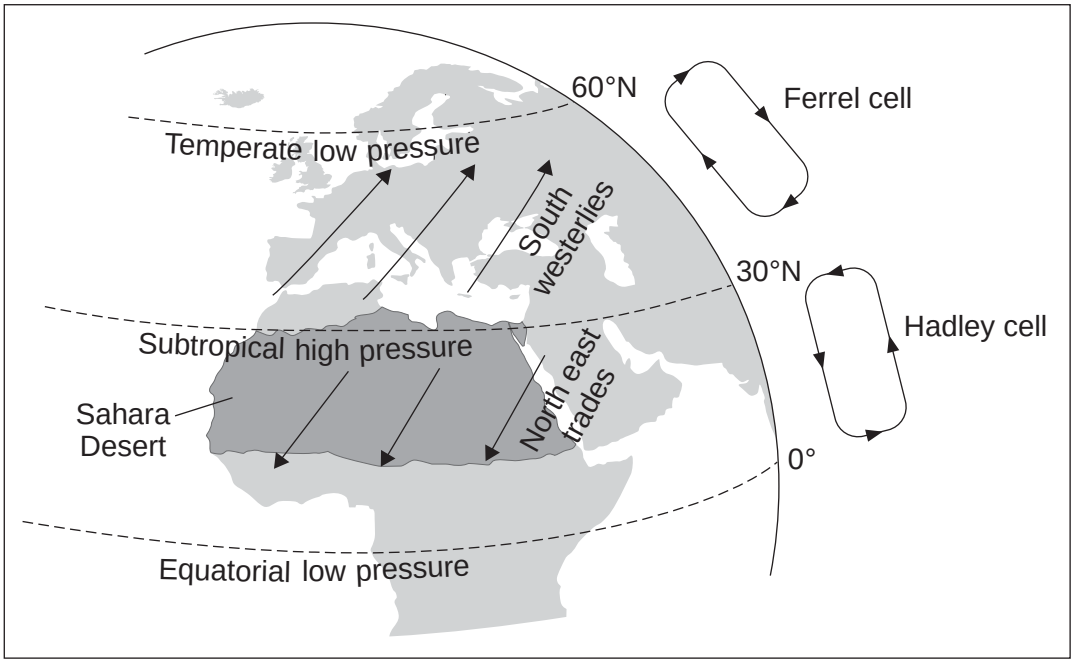
4 (b) Study **Figure 7** which shows part of the pattern of atmospheric circulation in the northern hemisphere, and the location of the Sahara Desert.

Figure 7



4 (b) Outline how the atmospheric circulation is responsible for the aridity in the Sahara.

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4 (c) Describe the role of wind action in the formation of yardangs and zeugen.

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4 (d) To what extent do you agree that the human causes of desertification are more important than the physical causes?

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Turn over for Section B

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SECTION B

Answer **Question 5** and **one other** question from this section.

5 POPULATION CHANGE

5 (a) Distinguish between birth rate and fertility rate.

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5 (b) Study **Figure 8** which gives information on infant mortality rate and GDP per capita for selected countries in 2005.

Figure 8

Country	Infant mortality rate (per 1000 live births per year)	GDP per capita (US$)
Botswana	87	12 387
Brazil	31	8 402
China	23	6 757
India	56	3 452
Japan	3	31 267
Malaysia	10	10 882
Sudan	62	2 083
Thailand	18	8 677
United Kingdom	5	33 238
United States	6	41 890

5 (b) Outline the usefulness of infant mortality rate as an indicator of development.

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5 (c) Study **Figure 9** which shows average life expectancy by country in 2007.

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5 (c) Describe and suggest reasons for the pattern shown in **Figure 9**.

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5 (d) For any **two** of the following types of area, summarise the contrasts between them and explain the implications of these contrasts for social welfare:

- inner city
- suburban
- rural–urban fringe
- rural settlement.

Chosen areas .....

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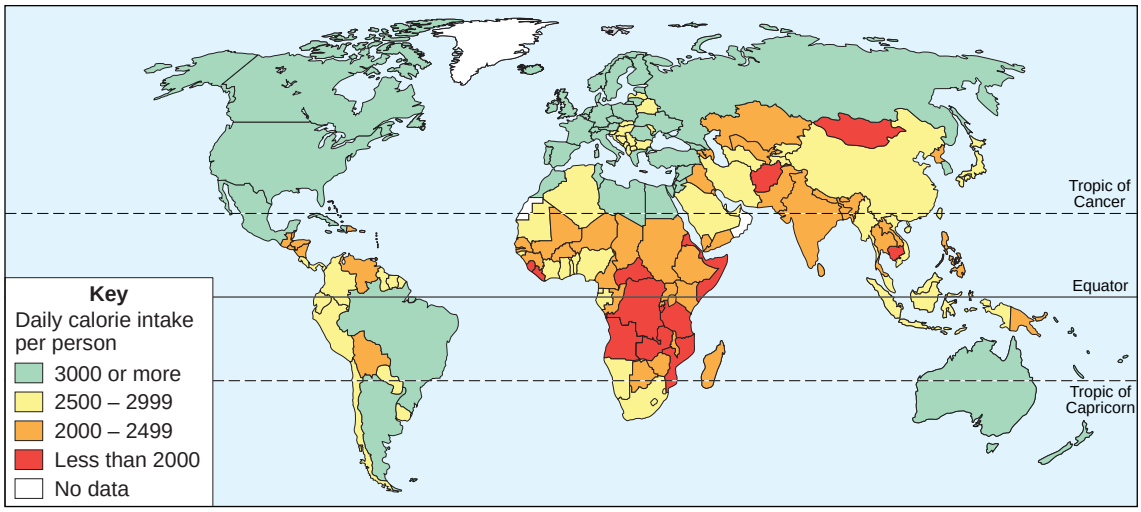
6 FOOD SUPPLY ISSUES

6 (a) Study **Figure 10** which shows the average daily calorie intake per person by country in 2004.

Figure 10



6 (a) (i) Describe the pattern shown in **Figure 10**.

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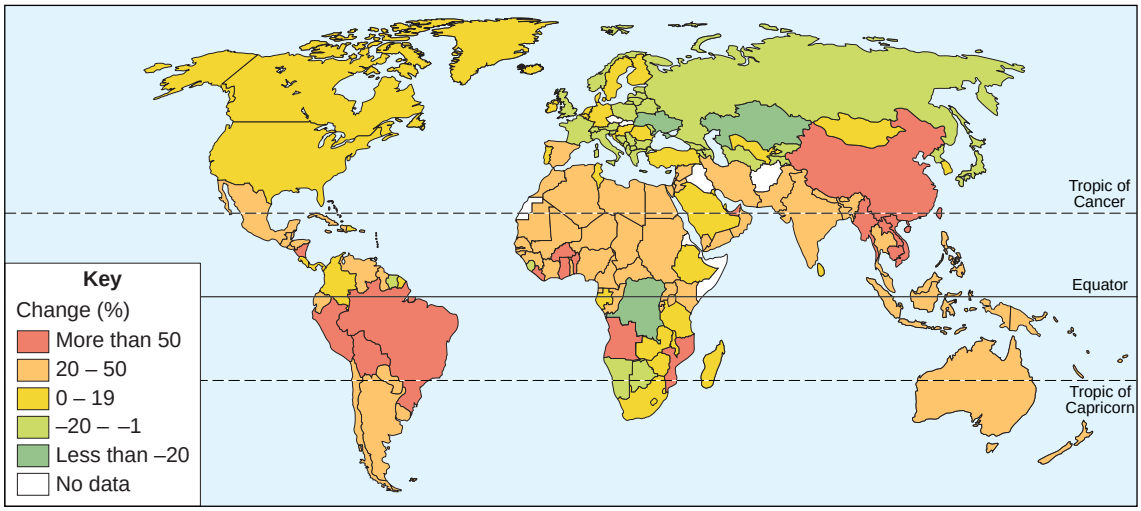
6 (a) (ii) Study **Figure 11** which shows change in agricultural production per person from 1993 to 2003.

Figure 11



6 (a) (ii) Analyse the relationship between **Figure 10** and **Figure 11**.

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6 (b) Describe the characteristics of an intensive subsistence agricultural system.

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6 (c) Outline strategies adopted to control food production in the EU and comment on their effectiveness.

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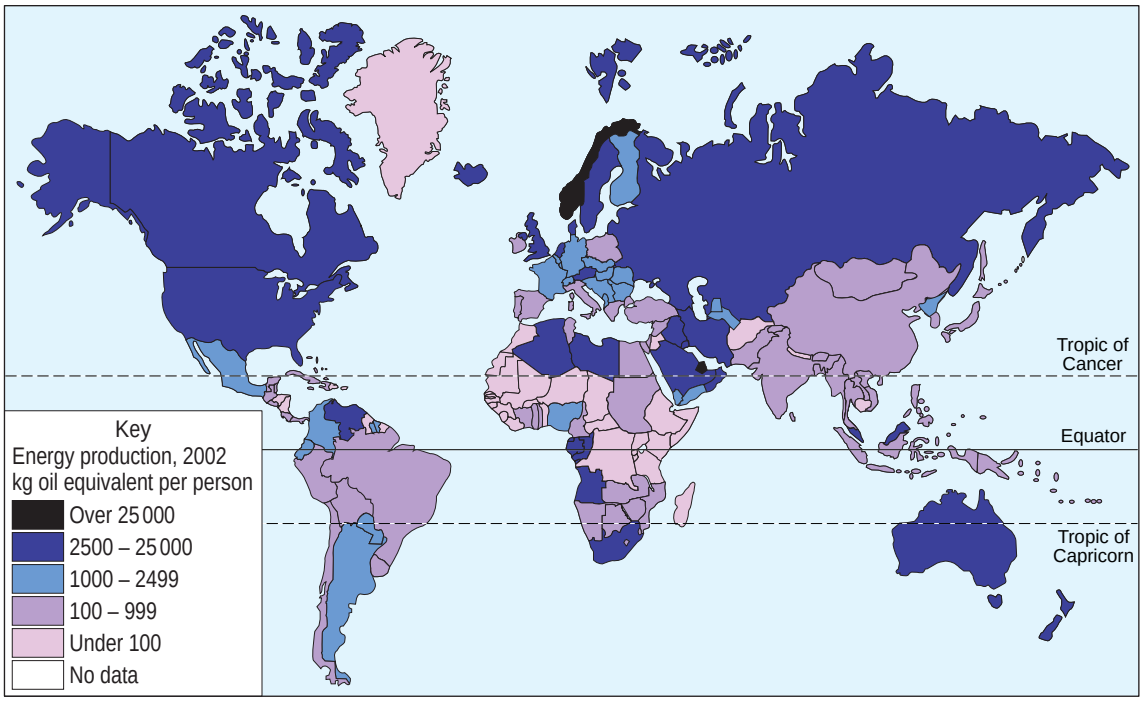
7 ENERGY ISSUES

7 (a) Study **Figure 12** which shows world energy production by country in 2002.

Figure 12



7 (a) (i) Describe the pattern shown in **Figure 12**.

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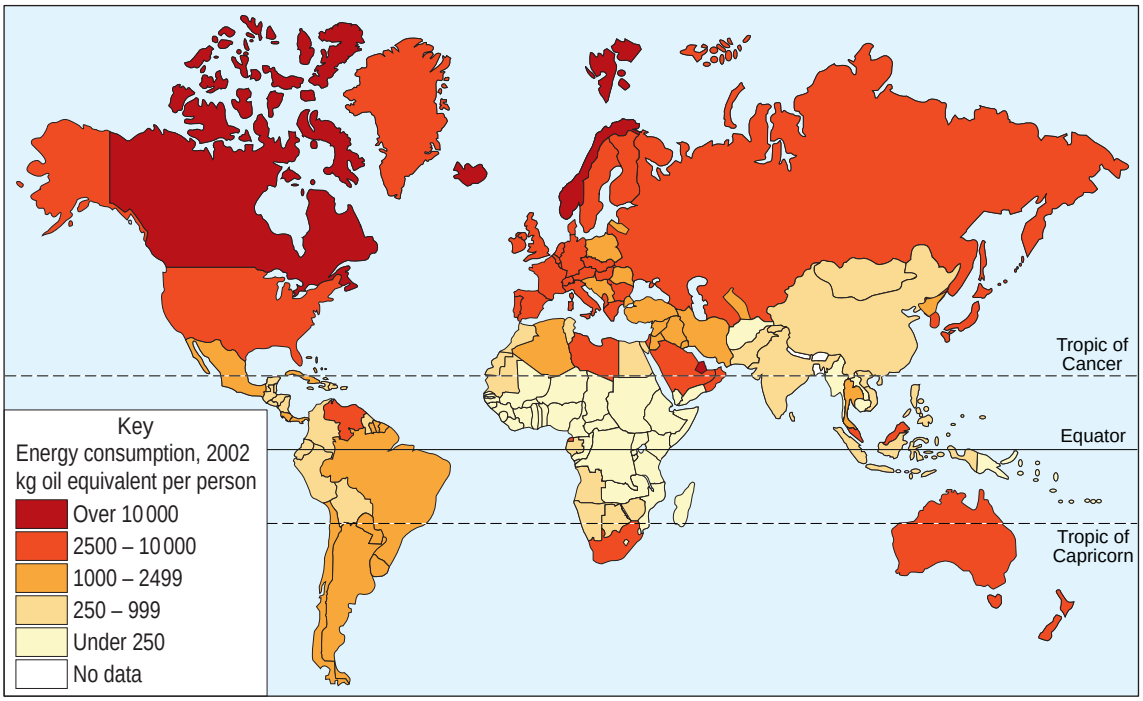
7 (a) (ii) Study **Figure 13** which shows world energy consumption in 2002.

Figure 13



7 (a) (ii) Analyse the relationship between **Figure 12** and **Figure 13**.

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7 (b) Outline the advantages of renewable energy resources.

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7 (c) To what extent is the global supply of energy dependent on co-operation between different countries?

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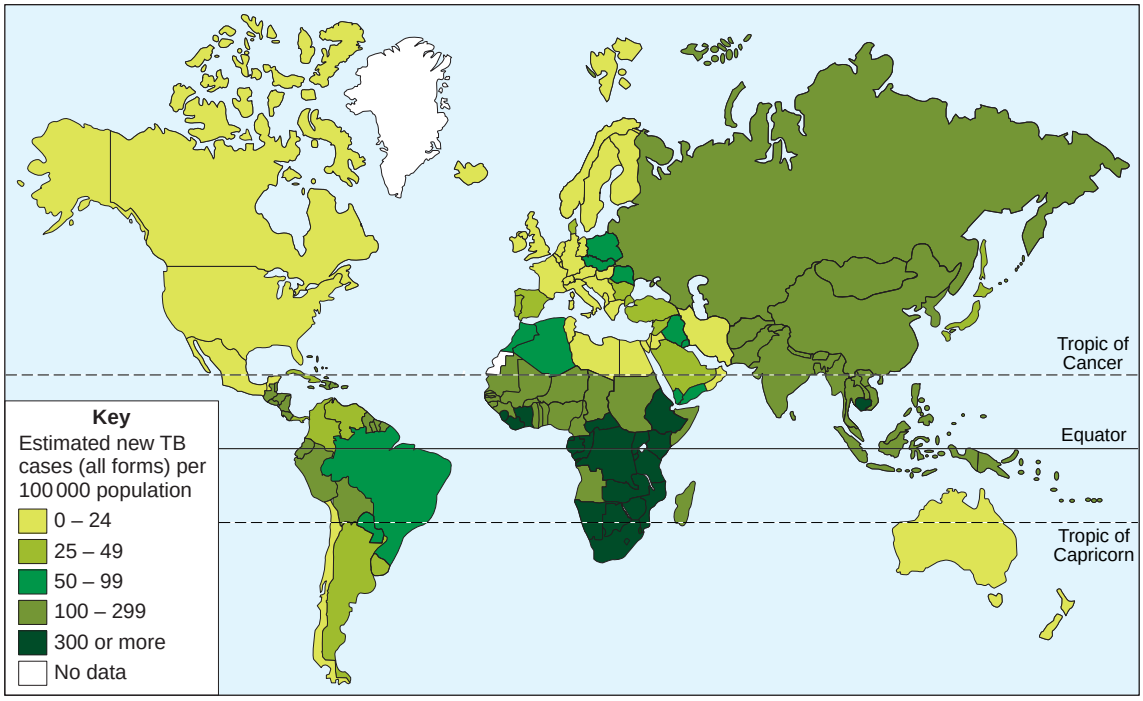
8 HEALTH ISSUES

8 (a) Study **Figure 14** which shows the estimated occurrence of the infectious disease tuberculosis (TB) by country in 2005.

Figure 14



8 (a) (i) Describe the pattern shown in **Figure 14**.

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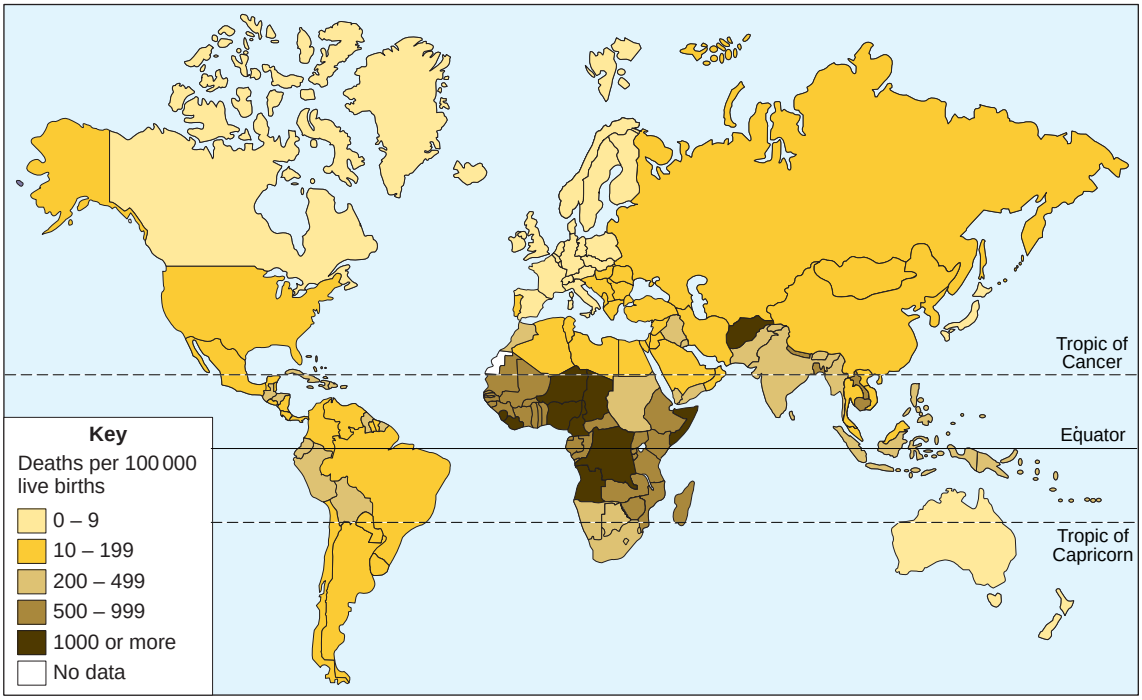
8 (a) (ii) Study **Figure 15** which shows the global maternal mortality rate (the number of deaths of mothers per 100 000 live births) in 2005.

Figure 15



8 (a) (ii) Examine the relationship between **Figure 14** and **Figure 15**.

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8 (b) Outline the impact of **one** infectious disease on the lifestyle of the people affected.

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8 (c) Discuss the impact of obesity on people's health and the strategies adopted to care for people with obesity.

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END OF QUESTIONS

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Question 3	Figures 5a and 5b:	www.mike-page.co.uk
Question 4	Figures 6 and 7:	*Arid and Semi-Arid Environments*, MICHAEL HILL, Hodder Murray, 2002, © 2002 Michael Hill. Reproduced by permission of John Murray (Publishers) Ltd.
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Question 8	Figure 14:	World Resources Institute
Question 8	Figure 15:	www.who.int/research/WHO_maternal_mortality_ratio.pdf