

**GEOGRAPHY
HIGHER LEVEL
PAPER 2**

Thursday 16 November 2006 (morning)

2 hours 30 minutes

INSTRUCTIONS TO CANDIDATES

- Do not open this examination paper until instructed to do so.
- Answer four questions:
 - two from Section A;
 - one from Section B;
 - one other from any Section (A, B or C).
- Each question must be selected from a different theme.

SECTION A

Answer at least **two** questions from this section and each question must be taken from a different theme. (Do not answer both an essay and a structured question on the same theme.)

Case studies and examples should be used to illustrate answers and, where appropriate, they should be specifically located. Include well drawn, large, relevant maps, sketches, tables and diagrams as often as applicable.

A1. Drainage basins and their management

Either

(a) Essay

Examine the ways in which river landforms can influence human activity. [20 marks]

Or

(b) Structured question

The table below shows hydrological data for two streams.

Data Type	Stream A	Stream B
Width of the channel	9.6 metres	6.4 metres
Area of cross-section	7.5 square metres	6.6 square metres
Mean velocity	0.8 metres/second	1.4 metres/second
Discharge	6.0 m ³ /second	9.24 m ³ /second
Wetted perimeter	11.5 metres	7.5 metres
Hydraulic radius	0.65	0.88

- (i) Describe how the discharge and the hydraulic radius of the streams were calculated from the data given in the table. [2+2 marks]
- (ii) Give a reason why stream B is the most efficient. [1 mark]
- (iii) Explain how the characteristics of a channel affect stream velocity. [7 marks]
- (iv) Explain why humans modify natural river channels. [8 marks]

A2. Coasts and their management*Either***(a) Essay**

Evaluate the attempts people have made to protect themselves against a specific coastal hazard. Briefly explain why people continue to live in coastal regions known to be hazardous.

*[20 marks]**Or***(b) Structured question**

If you choose to answer this question refer to the photograph in the Resources Booklet.

The photograph shows a structure known as a revetment. It was constructed to prevent coastal erosion.

- (i) State **two** physical factors which would need to be considered when designing the most effective size of revetment. *[2 marks]*
- (ii) Explain how this type of structure can prevent coastal erosion. *[3 marks]*
- (iii) Analyse the natural factors that cause different rates of coastal erosion. *[8 marks]*
- (iv) Explain why some rapidly eroding coastlines are actively managed and others are not. *[7 marks]*

A3. Arid environments and their management

Either

(a) Essay

“Human activity in arid and semi-arid areas is affected more by strong winds than by scarcity of water.”

Evaluate this statement.

[20 marks]

Or

(b) Structured question

If you choose to answer this question refer to the two photographs in the Resources Booklet.

The photographs are of the same area in south-west USA. Photograph A was taken in 1899 and photograph B was taken in 1997.

- (i) State **two** reasons why the area shown in the photographs is described as a semi-arid region. [2 marks]
- (ii) Name the type of feature shown at X in the centre of the photographs and explain its formation. [4 marks]
- (iii) Suggest possible reasons for the changes in vegetation cover in the south-west USA since photograph A was taken. [4 marks]
- (iv) Referring to examples, examine the characteristics, fertility and agricultural value of soils in areas of aridity. [10 marks]

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A4. Lithospheric processes and hazards

Either

(a) Essay

Explain why there are variations in the speed of mass movements. Examine how both rapid mass movements and slow mass movements cause problems for people.

[20 marks]

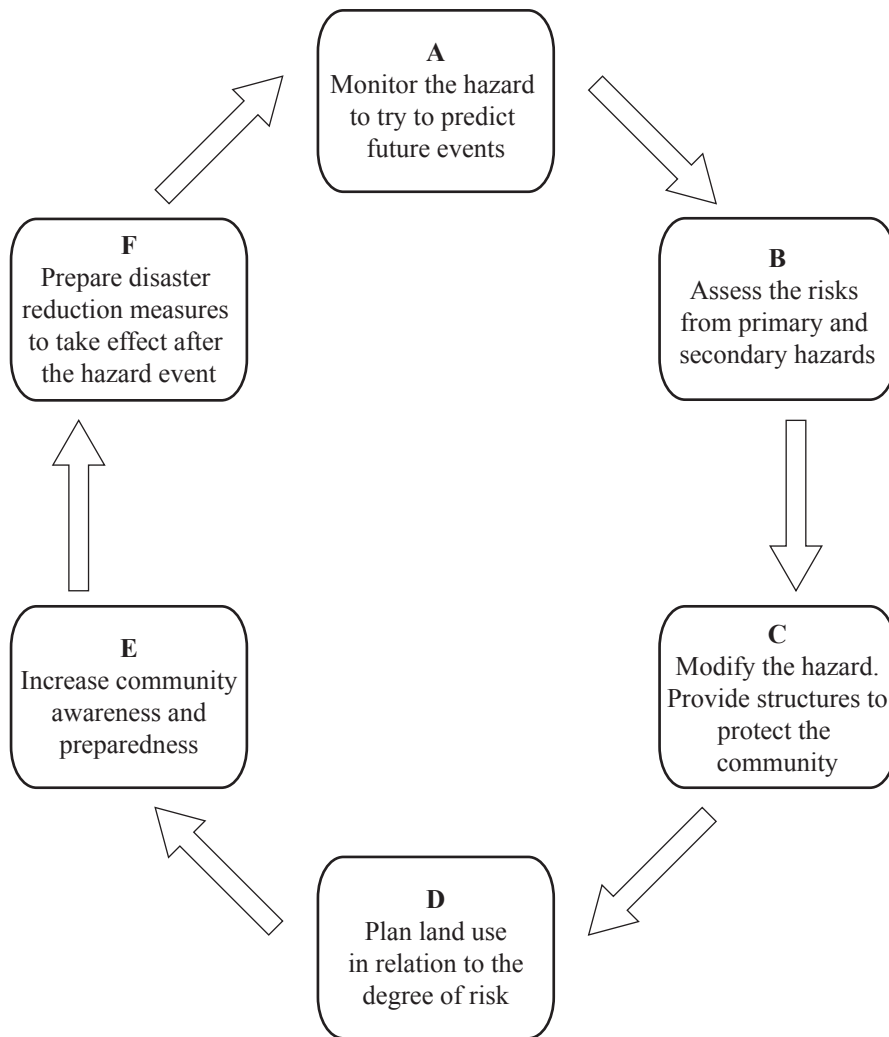
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(Question A4 continued)

Or

(b) Structured question

The diagram below shows a management strategy cycle for an area that is at risk from natural hazards.



[Source: adapted from K Smith (1996), *Environmental hazards: assessing risk and reducing disaster*]

- (i) Describe how volcanoes are monitored to try to predict eruptions. [4 marks]

- (ii) Explain the difference between primary and secondary volcanic hazards, giving **two** examples in each case. [3+3 marks]

- (iii) Assess the extent to which responses C, D, E and F can be successfully applied to areas at risk from volcanic eruptions. [10 marks]

A5. Ecosystems and human activity

Either

(a) Essay

Examine the ways in which both natural and human factors can cause a named ecosystem to change over time.

[20 marks]

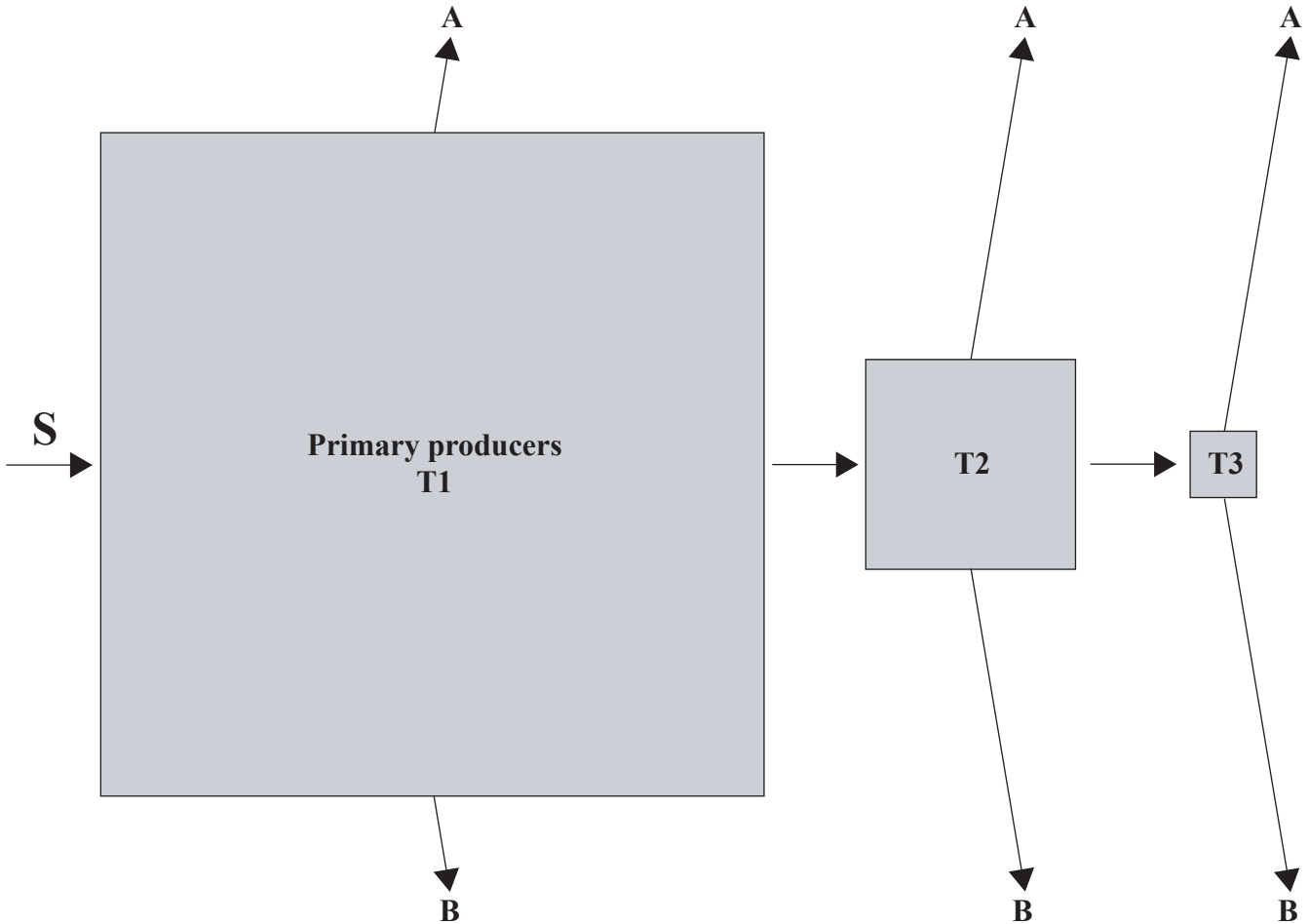
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(Question A5 continued)



Or

(b) Structured question

The diagram below shows the flow of energy through a food chain within an ecosystem.



Legend

 Biomass	S Solar energy	 Energy flow	T1, T2, T3 Trophic levels
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- (i) Identify **A** and **B**, and define **T3**. [3 marks]
- (ii) Account for the changes in the size of the biomass along this food chain. [3 marks]
- (iii) Explain how agriculture can affect the biodiversity of an ecosystem. [4 marks]
- (iv) Examine the influence of climatic factors upon the structure and function of **one** named ecosystem or biome. [10 marks]

A6. Climatic hazards and change

Either

(a) Essay

Referring to examples, explain what is meant by long-term drought and examine the importance of both physical and human factors responsible for its severity. *[20 marks]*

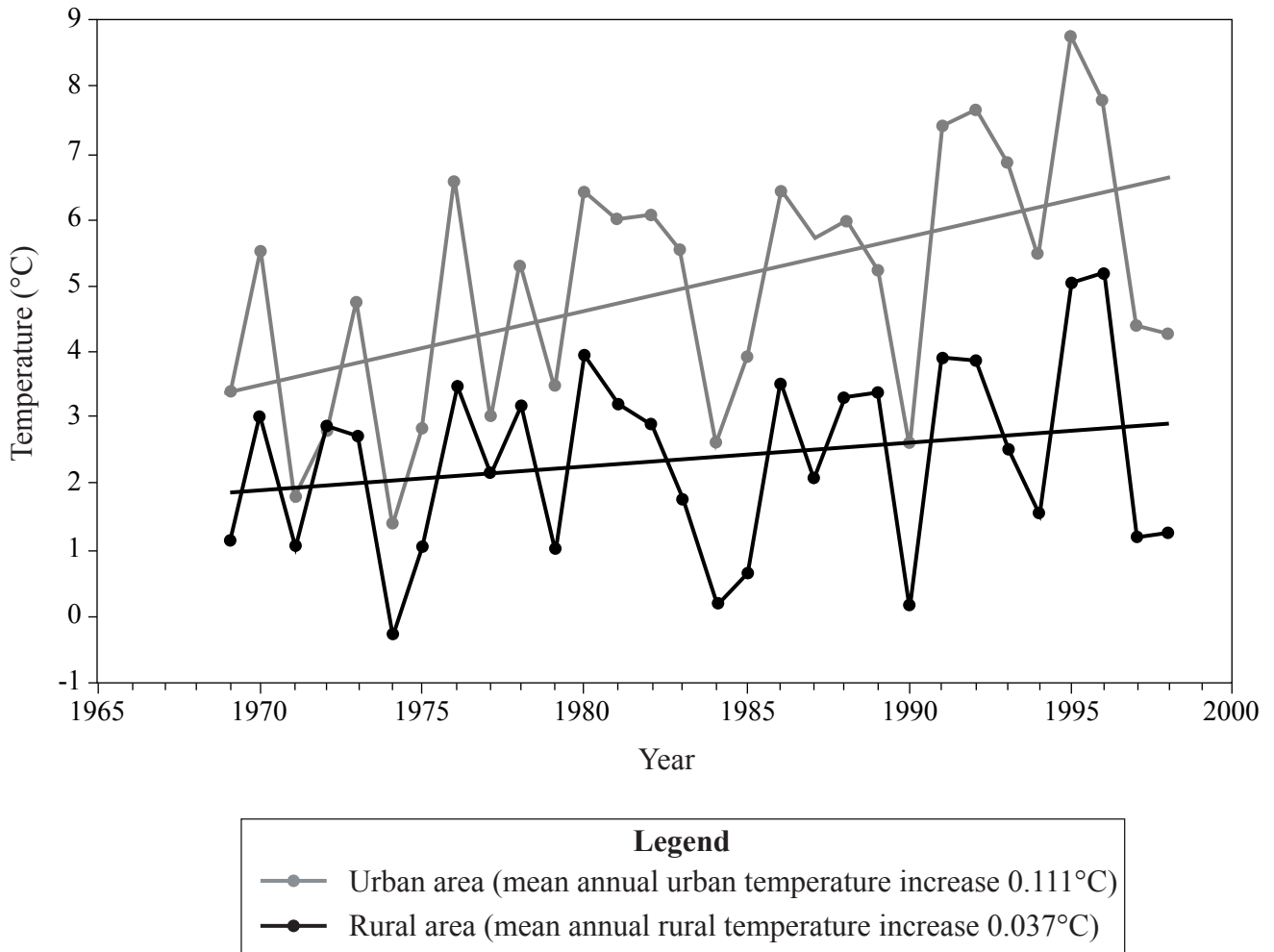
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(Question A6 continued)

Or

(b) Structured question

The graph shows the average daily minimum temperatures during February for the urban area of Tucson, USA, and its surrounding rural area.



[Source: <http://geog.arizona.edu/~comrie/heat/>]

- (i) Referring to the diagram, describe **three** trends in the temperatures between 1969 and 1998. *[6 marks]*
- (ii) Explain the possible reasons for the trends described in part (a). *[6 marks]*
- (iii) Discuss the other ways, **excluding temperature**, in which the microclimate of urban areas differs from that of surrounding rural areas. *[8 marks]*

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SECTION B

*Answer at least **one** question from this section. If more than one question is selected from this section, each must be taken from a different theme. (Do not answer both an essay and a structured question on the same theme.)*

Case studies and examples should be used to illustrate answers and, where appropriate, they should be specifically located. Include well drawn, large, relevant maps, sketches, tables and diagrams as often as applicable.

B7. Contemporary issues in geographical regions*Either***(a) Essay**

To what extent is the concept of distance decay helpful in defining the boundaries of any **two** regions of your choice?

*[20 marks]**Or***(b) Structured question**

If you choose to answer this question refer to the map in the Resources Booklet.

The map shows the single feature regions for the suppliers of a particular household service in the state of Iowa, USA.

- (i) Suggest a service that the map may represent, and justify your choice. *[1+1 mark]*
- (ii) Describe the spatial pattern of regions in Iowa shown on the map. *[3 marks]*
- (iii) Using an annotated map only, explain the factors that determine the size and shape of your local region. *[5 marks]*
- (iv) To what extent are the contemporary geographical issues of your local region due to its socio-political geography? *[10 marks]*

B8. Settlements

Either

(a) Essay

Evaluate the management strategies adopted in specific cities or large towns to overcome urban deprivation and decay.

[20 marks]

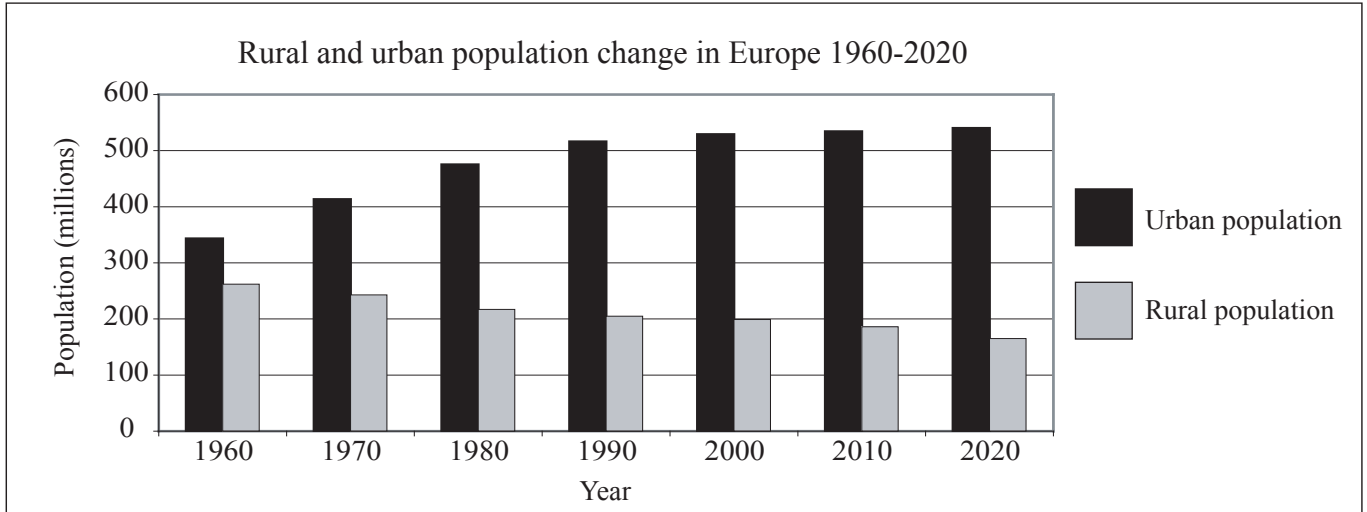
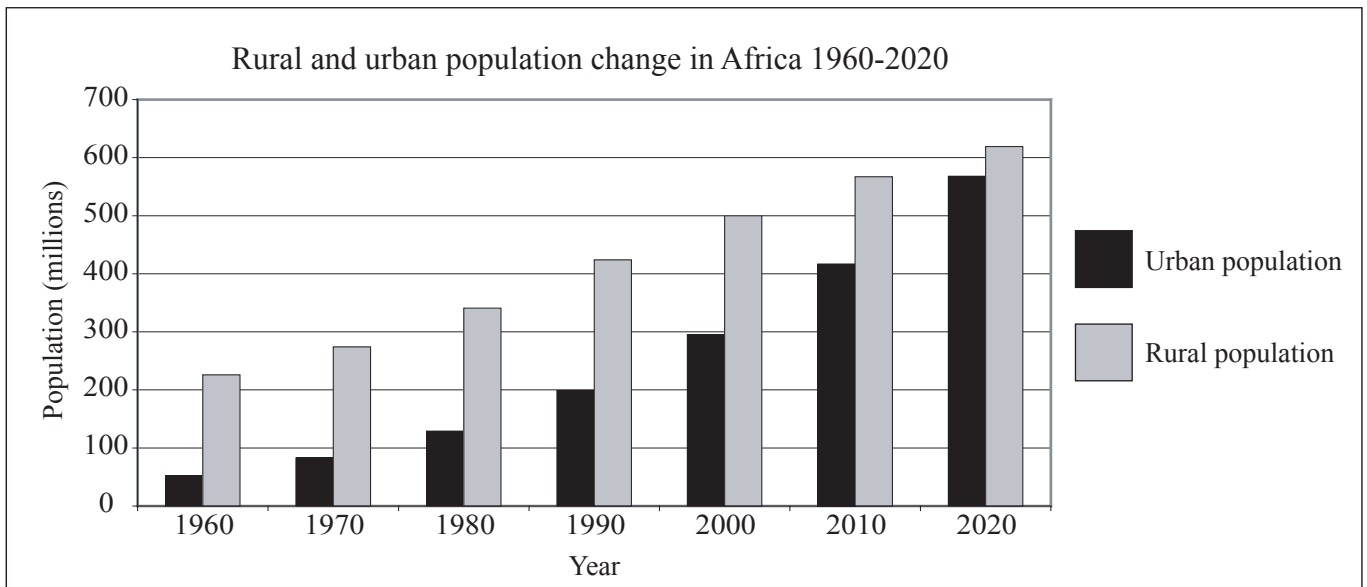
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(Question B8 continued)

Or

(b) Structured question

The diagrams below show the changes in rural and urban populations of two world regions, Africa and Europe, between 1960 and 2020.



- (i) Describe the changing relationship between the rural and urban population of each region between 1960 and 2020. [4 marks]
- (ii) Explain the changes in the proportion of urban population for each region shown in the diagram. [6 marks]
- (iii) Select **one** country where the process of rapid urbanization is currently occurring and discuss the consequences of it. [10 marks]

B9. Productive activities: aspects of change

Either

(a) Essay

Analyse how changes in transport and communication have affected the global distribution of manufacturing industry.

[20 marks]

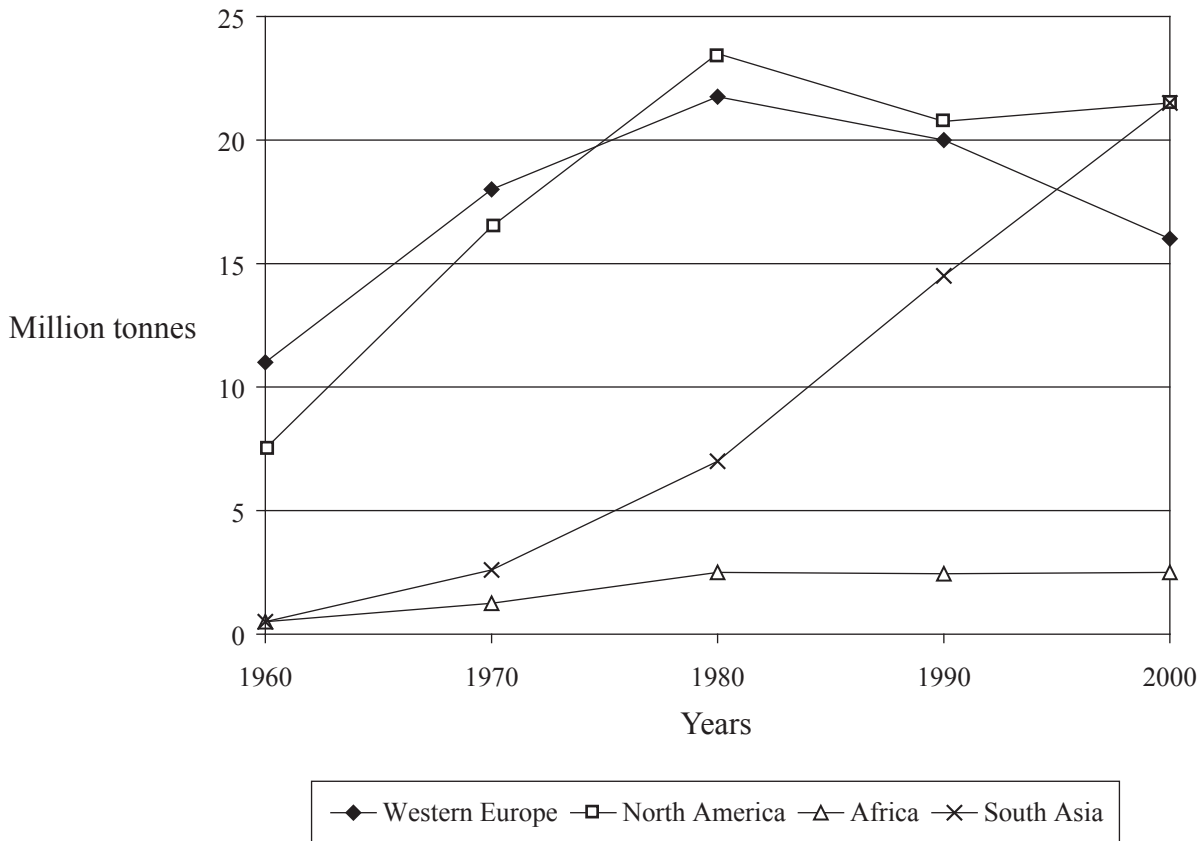
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(Question B9 continued)

Or

(b) Structured question

The graph below shows total fertilizer consumption in major areas of the world between the years 1960 and 2000.



[Source: Food and Agriculture Organization]

- (i) Select **one** region shown on the graph. Describe and suggest reasons for the trends in its fertilizer consumption. [4 marks]

- (ii) Name and describe **three other** types of new technology that have increased agricultural production since 1960. [6 marks]

- (iii) To what extent can sustainable agricultural practices meet the food demands of increasing populations? [10 marks]

B10. Globalization

Either

(a) Essay

Analyse the effects of the growth of global tourism on the culture and environment of indigenous people, referring to examples.

[20 marks]

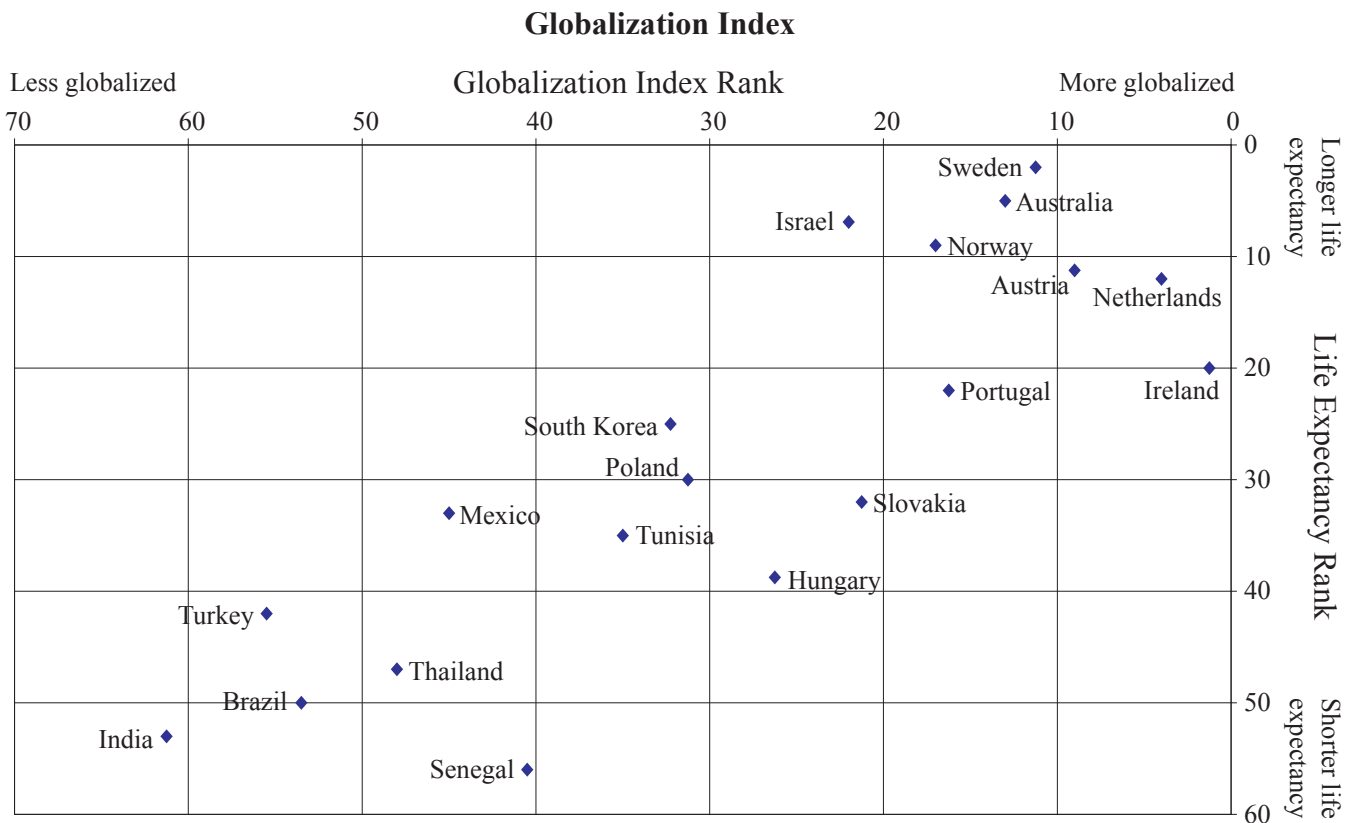
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(Question B10 continued)

Or

(b) Structured question

The graph below shows the relationship between the level of globalization (the globalization index) and life expectancy in 19 countries in the year 2003. The countries have been ranked for each variable.



[Source: www.foreignpolicy.com/wwwboard/g-index.plp]

- (i) Define the term *globalization*. [2 marks]
- (ii) Suggest **two** indicators which might have been used to make up the globalization index. Explain your answer. [4 marks]
- (iii) Describe and explain the relationship between the globalization index and life expectancy for the countries shown on the graph. [4 marks]
- (iv) Referring to examples, discuss the ways in which globalization decreases the differences between countries. [10 marks]

SECTION C

*If you choose to answer this question, use the topographic map extract and the aerial photograph in the Resources Booklet to answer **all** parts.*

C11. Topographic mapping

The area shown on the map extract and aerial photograph includes the small town of Florac in the Cévennes region of south-west France. Tourism is improving the economy of this region after decades of rural depopulation. The map scale is 1:25000 and the contour interval is 10 metres.

- (a) Using the map only, locate the hill summits at Cham de Colas (483 126) and the 789 metre spot height (467 107).
- (i) State the direct distance in kilometres between the two summits. *[1 mark]*
- (ii) Comment on their intervisibility. *[2 marks]*
- (b) Using both the map extract and the photograph:
- (i) state the compass direction towards which the camera was pointing when this photograph was taken. *[1 mark]*
- (ii) state the evidence from the photograph which suggests that it was taken during the early morning. *[1 mark]*
- (iii) draw a labelled map of Florac showing its morphology, site and situation. *[4 marks]*
- (iv) explain the spatial distribution of functional zones in Florac and the pattern of its growth. *[4 marks]*
- (c) Using map evidence, examine the influence of physical features upon tourist activities in the whole area shown on the map extract. *[7 marks]*
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