

**GEOGRAPHY
HIGHER LEVEL
PAPER 2**

Friday 14 November 2003 (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).

SECTION A

Answer at least **two** questions from this Section.

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

With reference to specific examples, explain how and why river discharge is modified by humans. Describe the consequences of these modifications.

[20 marks]

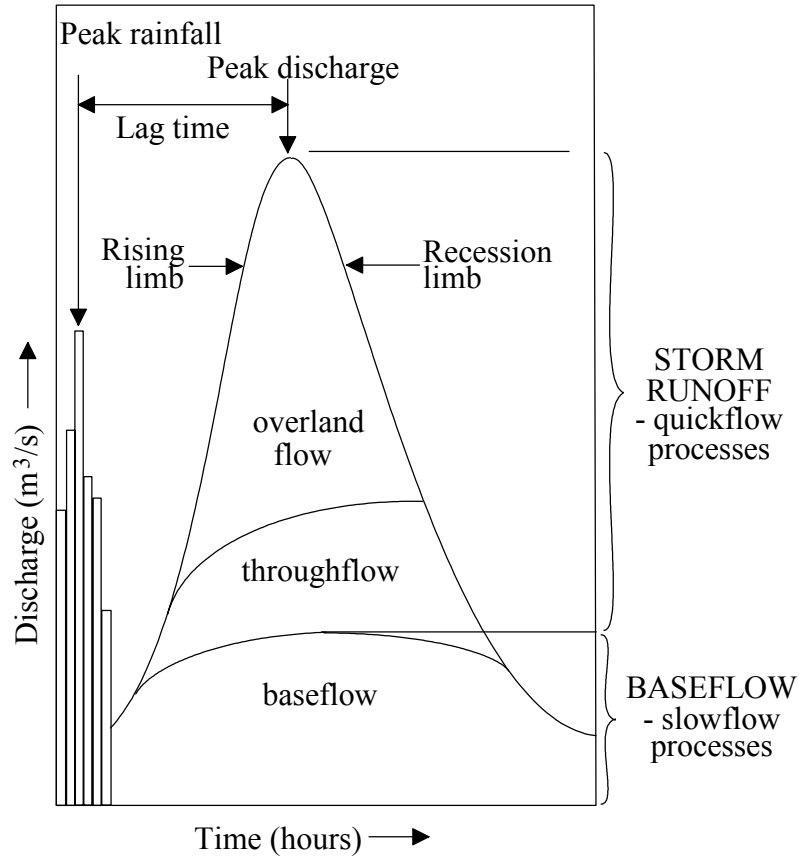
(This question continues on the following page)

(Question A1 continued)

Or

(b) Structured question

The diagram below shows a storm hydrograph.



[Source: Bishop and Prosser, *Water Resources: Process and Management*]

- (i) Define the terms: *lag time*, *throughflow* and *baseflow*. [3 marks]
- (ii) Explain how both human and natural factors can give rise to flash floods. [7 marks]
- (iii) Discuss ways that humans can alter the form of the storm hydrograph by using flood management techniques. [10 marks]

A2. Coasts and their management

Either

(a) **Essay**

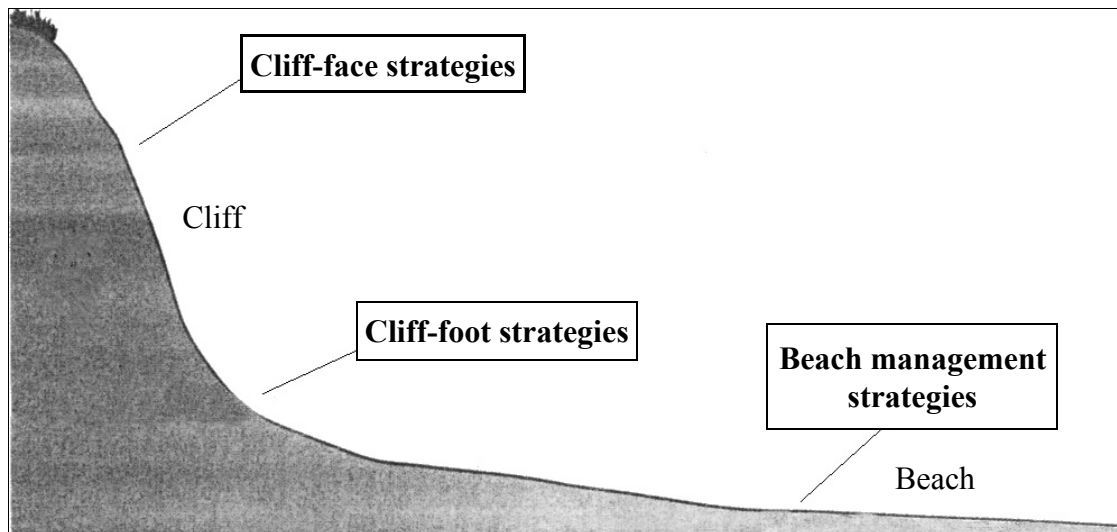
Explain how long-shore movement of beach material may affect the shape of coastlines and how humans may modify this process. Discuss what consequences these actions might have.

[20 marks]

Or:

(b) **Structured question**

The diagram below shows the location of coastal protection strategies.



[Source: Bishop and Prosser, *Landform Systems*, page 109]

- (i) For each of the three locations in the diagram identify **one** strategy that may be used to protect the coastline. [3 marks]
- (ii) Evaluate the effectiveness of each of the **three** chosen strategies. [7 marks]
- (iii) Discuss the view that coastlines should be allowed to evolve naturally. [10 marks]

A3. Arid environments and their management

Either

(a) Essay

Despite the lack of water, arid and semi-arid environments have often proved attractive to people.

With the aid of examples or case studies, identify the reasons for this attraction and discuss the problems that arise from attempts to overcome the shortage of water.

[20 marks]

Or

(b) Structured question

If you choose to answer this question use the diagram in the Resource Booklet.

The diagram shows the changes in the area of the Sahara (in km²) from 1980 to 1990 and the percentage rainfall variation from the mean for the same period.

- (i) Identify the relationships in the diagram between the two sets of values. *[3 marks]*
- (ii) Explain how aridity is measured. *[3 marks]*
- (iii) With reference to **one** example, describe how human activities have encouraged desertification. *[6 marks]*
- (iv) Choose **one** desert area and, with the aid of a diagram, locate it and explain how it was formed. *[8 marks]*

A4. Lithospheric processes and hazards

Either

(a) Essay

Explain how hazardous mass movements are primarily a result of human activity. With reference to **at least one** hazardous mass movement event that you have studied, examine its effects and the ways that people have responded to it.

[20 marks]

Or

(b) Structured question

The table below gives data for specified recent major earthquakes.

Location	Date	Richter Scale Magnitude	Number of people killed
Japan	January 1995	7.2	5 000
Pakistan	February 1997	7.0	57
Papua New Guinea	July 1998	7.1	2183
Eastern Russia	April 1999	7.1	0
Turkey	August 1999	7.4	17 118
California, USA	October 1999	7.1	0
Turkey	November 1999	7.1	894
Argentina	May 2000	7.1	1
Philippines	January 2001	7.4	0

[Source: *USGS Earthquake Information Center*]

(i) With reference to the table, briefly describe the type of relationship shown between Richter scale magnitude and the number of people killed.

[2 marks]

(ii) Identify **four** other types of information that are not shown on the table and explain how each one would help to account for the number killed in an earthquake.

[8 marks]

(iii) With the aid of labelled diagrams, account for the uneven distribution of global earthquake activity.

[10 marks]

A5. Ecosystems and human activity

Either

(a) Essay

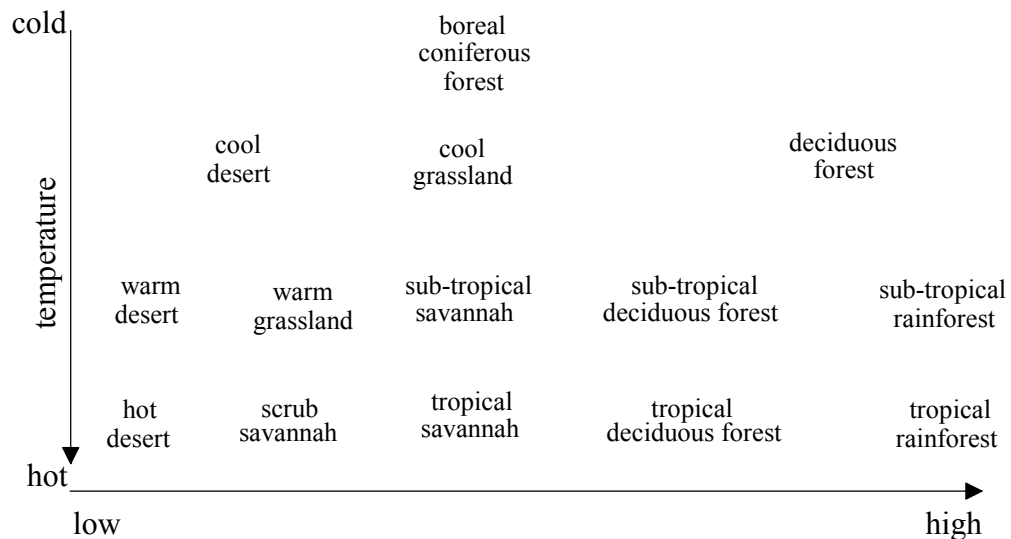
Explain what is meant by negative and positive feedback and then, with reference to **one or more** ecosystems of your choice, give a detailed account of how these processes affect the stability of the chosen system(s).

[20 marks]

Or

(b) Structured question

The diagram shows the global distribution of biomes, locating them with reference to two sets of factors, one of which is temperature.



[Source: modified from Eblen & Eblen, *The Encyclopedia of the Environment*, Houghton Mifflin (1994)]

- (i) Name the factor that affects biome distribution shown on the horizontal axis (x-axis) of the diagram and briefly justify your answer. [2 marks]
- (ii) Briefly describe **one** other factor that could affect the distribution of biomes. [2 marks]
- (iii) Compare and contrast biomass and productivity of any **two** biomes shown in the diagram. [6 marks]
- (iv) Explain how energy is transferred through an ecosystem and then analyse the impact of humans on energy transfers in **either** a biome **or** an ecosystem of your choice. [10 marks]

A6. Climatic hazards and change

Either

(a) Essay

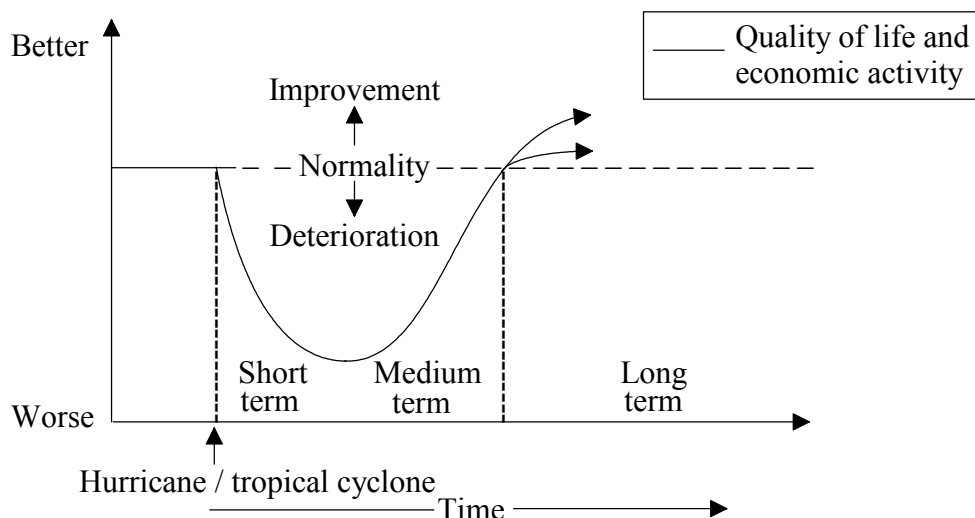
Examine the causes and consequences of **either** acid deposition **or** stratospheric ozone depletion. Discuss the extent to which it may be possible to arrest the impacts resulting from the atmospheric hazard you have chosen.

[20 marks]

Or

(b) Structured question

The diagram below shows the changes over time in the quality of life and economic activity after a severe natural hazard, such as hurricane / tropical cyclone.



- (i) Why are the short-term quality of life and economic activity likely to deteriorate in the days immediately following the hurricane / tropical cyclone event? [6 marks]
- (ii) The rate and level of recovery in the quality of life and economic activity after a hurricane / tropical cyclone event may differ between LEDCs and MEDCs. Explain these differences with reference to the diagram. [6 marks]
- (iii) With reference to **one** specific location, assess how far the human response to **either** a hurricane / tropical cyclone **or** a tornado is likely to be effective in reducing the social and economic impact of a similar event in the future. [8 marks]

SECTION B

Answer at least **one** question from this Section.

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 geographic regions

Either

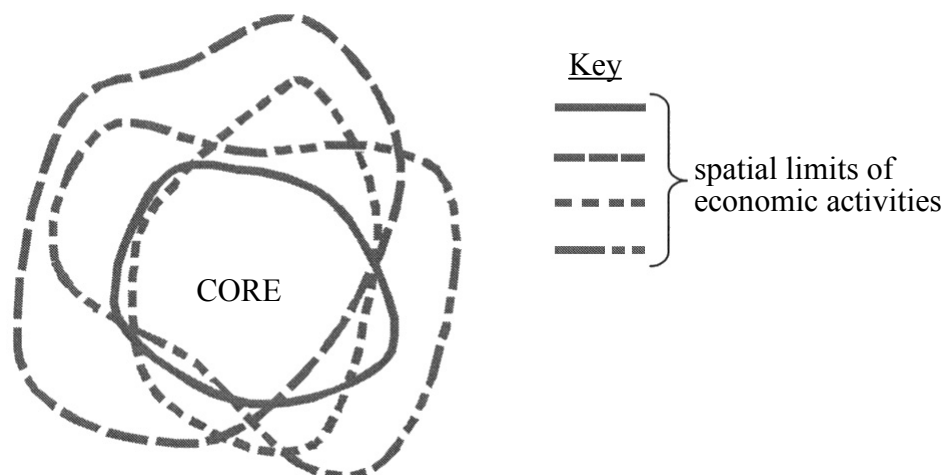
(a) Essay

Using examples of your choice, discuss the relative importance of human and physical factors in defining the identity of a “place”. [20 marks]

Or

(b) Structured question

The diagram below shows a model of the spatial limits of four economic activities in a region.



- (i) Name **two** possible economic activities that could be used in defining the region shown in the model and justify your choice. [4 marks]
- (ii) Giving examples, explain how the limits of a physical region could differ from an economic region. [6 marks]
- (iii) With reference to a geographical issue common in the **two** regions you have studied, describe the issue and evaluate any attempts to deal with the issue in each region. [10 marks]

B8. Settlements

Either

(a) Essay

With reference to specific examples identify the types of development found in the rural–urban fringe. Discuss the resulting pressures.

[20 marks]

(This question continues on the following page)

(Question B8 continued)

Or

(b) Structured question

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

The diagram shows a model of housing priorities for low-income families in less economically developed countries (LEDCs).

- (i) With reference to the diagram, describe how housing priorities of new arrivals in an urban area in an LEDC will change with time. *[4 marks]*

- (ii) Identify and describe ways that governments in LEDCs attempt to solve their housing problems. *[6 marks]*

- (iii) With reference to an urban area in a more economically developed country (MEDC), describe and evaluate how planners have tried to solve housing problems. *[10 marks]*

B9. Productive activities: aspects of change

Either

(a) Essay

Briefly describe the technological innovations that have resulted in increased agricultural production and explain why these innovations cannot always be adopted in some parts of the world.

[20 marks]

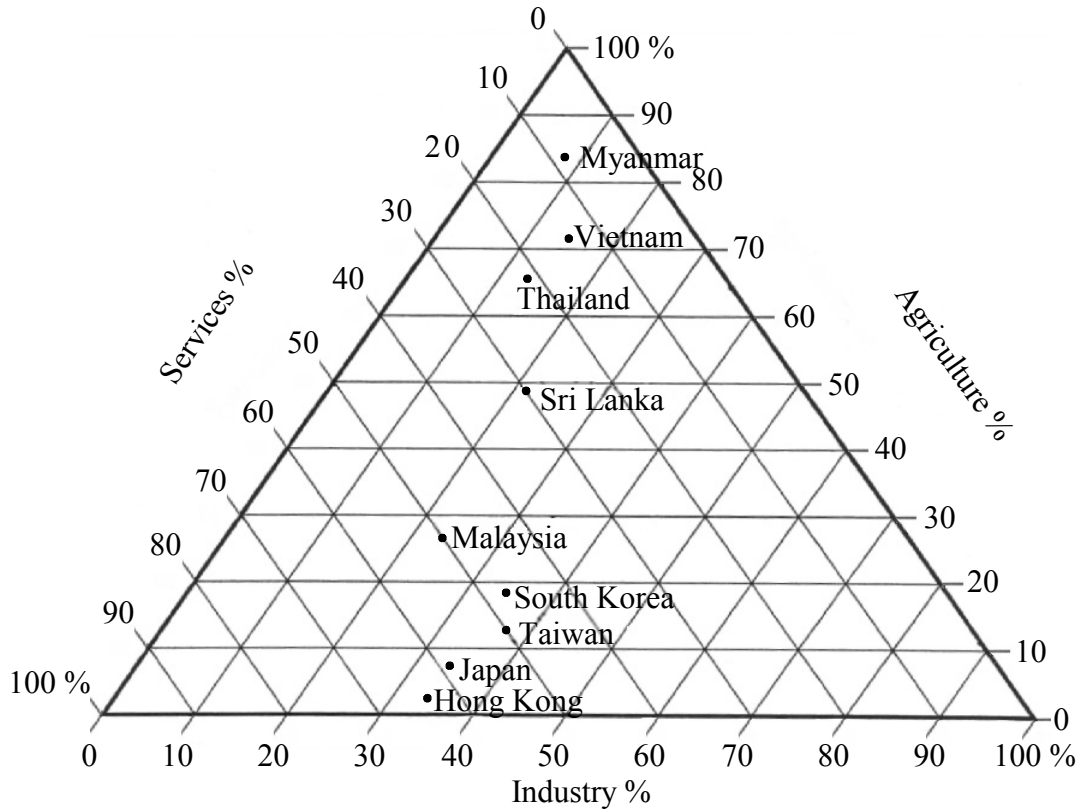
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(Question B9 continued)

Or

(b) Structured question

The triangular graph below shows percentage employment in economic sectors in countries in Asia.



- (i) With reference to the triangular graph identify the economic sector values for Taiwan and Sri Lanka. [4 marks]

- (ii) Using the graph, devise and justify a classification of the countries shown. [6 marks]

- (iii) Select **one** of the more economically developed countries shown on the graph and explain how it has become an important industrial producer. [10 marks]

B10. Globalization

Either

(a) Essay

Describe major changes that have occurred in global communication systems and assess how these have helped to integrate the world economically and socially.

[20 marks]

Or

(b) Structured question

The table below shows the contribution made by tourism to the economies of Gambia and the United Kingdom.

	1991		2001	
	Tourism as a percentage of GDP	Receipts from tourism	Tourism as a percentage of GDP	Receipts from tourism
Gambia	10 %	\$ 15 m	11 %	\$ 43 m
UK	1.4 %	\$ 10 886 m	4 %	\$ 50 271 m

(i) Comment on the percentage and actual changes in the values of tourism to the economies of both countries.

[4 marks]

(ii) Assess the extent to which less economically developed countries (LEDCs) can benefit economically from tourism.

[8 marks]

(iii) Evaluate the negative impacts of tourism on the culture of indigenous people in an LEDC.

[8 marks]

SECTION C

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

C11. The map extract shows an area of rugged terrain and a highly indented coastline in the north-west of Ireland. Beaches with a west facing aspect are more exposed to the adverse weather and strong prevailing winds. The economy of the region is based on pastoral or mixed farming and summer tourism.

- (a) Describe the nature of the slope from the summit of Muckish Mountain (000285) to the dismantled railway, 2 kilometers to the north. *[2 marks]*

 - (b) State **either** three landscape features **or** three land-use features **or** three marine features, which are shown on the aerial photograph but not on the map. *[3 marks]*

 - (c) The aerial photograph and the map have different scales. State which has the larger scale. Estimate the scale of the aerial photograph and show how you arrived at this estimate. *[4 marks]*

 - (d) The area covered by the map extract has become a popular tourist destination. Using evidence from the map and aerial photograph suggest why this development is taking place. *[5 marks]*

 - (e) Describe, with possible explanations, the pattern of settlement on the extract. *[6 marks]*
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