

**GEOGRAPHY
HIGHER LEVEL
PAPER 2**

Friday 16 May 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

An alluvial river “flows upon a thick accumulation of alluvial deposits constructed by the river itself in earlier stages of its activity”*.

Describe and account for the landforms associated with alluvial rivers and discuss the implications for land use.

[20 marks]

* Strahler and Strahler: Environmental Geoscience (Hamilton) 1974

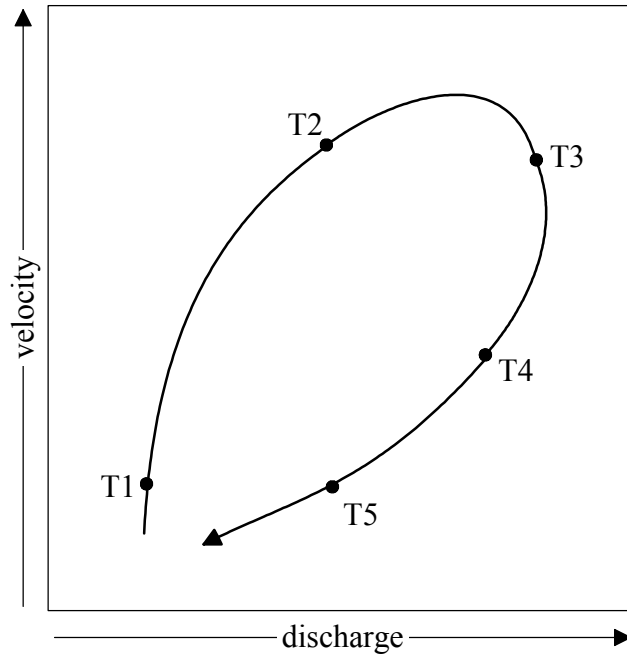
(This question continues on the following page)

(Question A1 continued)

Or

(b) Structured question

The diagram shows the changes in velocity and discharge of a river during an episode of flooding.



Points T1 to T5 represent the measurements taken at five consecutive and regular periods during the flood episode.

- (i) Define *discharge* and describe the relationship between discharge and velocity shown in the diagram. [3 marks]
- (ii) Draw a labelled flood hydrograph to represent the conditions shown in the diagram. [6 marks]
- (iii) Identify the factors that could affect the length of the time lag in a flood hydrograph. [4 marks]
- (iv) Explain the management techniques that are implemented to control the velocity of a river, and the reasons for doing so. [7 marks]

A2. Coasts and their Management

Either

(a) Essay

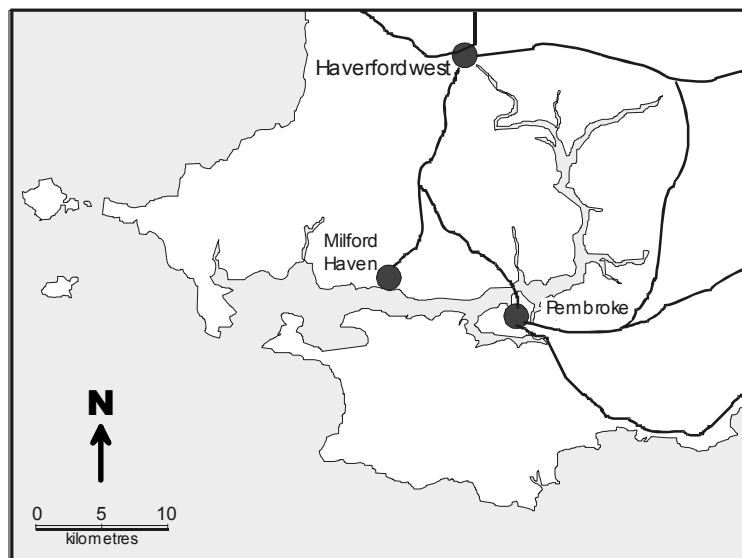
Using a case study or precise examples, describe the attempts that have been made to manage a coastline that is being eroded. Then, evaluate the success of the measures implemented.

[20 marks]

Or

(b) Structured question

The map shows the coastal region of Milford Haven, located in south-west Wales, in the UK. This type of coast is considered to have resulted from a positive change in sea level.



(i) Name this type of submergent coast and explain how it differs from a fjord.

[4 marks]

(ii) Discuss the ways in which changes in sea level can occur.

[6 marks]

(iii) With reference to the area shown in the map, or to any other area of this type of coastal submergence, discuss the economic advantages and disadvantages of such a coastline.

[10 marks]

A3. Arid Environments and their Management

Either

(a) Essay

“Population pressure in semi-arid areas is the main cause of desertification, and, once begun, this process cannot be reversed.”

Discuss the validity of this statement with reference to an area or areas that you have studied.

[20 marks]

Or

(b) Structured question

The table shows the relationship between transport process, height above the ground, particle size and sediment type involved in wind erosion in arid areas.

	Transport process	Type of sediment	
300 ↑	suspension	silt/dust	Particle size (diameter in mm)
			below 0.15
1.00	saltation	fine sand	0.15
0.50		medium sand	0.20
0.10	creep	coarse sand and gravel	0.25
0.00 ↓			2.00

- (i) Describe and explain the relationship between transport process, particle size and height above ground as shown in the table above. [4 marks]
- (ii) Explain the role of abrasion in arid and semi-arid areas. [4 marks]
- (iii) Locate, by means of a annotated sketch map, an area where wind erosion **or** wind deposition is a serious problem and show the nature of the problem. [5 marks]
- (iv) Examine the conditions that have led to the problem in the area identified in (iii) and describe the preventative actions that have been, or could be, taken. [7 marks]

A4. Lithospheric Processes and Hazards

Either

(a) Essay

The impact that earthquakes have on people varies in different parts of the world. With reference to contrasting examples, examine the factors that are responsible for these variations.

[20 marks]

Or

(b) Structured question

If you choose to answer this question use the diagram in the Resources Booklet which shows the depth of regolith at different latitudes and some of the factors influencing it.

(i) With reference to the diagram, describe the relationship between the depth of regolith (weathered bedrock) and each of the three factors: temperature, precipitation and vegetation.

[4 marks]

(ii) Explain how climate and vegetation affect the depth of regolith.

[6 marks]

(iii) With the aid of examples discuss the way in which slope instability can be influenced by factors other than temperature, precipitation, and vegetation.

[10 marks]

A5. Ecosystems and Human Activity

Either

(a) Essay

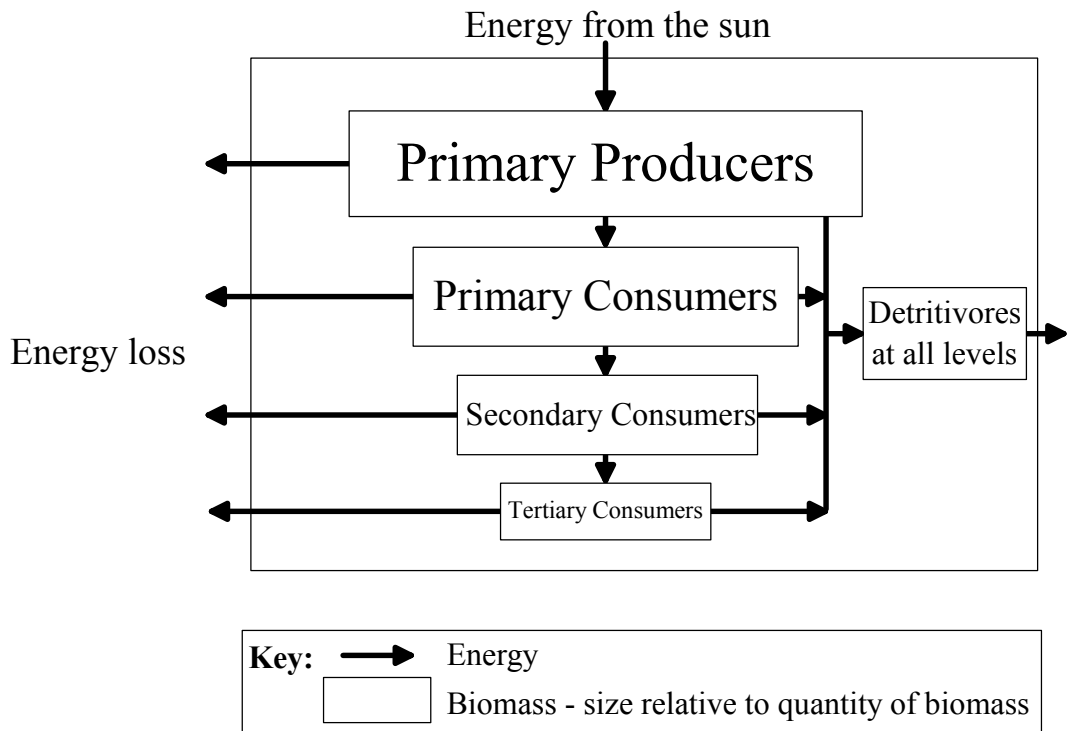
With the aid of a detailed case-study, assess the impact of human activity on a forest biome.

[20 marks]

Or

(b) Structured question

The diagram represents energy transfers in an ecosystem.



(i) Define the terms *producers* and *consumers* giving examples of each.

[2 marks]

(ii) Describe how energy is transferred from one trophic level to another and explain why losses of energy and biomass occur at successive levels within the system.

[6 marks]

(iii) Describe and explain how the circulation of nutrients varies between two contrasting biomes. One of these chosen biomes should be severely affected by human activity.

[12 marks]

A6. Climatic Hazards and Change

Either

(a) Essay

“The enhanced greenhouse effect is a product of the more economically developed world and a problem for the less economically developed world.”

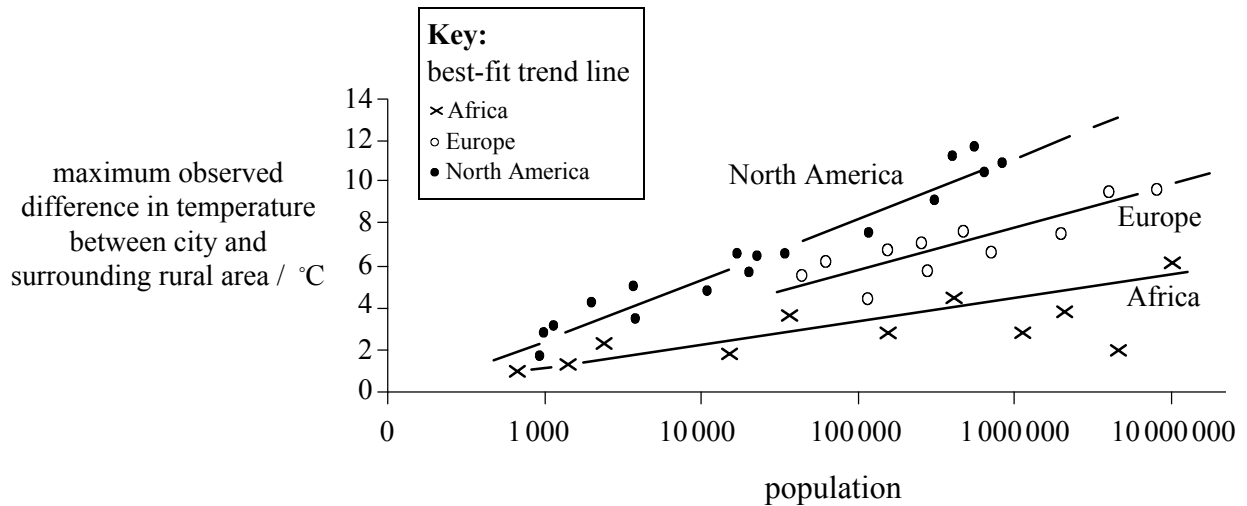
Assess the validity of this statement.

[20 marks]

Or

(b) Structured question

The graph below shows the intensity of the urban heat island effect and population size for certain North American, European and African cities.



[Source: K Spencer (2000)]

- (i) Describe the relationships shown in the diagram for the cities of the **three** regions shown. [3 marks]
- (ii) Explain
 - (a) the relationships noted in (i). [6 marks]
 - (b) why there is a difference in the values for cities of the same size in any **two** of the regions shown. [3 marks]
- (iii) Examine the role that humans play in intensifying the effects of any **one** climatic hazard, other than the urban heat island. [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

Discuss the advantages and disadvantages of the regional approach in studying geography as a means of understanding contemporary geographical issues.

[20 marks]

Or

(b) Structured question

If you choose to answer this question, use the four maps of Malaysia in the Resources Booklet. The four maps show aspects of the Malay peninsula, which comprises the western part of the country of Malaysia.

(i) Describe the relationship between the patterns of transport and relief in the Malay peninsula.

[5 marks]

(ii) Describe the relationship between the patterns of agriculture and population density in the Malay peninsula.

[5 marks]

(iii) Name and define the extent of your local region. Compare the character of the Malay peninsula region with the character of your local region.

[10 marks]

B8. Settlements

Either

(a) Essay

In recent decades, inner urban areas of cities in more economically developed countries (MEDCs) have experienced rapid change. Use relevant examples to describe and explain these changes.

[20 marks]

Or

(b) Structured question

The table shows a ranking of the predicted ten largest urban agglomerations in 2015.

Rank	Urban Agglomeration	Country
1.	Tokyo	Japan
2.	Mumbai	India
3.	Lagos	Nigeria
4.	Dhaka	Bangladesh
5.	São Paulo	Brazil
6.	Karachi	Pakistan
7.	Mexico City	Mexico
8.	New York	USA
9.	Jakarta	Indonesia
10.	Calcutta	India

[Source: United Nations, *World Urbanization Prospects, the 1999 Revision*]

- (i) Identify and describe the global pattern of distribution of the urban agglomerations shown in the table. [2 marks]
- (ii) Explain the distribution you have identified in part (i). [8 marks]
- (iii) Evaluate the effectiveness of management strategies designed to cope with **one** of the problems arising from urban growth in a named city of your choice. [10 marks]

B9. Productive Activities: Aspects of Change

Either

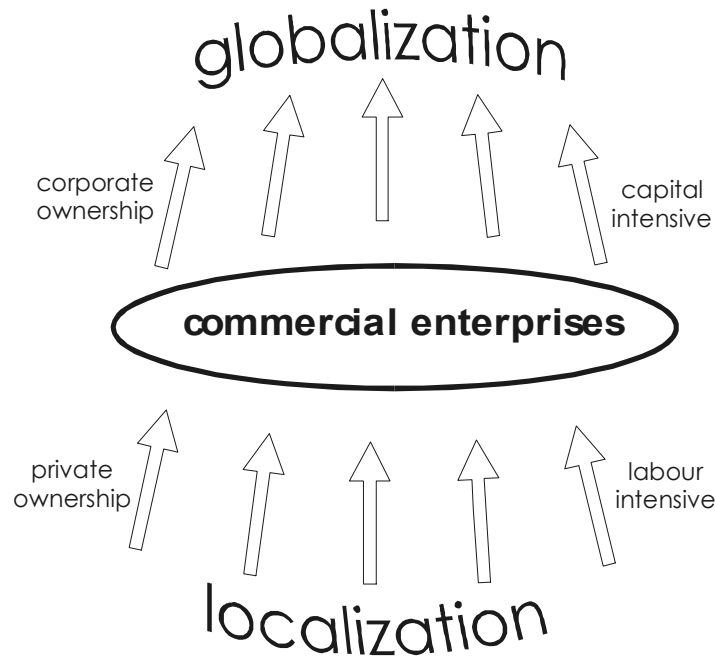
(a) Essay

Discuss how employment has changed in the primary, secondary and tertiary sectors of the economy in newly industrialised countries (NICs).

[20 marks]

Or

(b) Structured question



(i) Give an example of agricultural enterprise that is capital intensive and an industrial enterprise that is labour intensive, and state a typical location for each.

[4 marks]

(ii) Identify **one** change that is not shown in the diagram and explain its relevance to **either** an industrial **or** agricultural enterprise of your choice.

[4 marks]

(iii) Assess the advantages and disadvantages of agribusiness as a farming system in LEDCs.

[12 marks]

B10. Globalization

Either

(a) Essay

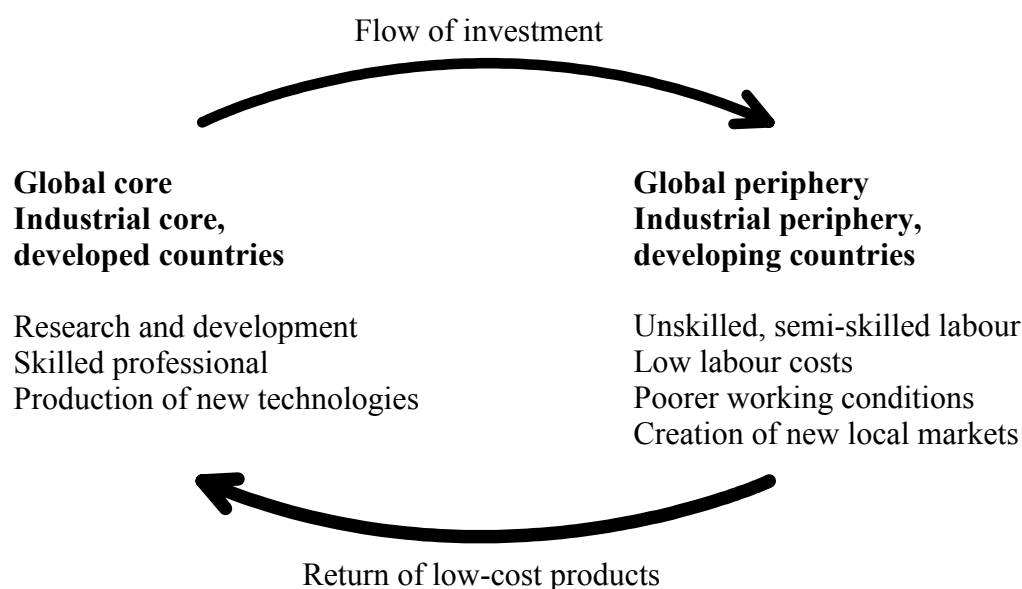
Evaluate the role of tourism as a strategy to encourage economic development in less economically developed countries (LEDCs).

[20 marks]

Or

(b) Structured question

The diagram below illustrates a model covering the operations of transnational corporations.



[Source: Adapted from Crispin and Jedge, *Population, Resources and Development*, Collins (2000)]

- (i) Define what is meant by a *transnational corporation* (TNC). [2 marks]
- (ii) With reference to a specific named TNC, describe the distribution of its activities globally and assess how well it fits the model above. [8 marks]
- (iii) Examine the positive impacts that TNCs have in the LEDCs in which they operate. Specific examples should be given wherever possible. [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 map extract shows part of Belize, a tropical central American country. The area shown is in the west of the country, adjacent to the international border with Guatemala. It consists mainly of limestone, giving a karst topography. The climate is tropical, with high temperatures throughout the year and eight months of rainfall, giving an annual total of 1 800 mm. The main economic activities are tourism (based on Mayan ruins) and agriculture.

The map scale is 1:50 000 and the contour interval is 40 m.

- (a) The bridge over the river near the border (to the west) is shown on both the map extract and photograph. What is its six-figure grid reference and its direction from San Jose Soccoths? *[2 marks]*
- (b) Calculate the scale of the aerial photograph. *[4 marks]*
- (c) Describe the main changes evident between the photograph and the map, which was published 20 years later. *[4 marks]*
- (d) Describe, by means of an annotated sketch map, the pattern of road communications and then suggest reasons for it. *[10 marks]*
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