

# **MARKSCHEME**

**May 2003**

## **GEOGRAPHY**

**Higher Level and Standard Level**

**Paper 2**

## SECTION A

### A1. Drainage basins and their management

#### (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]*

It would be expected that responses would describe and provide detailed explanations for the flood plain itself, with all its associated features such as meanders, scrolls, ox-bow lakes, levees, deltas and for the bluffs marking the edge of the valley.

A variety of approaches could be adopted in response to the second part of the question, but it would be expected that all would show an awareness of the attraction of the flat plain with deep fertile soils and high water table for agriculture and also for residential and commercial buildings and transport links (ease of construction) and recreational purposes. However, any development would have to be weighed against the disadvantages arising from the constant danger of flooding, the unstable river courses, unconsolidated deposits and the additional costs arising from the implementation of flood preventative measures.

The river bluffs could attract residential development as they offer scenic views of the valley, but such development could be hampered by the steep slopes.

It would not be necessary that the marks be allocated equally between the two parts of the question – some adjustment would be possible. However, the key to this question is that it concerns a river only on its flood plain – only that part of any response that recognizes this should be marked.

The marks should be allocated according to the markbands.

**(b) Structured question**

- (i) Define *discharge* and describe the relationship between discharge and velocity shown in the diagram. [3 marks]**

Discharge should be defined in terms of the volume and velocity of water flowing past a point [1 mark]. There is a positive correlation between discharge and velocity, with the latter rising and falling as discharge increases and decreases [2 marks].

- (ii) Draw a labelled flood hydrograph to represent the conditions shown in the diagram. [6 marks]**

The marks for the hydrograph should be allocated as follows: accuracy of diagram, showing a skewed hydrograph (steep rising limb, gentler falling limb) [2 marks]; labelling (axes, peak, base flow) must be shown for [3 marks]. The final [1 mark] should be allocated for presentation.

- (iii) Identify the factors that could affect the length of the time lag in a flood hydrograph. [4 marks]**

Two sets of factors could be identified: the nature of the input (type and duration of precipitation, speed of snow melt, etc.) [2 marks] and the shape, size and nature of the drainage basin (land use, gradient, geology) [2 marks]. However, if a response deals in depth with only one set of factors, some adjustment of the mark balance could be made.

- (iv) Explain the management techniques that are implemented to control the velocity of a river, and the reasons for doing so. [7 marks]**

The strongest responses would be expected to show some understanding that the velocity of a river could only be altered by adjusting the remaining two stream variables (depth and width, hydraulic radius, gradient, discharge) [1 mark]; by altering bed roughness [1 mark]; by changing discharge [1 mark]. The remaining [4 marks] should be allocated to explanations for reducing and increasing velocity (navigation, flood control, etc.) and the techniques that can be used. If only velocity reduction or velocity increase is considered award [2 marks] max out of the [4 marks] available for this part of the question.

## A2. Coasts and their management

### (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]*

This is a fairly open-ended question and the nature of the response would depend, to a large degree, on the choice of case study or examples. It could be that some would concentrate on lowland retreat and the dune system, while others would focus on cliff recession. However, it would be necessary for all responses to give a clear explanation of the processes of coastal erosion before describing the management strategies applied to control it. In the case of lowland erosion, responses could cover the construction of tidal barriers, embankments and dykes to prevent flooding, dune stabilization or the adoption of passive measures such as allowing controlled flooding, the construction of groynes to prevent the erosion of beaches, *etc.* Cliff recession could be retarded by the construction of energy absorbing breakwaters on the wave-cut platform or by wave deflectors at the base of the cliff, *etc.* It is possible that other examples could be given, and these should be accepted if they are accurate and pertinent. The evaluations should show an appreciation of both short term and long term outcomes and there should be some comment about the costs involved.

In the absence of any examples or case studies, no more than half marks should be awarded.

The marks should be allocated according to the markbands.

**(b) Structured question**

- (i) Name this type of submergent coast and explain how it differs from a fjord. [4 marks]**

The map shows a coastline with a ria [1 mark]. Rias are drowned river valleys, whereas fjords are drowned glaciated valleys [1 mark]. This means that a ria is deepest at its mouth (glaciers have shallower thresholds where they enter the sea) [1 mark] and the cross profile is an open “v” shape as opposed to the “u” shaped fjord [1 mark]. It is possible that some responses could mention the relative depths of the features, or the presence of depositional material in rias. These comments could be rewarded, but the total marks for the question should not exceed the allocated 4.

- (ii) Discuss the ways in which changes in sea level can occur. [6 marks]**

It would be expected that responses would note the type of sea level change, comment on its effects and, where appropriate, provide a brief description of the processes involved. The sea level changes are primarily; endogenic, being the main affect of the processes involved in plate tectonics, with two effects occurring at the global scale [2 marks]; eustatic changes as a result of the Ice Ages, global warming and endogenic processes (plate tectonics) with effects occurring at the global scale [2 marks]; isostatic changes due to the relative readjustment of continental masses composed of sial floating on deeper rock structures composed of sima. Its effects are more localized and also could occur as a consequence of the ice ages (isotatic rebound) [2 marks].

It would be necessary for responses to name the types of change to obtain full marks but some flexibility can be shown in the allocation of marks between the types.

- (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]**

The strongest responses would be expected to cover most, if not all of the following points: the main advantages of a ria coastline are the provision of excellent sheltered harbours, often some way from the open sea, the recreational opportunities (sailing, etc.) and the potential for tourism based on the attractive landscape. The disadvantages are mainly those concerned with communications. Land communications are affected by the costs of bridging the flooded valleys (only one bridge on the map) and water communications are affected by deposition (silting) and by hazardous, twisting channels. Up to [7 marks] could be allocated for this part, with the remaining [3 marks] used to reward the effective use of examples.

**A3. Arid environments and their management**

**(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]***

This question invites critical examination of the causes of desertification in a semi-arid area and to consider the effectiveness of measures that can be taken to reverse the process. Responses must refer to a named and located area(s). Those that do not refer to a specific area(s) should not score more than ***[12 marks]***.

It would be expected that responses given should be balanced between: the natural processes encouraging desertification such as drought and climate change; and human causes such as overcultivation, deforestation, monocultural practices, and overgrazing leading to soil erosion; and the onset of the desertification process. The human causes should relate directly to the area(s) named in the response and not be generalized. It should consider whether population pressure is the key factor that results in a chain of events through the demand for more food, more animals, more fuel and more intensive cultivation of areas perhaps not ideal for farming.

The success or failure of measures taken to reverse the desertification process in the area chosen should be examined. Such measures might include the use of stone lines, check dams, afforestation schemes, improvements in soil structure through the use of dung, irrigation, the construction of terraces or soil bunds, tied ridging and contour ploughing. It is expected that better responses may consider the presence of people as a factor in preventing the onset of desertification in areas where natural causes predominate. Responses that consider only the causes of desertification and none of the potential remedies should not score more than ***[15 marks]***.

The marks should be allocated according to the markbands.

**(b) Structured question**

- (i) Describe and explain the relationship between transport process, particle size and height above ground as shown in the table above. [4 marks]**

Responses should recognize that there is an inverse relationship (negative correlation) between particle size and height [1 mark] and this should be quantified by giving values to illustrate the relationship [1 mark]. An explanation of how each process operates in relation to particle size and height should be awarded the remaining [2 marks].

- (ii) Explain the role of abrasion in arid and semi-arid areas. [4 marks]**

Responses should demonstrate a knowledge of the process of abrasion and conclude that it is most effective in the zone of saltation 0.1–1.0 m above the ground [1 mark]. The reason given for this should relate to the fact that here the wind speed is high enough and the particles large enough to sand-blast objects in their path [1 mark]. Below this the wind is not strong enough due to friction with the ground and above this the particles are too small (silt/dust) to cause significant abrasion [1 mark].

- (iii) Locate, by means of an annotated sketch map, an area where wind erosion or wind deposition is a serious problem and show the nature of the problem. [5 marks]**

Responses would be expected to present a large, neatly drawn map, clearly locating the area chosen [2 marks]. Annotation should give a clear indication of the type of problem (dunes encroachment, soil erosion, etc.) [2 marks]. The remaining [1 mark] could be given for any additional information included on the map, such as direction of prevailing wind, scale, etc.

- (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]**

Clearly there is wide choice of location and process, but it would be expected that the majority would concentrate on sand dunes. A clear explanation of the processes involved in dune formation and dune movement would be awarded up to [4 marks] with sensible acceptable solutions, such as planting wind breaks or fixing dunes with vegetation cover gain the further [3 marks]. However, it would be possible to change the balance of these marks if the answer deserves it. If any erosional feature is chosen, the allocation of marks should follow the same pattern, *i.e.* the marks being distributed between processes discussed and the solutions.

**A4. Lithospheric processes and hazards****(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]***

Responses should explain variation in terms of location of the earthquakes which would account for the physical characteristics (the earthquake magnitude, the depth of the focus, the duration of the earthquake, the local soil and geology, *etc.*) and other factors such as the time of day and, possibly, the time of year. However, it is likely that the explanation for the variation in impact will emphasize human and economic more than physical factors. There should be recognition that the level of economic development of the society is fundamental and will affect its degree of vulnerability and its response to the hazard. This might include factors such as population density being close to the epicentre, building characteristics, and the preparedness of local people. Stronger responses may also acknowledge the small-scale variation in impact within one affected area, such as a city, and its relationship to socio-economic differences. They might also refer to increasing vulnerability due to the concentration of people through rapid urbanization in the economically less developed countries. Responses would be expected to show a similar depth of knowledge in relation to the examples. Responses which have erroneous, inappropriate and poorly developed examples should not score more than ***[10 marks]***. No penalty should be given if candidates discuss earthquake impact in areas lacking earthquake impact.

The marks should be allocated according to the markbands.

**(b) Structured question**

- (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]**

Responses would be expected to note the strong correlation between depth of regolith and vegetation/precipitation *[1 + 1 mark]* and the weaker correlation between depth of regolith and temperature with anomalies *[1 + 1 mark]*.

- (ii) Explain how climate and vegetation affect the depth of regolith. [6 marks]**

A structured response would be expected focusing on either latitude or climate or vegetation zones. In addition, it would be expected to show a clear understanding of the three weathering processes (mechanical, chemical and biological). Responses, therefore, could be expected to comment on, for instance, the way in which areas where there are high temperatures and high precipitation values, weathering rates would be high and the depth of regolith great; or areas in high latitudes where temperatures are low, precipitation and consequently vegetation cover are low, mechanical weathering would be dominant and shallow regolith would be found.

- (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]**

This question focuses on mass movements. A variety of approaches could be expected but responses would have to cover the different types of processes responsible for mass movements and comment on the mass movement associated with each process. Slope angle, geology, earth tremors (movement), under-cutting and over-burdening could all be mentioned, with clear, accurately located examples used to illustrate each process mentioned *[4 × 2 marks]*. The remaining *[2 marks]* could be awarded for particularly well organized responses or for developed examples.

**A5. Ecosystems**

**(a) Essay**

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

***[20 marks]***

It is expected that the best responses will examine positive and negative impacts and perhaps even neutral impacts. Examples of negative impacts may include deforestation for various reasons (including farming), road construction, commercial exploitation of timber, clear felling, mineral exploitation, the growth of settlements, the replacement of the forest with other tree types and tree monoculture. Neutral impacts may refer to areas where humans occupy the forest but do not affect it. Positive impacts would cover forest conservation, regeneration and sustainable management practices. The strongest responses are expected to examine these impacts on the structure of the biome, nutrient cycling and soils.

It is necessary that a specific case study be examined. This should be located and discussed in detail. The case study should be representative of the biome in general. In the absence of a case study ***[10 marks]*** max should be awarded.

The marks should be allocated according to the markbands.

**(b) Structured question**

- (i) Define the terms *producers* and *consumers* giving examples of each.** **[2 marks]**

Responses should define producers as plants that convert solar energy into biomass, examples being green plants **[1 mark]**. Consumers should be defined as animals that eat the producers or other animals. Herbivores or carnivores would be acceptable answers as would actual examples of these. Bacteria and fungi are also acceptable as examples of consumers **[1 mark]**.

- (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]**

It would be expected that responses would mention that plants convert solar energy into food and would point out that only a small percentage of solar energy is stored by these primary producers. Energy loss from level to level should be explained noting that although some of the energy is transferred when a consumer eats a producer most of the energy is lost through respiration, loss of body heat generated by movement, maintenance of body temperature, excretion and eventual decomposition. To explain the reduction in biomass from level to level, responses should describe how loss of energy restricts the number of organisms that can survive at each successive level. To obtain full marks responses must cover all these points, use correct terminology, such as autotrophs, herbivores, omnivores, *etc.* and cover all the energy transfers.

- (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]**

Biomes should be clearly named and located. In the descriptions, responses should compare the size of the biomass and the soil nutrient stores, as well as the differences in the rates of nutrient inputs, outputs and flows **[6 marks]**.

The remaining **[6 marks]** should be awarded for explaining the variations in the nutrient cycling between the two biomes. The reasons for the variations should be explained mainly in terms of climatic factors, such as precipitation and temperature, and of human factors, such as the import of artificial nutrients (fertilizers) and the export of biomass (cropping, logging, *etc.*).

Nutrient cycling diagrams are almost essential to a good answer and may replace text if they are detailed enough and fully annotated.

**A6. Climatic hazards and change**

**(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]***

It would be expected that responses would produce an argument that agrees or disagrees with this statement, but in either case there must be reservations. Responses must show an understanding of both parts of the question and the discussion of each should demonstrate sound geographical and scientific knowledge. Answers which fail to address both parts should receive ***[10 marks]*** max.

It is important that responses identify individual gases and their sources in a discussion of the processes leading to the enhanced greenhouse effect. There should be an explanation for the link between economic development and industrialization and the resultant higher levels of greenhouse gas production. This should lead to an acknowledgment of the differences in total emissions between MEDCs and LEDCs and a suggestion that the balance is changing as the LEDCs industrialize.

The likely consequences for LEDCs resulting from the enhanced greenhouse effect should be clearly explained. It is expected that the strongest responses will discuss at least three possible effects but recognize the uncertainty of current predictions. Direct effects might include sea level rise, changes in precipitation, more severe weather events and ecological changes and other indirect effects might include, social and economic changes. Responses must also consider the relative vulnerability of the LEDCs and their difficulty in coping with a warmer world.

A clear conclusion is expected, showing evidence of judgment.

Marks should be allocated according to the markbands.

**(b) Structured question**

- (i) Describe the relationships shown in the diagram for the cities of the three regions shown. [3 marks]**

Recognition that there is always a positive correlation between city size and temperature difference should gain *[1 mark]*. A further *[1 mark]* should be given for noting that this relationship varies from continent to continent and the final *[1 mark]* should be awarded for some quantification of it.

**(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]**

Answers would be expected to provide a review of the conditions that lead to the difference in temperature only. These should include comments on air and thermal pollution, and the effects of surface albedo and the way that these affect temperatures *[6 marks]*. Any reasonable explanation for the difference between the values of cities of the same size should be accepted and awarded up to *[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]**

The question allows the candidate the choice of any hazard that has a climatic or meteorological origin (including flooding). The response would have to focus on the human actions that worsen the impact, but some explanation of the processes involved in the natural operation of the hazard would also be required in some cases. The best responses would be expected to quote an example or locate an area where the hazard occurs when relevant *[8 marks]*.

**SECTION B**

**B7. Contemporary issues in geographic regions**

**(a) Essay**

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

*[20 marks]*

This question requires reflection on ways in which the regional concept differs from the approach taken in all the other themes studied in the course. Although it would be expected that most responses would begin with a brief description of the regional approach, this is not a requirement of the question.

A variety of approaches is possible, but it would be expected that responses would identify the advantages of the regional approach as including: its integration of physical and human facets of the environment, its direct applicability in explaining “real world” spatial patterns, its emphasis on interactions that exist between different regions, and its flexibility (as regions are mental constructs) to describe any factor or combination of distinctive features.

Responses must also identify weaknesses of the regional approach as including overemphasis on description (and thus lack of emphasis on process and explanation), difficulties in forming generalizations with wider applicability, and possible difficulties in collecting data and in defining regional boundaries. Other advantages and disadvantages are, of course, acceptable and these should be treated on their merits.

At least two contemporary geographical issues should be addressed within a regional context for full marks. Marks should be allocated according to the markbands.

**(b) Structured question**

- (i) Describe the relationship between the patterns of transport and relief in the Malay peninsula. [5 marks]**

Responses must describe the pattern of transport, noting especially that the density of transport (railways and main roads) is greatest in the western portion of the Malay peninsula [2 marks]. The overall pattern of relief must be described, noting especially that while the coastal plains are low, there is a central spine of elevated hills in the middle of the Malay peninsula [2 marks]. Using specific instances answers should note that transport routes tend to be concentrated in areas with lower elevations [1 mark].

- (ii) Describe the relationship between the patterns of agriculture and population density in the Malay peninsula. [5 marks]**

Responses must describe the pattern of agriculture, noting especially that the density of agriculture (especially rubber and oil palm) is greatest in the western portion of the Malay peninsula [2 marks]. The overall pattern of population must be described, noting especially that the population density is lowest in the elevated hills and highest in the western coastal plain [2 marks]. Finally, it should be noted that population density is highest in the areas where agriculture is concentrated [1 mark].

- (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]**

It would be expected that responses to this open-ended question would vary widely depending on where the local region is located (It may not even be in the same country as that in which the candidate's school is located). The local region could be of any size although it would be helpful if it could be of a broadly similar extent. (There should be no penalty for the choice of a local area that the examiner may feel is less than ideal in size – this would carry its own penalty when making the comparison). Up to [2 marks] should be allocated for a clear identification and definition of the local area. The remaining marks should be awarded for a comparison between the two regions with the emphasis falling on the elements referred to in the maps, namely land use [2 marks], transport [2 marks], population density [2 marks] and relief [2 marks].

**B8. Settlements**

**(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]**

A variety of responses could be expected, depending on the aspects of change chosen and the examples used. The inner urban area is defined as the CBD, the transition zone and the less wealthy inner suburbs. Stronger responses would initially identify the inner urban area, possibly by means of a sketch diagram. As the question asks for both a description and an explanation of change, the response should contain both elements, but not necessarily be evenly balanced.

It would be expected that a description of the changes may include land uses such as industry (*e.g.* relocation to industrial parks), retail (relationship to CBD), residential (urban blight, gentrification, urban consolidation and urban renewal), and transport. The changing socio-economic and demographic patterns should also be discussed with reference to population characteristics of age, ethnicity and status.

It would be expected that an explanation of the changes would involve the concepts of invasion and succession and the centrifugal and centripetal forces operating as a city grows. For example, congestion and rising land values may lead to a decline in industrial activity, forcing industry to relocate in the outer suburbs; urban consolidation and gentrification may increase the population density and raise the socio-economic status of the area. Responses may refer to particular urban planning policies. It would be expected that the strongest responses would give thorough explanations and refer to more than one city. Examiners should be aware that the emphasis is upon change in the inner urban area and bland description should gain no more than **[10 marks]**.

Marks should be allocated according to the markbands.

**(b) Structured question**

- (i) Identify and describe the global pattern of distribution of the urban agglomerations shown in the table. [2 marks]**

It would be expected that responses identify a pattern with the largest agglomerations concentrated in the LEDCs, or in lower latitudes, or in Asia.

- (ii) Explain the distribution you have identified in part (i). [8 marks]**

Responses must demonstrate an understanding of urbanization (*i.e.* the process by which a percentage of the population come to live in urban areas) and why it is increasing at a rapid rate in LEDCs. Also, demographic factors such as high birth rates and migration must be included. Other issues that should be explained include push factors (land ownership issues, overpopulation, starvation, mechanization, natural disasters, lack of services *etc.*) and pull factors (employment opportunities, health, education and welfare incentives *etc.*). Stronger responses may also include the development of primacy in particular countries, independence from colonial rule (some colonial systems put restrictions on urban living), and economic growth.

- (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]**

This is an open-ended question, allowing a large choice of problems to review. These could include any of the following: traffic congestion, urban renewal, increased demand on provision of services and infrastructure, pollution and environmental issues, inner city slums and shanty towns. Description of the problem should be awarded up to **[3 marks]** with the focus (and majority of the marks) being given to the analysis of the management strategies **[6 marks]**. The example city should be clearly named and located **[1 mark]**. It would be possible to change this balance of mark allocation slightly, if the response is particularly strong in one or other area.

**B9. Productive activities: aspects of change**

**(a) Essay**

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

***[20 marks]***

Responses must demonstrate an understanding of the terms primary, secondary and tertiary sectors of the economy. Stronger responses would support their discussion by giving actual examples of the sectors and of the newly industrialized countries (NICs).

A variety of approaches would be expected, depending on the focus of the response and case studies included, but the changes in employment from an economy based on the primary sector to one in the secondary and tertiary sectors must be explained. Responses might also include discussion on government policy and inward investment, or concentrate on the rapid industrialization and the creation of new jobs in the secondary and tertiary sectors. Reference may be made to Clarke's model of sector change.

The best responses might recognize the growth in management, finances and information services (quarternary sector) as well as the existence of an informal sector.

Marks should be allocated according to the markbands.

**(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]**

The examples chosen must show a clear understanding of the terms “capital” and “labour intensive” [2 × 2 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]**

The example could be chosen from a large number of changes, including changes in production from diversified to specialist, changes in degree of sustainability, out-sourcing, “just-in-time” production, *etc.* Answers would be expected to show a clear knowledge of the change and be able to explain its relevance in a specific, named (and preferably located) enterprise [4 marks].

- (iii) Assess the advantages and disadvantages of agribusiness as a farming system in LEDCs. [12 marks]**

A wide variety of responses could be expected depending on the perspective taken and examples used. They may choose to focus on a more historical perspective while others may highlight the environmental, cultural and/or economic aspects.

The advantages of agribusiness discussed could include an increase in local employment and employees receiving a guaranteed income; improvements in technical skills and education of the labour force; an increase in foreign currency, investment and technology; improvements made to infrastructure and growth in the economic base of the country.

The disadvantages of agribusiness discussed could include environmental impacts, large areas of land that need to be cleared, resulting in soil erosion and habitat destruction of local fauna; loss of biodiversity; crops which often require irrigation and large quantities of chemical fertilizers, herbicides and pesticides; limited accountability of environmental protection. They could also include cultural or economic disadvantages, instances, with examples where labourers have been imported; replacing subsistence agriculture with cash crops; the relatively small number of local employees, poorly paid workers and profits going to MEDCs; exporting raw materials (rather than value added or processed); poor health and safety for workers; the vulnerability to market forces and commodity prices.

The allocation of the [12 marks] may not be evenly balanced between the points but it would be expected that candidates come to some definite conclusion for full marks.

Marks should be allocated according to the markbands.

## **B10. Globalization**

### **(a) Essay**

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

***[20 marks]***

It would be expected that responses show an appreciation that tourism as a development strategy for LEDCs offers both advantages and disadvantages.

Benefits that might be included are economic benefits, such as increases in foreign exchange, boosts to GDP, more employment, along with consequent multiplier effects; social benefits such as greater cultural understandings and language learning; and possibly, environmental benefits such as the creation of nature parks *etc.*

Costs that might be included are economic costs, such as leakage of income overseas through TNCs, the seasonal nature of employment and emphasis on wealthy tourist enclaves; social costs, such as compromises to local culture, breakdown of family values, increases in crime, alcohol, drugs, prostitution and diseases such as AIDS; and environmental costs, such as destruction of local habitats, and pollution of land, water and air.

It would be expected that both the costs and benefits of tourism to LEDCs are discussed, although not necessarily at equal length. Where either advantages or disadvantages are ignored, no more than ***[10 marks]*** may be awarded.

A flexible approach should be adopted regarding the use of examples. There may be one detailed example or several less detailed examples to illustrate the advantages and disadvantages. In either case they need to be factual.

Marks should be allocated according to the markbands.

**(b) Structured question**

- (i) Define what is meant by *transnational corporation* (TNC). [2 marks]**

A number of possible definitions could be given, but all should emphasize its global nature with the separation of administrative and economic activities (headquarters and research in one country, processing and manufacturing, *etc.* elsewhere).

- (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]**

While there will be a large number of TNCs that could be named, responses would be expected to show clear knowledge of the operation and the distribution of activities of their chosen TNC. Pure description of the TNC should be awarded no more than [6 marks] with the remaining [2 marks] allocated to the evaluation implied in the question. Reference would have to be made to the diagram.

- (iii) Examine the positive impacts that TNCs have in the LEDCs in which they operate. Specific examples should be given wherever possible. [10 marks]**

Responses must give specific examples, naming TNCs involved and locating their operations in a LEDC. A whole range of positive impacts that TNCs have in LEDCs could be offered, and could include the following: improved employment opportunities and income for the local population, improved transport links and the provision of power and water, opportunities for further education and advancement for local employees, income for central government through taxation and/or shared ownership.

A flexible approach should be adopted regarding the use of examples. There may be one detailed example or several less detailed example to illustrate the positive impacts.

Marks should be allocated according to the markbands.

SECTION C

**C11. Topographic mapping**

- (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]

The correct values are 710 870 [1 mark] and the direction is south-south-west from the village of San Jose Soccoths, although south-west can also be acceptable [1 mark].

- (b) **Calculate the scale of the aerial photograph.** [4 marks]

The correct value for the scale is 1:29 000.\* Answers ranging from 1:28 000 to 1:30 000 should be allocated full marks [4 marks], provided there is some indication of how the answer was calculated. An unsupported scale should gain only [3 marks], but the same allocation would be available if the calculations were correct, but the final answer wrong.

\*Because of discrepancies between the scale of the map and the scale bar on the copy published for the examination, a range of values between 1:27 000 and 1:35 000 was accepted for the scale of the photo.

- (c) **Describe the main changes evident between the photograph and the map, which was published 20 years later.** [4 marks]

A mark should be allocated for any four of the following observations [4 × 1 marks]: any changes in the size of the settlements, changes in the road network, the upgrading of the main road, any changes in land use (e.g. extension of croplands, changes in the nature of the forest), and additional buildings (e.g. the college).

- (d) **Describe, by means of an annotated sketch map, the pattern of road communications and then suggest reasons for it.** [10 marks]

The sketch map should show the main route running from the border in the south-west to the north-east, passing through the Guatemalan town and the settlements of Benque Viejo Del Carmen and San Jose Soccoths with minor roads radiating out it, usually perpendicularly [3 marks]. A further [3 marks] would be available for the inclusion of the rivers and the hilly area to the south and for presentation (including some indication of scale).

The pattern is little influenced by relief and the only physical features affecting the pattern would be the Western Branch River (only one bridging point) and the hilly area to the south [2 marks]. The small number of permanent settlements away from the main road and the cleared forest (for agricultural purposes: ranching and permanent and temporary cropland) account for the low density of communication network away from the main road [2 marks]. Some comment may be made about the influence of the border.

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