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# **MARKSCHEME**

**November 2003**

**GEOGRAPHY**

**Higher Level and Standard Level**

**Paper 2**

## SECTION A

### 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]**

Definitions of what is meant by discharge are expected. The volume of water passing a point on a river's course at a particular time ( $Q = A \times V$ ). An understanding of the fluvial system, and reference to case examples is also expected.

There should be reference to a number of ways in which modification can occur. Emphasis should be placed on answering "why" and on using examples to substantiate responses.

The following may be included as intentional: extraction of water for irrigation, domestic and industrial use and multi-purpose schemes, with examples such as the Colorado, the Nile; flood control schemes, construction of dams, weirs; the consequences of political control over river systems, such as River Jordan, the Nile; the canalization or diversion of channels.

The following may be included as unintentional: afforestation reducing discharge and deforestation increasing discharge; deforestation in the Himalaya, resulting in an increase in the flood hazard in Bangladesh for example; terracing in SE Asia resulting in changes in the rates that water reaches channels; urbanization resulting in faster responses and greater overland / channel flow.

The consequences may include an increase in the flood risk, sediment starvation downstream of dams, which may lead to greater erosion of channels and delta recession. Less discharge in the lower course may cause aggravation. Diversion of water on to terraces in the Himalaya can result in slope failure and landslides. Sediment supplies may no longer reach coastal systems, e.g. the damming of the Volta river in Ghana has resulted in serious coastal erosion in the Bight of Benin. The Colorado has been dammed in eight places resulting in a serious shortage of water downstream. The river no longer reaches the sea.

A good response would include many of the points mentioned. It would also be acceptable if fewer examples are included but covered in greater detail. Allocate approximately **[12 to 14 marks]** for the first part of the essay and **[6 to 8 marks]** for the consequences. Although not explicitly, good responses may differentiate between intentional and unintentional modification. To obtain full marks responses would be expected to cover the intentional and unintentional changes.

Given these considerations, marks should be allocated according to the markbands.

**Or**

**(b) Structured question**

- (i) Define the terms: lag time, throughflow and baseflow. [3 marks]**

The following definitions would be acceptable:

Lag time – the time between peak rainfall (not the beginning or end of the rainstorm event) and peak discharge **[1 mark]**.

Throughflow – the lateral movement of water through the pores, cracks, fissures and natural pipes in the soil **[1 mark]**.

Base flow – the maintained flow of a permanent river during drier periods. Sustained from throughflow and groundwater flow **[1 mark]**.

- (ii) Explain how both human and natural factors can give rise to flash floods. [7 marks]**

Responses should focus on how the action of humans and the biophysical environment can give rise to flash flooding. Humans, for example, create flash flood responses by changing the nature of the earth's surface. Urbanization and certain types of farming practices may create flash flood responses. Buildings, roads and drainage systems, which are impermeable, all speed up the rate at which water reaches the river channel and hence increase the likelihood of flooding. Recurrence intervals are shortened **[3 marks]**.

In the case of natural factors excessive precipitation is a fundamental cause. Deserts, due to the fact that surfaces are impermeable and there is little vegetation, also exacerbate the effects of flooding. Flash floods are relatively common occurrences in the wadis of Oman, for example. Also flash responses are more common in small, circular basins with hilly relief **[3 marks]**.

The additional **[1 mark]** may be awarded to a stronger response to either part. Good responses will use case studies and examples and hence, show that humans and natural processes can create flash floods.

- (iii) Discuss ways that humans can alter the form of the storm hydrograph by using flood management techniques. [10 marks]**

This question is an opportunity for candidates to illustrate their responses with case studies.

Flood management techniques alter the form of the flood hydrograph. Responses may suggest that the methods which are intended to reduce the impact of flooding, often exacerbate it as in, for example, the Mississippi flood. Storm drains may increase the likelihood of a flash flood response. Straightening of channels, dams, barrages, levees, dredging, wing dykes, cutting off meanders, will all have an impact on the hydrograph. Dams and barrages may slow responses down, while straightening and deepening of channels may create faster responses. In Singapore for example urban areas car parks have porous surfaces to speed rates of infiltration to slow down the rate at which water reaches the channels. Soft management techniques, such as afforestation, will create lag responses.

The quality of response will depend on which examples are used and the specific knowledge which the candidate draws upon.

The marks should be allocated according to the markbands.

## 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]*

It would be expected that responses would should show an understanding of what is meant by longshore drift, the effects of an oblique swash and perpendicular backwash and their role in transferring sediments along a coastline. Coastlines which experience this process are common and good examples should be used to illustrate the effects that longshore drift has on a littoral zone. The process of beach drift often leads to a reduction in indentation of the coastline as drift aligned beaches, spits, bars and barrier beaches effectively straighten the coast, often leaving lagoons on the leeward side. This is typical of the Carolinas (east coast USA) and in the Bight of Benin (west Africa). Good responses may be illustrated with sketch maps to show the development of spits across inlets or the formation of cusped forelands. Allocate up to *[5 marks]* for this explanation.

Humans modify this process in a number of ways. To protect beaches a number of mitigation techniques may be employed to prevent erosion by longshore drift. Along many stretches of the south coast of England, groynes have been in place for many years to slow the process of beach drift, or even prevent it. Good responses will draw on examples and a variety of techniques. Soft management techniques include beach nourishment and recycling. Harder techniques may use rip-rap breakwaters (*e.g.* Presque Isle on Lake Erie) and these may act as ways of preventing both erosion and longshore drift. People modify the process unintentionally by building jetties or sea walls, constructing gabions to prevent normal erosion from wave action, extracting sand for building, building ports and harbours, constructing dams, all of which impede the flow of sediment to the coast.

Consequences would include the erosion of beach and cliff areas in the down drift direction as the supply of sediment will no longer be sufficient to provide natural protection. One common impact is the erosion of the distal end of spits. Erosion of dunes and the recession of cliffs on the east coast of England may be cited. On Presque Isle in Lake Erie protection of one end of the spit has led to erosion of the Nature Reserve at the distal end. The strongest responses would use good, detailed examples and their use will raise marks into the higher bands.

*Or*

**(b) Structured question**

- (i) For each of the three locations in the diagram identify *one* strategy that may be used to protect the coastline. [3 marks]**

For each of the three locations shown in the diagram, responses should identify one appropriate technique, hard or soft, to reduce the impact of erosion. Cliff face strategies – cliff pinning, cliff modification, drainage, gabions, vegetation cover. Cliff foot strategies – sea walls, gabions, baffles, boulders, tetrapods. Beach management strategies – rip-rap, groynes, beach recycling, nourishment. Marks should be allocated on the basis of **[3 × 1 mark]**.

- (ii) Evaluate the effectiveness of each of the *three* chosen strategies. [7 marks]**

Good responses should look at the effectiveness of hard management techniques and soft management techniques. Techniques like sea walls allow little movement, whereas boulders or tetrapods and baffles are more absorbent of wave energy. Beach nourishment is more aesthetic but it is very expensive to maintain. Stronger responses may look at the failures that have occurred with management strategies. In many areas the impact of many of the protection methods is felt elsewhere along the coastline. It is an open system and changes to one component may affect others. The question is open ended and strong responses will look at the positive and negative impacts and should focus on appropriate examples.

Marks should be awarded on the basis of **[3 × 2 marks]** plus **[1 mark]** for additional insight or comment.

- (iii) Discuss the view that coastlines should be allowed to evolve naturally. [10 marks]**

It would be expected that good responses would mention the coastal system and any change in one component leads to change elsewhere. Examples may be chosen which illustrate that inappropriate management has resulted in impacts elsewhere. These impacts may include coastal recession, erosion of dune ecosystems, loss of settlements *etc.*. Examples from any appropriate coastal locations may be given, such as the east coast of the UK, Presque Isle on Lake Erie, the Bight of Benin, south-east Singapore.

Strong responses will discuss the view that a coastline, which is untouched by humans will achieve its own equilibrium (dynamic equilibrium), through the process of negative feedback. They may argue that coastlines should be left to adjust in this way, as they do in areas which are uninhabited or have sparse populations.

The reality is that people are attracted to littoral zones and to protect property or landscape, which has an economic value, and so it becomes necessary to employ appropriate techniques.

It would be expected that good responses adopt an approach which looks at both sides of the argument, citing examples. Alternatively, convincing discussions can adopt either viewpoint.

The marks should be allocated according to the markbands.

**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]**

A good response would be expected to cover all the following reasons for the attraction of drylands for human populations and to provide relevant and detailed examples: urbanization, as evident in the shift of population to states such as Arizona in USA; the extraction of mineral resources, where many examples could be quoted, including the oil fields of the Middle East or the diamond mines of Botswana and Namibia; agriculture, as evident in many areas in the world under irrigation; tourism where the numbers involved may be comparatively small, but their impact is relatively strong. Other activities might be mentioned such as filming, scientific research, military training and the production of alternative energy sources. **[4 × 3 marks]**

The problems arising from meeting the demand for water are political (disputes and conflicts over water rights), social (displacement of populations especially during the construction of dams, *etc.* and the conflict with traditional patterns of life when exotic agriculture, in particular, is introduced into an area) and finally environmental (changes in aquifers, bio-diversity, salinization of soils, *etc.*) **[8 marks]**.

Although a distribution of marks is given, it would be possible to make adjustments of **[1 mark]** either way to this balance should the approach to the question justify it. However, both elements of the question should still be addressed. Responses which do not have examples or case studies should not be able to score more than **[12 marks]**.

Given these considerations, the marks should be allocated according to the markbands.

*Or*

**(b) Structured question**

- (i) Identify the relationships in the diagram between the two sets of values. [3 marks]**

There is a strong positive relationship between the two sets of data [1 mark]. For the second mark [1 mark], responses should develop this idea. The final mark [1 mark] should be awarded for some quantification.

- (ii) Explain how aridity is measured. [3 marks]**

No detailed explanation is required and it is not expected that candidates should know how to calculate the aridity index, but a response worth the full marks would have to comment that the calculation is based on the relationship between precipitation and evaporation [3 × 1 mark].

- (iii) With reference to *one* example describe how human activities have encouraged desertification. [6 marks]**

This is a very broad question, allowing a large choice of examples. In order to be allocated the full [6 marks], the responses would have to be appropriate to the example chosen and show a detailed knowledge of the processes involved. Only one area should be discussed and a maximum of [2 marks] should be awarded if no mention is made of an area.

- (iv) Choose *one* desert area and, with the aid of a diagram, locate it and explain how it was formed. [8 marks]**

Again, this is a broad question with a large number of possible deserts that could be chosen for discussion. The very best responses would clearly locate the example and present a neat and relevant diagram [3 marks]. The depth of knowledge required to obtain all the remaining [5 marks] would entail a clear explanation of the climatic processes involved (and any other factors such as ocean currents), as well as using the correct terminology (especially climatic terms such as the ITCZ or the sub-tropical anticyclones or leeward and windward sides of mountains, *etc.*).

A basic but superficial explanation should not score more than [4 marks] for this part of the answer.

#### 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]**

There are two parts to this question; first, the explanation of causes and second, the examination of consequences and responses. Answers should address all elements of both parts but the attention given to each part need not be evenly balanced and some flexibility should be allowed. A maximum of **[12 marks]** may be given for either of these parts.

The first part of this question requires candidates to show knowledge and understanding of hazardous mass movement and to comment on the relative importance of humans in this process. Credit should be given to answers that recognize that human and physical factors often interact and may be difficult to separate.

Responses should show an appreciation that the hazard is linked to the speed of mass movement, whether wet or dry. Slides, slumps, earthflows, mudflows and avalanches are relevant to this question, but slow movements such as soil creep and solifluction are not. The best answers will include an explanation for most or all of the fast mass movements and the physical and human trigger mechanisms involved.

The discussion of human involvement should include the following causes – deforestation or land clearance and construction of roads and buildings on steep gradients. For full marks candidates also need to examine the underlying cause for increases in human involvement, such as population pressure and the demand for land. Candidates may also argue that climate change (possibly human-induced) is another causal factor.

The second part of the essay is designed to allow the candidates some flexibility in their use of examples and to focus on either breadth or depth in their approach. It is expected that the example or examples will be accurately located and dated and include detailed evidence of consequences and responses to the event(s). Credit should be given to answers that discuss both long- and short-term consequences and responses. Answers with a generalized response and unconvincing references to the example(s) should receive no more than **[8 marks]** for this second part of the question.

*Or*

**(b) Structured question**

- (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]**

There is no clear relationship between Richter scale magnitude and the number of deaths [1 mark]. Data from the table should be used to support answers [1 mark].

- (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 event. [8 marks]**

There are a number of possibilities here, but for each type of information there should be adequate explanation for [4 × 2 marks]. Answers might include four of the following, although there are others that may be acceptable:

Depth of focus, duration of earthquake, distance from the epicentre, geological and soil conditions, time of day, level of economic development, earthquake preparedness of the local population, building design, seismic monitoring, population density, urban or rural location.

- (iii) With the aid of labelled diagrams, account for the uneven distribution of global earthquake activity. [10 marks]**

Responses should show an understanding of plate tectonics and the different locations associated with earthquake activity. Four different types of plate margins should be identified; destructive, constructive, conservative and collision zones and for full marks intraplate locations should also be mentioned. The best answers will show an understanding of the nature of plate movement mechanisms and will include accurate diagrams of specific plate boundaries. Generalized answers that make no reference to the real world should receive a maximum of [5 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]*

It would be almost impossible to provide a full answer without some evidence that the concept of a system, with its processes (such as inputs and outputs, circulations, accumulations, transformations) and its elements (stores) are understood. An explanation of dynamic equilibrium would also be required. Ideally, all this would be explained in terms of the ecosystem chosen as an example. A clear explanation would be required showing that negative feedback reverses processes and attempts to bring the system back to a state of equilibrium, while positive feedback leads to change. A large number of examples could be chosen by candidates to illustrate these concepts, but it is probable that the most common would concern the relationship between population size and carrying capacity within specific ecosystems. Similarly, a range of approaches could be adopted in responding to this question. Provided the points mentioned are covered adequately, any approach differing from the model described, should be accepted.

In the absence of specific examples no more than *[12 marks]* should be awarded.

The marks should be allocated according to the markbands.

*Or*

**(b) Structured question**

- (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]**

Responses should be awarded [1 mark] for recognizing that the factor is precipitation (or availability of water) and the remaining [1 mark] for some form of justification, such as noting that deserts lack water, whereas forests at the other extreme require large amounts. It would be acceptable, for responses to offer nutrient availability as a possibility.

- (ii) Briefly describe one other factor that could affect the distribution of biomes. [2 marks]**

Responses could choose any of the secondary determinants: nutrient availability, which shows the clearest correlation to the diagram, altitude, animals (especially herbivores), or fire [2 marks].

- (iii) Compare and contrast biomass and productivity of any two biomes shown in the diagram. [6 marks]**

Responses are expected to discuss net primary productivity (NPP) in comparing and contrasting the two biomes chosen. Up to [4 marks] should be awarded to accurate statements concerning the relative values of both NPP and biomass in the two biomes, and the remaining [2 marks] should be awarded for any quantification.

- (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]**

The explanations should note that energy in any ecosystem is solar [1 mark] and that it is fixed by green plants through the process of photosynthesis [1 mark]. A further [3 marks] should be awarded for comments about trophic levels and the loss of energy from one trophic level to the next. The impact of humans is mainly concerned with the export of energy from the system (cropping), although other examples could be given for up to [3 marks]. The remaining [2 marks] should be allocated to the use of specific examples, such as the removal of trophic levels as a consequence of agriculture.

**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]**

In relation to the chosen atmospheric hazard, responses should first examine its causes, second its consequences and lastly evaluate the efforts to arrest its impacts. For maximum marks, all three aspects of the question should be covered, but the attention given to each one might not be evenly balanced. Examiners should be flexible by allowing, for example, an excellent section on causes and consequences **[12 marks]** to compensate for a relatively weak evaluation **[8 marks]** and vice versa.

An examination of the causes and consequences of acid deposition should distinguish wet from dry, identify the sources of emissions of sulphur dioxide and oxides of nitrogen and explain the link with fossil fuel combustion principally by power stations and increasingly by motor vehicles. Responses should show a basic understanding of the atmospheric processes involved in the creation of dilute acids and the factors affecting dispersal and destination. There is a wide range of consequences including the direct effect of acidity on water bodies, soil, water supply, vegetation and buildings. Responses may also receive credit if indirect effects of economic and health costs to societies are mentioned.

The alternative examination of stratospheric ozone destruction should include a description of where the “ozone layer” is found in the atmosphere and a basic explanation of the processes and agents causing ozone formation and destruction. Responses should identify CFCs as one major ozone destroyer and they should mention the sources of this pollutant. The examination of consequences should recognize the damage caused by increased UVB radiation and the effects on human health, plants and animals. The most astute might also comment on the indirect economic effects on societies.

The last, evaluative section of the essay requires that responses recognize modest progress in reducing either acidity through SO<sub>2</sub> and NO<sub>x</sub> emission controls or ozone destruction through CFC controls. However, responses should also acknowledge the difficulty in arresting the impacts of transboundary pollution created by either acid deposition or ozone destroyers such as CFCs. Mention of some of the following limitations must also be included; the number of countries involved, the recognition of the problem, unequal responsibilities, unequal levels of development and difficulty in monitoring progress. All these have made agreements such as the Montreal Protocol difficult to apply internationally.

The marks should be allocated according to the markbands.

*Or*

**(b) Structured question**

- (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]**

An unprepared-for hurricane is likely to strike at both lives and property resulting in a deterioration of the quality of life through the incidence of death, injury, disease, homelessness, crime and stress. Infrastructural damage will lead to a shortage of basic requirements such as food and medicine causing a delay in relief. The economic system will also be weakened by the loss and ruin of local resources and the costs of assistance to the population. This will set in motion a spiral of social and economic decline. For full marks an understanding of both terms – “quality of life” and “economic activity” must be apparent. Failure to discuss either of these terms will result in a maximum of **[3 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]**

Responses should describe briefly the medium and long-term changes shown on the diagram and give some explanation. In the medium-term, reactions to a hurricane involve restructuring the area to ensure that a future occurrence of the hazard will be less damaging. MEDCs are more likely to have the resources to do this and the rate of recovery will therefore be faster than that of LEDCs. In the long-term, the quality of life and economic activity may reach a level above that prior to the hurricane event because of the multiplier effect *i.e.* a growth in confidence in the region can lead to aid and investment from outside and the creation of jobs associated with restructuring. Both of these will generate further growth and an improvement in the quality of life and economic activity above the pre-disaster level. Responses are likely to associate such an improvement with an MEDC rather than an LEDC, but a reasoned answer either way is acceptable.

For full marks, all elements of the question should be addressed; the rate of recovery, the level of recovery and the differences between LEDCs and MEDCs.

- (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]**

Response should focus on the responses to this hazard in one named location (more specific than, for example, the USA) and generalized answers omitting an example should receive a maximum of **[5 marks]**. Discussion should include an appreciation that the lessons learnt from one event will influence the types of long-term response. Long-term responses of weather monitoring, prediction and preparedness should also be covered. For full marks answers must evaluate and assess the social and economic effectiveness of responses given the level of hazard risk, the vulnerability of the population and the availability of resources in this specific location. Answers that describe responses without evaluation should receive a maximum of **[5 marks]**.

**SECTION B**

**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]**

Responses should give an understanding of the term “place”. This should include features that characterize a region *e.g.* climate, landforms, vegetation, economic activities, social and cultural characteristics. The best responses may also refer to the perception of a region as a result of images created by the media, politicians and tourism.

Responses would also be expected to describe and explain how the regions they used as examples would be defined. They would be expected to assess the relative importance of physical, social and economic aspects in defining the respective regions. Responses which do not consider the relative importance of human and physical factors should gain a maximum of **[10 marks]**. The strongest responses would probably include sketch maps to illustrate their regions.

The marks should be allocated according to the markbands.

*Or*

**(b) Structured question**

- (i) Name *two* possible economic activities that could be used in defining the region shown in the model and justify your choice. [4 marks]**

The spatial distribution of a wide range of economic activities could be chosen from all three sectors of the economy (primary, secondary and tertiary), and could be for example, farming particular crops or the distribution area of a newspaper [1 mark]. The justification needs to show how these activities have a distinct limit (such as those shown in the model) and which can be measured and applied [3 marks].

- (ii) Giving examples, explain how the limits of a physical region could differ from an economic region. [6 marks]**

While an economic region, such as that shown by the model, can only define its limits in terms of declining values (distance decay), most physical regions have a clear boundary, such as a change in landform [2 marks]. At least two examples should be given clearly showing how these limits are different [2 × 2 marks] for example, the Okavango inland drainage area in Botswana is an example of a physical region and Saõ Paulo – Santos corridor is a major industrial core region. This is defined entirely using economic criteria as opposed to Okavango which is a region only in a physical sense (vegetation, drainage *etc.*).

- (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]**

All responses would be expected to start by clearly describing the issue [3 marks] and identifying the two regions [2 marks]. An evaluation should then follow of attempts to deal with the issue in each region, showing an appreciation of their effectiveness and making an assessment of their success [2 × 2 marks]. The remaining [1 mark] should be allocated for any attempt at comparison.

**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]**

Ideally, responses will consider the rural–urban fringe in both LEDCs and MEDCs although the candidate’s own location *i.e.* where they live, may influence the emphasis in the answer.

Essentially, these areas are rural and in MEDCs the traditional role has been to accommodate land uses linked with the city, such as reservoirs, sewage farms, waste disposal, airports and golf courses. More recently, suburban development along with retailing outlets and highways has developed rapidly. In LEDCs similar points also apply as well as the use of the land by squatters. Award up to **[8 marks]** for this section depending on how thoroughly responses have covered these land uses and the quality of the examples.

The pressure is due largely to the consequences of urban sprawl, changing location of industry and the development of transport routes. Responses may focus on the advantages of greenfield sites and the lack of space in cities for development; edge cities in the USA would provide a good example for this latter point. In MEDCs the encroachment onto greenbelt land may be cited as a problem. In LEDCs the displacement of the poor by the movement of upwardly mobile, richer people to the edge of the city may be included. Valid pressures should earn up to **[5 marks]** and the final **[7 marks]** are for the effective use of examples that may include the provision of labelled or annotated sketch maps.

Given these considerations, the marks should be allocated according to the markbands.

*Or*

**(b) Structured question**

- (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]**

The diagram shows very clearly that the main priority of new arrivals is to be close to their job [1 mark]. As time progresses the need to be housed legally becomes more important, followed by the need for modern housing [1 mark]. A well-written answer, where the time sequence is clear and/or reference is made to the type of housing found at each stage earns the final [2 marks].

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

Award a maximum of [4 marks] for identification of valid methods. These may include satellite towns, renewal, site and service types of self help schemes. The other [2 marks] should be awarded for detail and clarifying statements.

- (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]**

Award a maximum of [5 marks] for a simple description of an area with limited information, only one development or solution and minimal evaluation. Award maximum marks for a comprehensive coverage of the chosen urban area and an effective evaluation of the success of the policies to improve housing. The methods may cover urban renewal and redevelopment, building new towns, attracting people back into city centres, suburbanized villages. Any sketch maps should be annotated.

**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]***

This question is divided into two parts. The maximum mark for the first part should be ***[8 marks]***. Responses may include bringing new land into production and credit should be given for this where technological innovation is highlighted but, the main emphasis must be on the intensification of production. Ways of improving food production will include genetically engineered crops, using fertilizers, pesticides and herbicides, irrigation and biotechnology (cloning and genetically modified foods). Award ***[2 marks]*** up to a maximum of ***[8 marks]*** for each valid description, but a maximum of ***[5 marks]*** if the most recent innovations are not mentioned and the response seems to be locked into a description of the Green Revolution.

The second part of the question requires examples and/or case studies and credit should be given for examples that illustrate different or a combination of difficulties ***[12 marks]***. Depending on the location chosen difficulties may cover overproduction, changing diets and political and consumer pressure (*e.g.* the move towards organically grown food in MEDCs). The negative impact of irrigation and changing weather patterns may be cited a physical factors.

Credit can be given for other factors such as wars, political systems supporting inefficient farming methods, lack of capital in LEDCs. Whilst this section is quite open, award a maximum of ***[5 marks]*** when only one area is considered unless there are multiple reasons (up to ***[8 marks]***). Responses that provide a number of contrasting areas and a variety of valid constraints will achieve highest marks.

Given these considerations, the marks should be allocated according to the markbands.

Or

**(b) Structured question**

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

	<b>Agriculture</b>	<b>Industry</b>	<b>Services</b>
Taiwan	12 %	38 %	50 %
Sri Lanka	49 %	21 %	30 %

[1 mark] for correct identification of values for each country. Allow  $\pm 2$  % for each value. Awarding of marks for individual incorrect values will be as follows:

[2 marks] per country for three correct values

[1 mark] per country for two correct values

[0 marks] for one correct country.

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

Award [2 marks] for choosing a sensible classification. The data naturally falls into two groups although some candidates may see and choose three groups (separating Hong Kong and Japan from South Korea, Malaysia and Taiwan or isolating Malaysia from the groupings above and below it).

Award a further [2 marks] for a valid statement explaining the choice of grouping. Award the final [2 marks] for quantitative evidence to support the classification.

- (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]**

Details will vary depending on the country chosen but the successful candidate will need to have a detailed knowledge of the country in question. For higher marks they will need to discuss the historical and if appropriate, colonial aspects [3 marks], and government control and foreign investment [3 marks]. There is no need for an overemphasis on the role of TNCs, but credit should be given if the increased role is correctly identified in their chosen country. The remaining marks will cover aspects such as the work ethic that exists in these countries, the changing role of women and the most recent developments that have taken place [3 marks]. Credit can be given for additional information that is relevant for the chosen country. The final [1 mark] is to be awarded for the breadth and structure of the answer.

## 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]**

This essay is divided into two parts. First, responses must identify the main changes in communications *e.g.*

- television channels that are now available through satellite *i.e.* CNN, BBC World Service, SKY. They are now able to beam the same programmes worldwide simultaneously.
- improvements in telephones and facsimile service that make communication possible from most parts of the world.
- the worldwide web which is present throughout the world and allows access to news and information as well as improving interpersonal communication.
- the role of global transport leading to increased travel.

Allocate up to **[10 marks]** for this part of the response.

Second, responses must then assess how the improvements in communication have helped bring commerce together throughout the world for the remaining **[10 marks]**.

Arguments that could be cited are:

- that business owners and managers would be aware of suppliers and also of potential markets globally through advertising on the Internet. The possibility of ordering goods *etc.* over the Internet or by facsimile has facilitated the execution of business.
- similarly, improvements in global transport and the availability of information and music over the Internet has helped to spread current trends of fashion and ideas. This has enhanced the global spread of changes in lifestyle and music and it could be argued that this makes them more homogenous.
- this process has been reinforced by satellite television, which shows the same programmes globally and can influence changes in culture and lifestyle.

The best responses would be able to offer specific examples of this process.

The balance of marks between the two sections need not be applied rigidly, but if one part is not addressed award no more than **[13 marks]**.

The marks should be allocated according to the markbands.

*Or*

**(b) Structured question**

- (i) Comment on the percentage and actual changes in the values of tourism to the economies of both countries. [4 marks]**

Responses would be expected to note that, while the relative contribution made by tourism in the Gambia is greater than it is in the UK [1 mark], the actual changes are much greater in the UK than in Gambia [1 mark]. The remaining [2 marks] should be allocated for quantifying the initial assessments.

- (ii) Assess the extent to which less economically developed countries (LEDCs) can benefit economically from tourism. [8 marks]**

Responses should note that benefits, such as increased revenue from taxes, employment opportunities, overseas investment and an improved infrastructure, [2 marks] should be weighed against the economic costs arising from leakages, such as dividends paid to external owners, investors and suppliers of goods and services [2 marks]. In responding to this question, a simple listing of benefits should therefore not gain more than [2 marks]. The remaining [4 marks] would be allocated to the stronger responses that present an effective argument, attempting to balance the costs and benefits.

- (iii) Evaluate the negative impacts of tourism on the culture of indigenous people in an LEDC. [8 marks]**

Evaluative responses must include a brief description of a specific indigenous culture [2 marks] and identify the elements of tourism that have made an impact on the culture, e.g. child prostitution in Thailand, AIDs, or McDonaldization [2 marks]. Award the remaining [4 marks] for both a consideration of and an evaluation of the changes brought about by these elements on the culture. The marks need not necessarily be allocated equally to both these parts.

**SECTION C – Topographic Mapping**

- C11. (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]**

Responses should state that the slope shows a small convex area close to the summit but the majority of the slope is concave. It starts very steeply and gets progressively more gentle in a northerly direction [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]**

Three distinctive features must be mentioned which are on the aerial photograph but **not** on the map – field boundaries, caravan parks (063363 on the map), full extent of sand on beaches, courses of river channels on estuarine mud and sands, exposed areas of rock on headlands, or any other valid observation [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]**

The aerial photograph has the larger scale [1 mark]. The scale of the photograph is 1:40000. Candidates must show how they arrived at this estimation. A range of 1:35000 – 1:45000 is permitted. Allow [2 marks] for correct method and [1 mark] for correct answer.

- (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]**

Examples must be used from the extract to support responses. Some of the following may be used.

- mountain scenery – Muckish Mountain 666 m, grid reference (004287) offers opportunities to walk
- lakes for fishing
- protected areas – Ards Forest Park (0734)
- bay and headland scenery – Horn Head (0142)
- numerous sandy beaches – Marble Hill Strand (0636)
- sites of antiquities – megalithic tombs (9634).

Credit should be given for any evidence which supports the growth of tourism in the area [5 marks].

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

***[6 marks]***

The settlement in the area is predominantly dispersed. The main settlement is Cresslough (0530). It is compact or nucleated in nature. The small villages of Dunfanaghy and Porthablahy are loose knit with linear dispersion of houses between. Settlements generally consist of houses or farmsteads, which are randomly or linearly dispersed along roads (for example, from the junction at 046333 to 020330). The settlements are generally found in greater densities close to the coastline and on lower land. There is a general absence of settlement on the slopes of Muckish and in Ards Forest Park. Allocate ***[6 marks]*** between description and explanation, although the marks need not necessarily be allocated equally to both elements.

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