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GEOGRAPHY

Higher Level and Standard Level

Paper 2

27 pages

SECTION A

A1. Drainage basins and their management

Either

(a) Essay

Referring to specific case studies, discuss the factors affecting river flooding. ***[20 marks]***

A detailed discussion of a limited number of factors might be as successful an approach as discussing a larger number of factors in less depth. This is an evaluative question which requires candidates to make an appraisal of the factors that cause flooding. The factors affecting river flooding include:

- antecedent conditions
- amounts of rainfall and/or duration and intensity of rainfall
- snowmelt
- basin characteristics such as size, shape and relief of catchment, vegetation cover, surface permeability
- human impact, *e.g.* urbanization, afforestation/deforestation, river engineering.

Stronger answers may acknowledge that these factors can either increase or decrease the likelihood of flooding.

Credit candidates that refer to recent flood events as long as they include "factors". Candidates are expected to discuss the factors responsible for different flood events. There should be a clear conclusion as to whether factors are always the same or not.

Marks should be allocated according to the markbands.

Or

(b) Structured question

(i) Referring to the graph, describe how particle size changes downstream. ***[4 marks]***

In the upper reaches of the river there is a high proportion of coarse and medium load and a relatively small amount of fine load. Over a distance of over 1600 km the proportion of coarse load decreases whereas the proportion of fine load increases. The medium load increases over most of the course but decreases after about 1550 km. Award ***[1 mark]*** for each of the three statements about the distribution of particle sizes downstream and the final ***[1 mark]*** for some quantification.

(ii) Explain why particle size and shape vary with distance downstream. ***[4 marks]***

Credit reduction in particle size ***[1 mark]*** and increase in roundness ***[1 mark]***. The changes in size and shape result from the processes of transport and attrition. Award ***[1 mark]*** for mentioning each term and ***[2 marks]*** for explanation of the reduction in particle size and increase in roundness. It is not necessary to mention the terms of transport and attrition for full marks.

(iii) Briefly explain what is meant by the competence of a river. ***[2 marks]***

The competence of a river is the maximum ***[1 mark]*** size of particle ***[1 mark]*** that a river can carry.

(iv) Referring to examples, compare the issues of water utilization at *two* different scales (local, regional, national or international). ***[10 marks]***

The issues of water utilization are likely to vary at different scales, depending on the examples chosen. At an international scale, there may be conflict over the amount of water each country in a drainage basin is allocated. Political conflicts also apply to issues of water quality.

At a local level, there may be issues over conflicting users such as farmers and urban dwellers.

Water utilization issues at all scales are particularly evident in areas which experience water shortages. The issues compared could be political, environmental, recreational, social and economic.

Answers that refer to two different scales and illustrate their work with examples are likely to be credited at band D and above.

Marks should be allocated according to the markbands.

A2. Coasts and their management

Either

(a) Essay

Discuss the causes and effects of changes in sea level on coastlines. ***[20 marks]***

This essay requires a description and explanation for the process of sea level change, both rise and fall, followed by a discussion of effects.

Over geological history, sea levels have fallen and risen in response to a sequence of glacial episodes. Changes in land level have also resulted in relative changes in sea levels. Global warming may cause sea-level change affecting many coastlines and their populations.

Sea level rise has resulted in gradual coastal inundation and a range of submergent features including: rias and fjords. The physical characteristics and formation of these coastlines should be explained along with their potential for economic activity. (Deep, sheltered rias and fjords present opportunities for navigation, fishing and tourism.) Low-lying coastlines, such as those of the Ganges delta and small islands in the Indian Ocean, are particularly vulnerable to rising sea-level. In richer societies, coastal protection schemes and insurance policies are taken to mitigate against this.

Falls in sea level result in the features of emergent coastlines such as raised beaches and abandoned cliff lines.

Sea level change on any time scale is relevant (short term and long term) although omitting the geological scale and focusing on the effects of recent global warming is likely to be self-limiting. To access markbands E and F the answer must cover a range of physical and/or human causes and consequences.

Marks should be allocated according to the markbands.

Or

(b) Structured question

(i) (a) Briefly describe the changes in the width of the beach at point A between 1966 and 1984. ***[2 marks]***

The beach has become wider ***[1 mark]*** by approximately two times / from a width of 0.5 to 1 kilometre ***[1 mark]***. An alternative qualifying statement could also be valid.

(b) Identify *two* other ways in which the construction of the airfield has changed the shape of the coastline. ***[2 marks]***

It has caused recession of the coastline north of the airfield ***[1 mark]***, changing the shape of the beach along the side of the airfield ***[1 mark]*** and the creation of an indentation south of the resort area ***[1 mark]***. Any two valid points should be credited.

(ii) Explain the coastal processes which might have caused the changes you have described in (i). ***[6 marks]***

Answers should explain the accumulation of sediment to the south of the airfield which acts as a barrier to longshore transport of sediment northwards. There is also erosion to the north of the airfield.

The airfield causes the build up of sediment on the downdrift side. However, once the waves have deposited their load, they are able to pick up (erode) the beach on the updrift (north) side of the airfield.

Credit should be given for an explanation of the retreat of the high water mark towards the resort area due to an increase in wave energy resulting in erosion of the shoreline. Award ***[3 marks]*** for an explanation of the changes north of the airfield and ***[3 marks]*** for south of the airfield.

(iii) Referring to examples, examine the physical and human factors which determine whether a coastline is protected or not. ***[10 marks]***

The answer should identify more than one management option and these will range from ambitious and costly schemes, involving structural engineering, to passive approaches of doing nothing. The approach will be dependent upon the urgency and scale of the problem and its expected outcomes.

Physical factors could include:
The level of risk of erosion and flooding; wave energy; storm frequency and intensity; the resilience of the coastline which is determined by its geomorphology, geology and exposure to climatic and tectonic hazards; the current rate of recession; the extent to which coastal processes can be controlled; natural resources needing conservation; the likely environmental outcomes of protection schemes.

Human factors could include:
Population density; coastal land value; coastal land use; amenity and recreational value of coastal features; national/regional wealth and priorities in spending, as well as the success or failure of management attempts.

A range of factors, physical and human, need to have been examined to access bands E/F.

Examples are a specific requirement of the question, and they would be expected in those answers achieving band D and above.

Marks should be allocated according to the markbands.

A3. Arid environments and their management

Either

(a) Essay

Referring to named and located examples, examine the responses of people to the challenges presented by arid and/or semi-arid areas. ***[20 marks]***

Answers must refer to specific named and located areas in arid and/or semi-arid areas.
The main challenges of such areas should be identified in terms of high temperatures; low rainfall; high rates of evaporation; high potential evapotranspiration; seasonal water deficit; lack of soil moisture; periodic or long-term drought risks; dry soils; deflation by the wind; desertification in semi-arid areas; and remoteness; though not all of these will apply to the selected areas.

It is expected that the main responses to the challenges will involve adaptation of agriculture to the lack of water and high temperatures, and may include dam construction, irrigation systems, oasis farming, pastoral nomadism or the use of exotic rivers. Desalinization of seawater, the development of tourism, solar energy developments and salt extraction, and the growth of urban areas are other valid non-agricultural responses.

Examiners should adopt an open approach to marking as a wide range of approaches is possible.

Answers that use appropriate examples are likely to be credited at band D and above.

Marks should be allocated according to the markbands.

Or

(b) Structured question

(i) Define the following terms: ***[2+2 marks]***

(a) hot arid environment,

Hot and arid areas experience high daytime and summertime temperatures ***[1 mark]*** and a moisture deficit with mean annual precipitation below 250 mm ***[1 mark]***. Hot areas with low rain should not be credited without some exemplification of the terms hot and dry. Answers that state 'an area where potential evapotranspiration exceeds precipitation' should be awarded ***[2 marks]***.

(b) desertification.

The spread of desert-like conditions ***[1 mark]*** into neighboring semi-arid regions and/or previously vegetated areas ***[1 mark]***.

(ii) Referring to the map, suggest *three* reasons for the location of areas with a high risk of desertification. ***[6 marks]***

The reasons might include:

- proximity to hot arid environments that may expand
- unreliable rainfall
- periodic drought or risk of long-term drought
- poor farming practices such as overgrazing and over-cultivation
- population pressure leading to degradation of vulnerable marginal areas
- deforestation for fuelwood leading to land degradation

Each of the three reasons should be developed (there may be others), although detailed knowledge of African examples is not expected.

(iii) Examine why the landscape of hot arid environments is so distinctive ***[10 marks]***

Answers should show an awareness of the distinctive nature of desert landscapes in terms of their characteristics, landforms and vegetation. Their distinctiveness should be described and explained with reference to processes and physical features. Wind and water should be discussed as agents influencing the development of distinct features of distinct landscapes. The effects of periodic storms and flash floods, combined with long periods of weathering and high rates of evaporation, create distinctive landscapes.

Good responses will include a range of characteristic fluvial and aeolian landforms and varied landscapes (erg, reg hamada, basin and range, pediment and bajada), though it is not necessary to refer to all types in order to reach the top markbands. Answers that do not mention vegetation as an element of such landscapes should not be penalized and may also reach the top markbands.

Responses that simply refer to a range of individual features without considering the total landscape and its distinguishing (distinctive) features should not move above markband D.

Marks should be allocated according to the markbands.

A4. Lithospheric processes and hazards

Either

(a) Essay

Discuss the factors other than distance from the epicentre, that determine the impacts of an earthquake. ***[20 marks]***

Reference may be made to physical factors such as geology, topography, depth of focus, magnitude and sub-marine earthquakes causing tsunamis. Unconsolidated materials may liquefy, steeper slopes may be prone to mass movement, and coastal locations may exacerbate the tsunami hazard.

Other factors that should be taken into consideration include level of development, population density, housing quality, property values, insurance, preparedness, the season of the year and the time of day. Consideration may be given to both primary and secondary impacts.

Not all of the above are required for an answer to reach band F, but answers should examine both physical and human factors. A strong account of one may compensate for a weaker account of the other. Answers that only cover one of these aspects should not move above band D. Answers that offer explicit exemplification of relevant factors are likely to be credited at bands E/F. Although examples are not a specific requirement of the question, they would be expected in those answers achieving bands D and above.

Marks should be allocated according to the markbands.

Or

(b) Structured question

(i) Describe the pattern of volcanoes shown on the map. ***[3 marks]***

There is a linear concentration of volcanoes in East Africa and along the southern part of the Red Sea (East African rift) ***[1 mark]***. A few volcanoes are found in west central Africa (Cameroon) – these also show a linear distribution ***[1 mark]*** and a few volcanoes are also found dispersed in central northern Africa (Sudan and Chad) ***[1 mark]***. Credit may also be given for picking out a linear pattern along the western arm of the rift in Congo and Rwanda. It is acceptable for candidates to mention clustering without necessarily referring to a linear distribution.

(ii) Using *only* an annotated diagram, explain the formation and features of constructive plate margins. ***[7 marks]***

Credit should only be given for information which is either written on the map or linked to it by arrows or a key.
The explanation should cover the physical pressures leading to the formation and features of constructive plate margins.
As a general rule, ***[3 marks]*** should be awarded for the quality of the diagram and ***[4 marks]*** for the quality of the annotations, but this balance can be adjusted in cases where exceptional quality is found in either of these (two) parts. The diagram may be divided into several parts but some of the following annotations/explanations should be incorporated. Constructive margins usually have distinctive ridges at either side of a rift valley, formed as a result of the sea floor spreading and tension as the crust diverges. Fault lines (normal faults) are found where the central rift has subsided as a result of the tension. Shield volcanoes and lava plateau (basic lava) may form along the rift system where there are fissures and fracturing. Some reference may be made to the depth of the rift. In the case of sub-marine rifts there are smokers (vents issuing gases such as SO_2), volcanic islands, and in the case of terrestrial rifts (East Africa) there are often lakes formed in the lowest areas and a series of stepped escarpments.

Not all of the above are required in the annotations but at least two should be explained in some detail or four in less detail. Accept diagrams of submarine plate margins or continental rift valleys.

(iii) "Rapid mass movements cause more problems for people than slow mass movements." Discuss this statement. ***[10 marks]***

Answers should discuss the effects of mass movements of different speeds on people in terms of loss of property and life, disruption of communications and economic activity. Answers should distinguish clearly between slow and rapid mass movements. Examiners should allow some flexibility in how this distinction is made. It is anticipated that responses will consider that slow movements, such as soil creep and solifluction, cause fewer problems but that they do have effects on people and these should be briefly explained.

Rapid movements are likely to be discussed in terms of their greater effect, and responses should point out that the speed of onset and movement reduce predictability and result in a more serious impact. Answers could explain this with reference to several types of fast movement, though a detailed discussion of a single case study is equally acceptable.

Stronger answers are likely to refer to actual examples of mass movements in order to demonstrate their impacts. Answers including snow avalanches as a type of rapid mass movement should be credited, as long as conclusions are drawn regarding speed and impact. Answers that extend the discussion into problems associated with responses to the hazards of mass movements are also valid and should be credited.

While the question requires that both rapid and slow mass movements be examined, it is not necessary for them to be covered in equal depth. Answers that do not refer to both should not be credited above band C.

Marks should be allocated according to the markbands.

A5. Ecosystems and human activity

Either

(a) Essay

Using specific case studies, examine the differences in human impacts upon *one* grassland and *one* forest ecosystem. ***[20 marks]***

Two specific ecosystems (or biomes) should be named and located. The emphasis of the essay should be placed on an examination of the *differences* in impacts. These impacts will vary according to the chosen case studies but may focus on a variety of pertinent issues. For example, in the case of tropical grasslands this may be soil erosion/degradation, loss of endemic species, the influence of seasonal burning, conversion to agriculture and other possibilities. The forest ecosystem case study may examine deforestation, soil erosion, loss of species diversity, extinction, changes in local climate (rainfall) and aesthetic loss (for example).

Stronger answers might also examine positive impacts. These may include land management, zoning, reforestation schemes, creation of national parks, biosphere reserves, community based tourism (ecotourism), game ranching in tropical grasslands. Many other possibilities exist and should be credited where they are valid and relevant to the chosen case studies.

A strong account of one may compensate for a weaker account of the other.

Answers accessing band E and above should identify the differences in impacts on the chosen ecosystems. Inclusion of both positive and negative impacts is not essential to access bands E and F.

Marks should be allocated according to the markbands.

Or

(b) Structured question

(i) Briefly describe the difference between producers and consumers. ***[2 marks]***

Producers (autotrophs) are organisms that make their own food, using sunlight such as green plants or plankton ***[1 mark]***. Consumers are animals that eat producers (autotrophs/plants) or other consumers ***[1 mark]***.

(ii) Explain the energy flows on the diagram. ***[3 marks]***

Photosynthesis explains how energy from the sun is captured by green plants and used to make food ***[1 mark]***. Most of this energy is used to carry on the plant's life activities. The rest of the energy is passed on as food to the next level of the food chain ***[1 mark]***. Therefore only 10 % of energy is passed to the next level of the food chain ***[1 mark]***. At each level above producers, 90 % of energy is lost through heat (respiration, movement reproduction) ***[1 mark]*** and through decomposition (excretion, death and decay) ***[1 mark]***. Animals located at the top of the food chain need a lot more food to meet their energy needs ***[1 mark]***. Three valid points can be credited but they must refer to both photosynthesis, or energy capture from the sun, as well as transfer up the food chain.

(iii) Explain how negative and positive feedback affect the stability of an ecosystem. ***[5 marks]***

When an ecosystem is in balance, it is in a steady state or dynamic equilibrium ***[1 mark]***. This is achieved by self-regulation (negative feedback) ***[1 mark]***. As an ecosystem is a system, change in one component (positive feedback) will affect other components ***[1 mark]***. Negative feedback decreases the amount of change, returning the ecosystem to stability ***[1 mark]***. It provides a balance in the system. Positive feedback increases the amount of change which leads to an imbalance ***[1 mark]***. Positive feedback is a type of a vicious circle that perpetuates change. Other valid explanations can be credited.

(iv) Discuss how people can manage a named and located ecosystem to increase its sustainability. ***[10 marks]***

The ecosystem chosen must be named and located. The ecosystem may be natural or one altered by people. Specific management practices should be discussed and related to increasing the sustainability of the system. Strong responses will show an understanding of sustainability and the ways in which the management of the ecosystem exemplifies this. Management practices which do this may include afforestation projects, sustainable tourism, involvement of the local community in using the ecosystem as an extractive reserve, and species and soil conservation. Other valid management practices may be included.

Answers that use an appropriate example are likely to be credited at band D and above. Explicit discussion of the statement is likely to be credited at bands E/F.

Marks should be allocated according to the markbands.

A6. Climatic hazards and change

Either

(a) Essay

Examine the reasons for variations in the impacts of tropical cyclones (hurricanes). ***[20 marks]***

All kinds of impacts on people, property, the economy, society and the environment could be considered. Tropical cyclones vary in size, strength and in the path they follow. Each of these characteristics will require some explanation and will affect the impacts they will have. In addition, the impacts will also depend on the characteristics of the areas affected by the cyclones, including population density, wealth, the community's state of preparedness, accuracy of predictions and warnings, infrastructure for evacuations, search, rescue and recovery capabilities, and people's memory of the severity of past events. Other valid reasons may be credited. Reference may also be made to the possibility that the frequency and severity of tropical cyclones are increasing, and may continue to increase in the future, as a result of global warming.

Answers may look at both spatial and temporal variations.

Stronger answers accessing bands E and F are likely to discuss several/a range of these reasons and be able to provide supporting examples to illustrate the points made.

Marks should be allocated according to the markbands.

Or

(b) Structured question

(i) Briefly explain what is meant by a "hole in the ozone layer". ***[2 marks]***

The ozone layer in question is in the stratosphere ***[1 mark]***; when a hole forms, there is a lower concentration of ozone in the layer than normal caused by the impact of ozone depleting substances (ODS) for example CFCs. ***[1 mark]***. Accept depletion of ozone for lower concentrations.

(ii) Describe the trend shown by the maps. ***[2 marks]***

The trend is one of ever decreasing ozone (or ever larger hole in the ozone layer) over the Antarctic ***[1 mark]*** with a further ***[1 mark]*** for some quantification.

(iii) Explain *three* effects of the trend identified in (ii). ***[6 marks]***

There are two major concerns about a decrease in stratospheric ozone. The first is that more UV radiation will penetrate the atmosphere and reach the ground. Plants and animals vary in their tolerance of increases in UV radiation, but many are susceptible to a variety of problems if UV radiation exceeds normal levels ***[2 marks]***. Excessive UV radiation can damage DNA, the genetic code in every living cell. In people, increases in UV radiation have been linked to an increase in aged skin and skin cancers. They have also led to a higher incidence of eye cataracts and may weaken the immune system ***[2 marks]***. The second major concern about decreasing stratospheric ozone is that the same CFCs which are believed to be largely responsible for the destruction of ozone are also thought to have a considerable impact on global warming. Other valid effects should also be credited ***[2 marks]***.

Award ***[2 marks]*** for each effect that is developed in detail and ***[1 mark]*** for less developed effects.

(iv) Examine the local, national and international responses to ozone depletion. ***[10 marks]***

At a local level, the responses may include campaigns to increase the use of sunscreen to avoid some of the potentially damaging effects of excessive UV radiation on the skin. International responses include: the meetings held in Montreal (1987) which placed limits on CFC production; Helsinki (1989) where a complete ban on CFCs was agreed; and Copenhagen (1992) where the deadlines for ending the use of CFCs were brought forward. Several individual countries, including Germany, Australia, Sweden and Canada have introduced legislation that is more stringent than that required by the international agreements. Many countries have also enacted national regulations designed to encourage the rapid development and production of products to replace CFCs.

It is not necessary for the discussion of local, national and international scales to be equal. Answers incorporating all three scales are likely to be credited at bands E/F.

Marks should be allocated according to the markbands.

SECTION B

B7. Contemporary issues in geographical regions

Either

(a) Essay

Referring to specific examples, discuss whether or not a place may belong to more than one region at the same time. ***[20 marks]***

A place is a single geographical entity, whereas a region is an area of places which share some characteristic or characteristics.

There are many different kinds of region. For example, there are regions based on a single physical criterion (such as rainfall or relief) or single cultural criterion (such as language, dialect, or religion). Many regions are defined as multi-feature regions, defined by several criteria, usually a combination of physical and human characteristics. There are also administrative (political) regions and functional regions. The latter are defined either by a combination of economic activities, or by the service area for a particular good or service. Responses should discuss more than one kind of region; answers which focus on only one kind of region may not be credited beyond band D.

Because there is a multiplicity of regions, depending on how and why they are defined, which overlap each other at a variety of scales, all places belong to more than one region at the same time. Answers that conclude otherwise may not be credited beyond band D. Answers that do not include specific examples of places and regions should not be credited above band D.

Marks should be allocated according to the markbands.

Or

(b) Structured question

(i) Referring to the maps, describe the connections between livestock and climate in this region. ***[4 marks]***

Award up to ***[2 marks]*** for the description of each valid connection (or lack of connection) shown on the maps (*e.g.* livestock densities are inversely related or not clearly related to annual precipitation).

No more than ***[2 marks]*** may be awarded if no attempt at quantification is included.

(ii) Suggest *two* other characteristics of the peninsula which could be mapped using isoline (isopleth) maps and explain how they might help to describe the geographical character of this region. ***[3+3 marks]***

There are many possibilities. Economic, social and additional physical aspects are all appropriate choices, provided they are readily quantifiable and likely to be depicted on maps by isolines.

Award ***[1 mark]*** for each valid suggestion and ***[2 marks]*** each for explaining how it might help describe the region's geographical character.

(iii) Analyse the contemporary geographical issues of your local region. ***[10 marks]***

The region must be clearly located and defined, and the issues analysed must be contemporary. The region and issues should be accurately described and/or explained.

Most contemporary geographical issues are likely to be at least partly due to human, economic or social factors as to physical geography. Some may be due to external factors which the region is unable to control or influence in any meaningful way.

The analysis should be based on a single local region. Answers that analyse more than one region will be self-limiting.

Marks should be allocated according to the markbands.

B8. Settlements

(a) Essay

Using named and located examples, evaluate the effectiveness of urban management strategies. ***[20 marks]***

Strategies of urban management aim to improve a number of aspects of urban living. These include: housing, communications, environment, waste management, employment, security, socio-economic equalities, ethnic assimilation, recreational and open-space provision, derelict areas and regeneration. There are other valid strategies that may be cited.

Candidates should use examples of at least two named towns or cities. The evaluation may be speculative if the strategies are of recent implementation. A wide interpretation of effectiveness is acceptable, ranging from economic to social, cultural, aesthetic, and environmental considerations.

Strategies may be designed at a variety of levels to cover a range of scales. For instance, a national strategy may be to develop new towns or green belts whereas a local one may refer to development of an area of low quality housing.

Examples are a specific requirement, hence they would be expected in those answers achieving band D and above. Answers including explicit evaluation are likely to be credited at bands E/F. Answers that refer to only one strategy should not be credited above band C.

Marks should be allocated according to the markbands.

Or

(b) Structured question

(i) Describe the distribution in New York of: ***[2+2 marks]***

(a) industrial land use,

Answers may include:
- the distribution is very uneven/irregular
- linear distribution along the major rivers
- industrial land is focused in Queens and the south part of the Bronx.

There are other possibilities. Award ***[2 marks]*** for any two valid points substantiated by map evidence.

(b) commercial land use.

Commercial areas are concentrated on Manhattan Island. In other areas they are smaller and more dispersed and tend to be where housing density is higher.

Award ***[2 marks]*** for any two valid points substantiated by map evidence.

(ii) Suggest reasons for the distribution in New York of: ***[3+3 marks]***

(a) industrial land use,

Industrial land use in New York is largely located on waterfronts. This may be historical or taking advantage of trade potential. Other reasons may include availability of flat land, accessibility, transport links, land values, proximity to markets, or labour and industrial inertia.

Award ***[1 mark]*** each for up to three valid reasons.

(b) commercial land use.

Commercial areas need to be able to reach their customer base. Reasons for the distribution of commercial areas include proximity to suppliers and customers, residential areas, accessibility, land values and historical growth of the city.

Award ***[1 mark]*** each for up to three valid reasons.

(iii) For a named city, to what extent does present day land use match an urban land use model? ***[10 marks]***

Although it is possible to answer this question without the use of diagrams or maps it is likely that answers accessing bands E/F will include a map of their chosen city and a diagram of their chosen model.

All answers must focus on the pattern of different land uses and relate the real patterns to the theoretical patterns.

Answers may conclude that there is, or is not, some similarity between real and theoretical patterns. Either conclusion is equally acceptable depending on the city and model chosen. Answers accessing bands E/F must have drawn a clear conclusion.

Marks should be allocated according to the markbands.

B9. Productive activities: aspects of change

Either

(a) Essay

Referring to examples, examine the benefits and problems resulting from recent technological innovations in agriculture. ***[20 marks]***

Examiners should remain flexible in terms of candidates' interpretation of "recent" but answers may legitimately include the Green Revolution of the 1960s to 1970s. Answers that refer to only very recent innovations, such as the GM revolution, are also valid.

Possible areas of discussion might include improved or innovative irrigation systems, high-tech glasshouse cultivation, the use of chemical fertilizers (especially nitrates) and pesticides, factory farming and the use of ICT in farming systems, as well as the Green and GM Revolutions. Not all of these are essential to a good answer but at least two areas of technological innovation should be examined. These may include examples other than those mentioned above.

A variety of scales from local to global could be considered. Benefits and problems may range from economic to social and environmental. Benefits and problems that do not directly affect people may also be relevant in answers, such as impacts on habitats and wildlife populations.

Benefits may include increased food production, reduced poverty levels, improved social welfare, improved health, economies of scale, increased personal and national incomes, availability of out of season foods, the control of disease and pest control.

Problems may include costs, social inequalities, control by TNCs, environmental pollution, loss of biodiversity, energy use, dichotomies of wealth, soil erosion, land and water degradation, genetic mutation.

The term "examples" may be interpreted as examples of specific technological innovation or examples of named areas where these innovations have been introduced. Either or both of these approaches is acceptable.

Answers must refer to ***both*** benefits and problems related to specific innovations. The range of advantages and problems need not necessarily be balanced as in some cases advantages may outweigh problems.

Answers that refer to only benefits or only problems should not move above band C.

Marks should be allocated according to the markbands.

Or

(b) Structured question

(i) Briefly describe the geographical pattern in labour costs in the textile industry shown in the diagram. ***[4 marks]***

Answers should mention regions, with examples of countries, where costs are high, medium and low. Examiners should remain flexible regarding candidates' interpretations of these terms, but actual costs per hour should be stated.

Most answers will point out high costs in Western Europe, USA, Japan, and Australia, medium costs in Eastern Europe along with Central and South America, and low costs in South Asia ***[3 marks]***, though other patterns are acceptable as long as they are justified by cost data. The other ***[1 mark]*** should be awarded for identification of anomalies, such as Bulgaria, or any other valid statement supported by quantification. Answers that simply describe differences in costs without reference to their geographical pattern should not be awarded more than ***[2 marks]***. Answers that do not quantify labour cost data should not be credited with more than ***[3 marks]***.

(ii) Using named examples, explain the effects that differences in labour costs have on the location of manufacturing industry. ***[6 marks]***

Answers should explain why labour costs are such an important factor in industrial location since other factors, such as transport, have seen a reduction in time-distance, and relative costs and mechanization have reduced the demand for skilled labour in the manufacturing process. The availability of cheap labour in many LEDCs has encouraged TNCs involved in labour intensive industries to locate manufacturing in peripheral low wage manufacturing areas and away from high wage core regions, since products can be easily and cheaply moved to distant markets. Examples might refer to particular industries such as garments or electrical goods and to specific countries and TNCs. Answers that generalize without reference to named examples should not be awarded more than ***[3 marks]***. Answers that refer to these processes at a national or regional scale rather than a global scale should be credited. At least three developed points are expected for the award of the full ***[6 marks]***.

(iii) Examine the factors other than labour costs that influence the location of manufacturing industry. ***[10 marks]***

Valid answers may refer to factors other than labour costs at a variety of scales, from local to national to regional to global. Relevant factors could include transport costs, type(s) of transport required (road, rail, water, air, pipeline), the influence of raw material in terms of weight loss or weight gain, the influence of markets, energy and supplies, government policies (special economic zones/tax breaks), land costs, behavioural factors associated with individual entrepreneurs and climate.

Answers accessing band D and above should cover a range of these factors, and are likely to refer to specific industries and/or locations to access bands E and F.

Marks should be allocated according to the markbands.

B10. Globalization

Either

(a) Essay

"Global economic integration has reduced international disparities in wealth." Discuss this statement with reference to examples. ***[20 marks]***

An understanding should be shown of the concept of "global economic integration" meaning the merging of economic systems and the increase in international flows of goods and finance. Its functional mechanisms and features should also be mentioned. They include:

- Free trade encouraged by global institutions such as the WTO, IMF and the World Bank; the creation of trading blocs – EU, NAFTA, LAFTA, COMECON
- The growth and dominance of TNCs associated with new international division of labour (NIDL) and increasing flows of Foreign Direct Investment
- The improvement in global communications networks facilitating easy flow of people, goods, services, capital and ideas and resulting in time-space convergence.

The issue of reducing disparities should be addressed and the answer may agree, disagree or present both arguments. Pro-globalist views are that economies grow and economic disparity declines through free trade as exemplified by the NICs of South East Asia. Anti-globalist views are that the global economy is dominated by international institutions promoting powerful MEDCs and excluding weaker LEDCs. They also argue that the growth of LEDCs is hindered by the domination of TNCs, the unfair terms of trade, and the inability to clear their debts.

No credit can be given for comments relating to social or cultural integration.

To access bands E and F answers should consider both sides of the argument and exemplify with examples.

Marks should be allocated according to the markbands.

Or

(b) Structured question

(i) Describe *two* main differences between the graphs. ***[3 marks]***

Differences include the number of tourists, the rate of increase between 2000 and 2008 (Maldives is greater), date of the anomaly.
Other valid differences should also be credited. Award ***[1 mark]*** for each of two differences plus ***[1 mark]*** for some quantification. Merely stating the years does not count as adequate quantification.

(ii) Suggest *three* possible reasons for the differences you have described in (i). ***[3 marks]***

Possible reasons include the promotion of tourism in the Maldives, resulting in a faster rate of growth; possibility of a localized political or hazardous event affecting the small island nation; possibility of a global crisis in 2002, which did not reach the Maldives; the disproportionate size of world tourism numbers compared to the Maldives.

Award ***[1 mark]*** for each of three valid reasons outlined.

(iii) Explain *one* positive and *one* negative impact of a decline in tourist arrivals in a small island nation such as the Maldives. ***[4 marks]***

Impacts may be social, cultural, economic or environmental.
Positive impacts might include recovery of coastal ecosystems, relief from air, land and water pollution, conservation of resources such as water.

Negative impacts might include loss of foreign revenue, negative causation (reverse multiplier effect), collapse of the national and local economies where tourism makes a major contribution to GDP.

Award ***[2 marks]*** for an explanation of each impact. Specific knowledge of the Maldives is not required.

(iv) Describe and evaluate the attempts that have been made to regenerate a named declining tourist destination. ***[10 marks]***

Tourist destinations will generally enter a period of decline (Butler). The answer should describe strategies designed to deliver economic sustainability over the long-term.

The answer should identify the need for regeneration at a named tourist destination and should describe the relevant strategies. The term "destination" can be accepted on any scale from a country to a small tourist enclave, such as a resort.

Evaluation is essential, but may be speculative where the outcomes of regeneration are not yet known.

Responses including explicit evaluation of regeneration strategies are likely to be credited at bands E/F.

Marks should be allocated according to the markbands.

SECTION C

C11. Topographic mapping

(a) Briefy describe *three* characteristics of slope XY shown on the map. ***[3 marks]***

The following characteristics would be relevant:
- Length – 1 km (not 4 cm)
- Gradient – steep, 1:4. Some quantification needed
- Shape (morphology) – convex or relevant description
- Aspect – facing north-west
- Land use – settlement, mixed vegetation on upper slope, brushwood and forest at the foot
- Change of slope at approx 250 m
- Change in elevation (quantification needed 50 m – 390 m)

For full marks some clear reference to relevant map evidence or quantification or the use of precise terminology is expected.

(b) Using *only* an annotated sketch map, divide the whole area into distinct physical regions and briefly describe each one. ***[6 marks]***

Credit should only be given for information which is either written on the map or linked to it by arrows or a key. The "physical" regions must be defined by either relief, drainage, vegetation or a combination of these. All must be distinct, clearly outlined ***[2 marks]***, named and briefly described ***[2 marks]***. Award a further ***[2 marks]*** for the overall appearance of the sketch map which should include an accurate scale and northpoint.
References to settlement agriculture or transportation are not appropriate and should not be credited.

(c) Explain *two* advantages and *two* disadvantages of locating a campsite at point A. ***[4 marks]***

Advantages:
These include access to the settlements of Grande Fontaine (0.7 km south-west) and Bouillon (0.5 km north-east) for services and Source de Bouillon provides fresh water. The low altitude (< 10 m) and level topography make it suitable for setting up a sheltered camp. There are nearby recreational interests (ravines and coastal features). Also credit access to St Paul and proximity to a main route for easy access.

Disadvantages:
These include flood risk, saturated ground and possible insect nuisance with the abundance of wetlands within 1 km to the north-east. Other valid advantages and disadvantages should be credited.

Maximum ***[3 marks]*** if no use of grid references or relative distance or direction.

(d) Analyse the settlement pattern shown on the map. ***[7 marks]***

The answer should include a description of the type and distribution of settlement and an analytical overview of factors influencing the pattern.

Description of pattern:
The principal town of St Paul is densely populated and its linear morphology follows the coastline and its growth is restricted on the east side by the wetlands. There are several overspill settlements close to St Paul such as Grande Fontaine (0311) and Savanna (0514) which are evidence of suburbanization related to road network development. Between 350 m – 550 m (altitude) small villages are linked by a road from Bullemène (0510) to Le Bois de Nèfles (0813) and La Plaine (0715). These settlements are located amongst the sugar plantations avoiding the ravines and overlooking St Paul. To the north of the map is an area of sparse settlement and the *obsolete radio antenna* site – Pline Chabrier has none.

The analysis:
Positive factors encouraging settlement in this area include accessibility and proximity to employment. Tourism and commercial activities along the coastline; areas of scenic beauty such as the west-facing slope overlooking St Paul on the coast. Negative factors deterring settlement include: steep slopes, ravines and poorly drained lowland. There may be other valid factors that should be credited.

Award ***[4 marks]*** for identification of different types of settlement and an accurate description of their distribution. The analysis should give an overview of settlement distribution in the whole area of the map with reference to factors which have been influential ***[3 marks]***. Answers that do not refer to actual places or grid references should not be awarded more than ***[4 marks]***.