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GEOGRAPHY

Higher Level and Standard Level

Paper 2

24 pages

SECTION A

A1. Drainage basins and their management

Either

(a) Essay

Analyse the natural and human factors that affect the movement of water in river channels. ***[20 marks]***

Answers should identify the following with regard to movement of water within the channel: type of flow (turbulent or laminar), speed of flow (velocity) and variations within the channel (velocity vectors).

Answers could refer to the following variables as natural factors: roughness of the bed and banks (friction), the gradient of the channel, the shape of the channel in cross section (including hydraulic radius), the discharge. The local geology or rejuvenation factors are also acceptable. All of the above are not essential to a markband F answer.

Answers should analyse the effect of these on the movement of water in the channel and may refer to specific landforms in order to illustrate the effects of these variables, such as a section across a meander, the variations caused by riffles and pools or variations in bedrock resistance. Very good answers (markband F) may show an understanding of the interrelationship of discharge, area of cross section and velocity ($Q = A \times V$), especially in terms of the effects of changes in discharge on the speed and flow of water in the channel. Answers should also analyse the ways in which people can change these variables by altering the course, gradient, shape, discharge and roughness of river channels.

Marks should be awarded according to the markbands.

Answers that refer to both natural and human factors are likely to be credited at markband D and above.

Answers that offer explicit analysis of how factors affect the movement of water in the channel are likely to be credited at markbands E/F.

Or

(b) Structured question

(i) Define the term *discharge*. ***[2 marks]***

Discharge should be defined as the volume of water passing a given point ***[2 marks]*** on a river (measured in m^3/sec .) Part in brackets is not essential.

(ii) Comment on the relationship between the discharge and the recurrence interval shown in the diagram. ***[4 marks]***

Answers should state that the larger the discharge, the greater the recurrence interval ***[1 mark]***, (or conversely, the smaller the discharge, the shorter the recurrence interval). There are therefore fewer floods with a high discharge and more with a smaller discharge ***[1 mark]***. The other ***[2 marks]*** should be awarded for relevant quantification that supports these statements.

(iii) Explain how the information shown in the diagram helps in developing a flood management plan. ***[4 marks]***

Answers should state that planners are aware of how often floods of a given size occur, but that the return interval is an average and not a fixed time ***[1 mark]***. Planners are able to plan for floods with a given return interval such as the 100-year flood ***[1 mark]***. This allows them to allocate resources to protect against floods of this magnitude and below ***[1 mark]***. They may decide that it is too expensive to protect against larger floods and that it is cheaper to bear the loss over an extended period ***[1 mark]***. (Some flexibility is required and credit can be given for any other logical statements.)

(iv) Describe the different methods used to prevent river floods and briefly evaluate their success. Refer to one or more named examples in your answer. ***[10 marks]***

Answers should consider at least two methods used to prevent flooding. The term examples may refer to either different methods of flood control on one river, or to different methods on different rivers. Such measures may include dams, levees, straightening of rivers, spillways, restoration of wetlands, floodwater basins, planting forests, terracing of steeper slopes. Other valid methods should be credited.

The flood control methods mentioned should be evaluated either in terms of their efficacy in preventing/controlling floods, or their sustainability in terms of the environment.

Answers that simply describe the methods used to control flooding in the named basin or fail to give one or more examples should not move above markband D.

Answers that offer explicit evaluation are likely to be credited at markbands E and above.

Marks should be awarded according to the markbands.

A2. Coasts and their management

Either

(a) Essay

"Coastlines and their features result from an uneven balance between erosion and deposition." Discuss this statement. ***[20 marks]***

Some coastlines, and some coastal features, are the result of a single predominant process. For instance, erosional landforms include cliffs, caves, stacks, arches and wave-cut (abrasion) platforms, while depositional landforms include beaches, dunes, spits, and bars. However, a full explanation of most coastal features is likely to involve both erosion and deposition, acting together. For instance, prior erosion may be required to liberate the material subsequently deposited as a beach. Spits may be subject to erosion at certain times, and may even be totally destroyed by erosion before re-forming.

There are also spatial patterns to the zones where either erosion or deposition dominate. Many stretches of coastline have some parts that are eroding while other parts are simultaneously experiencing deposition. Over the long term, it is sometimes argued that most coastlines tend towards some degree of equilibrium in plan and profile. A state of equilibrium would suggest that the actions of erosion and deposition tend to cancel each other out. In practice, this is probably rarely achieved and the contributions of erosion and deposition are usually uneven (not in balance). This situation is made even more likely by disturbances due to human activity or extreme natural events. On a shorter time scale, coastlines are perhaps better regarded as constantly having to re-adjust, in relatively minor ways, to wave and wind conditions, and to any disturbances provoked by human activity.

Regardless of whether the answer agrees or disagrees with the statement in the question, a well-structured and factually correct response may be awarded full marks.

Marks should be awarded according to the markbands.

Or

(b) Structured question

(i) Name, and briefly describe, *three* landforms you would expect to find in the area marked A on the Burrows spit. ***[3 marks]***

There are many possibilities, and any three should be credited for ***[1 mark]*** each. They include sand dunes (which can be divided, optionally, into fore-dunes, back dunes, blow-outs), salt marsh channels, beach, storm beach, ridge and runnel, berms, beach cusps. Marks may only be awarded if the name of the feature is accompanied by a valid brief description.

(ii) Explain the likely processes responsible for the formation of this spit. ***[4 marks]***

The main process responsible for the spit is longshore drift ***[1 mark]***. This should be explained as resulting from waves striking the coast at an angle ***[1 mark]***. The spit has grown progressively from west to east ***[1 mark]***. The final ***[1 mark]*** is reserved for providing some further detail, such as (but not limited to) the possible influence of wind action. Responses should focus on explaining the processes and not on explaining the landforms.

(iii) Referring to both the map and the diagram, describe and suggest reasons for the differences in the profiles of the abandoned cliffs at B, C and D. ***[6 marks]***

The profiles have different angles ***[1 mark]*** with the steepest being the profile located to the east ***[1 mark]***, nearest the river. None of the profiles is exactly uniform; they are steeper nearer the bottom of the cliff ***[1 mark]***. The suggested reasons should include the more recent erosion of the eastern cliffs (unprotected until relatively recently by the growth of the sand spit) ***[1 mark]***, as well as differences in sub-aerial processes or rock type or other factors ***[1 mark]***. Any other valid suggestion, such as the idea that cliff angles will diminish with time as active erosion is removed from the base, should be credited for the final ***[1 mark]***.

(iv) Describe human responses to *one* hazard affecting a named stretch of coastline, and briefly evaluate their success. ***[7 marks]***

The example of a coastal hazard must be named ***[1 mark]***. Up to ***[4 marks]*** may be allocated to describing the human responses. The remaining ***[2 marks]*** are reserved for the evaluation of their success (or failure). Answers that are clearly related to a named stretch of coastline may be awarded more than ***[4 marks]***.

A3. Arid environments and their management

Either

(a) Essay

Examine the role of intense and irregular precipitation in the development of landforms in arid and semi-arid areas. ***[20 marks]***

An appreciation of the nature and occurrence of precipitation in arid and semi-arid areas should be demonstrated. The nature of intense precipitation should be described in terms of resultant flash flooding and sheet flow. The irregularity of intense precipitation should be understood as being seasonal in semi-arid areas and sporadic in arid areas. The period of intense mechanical weathering between precipitation events should be understood in terms of preparing materials for erosion and transport. Factors that cause rapid surface runoff are relevant, (precipitation intensity exceeding infiltration capacity, lack of vegetations preventing interception, duricrust surfaces having low permeability).

Answers should show an awareness of the processes of transport, erosion and deposition in ephemeral streams with very high levels of discharge where traction and suspension can move large loads.

Descriptions and explanations of resulting landforms should be given (wadi/canyon, braiding, alluvial fans/cones, bajadas, playas). These may be presented as annotated or labelled diagrams rather than written explanations.

Answers that consider both arid and semi-arid areas are likely to be credited at markband D and above.

Marks should be awarded according to the markbands.

Or

(b) Structured question

(i) Draw a labelled sketch of the photograph, identifying the three main landforms. ***[5 marks]***

Award ***[1 mark]*** each for the correct identification, representation and labeling of 3 "main" landforms (butte, debris, slope or scree, pediment, horizontal strata, vertical joints, rock pinnacle, cap rock) plus ***[1 mark]*** for general proportions/neatness and ***[1 mark]*** for accuracy of sketch lines.

(ii) Describe and explain the processes involved in the formation of this type of landscape. ***[7 marks]***

Answers should refer to mechanical weathering caused by temperature change to form scree ***[2 marks]***, slope retreat to form the butte and pediment ***[3 marks]***, deposition from sheet flow at the pediment foot to form the bajada ***[2 marks]***.

(iii) Discuss the conflicts that arise from tourism in arid and semi-arid areas. ***[8 marks]***

Answers should reflect the demands of tourists, especially the need for clean water and its use for pools, showers, golf courses, parks and gardens. This may conflict with the demands of the local people for domestic use and for irrigation increasing the price of water locally. Local farmers may go out of business or be attracted to work in tourism where wages are higher but may lead to destruction of the traditional local economy. Food may then need to be imported and local food prices rise. Employment may be seasonal, only reflecting holidays in MEDC areas. Hotels and other tourist facilities change the local landscape. Transport for tourists in SUVs may conflict with the local environment—eroding tracks and scaring away wildlife. For full marks, there should be evidence drawn from both arid and semi-arid areas ***[8 marks]***.

A4. Lithospheric processes and hazards

Either

(a) Essay

Examine whether violent volcanic activity is found only at destructive plate margins. Refer to named examples in your answer. ***[20 marks]***

Examples may refer to either named plate margins, or named volcanoes, or both. Answers should differentiate between explosive volcanoes (that extrude acidic lava that often blocks the vent resulting in pressure build up of magma and gases, causing violent eruptions with large ash clouds, pyroclastic surges, lateral blasts and nuées ardentes) and basic lava volcanoes that extrude more fluid lava that allows gases to escape more readily and therefore produce less violent eruptions.

Reasons should be stated as to why the more violent types of volcanoes occur more frequently at destructive margins where the resultant magma is gas laden and viscous. Examples of such margins and/or explosive volcanoes should be given. Reasons why constructive margins tend to produce quieter eruptions should be explained in terms of the basaltic magma source in the mantle. Examples of such margins and/or volcano examples should be stated.

Very good answers (markband F) may also point out that relatively non-violent eruptions can occur at hot spots such as in Hawaii, while some of most violent eruptions of all (supervolcanic eruptions) do not always occur next to plate margins, as with Yellowstone in the USA. Responses may also point out that collision zones and conservative margins have very little volcanic activity, although southern Italy may be considered an exception.

Answers that offer named examples of either volcanoes or plate margins are likely to be credited at markband D and above.

Answers that offer explicit evaluation are likely to be credited at markband E and above.

Marks should be awarded according to the markbands.

Or

(b) Structured question

(i) Describe the distribution of areas with a crustal thickness of

(a) *more than* 40 km
(b) *less than* 10 km. ***[4 marks]***

Areas with a thickness of more than 40 km are the continents ***[1 mark]***. Areas with a thickness of less than 40 km. are the Ocean basins. ***[1 mark]***. The remaining ***[2 marks]*** should be awarded for giving examples of each of the above or for mention of areas with especially thick crust.

(ii) Select and name *one* area with a crustal thickness of over 60 km. Using *only* an annotated diagram explain why the crust is so thick at this location. ***[6 marks]***

[1 mark] should be awarded for naming an area with crust over 60 km thick. Accept northern India, Tibet, Himalayas or similar, or the west coast of South America (or named countries in that region). Only a diagram (or a map) is acceptable for the remainder of the answer.

The diagram should show either a destructive margin as in South America or a collision zone as in the case of the Himalayas. ***[2 marks]*** should be awarded for the clarity and accuracy of the diagram and ***[3 marks]*** for annotation that accurately explains the reasons for the thick crust. Annotations, which should be closely linked to specific features and processes shown on the diagram, could relate to the nature of plate collision, the folding upwards of sediments along the plate boundary zone, volcanic intrusions, the thickening of the crust downwards as well as upwards, frequent earthquakes causing uplift.

(iii) Examine whether the impacts of secondary earthquake hazards are more serious than those of primary hazards. ***[10 marks]***

Answers should distinguish between primary earthquake hazards (shaking ground, faulting, subsidence, uplift, collapse of buildings, bridges, freeways, overhead cables, liquefaction), and secondary earthquake hazards (fires, disease, contaminated water, landslides, tsunamis). Certain hazards may justifiably be classified as either primary or secondary. These include: landslides, liquefaction, tsunamis, avalanches. The impacts of primary and secondary hazards should then be examined and, though the question does not specifically ask for examples, it would be difficult to argue the case without reference to actual earthquakes.

Answers should examine the impacts in terms of loss of life, injury and damage to property and infrastructure. There is no right answer so credit should be given for an argument that uses instances of earthquakes to provide a balanced viewpoint. Damage to life and property from building collapse may be greater in some earthquakes than in others whereas the destruction caused by fire or tsunamis might be greater in others.

Marks should be awarded according to the markbands. Answers that offer explicit evaluation are likely to be credited at markband E and above.

A5. Ecosystems and human activity

Either

(a) Essay

Referring to a case study, examine the value of a named ecosystem and discuss the conservation strategies that are in place to protect it. ***[20 marks]***

Answers should examine the chosen ecosystem and look at its value to humans. For example rainforests are one of the most valuable ecosystems containing 60% of the world's biodiversity. This biodiversity has multiple social and economic values, apart from its intrinsic value, varying from the important ecological functions in terms of soil and watershed protection to the economic value of the numerous products that can be extracted. For many indigenous and other forest-dependant people, forests are their livelihood. They provide them with edible and medicine plants, bush meat, fruits, honey and many other goods, as well as with cultural and spiritual values. On a large scale all forests play a crucial role in climate regulation and constitute the main carbon sink on earth.

However many ecosystem are becoming major casualties of civilization as human populations have increased over the past several thousand years, bringing deforestation, degradation and pollution. Hence, there is an imminent need for conservation strategies. One or more specific strategies and their location should be discussed. Some mention of their success is expected in this discussion.

Answers that generalize and omit a case study are unlikely to be move beyond markband D. Answers that examine both the value of the ecosystem and the conservation strategies are likely to be credited at markbands E/F.

Marks should be awarded according to the markbands.

Or

(b) Structured question

(i) Define *NPP*. ***[2 marks]***

NPP is the total energy fixed ***[1 mark]*** by green plants ***[1 mark]*** per unit area and available as food after respiration ***[1 mark]***. Credit any two valid points.

(ii) Describe and explain the relationship shown on the diagram. ***[4 marks]***

There is a positive relationship between moisture and the other two variables (this might be accurately described using other terms) ***[1 mark]***.

Reasons for the relationship should include water as a major factor either promoting or limiting growth ***[2 marks]***. Reference to examples shown in the diagram should be allocated ***[1 mark]***.

(iii) Draw a labelled diagram to illustrate the nutrient stores and transfers of *one* biome you have studied. ***[4 marks]***

The familiar Gersmehl diagram showing nutrient transfers and stores is expected. An accurate diagram with the correct proportions for stores and flows should be awarded ***[2 marks]***. Correct labels identifying each store and flow should also be awarded ***[2 marks]***. There may be alternative diagrams demonstrating the same principles of stores and flows, but biogeochemical cycles such as the nitrogen or carbon cycle which are not specific to a biome, should be awarded a maximum of ***[2 marks]***.

(iv) Referring to any *one* named biome or ecosystem, examine the ways in which human activity has disturbed its natural equilibrium. ***[10 marks]***

A good response will include most of the following points.
Equilibrium is defined by a balance of inputs and outputs in the system.
Disturbance affects processes (flows, storages and cycles) and the biotic and abiotic components. The type of disturbance depends on the chosen biome, but it should be named.

Answers that refer to a named biome/ecosystem are likely to be credited at markband D and above.

Marks should be awarded according to the markbands.

A6. Climatic hazards and change

Either

(a) Essay

Analyse the causes and consequences of changing concentrations of ozone in the atmosphere. ***[20 marks]***

Ozone is present in both the lower atmosphere (troposphere) and in the upper atmosphere (stratosphere). There is some (limited) natural exchange of ozone between the two levels. Concentrations of ozone in the lower atmosphere are increasing, especially in certain cities, as a result of the action of sunlight on vehicle exhausts and industrial emissions. For example, oxides of nitrogen can be broken down, releasing oxygen atoms that then combine with existing oxygen to form ozone. This causes photochemical smog, which has adverse consequences for human health, as well as for urban fauna and flora. Better responses may also suggest that a consequence of these rising concentrations is increased international cooperation, for instance in regard to the formulation of vehicle fuels, aimed at reducing emissions of nitrogen oxides.

Upper-atmosphere stratospheric ozone (12–50 kilometers above the surface) is continually being formed and then removed by atmospheric processes. In recent years, this ozone layer (or layers) has/have become depleted, especially at high latitudes, such as the Antarctic, where an "ozone hole" has been observed, greatest during September–October. This stratospheric depletion is mainly due to the chemical processes resulting from the presence of CFCs and nitrous oxide in the atmosphere. CFCs are broken down releasing chlorine, which then interacts with oxygen atoms to reduce ozone concentrations. A single chlorine atom can persist for years, acting as a catalyst that can remove 100,000 molecules of ozone.

This reduction of stratospheric ozone permits more ultraviolet solar radiation to reach the earth's surface, with serious implications for human health, including aged skin, an increased incidence of certain skin cancers such as melanomas, and weakened immune systems. Excessive ultraviolet radiation can damage DNA, the genetic code in every living cell; therefore many plants and animals are also damaged. The increased amount of radiation reaching the earth's surface due to ozone depletion also leads to some increase in global warming (stronger at certain latitudes), though the effect is much less than that caused by CFCs in the atmosphere acting as greenhouse gases.

Better responses may well suggest that one consequence of ozone depletion is increased international cooperation (the Montreal protocol of 1987, the 1989 Helsinki Conference and the 1992 Copenhagen Conference) aimed at curtailing the use of CFCs and thus limiting further damage to the ozone layer. Even with such agreements, it may be another 60–80 years before the ozone hole is refilled. Hence, stratospheric ozone depletion is very much a long-term problem, unlike the increased concentrations of ozone in the lower atmosphere, which can be effectively tackled in the short term.

To access markband E and above both causes and consequences should be addressed.

It is also essential that both low-level and upper-level concentrations are considered for an answer to be credited at markband E and above. Answers that offer explicit analysis are likely to be credited at markband E and above.

Marks should be awarded according to the markbands.

Or

(b) Structured question

(i) Define the term *drought*. ***[2 marks]***

Drought is "an extended period of extreme dryness due to lack of rain" ***[1 mark]*** which is "abnormal" ***[1 mark]***. Technical definitions such as "a period of at least 15 consecutive days, on none of which 0.2 mm of rain or more falls" (formerly used in the UK) should also be credited. In all cases, the second ***[1 mark]*** may only be awarded if the response distinguishes clearly between a naturally-occurring desert and an area suffering from drought.

(ii) Referring to the map, describe the pattern of precipitation for 1950–1967. ***[4 marks]***

The general pattern is for mean annual rainfall to be approximately the same along any east-west line (or line of latitude) ***[1 mark]*** but to increase towards the south (decrease towards the north) ***[1 mark]***. Some quantification ***[1 mark]*** and some reference to placenames ***[1 mark]*** should be incorporated into the response for the award of maximum ***[4 marks]***.

(iii) How does the pattern of annual precipitation shown on the map indicate that the Sahel region has experienced a drought since 1968? ***[4 marks]***

The map shows that the isolines for particular rainfall values have migrated southwards ***[1 mark]***. The map also shows that the rainfall at any particular place has decreased ***[1 mark]***. Development of these two ideas, by means of quantification or examples from the map, is worth a further ***[2 marks]***.

(iv) Examine whether the impacts of a long-term drought are more severe than the impacts of a short-term tropical cyclone. ***[10 marks]***

This open-ended question is to encourage some critical reasoning about two very different climatic events. Candidates may choose to either agree or disagree with the statement, provided their reasoning and arguments are sound. All kinds of impacts (human, property, economic, social) may be considered.

Responses that offer explicit evaluation are likely to be credited at markband E and above.

Marks should be awarded according to the markbands.

SECTION B

B7. Contemporary issues in geographical regions

Either

(a) Essay

Discuss whether physical *and* human factors are necessary to define and explain the limits, character and contemporary geographical issues of your local region. ***[20 marks]***

It is assumed that most candidates will consider their local region to be a multi-factor region, and hence both physical and human factors may be relevant to its definition, limits, character and contemporary geographical issues. However, in most regions, physical and human factors are not necessarily of equal importance with respect to all parts of this question. Better responses should be well structured, and have a clearly signposted conclusion.

The limits, character and contemporary geographical issues of the local region must all be discussed, but these need not necessarily all be discussed to the same depth for the response to reach the higher markbands.

Answers that fail to focus on a single region, or which consider only physical or human factors, are likely to be credited at markband D. Responses that 'discuss' are likely to be credited at markband E and above.

Marks should be awarded according to the markbands.

Or

(b) Structured question

(i) Name *one* region shown on the map that is a peripheral region. Justify your choice. ***[1+2 marks]***

Either D or E is acceptable ***[1 mark]***. Several factors are relevant in justifying the choice, including low GNP/person, low urban population, low life expectancy, high population growth rate and high % of workforce in primary sector. At least two factors must be described, including some quantification, for ***[2 marks]***. Allow ***[1 mark]*** only in cases where only one factor is considered, or where quantification is absent.

(ii) Using the map and table, briefly describe the pattern of development in the country. ***[3 marks]***

The core region is Region B ***[1 mark]***, with a clear distance decay effect in terms of development away from this region. Award ***[1 mark]*** for this idea, even if the term "distance decay" is not used. Regions A and C are fairly similar in development, while Regions D and E are both markedly less developed. Award ***[1 mark]*** for this or any other pertinent observation.

(iii) Describe the characteristics that define your local region. ***[4 marks]***

The definition must include a clear regional name and location ***[1 mark]*** as well as identifying the essential characteristic(s) of the region ***[1 mark]***. The remaining ***[2 marks]*** are for developing one or more of these points (for example, by defining the boundaries or limits of the region) in such a way as to present a clear image of the region to the reader.

(iv) Examine the extent to which the contemporary geographical issues of your local region are influenced by physical geography. ***[10 marks]***

The degree of influence of physical geography on contemporary geographical issues will depend on the candidate's chosen local region. It is just as acceptable for candidates to conclude that physical geography is irrelevant to the contemporary geographical issues, as it is for them to conclude that physical geography is a prime cause of the contemporary geographical issues.

Credit may only be given for discussion of a single local region; responses which discuss several regions will therefore be self-penalizing.

Marks should be awarded according to the markbands.

Responses that address the 'extent to which', are likely to be credited at markband E and above.

B8. Settlements

Either

(a) Essay

Referring to *one or more* examples, discuss whether urbanization in LEDCs has more positive than negative consequences.

[20 marks]

This essay offers scope for broad discussion and requires a methodical approach. Answers should show an understanding of process of urbanization in LEDCs and its positive and negative consequences viewed from a range of perspectives. The outcomes of urbanization should be considered in the rural areas providing the migrants and the urban areas receiving them.

Urbanization may be nationally beneficial when it leads to foreign investment in large cities and capitals, helping the country to integrate with the global economy and gain national recognition.

The socio-economic benefits to rural areas may include the relief of overpopulation and unemployment and the advantages of increased family income through remittances. The socio-economic benefits to urban areas usually include improved income of the immigrant urban population through employment in industry and a plentiful labour supply for the new employers. Housing standards may vary, but the legalizing of squatter settlements and creation of self-help schemes have been socially beneficial in some cities.

The socio-economic and environmental costs of urbanization are acute in urban areas with rapid growth. Problems of air, water and land pollution are widespread and intensifying in those urban areas where the rate of population growth has outpaced economic development and resources.

Descriptive answers or those presenting an unbalanced argument are likely to be credited at markband D. MEDCs are irrelevant to the discussion. Those answers that present an evaluation of the question are likely to be credited at markband E and above.

Marks should be awarded according to markbands.

Or

(b) Structured question

(i) State the distance from the town centre that you would find the following and in each case justify your answer.

(a) the outer boundary of the CBD ***[2 marks]***
(b) a retail and business park/centre. ***[2 marks]***

(a) At 1.0 or 1.5 kilometres ***[1 mark].*** The justification should relate to significant changes in land use such as the decline in percentage of comparison shops and the rise in convenience shops ***[1mark].***
(b) At 3.5 kilometres ***[1 mark]***. Significant changes include increases in the percentage of offices and comparison goods shops ***[1 mark]***.

(ii) Describe and suggest reasons for *three* major changes in the pattern of land use from the town centre to the end of this transect. ***[6 marks]***

A methodical description of changing land uses should be given quoting specific values from the graph. Explanation may relate to bid rent theory *i.e.* desirability of the centre for commercial activities and cheaper, more spacious suburbs for low order shopping centres, large commercial outlets, businesses and residential areas.

(iii) Examine the conflicts that arise on the rural–urban fringe of some towns and cities. ***[10 marks]***

A description of the location of the rural–urban fringe is expected and is most likely to refer to that in MEDCs where there are well-documented examples of conflicts, but LEDCs are also relevant. Typical conflicts arise from the competition for space of incompatible land uses. This conflict results partly from the planned or spontaneous centrifugal movement of people and economic activities from the urban centre to the fringe. New changes often involve the development of commuter villages, transport networks and hubs and out-of-town commercial and sports centres and other uses. All of which generate traffic and pollution.

Opponents to change include existing rural residents, farmers, recreationalists, sporting venues, research centres, hospitals and many others.

Answers which refer to one town or city in detail or several in less detail are likely to be credited at markband D and above.

Marks should be awarded according to the markbands.

B9. Productive activities: aspects of change

Either

(a) Essay

Examine the factors which have influenced the distribution and rapid growth of service industries. Refer to named examples in your answer. ***[20 marks]***

A wide range of definitions for service industries is expected and would be acceptable. These industries may be classified as either producer or consumer orientated and may include tertiary and quinary services. Service employment is socially diverse and may involve highly paid professionals as well as unskilled, casual workers. Service industries operate in both public and private, formal and informal sectors of the economy. This is the most rapidly developing economic sector and a major employer in the MEDCs.

The distribution of service industries involves processes of concentration on the global scale and dispersal or decentralization on the local scale. The answer may not recognize these specific processes, but should identify most of the following influential factors. Improvements in global communications technology and the spread of TNC operations have led to the concentration of services in global cities and affluent core areas, especially in MEDCs.

Governments have attempted to regenerate de-industrialized areas of high unemployment through the decentralization of administrative functions on a regional or local scale. High central urban land values and poor accessibility have led to decentralization of retailing and offices at a local scale. Advances in communications technology have also increased the number of footloose service industries and allowed tele-working from home.

The factors which have led to its rapid growth include the following:
declining agricultural employment through mechanization in LEDCS, deindustrialization in old industrial regions of MEDCs, higher disposable incomes leading to increased demand for professional services, financial services, transport, retailing, entertainment and tourism; an ageing population demanding health services.

Answers which refer to both location and growth and include named examples, are likely to be credited at markband D and above and where more than one scale is discussed, markband E and above.

Marks should be awarded according to the markbands.

Or

(b) Structured question

(i) Describe the trends in labour shown in the diagram. ***[3 marks]***

There is an overall decline in the total labour values ***[1 mark]***, reflecting declines in both full-time and temporary labour, but more rapidly with full-time labour ***[1 mark]***. The remaining ***[1 mark]*** should be allocated to quantifying these statements.

(ii) Provide possible explanations for the trends identified in part (i). ***[7 marks]***

Responses would probably note that all the trends reflect changes in the organization of agriculture—the increased specialization and mechanization that has resulted in a reduction in the labour force ***[2 marks]***. This has increased the need for a more qualified labour force and greater reliance on temporary labour ***[3 marks]***. Other possibilities include the reduction in the area under agriculture and the need for a seasonal, and therefore, temporary labour force ***[2 marks]***.

(iii) Referring to one type of industry, assess the impact of rising labour costs on its location. ***[10 marks]***

A consideration of any industry (primary, secondary or tertiary) would be acceptable, but responses would have to be limited to only one type of industry. While the example would have to be clearly described, it would be expected that the main thrust of the response would concentrate on assessing the implications of the identified change in location, both at the point of origin and at the eventual location. It would also be expected that this assessment would go beyond the purely economic and consider the social and demographic factors, such as female and child labour, working conditions, resentment at the point of origin of job losses.

Responses that offer one type of industry are likely to be credited at markband D and above. Responses that offer assessment are likely to be credited at markband E and above.

Marks should be awarded according to the markbands.

B10. Globalization

Either

(a) Essay

Referring to examples, explain why tourism has grown rapidly in many less economically developed countries in recent years. ***[20 marks]***

The response should cover issues of access, demand and supply in the tourist industry of specific LEDCs.

The reasons for the global growth in tourist demand that might be applied to many LEDCs would include the improved accessibility through long-haul air transport, ICT, the growth and influence of international tourist operators, the increasing affluence of tourists and the globalization of business activity.

Several explanations should be given for the rapid increase in tourist demand in LEDCs specifically. These include the desire of tourists to explore the attractions of the "pleasure periphery" having exhausted those in MEDCs. Such changes in preference and fashion may be explained with reference to the Butler model. It may be argued that some LEDC destinations can offer specific attractions such as spectacular scenery, warm weather, and indigenous cultures and pristine environments. The growth of niche tourism exploring ecology, cultural and heritage attractions might also be mentioned. Other incentives are the relatively low costs of "package" holidays in LEDC destinations compared to those in MEDCs.

Explanation for growth should also refer to the desire of many LEDCs to exploit their tourism potential by investing heavily in it. As a development strategy, tourism may bring a range of national and local social and economic benefits. These include valuable foreign exchange and investment and a regional or local multiplier effect. South East Asia provides many valid examples of recent and successful developments in tourism

Answers that refer to at least two examples are likely to be credited at markband D and above.

Marks should be awarded according to the markbands.

Or

(b) Structured question

(i) Compare the trends in the use of telephones and the Internet for India and Ethiopia between 2000 and 2004. ***[4 marks]***

Usage of both telephones and the Internet increases between 2000 and 2004 ***[1 mark]***. The rates differ with India showing the highest level of use ***[1 mark]*** and the fastest growth rate for both telephones and the Internet ***[1 mark]***. Quantification should be given for ***[1 mark]***.

(ii) Describe *three* factors that have led to global economic integration. ***[6 marks]***

The factors leading to global economic integration may include:
the growth and liberalization of international trade encouraged by the WTO, the growth of international trading blocs and trading agreements, the growth in international capital flow, the growth and spread of TNCs, improved transport of people and goods, the development of ICT. Award ***[1 mark]*** for each correct factor and ***[1 mark]*** for a further description of each.

(iii) Examine the reasons why some countries do not benefit from globalization. ***[10 marks]***

The benefits of globalization should be stated and include economic growth and cultural integration. A country's inability to benefit may result from some of the following: lack of natural resources, inability to participate fully in world trade, debt growing faster than GDP, poor levels of education, the burden of diseases such as HIV/AIDS and internal conflict and wars. All these reduce foreign investment and prevent some LEDCs from integrating into the world economy. Responses which answer another question on why some countries are less developed than others, should not move beyond markband D.

Marks should be awarded according to the markbands.

SECTION C

C11. Topographic mapping

The map and photograph show the area around Clermont-Ferrand, an industrial city in the Massif Central, France. The scale of the map is 1:100000.

(a) Referring to the map, state the straight–line distance in kilometres from the cathedral in the centre of Clermont-Ferrand to the summit of Puy de Dôme to the west. ***[1 mark]***

The distance is 9.4 km. Accept any value between 9.0 and 9.8 km. (allowing some flexibility for the location of the summit).

(b) Referring to the photograph, answer the following. ***[2 marks]***

(i) Estimate the time of day when the photograph was taken. Justify your answer.

The actual time was 12.19 pm. Accept midday or early afternoon only ***[1 mark]***. Justification is likely to cite shadows on and around buildings ***[1 mark]***.

(ii) Describe two ways in which the map is better than the photograph in showing physical features. ***[2 marks]***

The map more accurately shows topographical features; the area, elevation and gradient ***[1 mark]***. Whereas the oblique photograph obscures distant low-lying features and its perspective distorts elevation and gradient ***[1 mark]***.

The description should relate to both the photograph and the map. Credit other relative advantages.

(iii) Describe two ways in which the photograph is better than the map in showing human features. ***[2 marks]***

The photograph shows building density height, style and age ***[1 mark]***. Whereas, these features are indistinct on the map ***[1 mark]***.

The description should relate to both the photograph and the map. Credit other relative advantages.

(c) (i) Draw an annotated sketch map of the whole area and divide it into geographical regions. ***[5 marks]***

Allow ***[5 marks]*** for an accurately-drawn and clear map with the correct scale, north-point and a suitable regional division. The division may be determined by physical or human features and the number of regions may vary, but between two and five would be ideal.

(ii) Using only annotations on your map, describe the distinctive features of each region. ***[3 marks]***

The annotations should clearly indicate the geographical distinctiveness of each region. Annotations should appear on the map itself, but if they are around or directly below it, each should be linked to a region by an arrow. Lengthy descriptions below the map should not be credited.

(d) Explain the distribution of different types of tourist activities in the whole region. ***[5 marks]***

The volcanic landscape and Puy de Dôme to the west of the city are major tourist attractions. Evidence of tourist activity includes hiking paths, viewpoints and a leisure park 3 km to the west of Clermont-Ferrand. Other attractions include the R. Allier to the east of the city with its rural attractions. There are many heritage and historical attractions, such as the cathedral and churches in the city centre whose centrality is explained by its long history and lack of change. There is a variety of antiquities, museums, and castles in its hinterland. The leisure park—Labyrinthe des Volcans—is easily accessible close to the airport and an autoroute. The distribution is determined by accessibility, historic and physical factors. Bare description should be awarded a maximum of ***[3 marks]***.