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GEOGRAPHY

Higher Level and Standard Level

Paper 2

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SECTION A

A1. Drainage basins and their management

Either

(a) Essay

Examine how the characteristics of drainage basins affect their response to rainfall. ***[20 marks]***

There are a number of characteristics that should be examined. These include basin shape and size, soil and rock permeability, the nature and density of vegetation cover, basin topography, the drainage density and patterns and the influence of humans.

Rounded basin shapes may result in more rapid responses to rainfall than elongated shapes. Arid areas or areas devoid of vegetation may be more susceptible to flash responses as there will be less infiltration. Areas that have dense vegetation will encourage greater infiltration and as a result responses will be slower. Highly porous rocks or sandy soils on low lying relief will slow responses while the converse will be true in impermeable mountainous regions. Areas where the basins are densely populated and have urban areas will respond differently. Both agriculture and urban growth change the nature of responses, often accelerating surface runoff.

It is valid to examine how basin characteristics affect hydrographs, flooding and recurrence intervals. Strong responses may use located examples but this is not essential. Some characteristics may be examined in more detail than others and responses are likely to examine at least four of the characteristics in some detail to be credited at bands E/F. A strong examination of one may compensate for a weaker examination of the other.

The marks should be allocated according to the markbands.

Or

(b) Structured question

(i) Identify the main fluvial landform shown in each photograph. ***[2 marks]***

X – Delta
Y – Braiding or braided channel or eyots/ayots
Meander is not acceptable in either case. (but braided meander should be accepted).

(ii) Explain the formation of *one* of the fluvial landforms you have named in part (i). ***[4 marks]***

Deltas are formed by deposition of material at the mouth of the river – a network of channels/distributaries interspersed with sand banks, eyots/ayots (sand islands) and bars dividing the channel into distributaries. When energy levels fall or momentum is reduced the load is dropped to maintain efficiency, hence forming the deposits in their varying layers. There are different forms of deltas depending on the speed of deposition, the depth of lake or sea water and the action of waves or currents upon them. Other valid reasons can be credited. Responses should mention four points in less depth or two in much greater depth to gain ***[4 marks]***.

Braided channels are usually found on flat valley floors and are networks of channels that are interspersed with each other. They may be found in arid areas where there are intermittent flash floods and little vegetation cover or in areas that have sudden changes in river discharge in response for example to the seasonal melting of the terminal faces/snouts of glaciers. Other valid reasons can be credited. Responses should mention four points in less depth or two in much greater depth to gain ***[4 marks]***.

If a minor landform has been chosen in part (i) it is likely to be self-penalizing and should be awarded a maximum of ***[2 marks]***. A misidentification in (i) should not be penalized in (ii) if the explanation relates to deltas or braided channels.

(iii) Explain the formation of *either* waterfalls *or* rapids. ***[4 marks]***

Waterfalls and rapids are usually found in the upper course of streams. The key factors involved in their formation may include stream gradient, differences in rock resistance, rejuvenation (knick points) and changes in discharge. The main processes are vertical and headward erosion. Diagrams may substitute for text, but are not essential. To gain full marks, some mention of processes is essential.

(iv) Using examples, examine the benefits to people of fluvial depositional landforms. ***[10 marks]***

There are a number of landforms that may be included in responses: deltas, floodplains and braided channels. The benefits include fertile alluvium or silt in deltas and floodplains sustaining agriculture and the creation of flat land for development and construction of infrastructure (road and rail links) and settlement. Humid tropical deltas often sustain mangroves which harbour wildlife and fish stocks. Larger deltas may provide access routes / shipping routes. In arid areas, water concentrated in these areas sustains life and leads to greater biodiversity. Braiding of channels often creates fertile sand banks, which support agriculture in areas where there is pressure on land resources. Former floodplains left as terraces can provide good sand and gravel resources and dry-point settlement sites.

Not all of the above is required to achieve band F. A strong discussion of some aspects may compensate for a weaker discussion of others. Candidates should not be given any credit for discussing any problems that may be created by such landforms.

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

The marks should be allocated according to the markbands.

A2. Coasts and their management

Either

(a) Essay

Referring to one or more named examples, discuss the view that coastlines should be allowed to evolve naturally. ***[20 marks]***

Coastlines are attractive due to their resource availability, scenic value and accessibility. Coastal management strategies are often implemented to protect high value coastal zones (resorts, ports) and may be justified on economic grounds. The degree of intervention and its economic cost usually depend upon the value of land, the urgency of the threat to coastal stability and the ability of society to pay. The need for intervention in natural processes has become even more pressing with the threat of rising sea levels and increasing population pressures in many coastal zones of the less developed world.

Good answers achieving markband F will show an understanding of coastal form as a response to marine, atmospheric, geomorphological and possibly tectonic processes acting upon it. Evolution is a natural process of adjustment of coastal form to changing processes. Its slow and often predictable pace can be accommodated by coastal sub-systems such as salt-marsh communities and mangroves. Where coastlines are under more immediate threats from erosion and flooding, active management strategies are devised to protect local residents, their property and other assets.

Managed retreat and other passive measures allow coastlines to evolve naturally where the conservation of landforms and wildlife is a priority. It is expected that this will be discussed in the context of the value of the land and the pressure of human population.

An alternative line of argument may be that coastal protection in the form of hard structural engineering (sea-walls, revetments, groynes, gabions, breakwaters) is essential for the protection of vulnerable populations and valuable land and property. Allowing for natural evolution of the coastline would therefore be unrealistic. The approach adopted may vary regionally and nationally.

While it is likely that most responses will conclude by agreeing with the statement, this is by no means the only possible conclusion. All responses should be judged strictly on their own merits.

Marks should be allocated according to the markbands.

Or

(b) Structured question

(i) Describe how *two* of the factors shown on the diagram affect the rate of coastal erosion. ***[4 marks]***

Award ***[2 marks]*** for two distinct points about each of the two factors. For example, unconsolidated rocks such as boulder clay are easily eroded both by sub-aerial processes and marine undercutting. High wave energy (destructive waves), often related to strong wind and/or long fetch, increases hydraulic action, abrasion and attrition. To achieve full marks, reference should be made to rates of erosion.

(ii) Explain how *one* human activity affects the natural process of coastal deposition. ***[6 marks]***

Human activity may affect the rate and/or amount of deposition by increasing the load carried by waves or by decreasing their velocity. For example, the amount of sediment that may eventually be deposited may be increased through soil erosion and mining. Alternatively, dam construction upstream may deprive the coastline of sediment. The process of longshore drift may be interrupted and slowed down deliberately by defence structures such as groynes, breakwaters and reefs. The same structures may also hold back sediment and limit down-drift deposition. The answer may not be balanced and up to ***[4 marks]*** may be awarded for either the human effects which increase the amount and rate of deposition or the ways in which humans decrease it. In either case they may be intentional or unintentional.

(iii) Assess the advantages and disadvantages of defending a named stretch of coastline from erosion. ***[10 marks]***

The answer should relate to one specific case study of a named coastline. The advantages and disadvantages should be regarded as environmental and social as well as economic. Answers incorporating both advantages and disadvantages, and arriving at a clear conclusion, are likely to be credited at bands E/F. Those without a named example may not move beyond band D.

Marks should be allocated according to the markbands.

A3. Arid environments and their management

Either

(a) Essay

MEDCs and LEDCs are both vulnerable to desertification but for different reasons. Discuss this statement with reference to examples. ***[20 marks]***

Responses should show clear understanding of the terms *desertification* and *vulnerability*.

A comprehensive coverage of the reasons for the vulnerability of MEDCs and LEDCs is not required but responses should refer to a range of possible reasons. Factors common to both MEDCs and LEDCs could include short-term climate variability, especially drought, longer-term climate change, overgrazing, vegetation removal and misuse of soils.

In explaining the causes of desertification in LEDCs answers may give the following reasons; population pressure resulting in the use of marginal lands, poverty and poor farming practices leading to overgrazing, overcultivation and soil erosion. Lack of capital or technology to prevent these might increase the level of vulnerability. Examples might refer to vulnerable areas such as the Sahel, Pakistan, Afghanistan, Iran, Iraq, central China and northwest India.

In MEDCs responses might refer to vulnerability resulting from diversion of rivers, monoculture and overcultivation mechanized farming methods causing soil erosion by wind and gullying and salinization in irrigated areas. Vulnerable areas in MEDCs, from which examples could be taken, might include southwest USA, Australia and Spain. Availability of capital and technology might reduce vulnerability in these areas.

It is expected that answers that are credited at bands E/F will focus on some reasons that are similar and others that apply either only to MEDCs or only to LEDCs.

Responses that deal only with LEDCs or only with MEDCs should not move above band D. Those that answer generally without named examples should not be credited above band D.

Marks should be allocated according to the markbands.

Or

(b) Structured question

(i) Define *potential evapotranspiration*. ***[2 marks]***

Potential evapotranspiration is defined as the amount of evaporation plus transpiration ***[1 mark]*** that would occur from the surface if sufficient water were available ***[1 mark]***. Award this or any similar explanation.

(ii) Name the months when there will be no soil moisture deficit. ***[2 marks]***

December, January and February. Award ***[2 marks]*** if all three months are correctly named and ***[1 mark]*** if only one or two are correctly named.

(iii) Explain the processes of deflation and salinization in arid and semi-arid areas. ***[3+3 marks]***

Responses should explain that deflation is the erosion of surface sediments in deserts or semi-desert areas caused by wind action. The finer sediments are winnowed by the wind leaving the coarser sediment behind.

Salinization occurs in arid and semi-arid areas where evapotranspiration exceeds precipitation and the water table lies near the surface, such as in irrigated areas. Salts are drawn upwards causing the topsoil to become saline. Mention of a surface salt crust is valid but not essential.

Award ***[3+3 marks]*** for a valid explanation of each process.

(iv) "**Arid and/or semi-arid areas present more opportunities than challenges for economic activity." Discuss this statement.** ***[10 marks]***

As the question asks for a discussion, responses should present an argument that covers both the constraints but also the opportunities presented by arid and semi-arid areas.

Answers might state the main constraints as high temperatures and evaporation along with low precipitation levels resulting in water deficit for long periods in the year, thus limiting the opportunities for food production and settlement over large areas.

It is expected that most responses will concentrate mainly on locations where opportunities are presented and answers should mention examples of these. These opportunities exist mainly where water is available. This might allow the development of irrigation farming, settlement, mineral exploitation or tourism. These opportunities occur most frequently at oases, where artesian supplies are available, where exotic rivers run through arid areas, or where seasonal rainfall is high enough to allow some form of water storage.

The adaptation of farming systems such as nomadic pastoralism to seasonal rainfall patterns should be classed as a valid opportunity.

Responses that include discussion 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 band D and above.

Marks should be allocated according to the markbands.

A4. Lithospheric processes and hazards

Either

(a) Essay

"The secondary effects of lithospheric hazards are often more serious than the hazard event itself." Discuss this statement. ***[20 marks]***

Lithospheric hazards include not only earthquake and volcanic hazards but also hazards caused by mass movements. Candidates do not need to discuss all of these to gain full marks.

Responses will need to identify the secondary effects of the relevant hazard(s) as compared with the initial (or primary) effects.

For earthquakes, responses should refer to the damage caused by shock waves and shaking ground as primary hazard damage. This damage might include deaths and injuries, damaged buildings, bridges, communications infrastructure, dams, liquefaction and broken ground. Secondary effects might include fires, sinking buildings due to liquefaction, water contamination, disease and tsunamis. This list is not comprehensive and answers need not refer to all of the above to reach bands E/F.

For volcanoes the damage caused by the hazard itself might refer to the effects of lava, ash, gas, pyroclastic material and pyroclastic flows. Secondary effects might refer to lahars, tsunamis, climate change and atmospheric pollution.

Better answers should present a discussion of the relative damage caused by the initial hazard event and that caused by secondary effects; concluding remarks may agree or disagree with the statement. Responses including explicit evaluation/discussion of the statement are likely to be credited at bands E/F.

While the question does not specifically ask for examples of hazard events it is expected that responses that reach above band D would use examples effectively.

Marks should be allocated according to the markbands.

Or

(b) Structured question

(i) State *three* differences between oceanic crust and continental crust. ***[3 marks]***

Any three valid descriptions of the differences between ocean and continental crust may be credited with ***[3 marks]*** but a simple list of the characteristics of each type of crust is equally acceptable. Such differences might include age, thickness, chemical composition and density. Do not accept answers that state ocean plates are ocean and continental plates are land.

(ii) Explain why earthquakes occur at the type of plate boundary shown on the diagram. ***[3 marks]***

Responses should relate earthquake occurrence to the process of subduction ***[1 mark]***, to the friction generated by this process causing increasing stress between the plates ***[1 mark]*** and to the eventual rapid movement along the plate margin releasing the stress and generating shock waves ***[1 mark]***.

(iii) Explain the processes shown on the diagram that result in the formation of the island arc. ***[4 marks]***

Responses should identify island arcs as a chain of volcanic islands that run parallel to the plate margins ***[1 mark]*** and that they form where two ocean plates collide and one is subducted ***[1 mark]***. An explanation of the process of melting of the plate and the rise of magma through the other plate to form volcanic islands should be given ***[2 marks]***. Responses which write only about hotspot islands should be given ***[2 marks]*** maximum

(iv) Using examples, examine the benefits of living in areas of volcanic activity. ***[10 marks]***

Possible benefits of living in areas of volcanic activity could include: fertile soils, mineral deposits, geothermal energy potential, the creation of new land and the potential for tourism. Other valid reasons may be credited.

Responses should examine how these factors benefit humans with reference to named areas near volcanoes but mention of benefits in areas of past volcanic activity are also acceptable.

Responses that do not refer to examples should not be credited above band D.

Marks should be awarded according to the markbands.

A5. Ecosystems and human activity

Either

(a) Essay

"Human activities always cause permanent changes to ecosystems." Discuss with reference to examples. ***[20 marks]***

Examples of long term negative human activity could include road construction, commercial exploitation of timber, clear felling, mineral exploitation, the growth of settlements, and the replacement of forest with other tree types or monocultures and agriculture though all of these are not required to access bands E/F. Positive effects derive from activities that maintain the equilibrium and stability of the ecosystem or enhance its productivity.

Changes involve the disturbance of natural nutrient cycles and energy flows which maintain the ecological balance in the ecosystem. The degree of change depends upon the scale and intensity of human activity and the degree of resilience of the ecosystem.

A range of ecosystem scales is acceptable including references to biomes though it is unlikely that a whole biome would be affected. In this case affected areas in a biome should be identified. It is also possible that some students will approach this question from a "global scale" by linking human activities to global climate change. This is also acceptable as long as specific ecosystems are included.

While it is possible that many responses will conclude by agreeing with the statement, this is by no means the only possible outcome, and alternative viewpoints should be credited as long as they are supported by valid evidence.

The best responses will examine a variety of human activities. Answers should refer to both positive and negative changes to the ecosystem and may include both short term changes (such as slash and burn agriculture allowing for regeneration) and longer term changes, such as commercial farming on a large scale. They will take into consideration management strategies that have allowed an ecosystem to return to its original state (via seral stages) or stabilize its altered state (a plagioclimax community).

Answers that do not include examples should not be credited above band D.

Marks should be allocated according to the markbands.

Or

(b) Structured question

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

A major regional or global biome community (the scale must be clear for) ***[1 mark]*** such as savanna grassland or tropical rainforest ***[1 mark]***. *Award* ***[2 marks]*** *for two valid points*.

(ii) Using the letters A–K shown on the map, identify *three* of these biomes. ***[3 marks]***

Any three major biomes should be clearly and accurately identified using the letters shown on the key to the map.

A – Tundra
B – Desert
C – Mountains
D – Taiga of coniferous forest
E – Temperate grassland
F – Temperate deciduous forest
G – 'Mediterranean' woodland and scrub / chaparral
H – Tropical rainforest
I – Tropical deciduous forest
J – Tropical scrub forest
K – Tropical grassland / savanna

(iii) Using a labelled diagram, describe and explain energy flows in a food chain. ***[5 marks]***

Any appropriate diagram may be chosen but it should show the following. Incoming solar energy → Green plants/plankton (primary producers- reference may be made to photosynthesis) → Primary consumers (Herbivores) → Secondary/tertiary consumers (Carnivores/Omnivores) → Decomposers/reducers. Up to ***[2 marks]*** should be credited for the trophic levels, ***[1 mark]*** for an appropriate diagram and ***[2 marks]*** for explaining energy transfer and loss (90 %) at each trophic level or stage. Answers that do not use a diagram should not be awarded more than ***[2 marks]***.

(iv) Examine the reasons for conserving the natural structure and functioning of a named ecosystem. ***[10 marks]***

Responses to this question may adopt various approaches at different scales (including biomes) but to achieve band D and above an ecosystem must be named. The emphasis should be placed on the structure and functioning of the chosen example and the need for conservation. Many candidates may choose the tropical rainforest, but any example at any scale may be chosen. The structure may relate to the distinctive layers which are found and how they are inextricably linked to ecosystem function: the rapid growth of trees in search of light, the vines which help maintain equilibrium and the role of the ecosystem in maintaining soil stability and biodiversity.
Conserving ecosystem structure and function in the case of tropical forests helps preserve endemic species of fauna and flora, maintain extractive reserves for indigenous communities, prevents soil erosion, provide national parks for tourism and research, provides a resource for sustainable logging, carbon sinks and may possibly have effects on moderating climate. Other ideas may include the value of ecosystems in providing medical resources, and in maintaining water quality. Mangrove ecosystems have unique structures and functions which if disturbed may increase vulnerability to erosion and affect coral reef ecosystems which may be dependent on the mangroves.

Not all of the above are required for an answer to reach band F, but at least three reasons should be examined in depth. Other valid reasons may be given and these should be credited.

Answers that examine the reasons for conserving structure **and** functioning are likely to be credited at bands E/F.

Marks should be allocated according to the markbands.

A6. Climatic hazards and change

Either

(a) Essay

Discuss the causes and possible consequences of the enhanced greenhouse effect. ***[20 marks]***

The Earth receives energy from the Sun in the form of radiation. The Earth reflects about 30 % of the incoming solar radiation; the remaining 70 % is absorbed, warming the land, atmosphere and oceans. The greenhouse effect is the process in which the emission of infrared radiation by the atmosphere warms the Earth's surface. The enhanced greenhouse effect is believed to be the result of increased concentrations of greenhouse gases in the atmosphere and to have led to global warming.

There are several greenhouse gases, and human activity has increased the concentrations of several of these gases in the earth's atmosphere. This is believed to cause the enhanced greenhouse effect. Greenhouse gases include water vapour, carbon dioxide, methane and ozone.

Carbon dioxide increases in the atmosphere appear to be particularly closely linked to the enhanced greenhouse effect. Increasing levels of industrial activity (fossil fuel burning) and other human activities such as cement production and tropical deforestation have greatly increased the concentrations of carbon dioxide in the atmosphere. Because it is a greenhouse gas, elevated carbon dioxide levels could cause an increase in the global mean temperature. Based on an extensive review of the scientific literature, the Intergovernmental Panel on Climate Change has concluded that "most of the observed increase in globally averaged temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations".

The possible consequences of the enhanced greenhouse effect extend well beyond global warming, and depend on the spatial and temporal scales considered. The consequences may include changes to the existing patterns of climate, flora, fauna and human activities, some of which may endanger indigenous ways of life in some parts of the world.

While the question requires that both causes and possible consequences be examined, it is not necessary for these to be done in equal depth. A strong account of the causes might well compensate for a weaker account of the possible consequences, and vice-versa. However, responses which fail to mention either the causes or the consequences may not be credited beyond band D, while those that include explicit discussion of the causes and possible consequences 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 band D and above.

Marks should be allocated according to the markbands.

Or

(b) Structured question

(i) State the climatic term for the pattern of temperatures shown on the map at 04:00. ***[1 mark]***

The pattern represents an urban heat island.

(ii) Explain the possible causes of this pattern of temperatures. ***[5 marks]***

The main cause of the urban heat island is modification of the land surface by urban development; waste heat generated by energy usage is a secondary contributor. As population centres grow they tend to modify a greater and greater area of land and have a corresponding increase in average temperature.

The difference in temperatures between urban and surrounding rural areas is greatest at night, because buildings restrict the possible heat losses from the ground by radiation back to the night sky. The temperature differences are accentuated by the thermal properties of surface materials (asphalt and concrete instead of plants) and the relative lack of evapotranspiration in urban areas. The albedo in urban areas is different to that in rural areas. Buildings tend to trap heat generated within the town (industry, domestic, air conditioning, vehicles) and block wind.

As a guideline, award ***[1 mark]*** for each distinct cause explained, and an additional ***[1 mark]*** for an in-depth development of any explanation, up to the maximum ***[5 marks]*** available. It is likely that strong responses will consider at least three distinct causes, two of them in some depth, for the award of the full ***[5 marks]***, but it is equally valid for answers to explain a greater number of causes in less depth.

(iii) Briefly describe how the pattern of temperatures is different at 15:00 and suggest *two* reasons why the pattern has changed. ***[2+2 marks]***

At 15:00, temperatures are higher ***[1 mark]***, but decline less rapidly with distance from the centre (the temperature gradient has been reduced) ***[1 mark]***.

Daytime temperatures are higher because of insolation, aided by anthropogenic heat sources (people, traffic, buildings). The temperature gradient is reduced primarily because strong surface heating by the sun has raised the temperature of the surrounding rural area so that the temperature differential between rural and urban areas has been reduced and because active convection at the urban boundary layer over urban areas serves to reduce temperatures in the urban areas. Increased wind speeds a 15:00 reduce the heat island effect.

Award ***[1 mark]*** each for any two valid reasons.

(iv) Discuss the socio-economic effects of El Niño events. ***[10 marks]***

El Niño events have a variety of socio-economic effects and can affect virtually every region of the world.

For example, the 1997–98 El Niño event affected the climate in:

- Eastern Africa – drought and unusually high rainfall;
- Southeast Asia and North America – abnormally warm periods; fires;
- South Asia – drought;
- Latin America and the Caribbean – unusually high rainfall and drought;
- The Pacific Islands – unusually high rainfall.

The socio-economic impacts, resulting from these climatic changes included: population displacement and/or death from high winds, floods or storms, destruction of community infrastructure, economic losses at a variety of scales, contamination of water and increased incidence of disease.

Responses should discuss a variety of socio-economic effects, although they do not need to discuss all the ones listed for the award of ***[10 marks]*** provided their discussion of several socio-economic effects is sound.

Note that not all socio-economic effects are negative. For instance, the migration of fish stocks during an El Niño benefits some areas at the expense of others.

No credit should be given for discussion of effects that are not socio-economic in nature.

While examples are not a specific requirement of the question, those answers that provide supporting examples are likely to access the higher markbands E/F.

Marks should be allocated according to the markbands.

SECTION B

B7. Contemporary issues in geographical regions

Either

(a) Essay

Examine the idea that some regions have clearly limited boundaries while others have uncertain borders that are difficult to define on a map. ***[20 marks]***

Candidates may choose to either accept or to challenge the statement made in the question. The most likely response is one which accepts the statement and which argues that certain types of region have clearly limited boundaries (and can be precisely defined by statistical or other measures) whereas other types of region have more porous boundaries.

Examples of the former type of region would include functional regions (those defined by a combination of economic activities or by a function). Examples of the latter type of region (difficult to define) would include single-feature regions (such as climatic or vegetation regions) and multi-feature regions (defined by several characteristics, usually a combination of physical and human). Multi-feature regions are particularly difficult to define with precision.

Stronger responses will discuss a variety of ideas, and may well note that any one individual place may belong to two or more kinds of region simultaneously (*i.e.* that two or more different regions may coincide or overlap in time and space). Thus an individual place may simultaneously belong both to a clearly defined region and to one with uncertain borders.

Examining regions that are overly broad or large in scale is likely to be self-penalizing in the context of this question.

This question cannot be answered purely in the abstract, and examples are expected in responses accessing band D and above.

Marks should be allocated according to the markbands.

Or

(b) Structured question

(i) Briefly describe the pattern (size and shape) of the regions shown on the map. ***[2 marks]***

Inland regions are progressively larger with distance from the coast ***[1 mark]***. Coastal regions are elongated in a north–south direction, whereas western regions inland are extended east–west ***[1 mark]***. Accept other valid responses.

(ii) Suggest *three* possible characteristics that might have been used to define these regions. ***[3 marks]***

The main boundaries between regions appear to be highways or the Great Dividing Range (relief). This suggests that they are more likely to be administrative regions of some kind. A suggestion of a possible function used to define the regions is acceptable as a characteristic. (The map actually shows fishing regions.) Award ***[1 mark]*** each for any three valid characteristics or measurements that might have been used to define regions such as these.

(iii) Define your local region, and explain why it is *either* a functional region *or* a single feature region *or* a multi-feature region. ***[5 marks]***

Award up to ***[3 marks]*** for a clear definition of a local region, which must include not only the defining characteristic or characteristics but also some description of its limits. The remaining ***[2 marks]*** should be awarded for an explanation of whether this region is a functional region (unlikely), a single feature region (based on agriculture, for example), or a multi-feature region (defined by several characteristics, usually a combination of physical and human).

(iv) Discuss the relationships between the contemporary geographical issues of your local region and its physical geography. ***[10 marks]***

The issues discussed must be realistic, and relevant to the region defined in (iii). While the issues in some local areas may have little connection to physical geography; those in other regions may be closely linked to it. For instance, it is likely that any issues related to agriculture, land use, soil erosion, and transportation, will have some close links to some aspects of the region's physical geography. It is equally 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 their local region's 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 allocated according to the markbands.

B8. Settlements

Either

(a) Essay

Explain the causes of counter-urbanization and examine its socio-economic and environmental consequences. ***[20 marks]***

Interpretations of the term "counter-urbanization" may vary. The common definition is that it is the movement of people out of urban areas and into surrounding rural districts. A broader definition including jobs would also be acceptable. Although counter-urbanization is generally associated with MEDCs, this process is becoming increasingly common as LEDC cities become more affluent. The consequences of this process are felt mainly in the rural–urban fringe where immigrants settle, but also in the inner urban areas they leave behind. Answers accessing markbands E and above must cover positive and negative consequences for both source and destination, but attention given to each aspect need not be balanced.

The causes of counter-urbanization involve factors repelling people from cities and attracting them to the rural–urban fringe. These are likely to include high land prices, congestion, overcrowding, noise, pollution and crime; all of which are less beyond the city. Improvements in transport and more recently ICT have encouraged outward movement of people. They have also caused the decentralization of economic activities which can benefit from cheaper land and easier access.

Socio-economic consequences result from the influx of relatively affluent population which may commute or work from home. Population structure may age due to the influx of retirees. Socio-economic consequences which benefit the fringe might include the promotion of local businesses, provision of supermarkets and improved recreational facilities. Negative consequences would include rising land and housing prices, the loss of local services and local character. Environmental consequences in the rural–urban fringe are likely to be more negative than positive and they include: the loss of open space, the increasing levels of noise, pollution and traffic and the competition for recreation space. It is not expected that answers will cover all these consequences, but those that only cover those that are negative or positive should not move above band D. Answers may offer other consequences that deserve credit.

Although examples are not a specific requirement of the question, they are likely in those answers achieving band D and above.

Marks should be allocated according to the markbands.

Or

(b) Structured question

(i) Define the process of urbanization and briefly describe the global differences in the level of urbanization shown on the map. ***[1+3 marks]***

Urbanization is the increasing proportion/percentage of people living in urban areas (towns and cities). No other answer is acceptable ***[1 mark]***.

The global differences in the level of urbanization should be quantified ***[1 mark]*** and countries or global regions should be named ***[1 mark]***. Award ***[1 mark]*** for any further valid point, such as an anomaly. For example, the lowest levels are found mostly in the LEDCs with the exception of South America.

(ii) Describe and explain the global distribution of the world's fastest-growing cities shown on the map. ***[6 marks]***

All the fastest growing cities shown on the map are found south of the North-South divide / in the South / in LEDCs / at low latitudes / mostly on coastlines. Award ***[2 marks]*** for a description that clearly locates all cities in two ways and ***[1 mark]*** for any other valid description or quantification.

The fastest growing cities are found in LEDCs and also NICs where rates of population growth are relatively rapid. The reasons for this include immigration ***[1 mark]*** and high rates of natural increase ***[1 mark]***. Award ***[1 mark]*** for any further elaboration. Accept other valid reasons.

(iii) Describe and evaluate the urban regeneration strategies in one or more cities. ***[10 marks]***

Answers should briefly outline the need for the strategies (there should be more than one) to allow for their evaluation. The instigation and operation of these management strategies should be described, mentioning details such as dates and specific places involved. There should be an attempt to evaluate these strategies, but this may be speculative if they had not been in place for long. Such answers are quite acceptable.

Marks should be allocated according to the markbands.

B9. Productive activities: aspects of change

Either

(a) Essay

"Industrial relocation is caused by depletion of raw materials." With reference to examples, discuss this statement. ***[20 marks]***

Depending on the examples chosen, responses may agree or disagree with the statement. Examples may be chosen at a variety of scales. Some industries relocate as a result of the depletion of raw materials but there are also many other reasons for relocation. These include changing markets, cheap land, sources of labour, enterprise zones or access to adequate power supplies and good communication links. Industries may also relocate due to the substitution (as opposed to depletion) of raw materials.

Decisions to relocate are often enhanced by consideration of favorable taxation regimes, such as in some LEDCs, designed to attract manufacturing or service industries that will offer additional employment opportunities for local people.

In addition, especially for smaller firms, the individual life style preferences of the owner or owners may play a major role in a firm's decision to relocate (for instance the relocation of some firms towards the sun belt of the USA).

Depletion of raw materials does not necessarily mean that industries relocate. Industrial inertia may perpetuate their original location.

Relocation does not include the addition of new plants to their chains by TNCs through expansion, merger or acquisitions, though some TNCs may have sometimes relocated part or all of their manufacturing processes in response to some of the factors previously mentioned.

Answers that use appropriate examples are likely to be credited at band D and above. Answers that discuss relocation are likely to be credited at bands E/F.

Marks should be allocated according to the markbands.

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Or

(b) Structured question

(i) Describe the changes in the services sector in Country B from 1835–2006. ***[2 marks]***

The contribution of services to GNP has increased in relative importance ***[1 mark]*** particularly since 1962 with ***[1 mark]*** for quantification (from 25 % to 71 %).

(ii) Referring to the data for 2006, state which country is more economically developed and give a reason for your answer. ***[2 marks]***

Country B ***[1 mark]*** because most of its GNP comes from services (very little from agriculture) ***[1 mark]***.

(iii) Suggest *three* reasons for the changes in the agricultural sector in Country A. ***[2+2+2 marks]***

The contribution of the agricultural sector has declined because of increased industrialization and growth of service industries. It may also have declined because of a loss in area, population (out-migration), or productivity of agricultural land (soil degradation, salinization, desertification). The contribution of the agricultural sector depends on market prices and terms of trade: declining prices and adverse terms of trade can lead to a smaller contribution to GNP.

Award ***[2 marks]*** for each of three developed reasons. Accept other valid reasons.

(iv) Examine the global variations in the employment of women and children in agriculture and industry. ***[10 marks]***

Answers should recognise that globally, women and children are relatively disadvantaged members of the workforce in terms of wages, opportunities for improvement, legal protection, working conditions and benefits. Both are a cheap source of labour and have played an important role in developing economies.

Employment may be interpreted as both formal and informal including non-salaried jobs, for example, working on the family farm, and not only formal paid employment. Globally, the percentage of women employed in agriculture is lower than for men, except in some agricultural economies of Sub-Saharan Africa. In general, men dominate industrial labour forces in terms of their number and status and occupy most managerial or professional jobs. Women's employment is usually semi-skilled, unskilled, casual and often in the informal sector, especially in LEDCs. The answer should explain the gender imbalance in terms of educational opportunity, political empowerment, national custom and status. The range of factors affecting employment and gender is complex with many anomalies on the global scale.

The pattern of child labour also varies globally. The percentage of child employment (5-14 years) ranges from 0 % in MEDCs to 10 % in some of the poorest agricultural economies of LEDCs. The explanation may identify poor levels of education, low family incomes and weak legislation as factors that encourage child labour. There may be other valid reasons.

Answers accessing markbands E/F should examine the global variations in employment of both women and children and contrasts in the agricultural and industrial sectors. Although not specifically required by the question, it is likely that these responses will offer valid examples of female and child labour.

Marks should be allocated according to the markbands.

B10. Globalization

Either

(a) Essay

"Tourism is an effective development strategy for LEDCs." Discuss this statement. ***[20 marks]***

Answers should explain the rapid growth of tourism, the significance of its contribution to the economies of LEDC and its effectiveness as a development strategy.

Tourism has many advantages as a development strategy. These include increased income and employment in industries such as fishing, agriculture, furniture making, crafts, food processing, transport, catering and other services. This may result in a multiplier effect. It improves the quality of life for local people by improving local services such as transport, water supply, drainage and electricity. This is particularly important for rural development. It is a labour-intensive industry through which skills and language may be learnt and it also promotes gender equality. Tourism may take advantage of the natural and cultural resources in many LEDCs.

Tourism also has many disadvantages as a development strategy. The tourism industry is dependent on fashion and changing tastes which can be volatile and influenced by promotion of cheaper destinations by tourist operators. Leakage can significantly reduce the income of small countries. Tourism is more vulnerable to external factors and other exported commodities and can be affected by civil unrest, international terrorism, pandemics, disasters and fluctuations in the exchange rates.

The focus of this essay is upon the effectiveness of tourism as a development strategy. Answers that discuss the benefits of tourism without relating this to development will be self-limiting and may only achieve a maximum of band D.

Responses that cover a range of advantages and disadvantages are likely to be credited at bands E/F. Although examples are not a specific requirement of the question, they are likely to be used in those answers achieving band D and above.

Marks should be awarded according to the markbands.

Or

(b) Structured question

(i) Describe the pattern of exports shown on the map. ***[4 marks]***

The pattern of exports should be described by identifying at least two groups using the scale provided ***[2 marks]***. Quantification should be awarded ***[1 mark]*** and the recognition of any anomaly ***[1 mark]***. For example, the highest per capita export values over $5000 are found in North America, north-west Europe, Australasia and Japan. The lowest per capita values under $250 are found in central Africa and southern Asia. The highest levels are found mostly in the MEDCs (with the exception of Saudi Arabia) and the lowest levels LEDCs.

(ii) Explain the role of *either* trading blocs *or* international agreements in the process of economic integration. ***[6 marks]***

Answers should recognize that trading blocs operate on a regional scale incorporating countries in close proximity to each other ***[1 mark]***. At least one example such as NAFTA or ASEAN should be developed ***[2 marks]***. Member countries share trade agreements between each other, but with tariff walls discouraging imports from countries outside the bloc ***[2 marks]***. They encourage economic integration at the regional scale ***[1 mark]***.

The same relative mark weighting should be applied in the case of international agreements.

(iii) Examine the impacts of globalization on the culture of a named indigenous population. ***[10 marks]***

The choice of case study here is crucial and it is important that "indigenous" implies a specific group of people native to an area and relatively unaffected by outside influences. It is upon such a society that the impacts of globalization are likely to be most pronounced. The answer should show an understanding of the term globalization and its various impacts. The term culture should also be broadly interpreted to include several aspects such as language, religion, custom, dress, food, and art and music. It is expected that most of these aspects will be covered.

Examiners should exercise some flexibility with the interpretation of an indigenous population.

Although examples are not a requirement of this question, those answers that use appropriate examples are likely to be credited at band D and above.

Marks should be allocated according to the markbands.

SECTION C

C11. Topographic mapping

(a) Estimate, in kilometres, the shortest distance by road between the settlements of Ajijic (6824) and Tuxcueca (6822). ***[2 marks]***

The scale of the map is 1:250,000 or 1 cm = 2.5 km. The approximate distance is 24 cm or 60 km. Award ***[1 mark]*** for 50 – 54, ***[2 marks]*** for 55 – 65 or ***[1 mark]*** for 66 – 70. No other answers are acceptable.

(b) State *two* advantages and *two* disadvantages of the satellite photograph compared to the map. ***[4 marks]***

Each of the two advantages and two disadvantages of the photo should be distinct from each other ***[1×4 marks]***.

Advantages:

The photograph shows relative height.

The photograph shows vegetation type. It accentuates topography giving an immediate impression of landscape.

Disadvantages:

The perspective of the photograph's oblique view distorts scale and distance.

None of the places are named and therefore relatively difficult to identify.

Communication routes are obscured by three-dimensional effect and oblique view.

Accept other valid advantages and disadvantages.

(c) Using the map and photograph, suggest why the city of Guadalajara has not expanded towards the north-east. ***[3 marks]***

The area to the north-east of the city is rugged and dissected by several canyons ***[1 mark]***. This landscape is unattractive to communication and settlement and would be costly to develop ***[1 mark]***. There are opportunities for urban expansion elsewhere such as to the south of the city ***[1 mark]***. Accept other valid points.

(d) Examine the influence of relief on the settlement and communications in the area bounded by grid lines 66, 69, and 25, 28. ***[5 marks]***

The low flat land to the south of the city between northings 26 and 28 ***[1 mark]*** has allowed for the development of railways, major radial roads and inner and outer ring roads connecting them ***[1 mark]***. There is an airport approximately 20 km south of the city where land is flat and there is easy access to the highway***[1 mark]***. The rural–urban fringe has a number of small commuter settlements linked by the road network. For example, Tlajomulco de Zuñiga (663 265) and Cajititlán (676 260) ***[1 mark]***. The uplands to the south including Sierra El Madroño limit both the development of the communications network and settlement ***[1 mark]***. The marks may be allocated differently, but both settlement and communication should be covered and map evidence provided. Accept other valid points.

(e) Using map evidence *only*, suggest *three* reasons why the northern shore of Laguna (Lake) de Chapala has become a popular recreational area. ***[3×2 marks]***

The recreational attractions of the northern shore of Lake Chapala include: its proximity (45 km) to the city, which allows for easy access for day trips as well as longer stays. The airport provides access for long-distance visitors. The size of the population of the city creates a demand for recreational opportunities. Recreation on the northern shore is enhanced by the views, access to water sports, fishing, boating, swimming in the lake and the backdrop of steep, wooded sierras.

Award up to ***[2 marks]*** for each reason that is explained using map evidence.