

GCE 2005
January Series



Mark Scheme

Geography Specification A

GGA1 Advanced Level

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

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General Guidance for A Level Geography Assistant Examiners

Quality of Written Communication

As required by QCA, the marking scheme for this unit includes an overall assessment of quality of written communication. There are no discrete marks for the assessment of written communications but where questions are “Levels” marked, written communication will be assessed as one of the criteria within each level.

Level 1: Language is basic, descriptions and explanations are over simplified and lack clarity.

Level 2: Generally accurate use of language; descriptions and explanations can be easily followed, but are not clearly expressed throughout.

Level 3: Accurate and appropriate use of language; descriptions and explanations are expressed with clarity throughout.

Levels Marking – General Criteria

The following general criteria relate to knowledge, understanding and their critical application and the quality of written communication as outlined in the AQA Geography A subject specification. They are designed to assist examiners in determining into which band the quality of response should be placed, and should be used when assessing the level of response an answer has achieved. It is anticipated that candidates’ performances under the various dimensions will be broadly inter-related and the general guidelines for each level are as follows:

Level 1: An answer at this level is likely to:

- display a basic understanding of the topic;
- make one of two points without support of appropriate exemplification or application of principle;
- demonstrate a simplistic style of writing perhaps lacking close relation to the term of the question and unlikely to communicate complexity of subject matter;
- lack organisation, relevance and specialist vocabulary;
- demonstrate deficiencies in legibility, spelling, grammar and punctuation which detract from the clarity of meaning.

Level 2: An answer at this level is likely to:

- display a clear understanding of the topic;
- make one or two points with support of appropriate exemplification and/or application of principle;
- demonstrate a style of writing which matches the requirements of the question and acknowledges the potential complexity of the subject matter;
- demonstrate relevance and coherence with appropriate use of specialist vocabulary;
- demonstrate legibility of text, and qualities of spelling, grammar and punctuation which do not detract from the clarity of meaning.

Level 3: An answer at this level is likely to:

- display a detailed understanding of the topic;
- make several points with support of appropriate exemplification and/or application of principle;
- demonstrate a sophisticated style of writing incorporating measured and qualified explanation and comment as required by the question and reflecting awareness of the complexity of subject matter and incompleteness/tentativeness of explanation;
- demonstrate a clear sense of purpose so that the responses are seen to closely relate to the requirements of the question with confident use of specialist vocabulary;
- demonstrate legibility of text, and qualities of spelling, grammar and punctuation which contribute to complete clarity of meaning.

NB A perfect answer is not usually required for full marks. Clearly it will be possible for an individual candidate to demonstrate variable performance between the levels. In such cases the principle of best-fit should be applied. Experience suggests that the use of exemplars within this mark scheme and the discussion which takes place during the Standardisation Meeting normally provides sufficient guidance on the use of levels in marking.

Annotation of Scripts

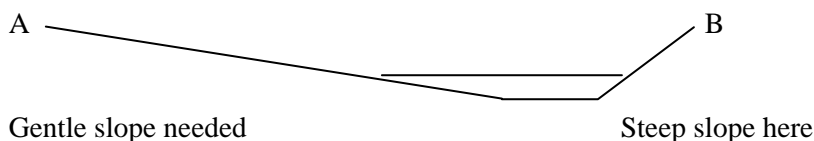
- Where an answer is marked using a levels of response scheme the examiner should annotate the script with 'L1', 'L2' or 'L3' at the point where that level is thought to have been reached. The consequent mark should appear in the right hand column. Where an answer fails to achieve Level 1, zero marks should be given.
- Where answers do not require levels of response marking, each script should be annotated to show that one tick equals one mark. It is helpful if the tick can be positioned in the part of the answer which is thought to be credit-worthy.

General Advice

It is important to recognise that many of the answers shown within this marking scheme are only exemplars. Where possible, the range of accepted responses is indicated, but because many questions are open-ended in their nature, alternative answers may be equally credit-worthy. The degree of acceptability is clarified through the Standardisation Meeting and subsequently by telephone with the Team Leader as necessary.

Question 1

(a) (i)



Gentle slope needed here

Steep slope here

Must be clearly asymmetrical for both marks. 1 mark for a symmetrical channel. Water level does not need to be shown.

(2 × 1 mark)

(ii) X = slip-off slope, river beach, point bar (1).
Y = river cliff (1).

(2 × 1 mark)

(iii) 1 mark only for deposition at A and erosion at B.
At bank A, slower current on the inside of the bank (1) has resulted in a lower carrying capacity of the river (1).
Also accept reference to friction being greater at A (1).
Up to 3 marks for an elaborated statement.
At bank B, faster current on the outside of the bend (1), due to less friction (1).
Allow reference to hydraulic action and corrosion/abrasion here (1).
Up to 3 marks for an elaborated statement.
Both banks must be covered for 4 marks.

(4 marks)

(b) A river's capacity and competence increase downstream as the discharge and velocity of the water increases. Processes are related to changes in capacity, discharge and velocity.

Upper Course

HOW: Vertical erosion near the source, where the channel is deepened creating the characteristic V shaped valley. **WHY:** At higher altitudes the river attempts to cut down to base level. The main processes occur after heavy rainfall or snowmelt when the river has a high competence and energy available to erode and transport material.

Give credit if head-ward erosion is referred to accurately, also allow for transportation of boulders if linked to a high discharge.

Middle Course

HOW: Lateral erosion will occur as the river swings around meanders as it flows. Transportation of sediment will also be a dominant process in this stage. Allow reference to deposition on the inside of meander bends and on the floodplain itself.

WHY: Velocity/current is faster on the outside of bends, (centrifugal force). Again transportation should be explained with reference to capacity or competence as the volume of water within the channel increases.

Lower Course

HOW: The dominant process in this stage will invariably be seen to be deposition, although credit must be awarded to those who refer to transportation and lateral erosion.

WHY: The river tends to carry a greater sediment load in this stage and is subject to fluctuations in volume for a variety of reasons, eg after heavy rainfall. When the river floods or reduces in volume, for whatever reason its capacity will be reduced and it will be unable to transport its heavy load.

Level 1: (1-3 marks)

Simple reference to erosion in the upper course, (transportation in the middle course) and deposition in the lower stage. Basic understanding of **how** the processes within the channel change downstream. Might concentrate on landforms with just a hint of relevance relating to erosion or deposition.

Level 2: (4-5 marks)

Clear description of how channel processes within a river channel change downstream. Expect reference to at least two processes and an attempt to explain **why** one of these occurs. The answer will be unbalanced and will probably provide more description (**how**) than explanation (**why**).

Level 3: (6-7 marks)

Provides a sound description, using correct terminology of how channel processes upstream differ to those downstream. Uses more precise terminology to explain why these changes occur. A balanced response, covering both up and downstream and both **how** and **why**.

7 marks

Question 2

- (a) (i) Channel measures: traditional defences, dams or embankments.
Non-channel measures: any one of the remaining 4 bullet points
Do not allow measures, which although applicable, do not appear in Figure 2.
(2 x 1 marks) **(2 marks)**
- (ii) A ‘holistic’ or whole river approach is needed because if the river is controlled in some way upstream there are usually knock on effects downstream. (1 mark)
For the second mark there must be an elaboration of the above statement, e.g. if a river is dammed upstream there may be a lack of water downstream. A fully elaborated example, such as one based on the Ganges, could get 2 marks without the initial statement because understanding, using the case study, is clear. **(2 marks)**
- (iii) • Deforestation increases run-off, less evapo-transpiration, interception and uptake by vegetation. (2 marks)
Building on floodplains creates an impermeable surface, reduces infiltration and speeds up transfer of water into rivers; associated with this would be lower rates of interception and evapo-transpiration too. (2 marks)
Global warming has resulted in higher rainfall in some areas e.g. floods in England and Wales 2000-2002 partly blamed on this. (2 marks)
• Management techniques in some areas have increased flood risk elsewhere in the drainage basin e.g. Farrakah dam, India and effects on Bangladesh. (2 marks) **(4 marks)**
- (b) The management scheme used can be anywhere in the world, be flexible. Developers/Financiers weigh up costs and benefits to decide whether a scheme goes ahead. Costs will probably depend on location of the example but a good example should include economic costs, social costs and environmental costs. Political issues might also be of importance. Most answers will probably be centred around a river such as the Colorado or the Mississippi basin.
Benefits will probably concentrate on flood protection, and financial costs will be most obvious, but a multi-purpose scheme such as the Colorado will provide ample opportunity for discussion of irrigation, hydro-electric power and tourism and the environmental and economic costs.

Level 1: (1-3 marks)

A general answer, which fails to use an example. Otherwise, the response might refer to a number of rivers, and might be poorly focussed on the costs or benefits. A very limited range of factors will be considered. Occasionally, an inappropriate case study might be used.

Level 2: (4-5 marks)

A scheme or river will be named but there will be little to tie the answer specifically to this. The answer will be unbalanced, in that it concentrates on costs or benefits.

Level 3: (6-7 marks)

A good answer, which uses a well-learned and accurate case study. Both costs and benefits will be considered adequately.

Question 3

- (a) (i)
 - Overall, as distance from the Atlantic increases, precipitation decreases (1).
 - Brussels is an anomaly (1).
 - Use of values e.g. in Berlin precipitation is roughly half that of Shannon (1).
 - This is a negative relationship (1).
 - Accept correct values for two places for 1 mark**(2 marks)**
- (ii)
 - Temperature range is lower in the west and increases in an easterly direction (1).
 - Use of values also allowed for both marks e.g. 10°C in Shannon and 20°C in Berlin (up to 2).**(2 marks)**
- (iii)
 - Precipitation is higher all year in Shannon because its position close to ocean causes it to be affected by low pressure weather systems blown in from the Atlantic by the dominant westerly winds. Inland, winds and clouds have lost moisture by the time they reach Berlin. (up to 2)
 - Brussels is an anomaly because it is close to the North Sea and winds from the West will pick up moisture again after leaving the UK. (2 m)
 - In July rainfall is higher inland than in January because of convection thunderstorms brought about by intense heating and rapid uplift of air during the summer months. (up to 2)
 - Temperatures are warmer in Winter in January close to Atlantic because of the relative warmth of the ocean, which heats up adjacent land. Water retains its warmth in winter. (up to 2)
 - In summer temperatures are cooler close to the Atlantic because of the relative heat capacity of land (solids) and sea (water). Land heats up quickly, so places inland are warmer than those by the sea; where it is cool water moderates summer temperatures. (up to 2) Explanation achieves marks here, not description. **(4 marks)**
- (b) Constraints may, for example, be linked to both low pressure and high pressure winter weather.
High pressure – Anti-cyclone – fog, smog, air quality linked to transport problems, health problems.
 Frost – linked again to accidents, cancellation of sporting events.
Low pressure – severe depressions linked to stormy conditions → disruption of transport, damage to buildings.
 Heavy precipitation linked to flood hazard and associated damage.
 Occasional snow-storms/blizzards → disruption to transport, sport.
 Demand on energy companies. Accidents and demand on emergency services.

Level 1: (1-3 marks)

A very limited answer, which will fail to link problems caused by inclement weather with a particular weather system. A Level 1 type answer might refer to farms being unable to grow crops during colder weather.

Level 2: (4-5 marks)

A one-sided but clear answer. Candidates clarify constraints into either high pressure or low pressure weather reasonably well. One constraint will be adequately covered.

Level 3: (6-7 marks)

A good answer, which might either include excellent detail relating to either low or high pressure weather or alternatively will cover both types of winter weather. Two or more problems caused by the weather will be examined competently.

Question 4

- (a) (i) The range of air quality is between index values of 75 and 104. (1 mark)
Four of the five provinces experience air quality below the index of 100, considered safe. (1 mark)
Tianjin experiences a value above that which is considered safe for the general population. (1 mark)
3 provinces out of 5 are just below the value considered safe. (1 mark) **(2 marks)**
- (ii)
 - The number of fatalities from sars appears to rise as air quality deteriorates, *or*
 - Provinces with low deaths from sars appear to have better air quality. (1)
 - This is a positive correlation (1).
 - Use of values alternative for second mark (2 × 1).
 - Allow a best fit line for 1 mark. **(2 marks)**
- (b) Photochemical smog forms under high pressure conditions. (1 mark)
It forms during hot weather, generally in summer. (1 mark)
The process is formed in the presence of sunlight where emissions from vehicles react with nitrogen oxides to form ozone. (up to 2 marks)
The air is still and as it is descending it acts as a blanket trapping in the pollution. (up to 2 marks)
Lack of wind to blow particulates away. (1 mark) **(4 marks)**
- (c) Policies described must relate to the named city for credit at Level 2 and above. Expect to see examples such as Mexico City and Los Angeles but London will probably be the most popular choice. Policies including the Clean Air Act (1956) would be relevant and the more recent Congestion Charge.
For cities such as Mexico buses have converted to natural gas and there are restrictions on cars without catalytic converters.
In Los Angeles the state-wide introduction of cleaner burning gas has reduced ozone fuming emissions by 15%. Also aims to introduce Intelligent Transport Systems to improve the efficiency of transport networks.

Level 1: (1-3 marks)

At this level there will be a description of a policy or policies, which may not be accurately located.

Level 2: (4-5 marks)

A relevant city will be named and the policy described will apply to the example. There will be little attempt to evaluate the success of the policy/policies.

Level 3: (6-7 marks)

Answers will contain precise detail, which clearly ties the policy to the example. There will be a good attempt to evaluate the success of the policy or policies.

Question 5

- (a) (i)
 - Producers include hedges and plants.
 - Primary consumers include 200+ species of invertebrates and 1500 species of insects (1700+ species).
 - Secondary consumers include 65 species of birds and 20+ species of mammals, amphibians and reptiles.
 - Roughly ×20 more secondary consumers than primary consumers. (1 mark for identifying correctly groups of species within each level.) **(2 marks)**
- (ii)
 - If insects are controlled/eliminated there will be less food for birds, mammals etc./consumers (1).
 - Numbers of secondary consumers and their predators will also be reduced (1).
 - Insects help to pollinate flowers etc. so plant numbers may be affected too (1) (2 × 1).
 - Field pests could also include mice, pigeons etc, accept sensible alternatives to that shown above.**(2 marks)**
- (iii) Energy is lost between each trophic level (1).
Primary Producers harness energy from the sun, so have the largest biomass. (1)
When animals take in the energy from plants they use it to breathe, move, keep warm to grow, to digest, and to reproduce.
Some is lost through excretion or heat loss (up to 3).
Only about 10% is transferred to the next level (1).
Each level can only support a small number of animals in the next trophic level (1). **(4 marks)**
- (b) The question stipulates a small-scale ecosystem so a biome such as the tropical rainforest is inappropriate. Such examples, however, can gain marks at lower level two.
Biotic elements include the green plants and producers, the herbivores (plant eaters) and the carnivores. The detritivores, decomposers are also biotic elements.
Abiotic elements include sunlight energy, precipitation, heat, nutrients, rock and sediments.
Links – Producers convert sunlight energy into fuel energy by photosynthesis. Plants also use water and carbon-dioxide to produce carbohydrates (photosynthesis). Plants also use minerals and nutrients from the soil.
Detritivores break down soil/mineral matter and organic matter. Important for the producers to be able to take such minerals from the soil.
Herbivores, carnivores and omnivores take in water and air. When they die they add matter to the soil.

Level 1: (1-3 marks)

Provides a basic description of an ecosystem, understands that there are living and non-living components but does not use the terms biotic and abiotic. Allow biome scale answers at this level.

Level 2: (4-5 marks)

Describes an appropriate ecosystem and clearly distinguishes between the abiotic and biotic elements but does not develop the links between the living and non-living. Alternatively, links are well established but the example used is weak.

Level 3: (6-7 marks)

Detailed appreciation of the links as a feature, e.g. in a British e.g. the soil type will be named and the climate will be linked to the producer's plants growing.

Question 6

- (a) (i) Basic W-E trend, or correctly ranked regions acceptable for 1 mark. The greatest amount of organically farmed arable land is in the south-west followed by the South-East and the lowest amount in the eastern region (1).
Use of values for second mark e.g. roughly ×6 more land in the South-West than in the eastern region, (60 000 hectares compared to 10 000) (1). **(2 marks)**
- (ii) The amount has grown in all three regions (1). Roughly doubled in all three regions (1).
In absolute terms has grown the most in south-west, followed by South-East and then eastern region (1).
Rate of growth in SE/SW more rapid between 2000 and 2001. (1) **(2 marks)**
- (iii) Use of organic fertilisers helps to improve soil structure and fertility (2).
Organic matter preserves drainage as soil retains moisture, yet good structure ensures free drainage (Up to 2).
Minimum use of heavy machinery for spraying, etc. limits soil compaction (2).
Soil erosion is also minimised by good management e.g. rotation and use of certain crops to give continuous ground cover (2).
Minimal use is made of pesticides; these can leave chemical residues in the soil, organic farmers use other methods to control pests (1). **(3 marks)**
- (b) Human activities might include;
- The use of chemical fertilisers and their negative impact on soil structure.
 - Over-cultivation and overgrazing in the LEDW would be relevant here.
 - Deforestation removes the protective cover of vegetation, leaving soils open to the effects of wind and water.
 - Removal of hedgerows – increased risk of soil erosion.
 - Mechanisation → compaction of soils. Greater risk of overland flow after heavy rainfall and subsequent erosion.
 - Vertical ploughing on hillsides can increase soil erosion.
 - Allowing the land to lie fallow after harvest also leaves it open to erosion by water and wind.
 - Humans have reduced soil erosion in some areas, e.g. contour ploughing.
 - Recreational use can lead to footpath/soil erosion in some areas, e.g. walking/quad bikes.

Level 1: (1-3 marks)

One human activity is described simply and brief reference is made to soil erosion. Otherwise a list of relevant activities might be given with no attempt to link these to soil erosion/soil quality.

Level 2: (3-4 marks)

One human activity is covered clearly and the answer accurately explains how soil erosion occurs as a result. Other activities may be mentioned, but will not be developed. Substitute depth for breadth.

Level 3: (5-6 marks)

Two or more relevant human activities are covered in more detail and the links between them and soil erosion are competently established. There may be accurate reference to case studies.

Question 7

How and why does the load transported by rivers vary?

HOW varies according to rock type, whether resistant or soft, permeable or impermeable.

Varies according to whether upstream or downstream.

Varies according to the amount of water available.

Varies according to the location, perhaps between different basins.

- In places where the bedrock is resistant, e.g. Dartmoor and granite, the load may be less than in places where the bedrock is soft and easily transported. If a river flows through a limestone area there will be more load carried in solution.
- Some might consider the nature of the bedrock e.g. some rocks are more easily eroded than others and will therefore yield greater loads.
- The amount of load within a river depends on its carrying capacity and competence. As the energy of a river increases downstream, it has the capacity to carry a greater volume of load, so
- In the upper reaches of a river, where the channel is narrow and shallow the river carries very little. It only transports material after very heavy rain or snowmelt, when water levels rise.
- As the river moves downstream it becomes more efficient. The channel is wider and deeper and exerts less friction so velocity increases. The hydraulic radius is greater, so rivers carry a greater load.
- In parts of the world where precipitation levels are high throughout the year, e.g. Amazon basin, river channels will have high levels of water throughout the year, so will transport more load.
- In arid parts of the world the load carried by rivers is likely to be consistently low.
- Some rivers have seasonal regimes, linked to rainy seasons or annual snow melt. These rivers will transport more load at certain times of the year, e.g. Nile.
- Allow reference to human influence such as river management and deforestation in places like the Colorado basin and the Brahmaputra.

Level 1: (1-8 marks)

(1-4) A basic answer, which touches on transportation. There might be reference to the amount of load being greater in the lower course than the upper course. Will probably simply state that boulders comprise the load in the upper course and fine silt particles in the lower course.

For 5-8 marks, a comparison of the type of load between the upper and lower course is still a feature, additionally, the different processes of transportation are outlined and linked to river levels.

Level 2: (9-15 marks)

(9-11) Clearly focused but narrow, outlines either the variations in load within one river, (upstream and downstream or seasonally) **or** compares the load of different basins globally. Unbalanced in that 'how' or 'why' the load varies is the main focus.

(12-15) At the top of the level the answer is still narrow, places might be mentioned and there will be an attempt to explain why the load varies. It is likely that the answer will be focused but will lack the detail necessary for Level 3. Substitute depth for breadth

Level 3: (16-20 marks)

A more sophisticated response, two of the bullet points are developed well, e.g. variations both within one basin and in different parts of the world and makes accurate use of named rivers. Both 'how' and 'why' are equally treated. (16-18)

(19-20) A well organised answer using more sophisticated language.

Question 8**Assess the impact of an El Nino event on climatic conditions and economic activity.**

El Nino is caused by an occasional reversal in the ocean currents in the Pacific ocean. This answer does not require too much about the atmospheric processes, which occur as a result of the reversal, but concentrates on the effects of, and impacts of, ENSO. It is expected that the effects of El Nino on the countries surrounding the Pacific will be emphasised, but do allow some credit for places outside this geographical arena, so long as they are relevant. It would be creditable to state that the strongest effects are felt by countries on the edge of the Pacific ocean.

How is the climate affected?

- Peru – the cold current is replaced by warm around Christmas time. Such areas, which are usually arid, suffer from torrential downpours. Indonesia and Australia on the other side of the Pacific receive much drier weather than usual. Elsewhere the effects can be felt too, e.g. hurricane risk diminishes in Florida and the Caribbean during an El Nino year. California gets more storms, mudslides, but on a lesser scale than Peru or other west coast South-American countries. Lower rainfall can be recorded in Europe and in China. African countries are also affected by drought.

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What are the economic impacts?

- In South America rivers swell and often burst, causing catastrophic economic effects, e.g. landslides destroy communication links. Irrigation schemes are usually damaged as a result of the floods. The fishing industry suffers in Peru, as fish feed on plankton living in cold water. 1998-8 350 dead, 250 000 homeless, economy devastated by poor fish harvest.
- In Indonesia in 1998, fires raged in the rainforests, causing very poor air quality and visibility. Airports were forced to close and many people suffered respiratory diseases, which affected their ability to work. In Papua New Guinea 30 000 died from starvation due to drought. In Australia farmers also suffered economically as a result of the drought.

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Assess the impact

- Those places bordering the Pacific receive the strongest effects of El Nino because of their geographical proximity.
- Parts of the world which are LEDCs feel the effects of El Nino more strongly, particularly when they depend on subsistence farming or on the production of other primary products influenced by the climate.
- MEDCs are better equipped to deal with droughts and floods. They have emergency systems in place.

Level 1: (1-8 marks)

At the bottom of the level the answer concentrates on a basic description of the effects of El Nino on one continent, probably South America, but locations will be muddled (1-4 marks). Countries might be named but there will be no detail. There will be little appreciation of the variation in effects of El Nino globally but either drought or very wet conditions will be mentioned and very general comments relating to human activity, such as flooding will be made for 5-8 marks.

Level 2: (9-15)

For 9-11 marks the answer will either clearly describe the contrasting climatic conditions or economic effects of an El Nino event. Case study reference will lack precision.

At the top of the level, for 12-15 marks, although case study detail will still be generic there will be more balance between the economic effects and climatic conditions, but there may only be a very limited assessment of the economic impacts. One location might alternatively be covered well, so the answer will be unbalanced.

Level 3: (16-20)

(16-18) A more detailed response, which compares the climatic effects and economic activity in different parts of the world accurately and explains why they differ; perhaps linked to the changes in ocean currents and weather systems, and level of development. There is likely to be accurate reference to places outside of the Pacific basin.

(19-20) Expect the response to use more sophisticated language and to be effectively organised.

Question 9**Explain why deforestation of the tropical rainforests is of continuing concern.**

Across the world as a whole 35-40% of natural forest has been removed. Rates of deforestation today are much greater in the TRF than in the Temperate latitudes. Although the causes of deforestation are not the main focus in this question, it is expected that in the course of their explanation the majority will outline the reasons why the world's rainforests are being cut down. Reasons for deforestation include:

Settlement – housing/industrial developments – world-wide e.g. Brazil, Indonesia.

Fuel wood – LEDCs e.g. African countries.

For Farmland – Indonesia/Brazil, Jenga Triangle project in Malaysia, also coffee and rubber plantations e.g. Malaysia.

Mineral Extraction – Brazilian rainforest e.g. Carajas.

Creation of dams for HEP – Itaipu project, Brazil

Trees – a valuable resource for export revenue e.g. Brazil and Indonesia

Deforestation is of continuing concern because -

- Once the protective climatic climax vegetation cover has been removed, the soils quickly lose their fertility. Rainforest soils are very delicate and once the nutrient cycle is disrupted, they rapidly become useless for agriculture on a large scale. Additionally, frequent heavy rainfall in the TRF results in more leaching and soil erosion.
- Many species of plant and animal are facing extinction and loss of biodiversity is one of the most important concerns.. Some of the plants, which are indigenous to the TRF have been found to have medicinal value.
- Trees act as a carbon sink, they help to maintain the balance of gases in the air, and deforestation has also been linked to global warming.
- Climatic change at a local scale occurs along with deforestation due to the disruption of the water cycle. As a result mean rainfall tends to fall, and can be seasonally more erratic.
- Removal of forest upsets the water balance too; trees intercept precipitation so in areas where deforestation has occurred there may be a greater flood risk. Rivers have a much greater sediment load due to increased soil erosion.
- Indigenous people have been forced out of their homes; this raises human rights issues in places such as Indonesia and Brazil.
- Fires in Indonesia and Malaysia have resulted in serious air pollution problems in nearby cities.
-

Level 1: (1-8 marks)

At the bottom of the level the answer is poorly focused and might describe the causes of deforestation, or some other similar misinterpretation. There might be use of inappropriate forests, such as those in Nepal (1-4).

At the top of the level there will be an attempt to describe at a very basic level a couple of concerns related to the deforestation of tropical rainforests. Support will be scant although countries, such as Brazil might be named (5-8).

Level 2: (9-15 marks)

A satisfactory answer, where a range of causes relating to the deforestation of tropical rainforests may still be outlined. These may be linked to one area, such as the Amazon basin. One or more of the reasons why deforestation is of concern will be covered superficially. (9-11).

For 12-15 marks there may be clear reference to one or more appropriate tropical rainforests. There will good use of two of the bullet points outlining why deforestation is of continuing concern. Alternatively, substitute depth for breadth.

Level 3: (16-20 marks)

A Level 3 answer will distinguish itself by competently focusing on the 'continuing concern' context of the question by considering a number of appropriate issues supported by accurate and detailed case studies. (16-18)

For 19-20 marks expect the use of sophisticated language and a cogent, well-organised answer.