



## General Certificate of Education

# Geography 5031

## *Specification A*

### *GGA1 Physical Geography*

# Mark Scheme

## *2005 examination - June series*

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.

## General Guidance for GCE Geography Assistant Examiners

### Quality of Written Language

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 clear style of writing which clearly addresses the terms of the question
  - demonstrate a degree of organisation and use of specialist terms.
  - demonstrate sufficient legibility of and quality of spelling, grammar and punctuation to communicate meaning clearly.

**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/or 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 a '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**

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.

## GGAI

### Question 1

- (a) (i)
- The area of alluvial deposits has grown between 1975 and 1995/ lake area has decreased since 1975. (1)
  - There were more distributaries/channels in 1975 or fewer in 1995. (1)
  - Delta extended into Kenya by 1995, in 1975, the extent of the sediment was mainly confined inside the Ethiopian border. (1)
  - Was a birds foot delta in 1975 (1), sediments have infilled the northern end of the lake between then and 1995 and it no longer takes this form/ looks more accurate (1) (3 marks)
- (ii)
- Increase in sedimentation/deposition of alluvium (1) why – increased population pressures on the drainage basin have caused removal of vegetation for fuel and conversion into farmland. This has resulted in increased soil erosion, eroded soil is washed into rivers. (up to 3)
  - Increased sedimentation, river slows down due to natural processes (1)
  - Decreased lake area (1) why – could be due to decreased flow of river water into the lake – possibly because of irrigation schemes upstream or increased aridity/lower rainfall. (up to 3)
  - Could also be due to: increases in temperature/global warming leading to increased evaporation rates from the surface of the lake and decreased soil moisture, which would lessen run-off. (up to 3) (5 marks)
- (b)
- Features of deposition can occur anywhere because a river deposits its load when it does not have the competence to transport material.
  - In the upper course, boulders are evident on the riverbed. These will only be transported when the river is in flood, after prolonged or heavy rainfall, or after snow melt. Braiding occurs, particularly when the source of the river is a glacier. In summer, when the ice retreats the river has a high competence and carries a heavy load. As temperatures cool, river levels drop and deposition occurs in the channel, forming eyots.
  - In the middle course of a river, as it starts to meander, the fastest flow of the river occurs on the outside of the bend. On the inside of bends, where velocity is slack, banks of deposition, called slip-off slopes develop. Also when the river floods it will deposit alluvium on the banks and the floodplain. Levees may be evident.
  - Most features of deposition are found in the lower course. Deposition occurs after flooding, on the inside bends of meanders and also when affected by tides. If tidal waters invade the lower course, river levels alter on a daily basis. At low tide, the smaller discharge results in a lower carrying capacity and mud flats and islands of deposition might be a feature. Deltas also occur at the mouth and can be classed as features of deposition, as can levees and eyots. (7 marks)

**Level 1: ( 1-3 marks)**

A poorly focused answer, which does little more than describe a feature of deposition.

**Level 2: (4-5 marks)**

Understands why deposition takes place and can relate this to the middle and/or lower course.

**Level 3: (6-7 marks)**

Clearly understands the circumstances under which deposition takes place, through the long profile i.e. upper, middle and lower course.

**Question 2**

- (a) (i)
- River Magdalena has two peaks. River Baker has one peak. (1)
  - Pattern of discharge for River Magdalena fluctuates throughout the year. River Baker is steadier. (1)
  - River Magdalena has a much higher discharge throughout the year. (1)
  - River Baker is at its lowest during August, river Magdalena in March. (1)
- (3 marks)**
- Elaborated statements using data can score up to 2 marks each.

- (ii)
- River Magdalena has two peaks because it receives heavy rainfall twice in a year. (1) related to when the sun is directly overhead, pressure is low and torrential convectional rainfall occurs, evidence 10°N of the equator. River Baker has peak discharge in November-January because warm summer weather will melt the ice/snow. (up to 3)
- River Baker 47°S, CTWM climate, discharge is steadier because rainfall occurs throughout the year whereas River Magdalena has seasonal rainfall due to its Tropical situation. (up to 3)
- River Magdalena has greater discharge because the drainage basin is roughly ×10 that of River Baker's. (up to 2)
- River Baker is at its lowest during August, because south of the equator this is the winter season. River Baker is in the mountains so precipitation will be locked up in ice until the summer. (up to 2)
- Magdalena is at its lowest in March, when the dry season occurs. This is because high pressure will bring drier conditions at. (up to 2)
- (5 marks)**

- (b)
- Human activity can modify the drainage basin cycle by:
- urbanisation – impermeable concrete and tarmac surfaces reduce infiltration but drains carry water quickly to river channels. Urban hydrographs are flashy with short lag times. In urban areas flooding may be more likely
  - irrigation removes water from the river, so lowers discharge
  - land-use – deforestation reduces interception and evapo-transpiration. (TRF intercepts up to 80% of rainfall, whereas arable land only intercepts 10%) Infiltration occurs until saturation point, then water flows as overland flow to the rivers. Deforestation raises discharge and again increases flood risk
  - afforestation can have the opposite effect
  - river management schemes, such as dams, reservoirs and balancing lakes, even out river discharge. Straightening might speed channel flow.
- Allow global warming a maximum of 1 mark as the intended scale here is the drainage basin.
- (7 marks)**

**Level 1: (1-3 marks)**

A poorly focused answer, which briefly mentions one of the above bullet points, but really just concentrates on river levels, does not mention other processes such as infiltration.

**Level 2: (4-5 marks)**

A clear response where one modification is well covered although the answer still concentrates on river discharge.

**Level 3: (6-7 marks)**

Two or more human activities are explained using some detail and correct terminology, such as interception and evapo-transpiration are a feature.

**Question 3**

(a) Inland/central USA (1) in a band from South Dakota to Tennessee or a band from the north-west central states to southeast central states. (1) Majority (20+) occurred in Missouri (1) followed by Arkansas and Tennessee. (1) Award statements relating to anomalies (1) **(3 marks)**

(b) Tornadoes form over hot land surfaces. (1) Vigorous uplift of warm air (1) leads to low pressure (1) The junction of air masses along a front acts as a trigger. (1) Warm, moist air from the Gulf of Mexico moving north meets cold dry air flowing south from Canada and the Arctic. (up to 2) These air masses are kept apart by a layer of cold dry air from the Rockies. (1) Powerful currents of warm air sometimes punch through the cold, dry air forming huge thunderclouds (supercell storms). (1) The jet stream in the upper atmosphere catches this up draught (superstorm) and causes it to revolve. (up to 2) Maximum of 3 marks for generic strong wind responses. **(5 marks)**

(c)

- The impacts of tornadoes tend to be devastating, mass destruction but in a very small, concentrated area. Tornadoes may only be 200m wide and will leave a narrow trail of destruction following their path. Expect places used in support to be US states such as Oklahoma and Kansas. Death, destruction of homes and businesses are consequences.
- The impact of tropical revolving storms in the USA generally leads to little direct loss of life. Hurricanes can be tracked and communities can be prepared. IN LEDCs, loss of life will inevitably be a feature so the answer is dependant on the case studies used. Expect the effects to be on a larger geographical scale.

**(7 marks)**

**Level 1: (1-3 marks)**

There will be no support. The answer will probably provide a basic description of the devastation caused by tornadoes or tropical revolving storms with little comparison.

**Level 2: (4-5 marks)**

The answer will clearly compare the effects of tornadoes and tropical revolving storms, and though places may be named, there will be little to tie the answer to the locations.

**Level 3: 6-7 marks)**

Good supporting detail will be used to compare the effects of each type of hazard.

**Question 4**

- (a)
- **NEGATIVE IMPACTS;** France was suffering from drought, restrictions placed on the French to help preserve water. (1)
  - Europe's economy was suffering as agriculture was suffering due to drought. It was difficult to produce HEP because of low river levels and ships were unable to transport goods up river because of low levels. (up to 2)
  - **POSITIVE IMPACTS** of the drought included the quality of grapes produced for wine-making in Italy. (1)
  - Lower rainfall totals in the UK meant a good wheat harvest often ruined by wet weather during the summer. (1)

Candidates might attempt to classify the impacts as social and economic or by scale; allow for this also. Limits on car washing etc are social the other 3 boxes would be classified as economic.

**(3 marks)**

- (b)
- Anticyclonic weather (high pressure) became established over Europe during the summer. (1) or Tropical Continental air drifted in from the southeast. (1) Descending, stable air is warmed as it nears the Earth's surface, so pressure increases. (1) As it warms up, more moisture is able to be held in the air, so there is little likelihood of rain. (1) Such air is very stable in its lower levels, winds are gentle. (1) Intense insolation, during Summer, gives hot, sunny days, as the sun is more direct during these months. (1) If the air has its source over North Africa, heatwave conditions occur. (1) Blocking anticyclones occur when cells of high pressure detach themselves from the major high pressure areas of the sub-tropics. (1) Once created, they 'block' eastward-moving depressions from moving in over western Europe. (1)

Allow answers relating to the Sahel or those referring to an EL Nino Event.

**(5 marks)**

- (c)
- The impacts of drought in the Sahel include:  
 Desertification – vegetation dies due to lack of rain. Decrease in protective cover leads to greater soil erosion by the wind.  
 Over-grazing and over-cultivation adds to problems as people dependent on agriculture farm marginal land, desperate for food. These activities also leave land open to the effects of soil erosion and desertification.  
 Famines have occurred in recent decades in years when the rains have failed e.g. Ethiopia, late 1980s. Drought in the Sahel has had severe impacts because people depend on agriculture.  
 Impacts are also severe because in these desperately poor countries there is little money available to organise and distribute water when needed. Irrigation schemes are costly and the governments suffer from poor organisation and even corruption.

**(7 marks)****Level 1: (1-3 marks)**

A basic answer, which probably outlines one impact of drought, e.g. famine, in a simple fashion

**Level 2: (4-5 marks)**

One impact of drought is described clearly and the answer is focused. Otherwise, substitute depth for breadth.

**Level 3: (6-7 marks)**

More than one impact of drought is described using detail and with some reference to appropriate locations.

**Question 5**

- (a) (i)
- Only two types of species close to sea, as distance inland increases the range of species increases (to 4). (1)
  - Close to the sea, pioneer species are most common (around 50%). (1)
  - Inland meadow plants are dominant (60%). (1)
  - Shrubs occur between site 4 and 10 and increase in percentage as distance inland increases. (1)
- (3 marks)**

- (ii) We cannot expect specific knowledge of a psammosere here.

Pioneer species, closer to the sea, where conditions are harsh, soils are undeveloped, with a low humus content. Pioneer species can cope with poor soils. This is the primary succession. (2)

The species diversity increases inland, as pioneers help to improve the structure of the soils, adding organic matter and retaining moisture as they decompose and die. The higher nutrient content enables the meadow plants to colonise. (up to 2)

Bushes and shrubs colonise as soils are further improved by the decaying remains of the meadow plants, which further improve the quality of the soil. Inland, conditions are more sheltered from the wind, so taller plants and bushes can now survive. (up to 2)

**(5 marks)**

- (b) A Plagioclimax occurs when human interference alters the natural vegetation, so this is ‘arrested’ and stopped from reaching its final climatic climax. Do not credit natural arresting factors, such as volcanic eruptions, floods or fires beyond Level 1 here.
- Direct human activity – e.g. deforestation for agriculture, the ploughing of grassland for arable land, afforestation of coniferous trees, drainage and river management schemes would be relevant.
- Indirect human activity may halt succession by accident, so acid rain, caused by industrial and vehicle emissions may affect forests e.g. Black Forest, Germany. Global warming and changes in climate could also lead to changes in vegetation succession in the future.
- (7 marks)**

**Level 1: (1-3 marks)**

A basic and poorly focused answer, which probably concentrates on plant succession but mentions the fact that man can affect these, perhaps mentioning deforestation or agriculture.

**Level 2: (4-5 marks)**

Clearly understands the term plagioclimax covering one way in which succession can be arrested by man.

**Level 3: (6-7 marks)**

Two or more circumstances leading to a plagioclimax are outlined using the language of succession.



**Question 6**

- (a) (i) Soil 6A is black in colour, 6B is red. (1)  
 Soil 6a appears very wet, 6B looks dry. (1)  
 Soil 6A looks to contain organic matter, plant roots, 6B contains little organic matter. (1)  
 Soil 6A cannot see rock, 6B can see rock. (1)  
 Soil 6A appears deeper than that in 6B. (3 marks)

- (ii) Soil A is black in colour due to **large amounts of organic matter, in the form of plant remains**. This soil develops where there is excessive water, and the soil is poorly drained and saturated. Too much water **restricts bacterial activity, because of anaerobic conditions**. Soil A, in the Lancashire Pennines, has developed in an upland area, where there is very heavy rainfall. It is a hydromorphic soil and the dominant factor is **poor drainage**. (up to 4)  
Soil B. The dominant factor here is the **rock type**, in this case **limestone**. Found in areas where rainfall is seasonal when the limestone is chemically weathered and silicates are leached out of the soil to leave a **red soil, rich in iron hydroxides caused by OXIDISATION**.  
 For 5 marks there must be reasons given for the characteristics of both soils. Allow 2 marks for reference to general soil forming criteria (climate/vegetation/rock type). (5 marks)

- (b) Brown Earth and Podzol soils will be the obvious choices here, however, accept other zonal soils. A zonal soil is a mature soil, whose characteristics reflect the climate and vegetation. Credit diagrams/soil profiles, a well-annotated profile on its own can score maximum marks.  
Podzol  
 Water: Is formed in places where there is a moisture surplus. Where rates of precipitation exceed evapo-transpiration. Not necessarily in places where rainfall is heavy.  
 This moisture surplus results in the downward movement of water through the soil. This process of leaching transports iron and aluminium to the B Horizon, where it is deposited as an iron pan. The upper layers are bleached because of leaching.  
 Organic Matter: The podzol is the zonal soil of the boreal coniferous forest. Coniferous trees do not take up calcium, magnesium and potassium so these nutrients are not returned to the soil when the leaves/needles fall. This results in an acid (mor) humus. Needles are slow to break down, so the input of organic material into the soil is limited.  
 The Ao Horizon is composed of relatively unaltered needs.  
Brown Earth  
 Water: Soils are associated with wet/warm climates with a slight moisture surplus. Deciduous trees take up much moisture during the growing season, leaching is not a severe process so the upper layers retain their brown colour. There are indistinct layers partly because of this lack of leaching.  
 Organic matter: The vegetation of this biome is deciduous woodland. Trees lose their leaves in autumn and return organic matter into the soil, creating a mull humus. The latter is quickly broken down in the mild/wet conditions. The soil is well mixed by insects, worms etc. in the upper layer.

**Level 1: (1-3 marks)**

A basic answer, which does not refer to a particular soil type but possibly describes the process of leaching and maybe states that decomposition of organic matter is important to the fertility of the soil. Otherwise, describes a zonal soil but does not refer to a process.

**Level 2: (4-5 marks)**

A relevant soil is named and one soil forming process is covered, probably leaching related to the rainfall.

**Level 3: (6-7 marks)**

One appropriate soil type is well known, organic and mineral input will probably be referred to. More accurate use of terminology, e.g. eluviation and illuviation.

**(7 marks)**

**Question 7**

**Examine the physical factors responsible for flooding.**

**Basin size and shape:** small basins have shorter lag times, so respond more rapidly to rainfall than large basins. A circular basin has a shorter lag time than an elongated basin, where it takes longer for rainfall occurring in the upper reaches of the basin to travel to downstream locations.

**Relief:** In steep-sided, upland valleys, water can reach the river quickly.

**Prolonged rainfall** causes the ground to reach saturation point. Once this has been exceeded, surface run-off/overland flow occurs, so more rainfall reaches river channels.

**Intense storms** e.g. thunderstorms, where heavy rain occurs in a short period of time, i.e. rainfall intensity is greater than infiltration capacity. Such conditions can lead to flash floods.

**Snowfall.** During and after a snow storm, when temperatures are low, snow lies on the ground and river levels fall. When temperatures rise, melt water soon reaches the river channel. If the ground is frozen, there will be no infiltration so overland flow will predominate.

**Temperature.** In warmer climates and warm seasons high temperatures may cause high rates of evapo-transpiration, so flooding is less likely. The opposite can occur in cold climates.

**Vegetation.** Vegetation intercepts precipitation and both slows down and reduces infiltration and subsequently overland flow. Additionally trees take up moisture for growth purposes during their growing season. In the UK in winter, when trees are bare of leaves, less water is intercepted and more reaches the river channel.

**Rock type.** Where the underlying rock is impermeable no percolation can take place e.g. granite, so producing more surface run-off and a greater drainage density.

**Soil type** will have a similar influence on rock type e.g., clay soils reduce infiltration.

**Tides and Storm Surges.** Places close to the coast in the lower reaches and river valley may suffer from river floods, for example, if a high spring tide coincides with an onshore storm.

**Level 1: (1-8 marks)**

An unfocused attempt, where there is no distinction between physical and human causes of flooding. There may well be drift into the consequences of flooding and the causes of flooding will only be mentioned.

(5-8) Although there will still be much irrelevance, precipitation, intensity or duration may be covered. Otherwise, one factor might be outlined in a simple fashion.

**Level 2: (9-15 marks)**

At the lower end (9-11) physical and human causes of flooding will still appear, but the treatment of physical factors will show a satisfactory understanding. Substitute depth for breadth.

At the top of the level (12-15), the answer will cover one physical factor, probably precipitation well, and will introduce one or more additional causes in less depth.

**Level 3: (16-20 marks)**

For 16-18 marks, a good range of causal factors will be covered in more detail and there will probably be some locational support.

At the top of the level the answer will be well organised and will use more sophisticated language.

**Question 8**

**Why are we encouraged to ‘think globally, act locally’ in relation to global warming?**

**Background:** Most scientists agree that the greenhouse effect is causing global warming. World temperatures have increased rapidly in recent decades e.g. in 1980’s 7 of the twentieth-century’s warmest years were recorded. Predictions suggest that there could be a further rise in temperature during the twenty-first century of between 1.5°C and 4.5°C.

**Likely Impacts:** Will be of a global nature, so will affect everyone, regardless of location and level of economic development. Negative consequences are predicted to outweigh positive consequences and include;

- drought conditions in Africa and the southern Mediterranean, in addition to less rainfall in the central US wheat belt.
- Arctic and Antarctic ice melt might lead to rises in sea level, so low-lying states, such as Bangladesh and Netherlands will be affected by the encroaching sea and flooding. Additionally, ecosystems in the Arctic/Antarctic may be wiped out.
- permafrost might melt in northern Canada/Russia, possibility of massive landslides, oil pipelines could be demolished.
- ski resorts in the Alps would close due to lack of snow. Mediterranean beaches might be drowned, also affecting tourism.
- fiercer hurricane-like storms will become more common in Western Europe. It is likely that greater precipitation will also result in more regular river floods.

**Think Globally:** Because everyone will be affected, everyone should try to do something about it. Governments have been slow to implement suggestions made at World Summits e.g. USA reneged on the Kyoto Protocol, signed in 1997, to cut down on emissions, for political reasons. (Level 3 type statement)

Environmentalists agree that improvements must be made in energy conservation, cleaner emissions and the increased use of alternative/renewable energy sources.

**Act Locally:** Everyone can play their part. People can recycle and can ensure that they take cans/paper etc. to recycling centres. People can be more energy efficient, fuel conservation methods include using energy efficient vehicles and public transport. Energy saving devices, such as light bulbs and insulation in the home. If people are more aware of the causes of global warming, each can do their part to help cut down on the energy used.

We are encouraged to think globally i.e. to consider the worldwide impacts of global warming and perhaps how our lives and those of future generations will be affected. Act locally, to show that we appreciate the ways in which our small-scale actions can reduce energy consumption.

**Level 1: (1-8 marks)**

An unfocused attempt, which could describe the political responses to global warming and the causes in a very general way. (1-4)

At the top of the level, one of the global consequences of or responses to global warming is described. (5-8)

**Level 2: (9-15 marks)**

At the bottom of the level the global consequences of warming are reasonably well known but there is no local element/or vice versa.

For (12-15) although the emphasis of the answer is still global there is a hint of ‘act local’ perhaps one way in which people can help to conserve energy.

**Level 3: (16-20)**

At the bottom of the level, there will be a clear discussion about both the global nature of the problem and a range of small-scale ways in which individuals can contribute.

(19-20) The answer will be well organised, using sophisticated language.

**Question 9**

**Identify and explain the unique characteristics of one global biome you have studied.**

The most likely choice is the Tropical Rainforest, but accept any relevant large-scale example. Inappropriate, small-scale ecosystems are confined to Level 1.

**Identification of the unique characteristics** of the biome will include vegetation, soils and climate i.e. the biotic and abiotic components. Good answers will probably include a nutrient cycling diagram and will include precise detail e.g. plant species, climate data, and productivity values.

**Explanation of the characteristics** of the biome will be predominantly linked to the climate, and the ways that the vegetation has adapted to the particular climate. It is also likely that the explanation of the soil characteristics will be linked to the climate and the vegetation.

**Level 1: (1-8 marks)**

A poorly focused answer at the bottom end, which only mentions a global ecosystem in passing and provides a weak description of this or a number of biomes. Otherwise, the answer could be at an inappropriate scale, such as a Lithosere or psammosere. (1-4)

For 5-8 marks there will be a basic description of one element of the biome, most probably the vegetation.

**Level 2: (9-15 marks)**

(9-11) There will be a clear description of the unique vegetation and one other element, such as soil or climate at the bottom end. (Accept alternatives) Otherwise, both explanation and description at a more simple level.

(12-15) There will be clear explanation of the ways in which the vegetation or soils have adapted to the climate. Otherwise, a very good description of a biome but with limited explanation.

**Level 3: (16-20 marks)**

For (16-18) the explanation of the characteristics is sound and precise detail is included in the description of the characteristics e.g. temperature and precipitation characteristics. Strong links are made between the vegetation, climate and soil.

At the top of the level (19-20) the answer will be well organised, using more sophisticated terminology.

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