



General Certificate of Education

Geography 6031

Specification A

GGA4 Challenge and Change in the Natural Environment

Mark Scheme

2006 examination - January 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 A Level 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 explanation can be easily followed, but are not expressed clearly.
- 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 of 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 vocabulary;
 - demonstrate sufficient legibility, 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.

N.B. 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

1. Coast Processes and Problems

1. (a) Response should show knowledge and understanding of the meaning of high and low energy coasts, contrasting high energy with destructive storm waves (1-3) with long fetches (and often macro tidal) (1-2) landing on mainly shingle beaches, having high wave height and fairly short wave length (1-2) with a fairly weak swash and a strong backwash (1-2) as against constructive (swell) waves falling on sandy beaches. Judicious statement referring to coasts being along a continuum between high and low energy (1-2). Do not double credit opposites. No credit for examples unless they actually distinguish. Answer that refers to one only (1) *(4 marks)*
- (b) Response should show an ability to describe spit formation as being drift aligned, direction of long shore drift and dominant waves (1-2) with a change in coastal orientation (1-2), sediment supply exceeding removal (1-2). Reduction in energy leading to deposition (1-2). Some credit for use of appropriate terminology (proximal and distal etc., rapid changes (as illustrated on Figure 1) and maximum length (1-2). Reasons for recurved spit or ‘hook’ (1-2). *(4 marks)*
- (c) Response should show detailed knowledge and understanding of the problems resulting from management of high energy coastal environments, specific links between management strategies, coastal processes and down drift effects. Vulnerability of coasts accentuated by geology, lithology, storms and human development. Problems can include both physical and human. Relevant exemplification could reasonably come from many locations but is likely to include Holderness, Christchurch Bay, etc. Strategies can include hard engineering (sea walls, groynes, gabions etc.) and/or soft engineering (beach replenishment, sand dunes etc.). Must refer explicitly to high energy coasts and management, as well as cost-benefit issues, aesthetics etc.

Level 1 – Generic Descriptor (1-3)

Some awareness of coastal management strategies and some idea of general effects; quite detailed coastal management but no problems.

Level 2 – Generic Descriptor (4-5)

Fuller awareness of two problems within high energy context; or one issue in depth with exemplification can reach Level 2.

Level 3 – Generic Descriptor (6-7)

Detailed awareness of at least two problems clearly embedded in high energy coasts with relevant exemplification and with possible comment referring to their resolution.

(7 marks)

Total for this Question: 15 marks

2 Geomorphological Processes and Hazards

- (a) Since there are many differences examiners should only credit statements which clearly contrast the two mass movements.

Soil Creep	Mudflow	Marks
Very slow < 1cm/yr	Very quick, 10m/h to 80km/h	1-2
Caused by expansion/contraction (either wet/dry or freeze/thaw)	Usually caused by periods of intense precipitation	1-2
Mainly humid climates with vegetation cover	Often on steep slopes/impermeable bedrock	1-2
Almost continuous	Brief but intense	1-2
Accentuated by grazing animals	Also sudden snowmelt (e.g. Nevado del Ruiz)	1-2
A heave	A flow	1
Small scale limited impact 1-2	Can be destructive	1-2

An answer that refers to one only (1).

(4 marks)

- (b) Note that the question does not demand definitions but these are creditworthy if they inform the relationships concerned.

E.g. weathering takes place in situ and requires at least one of the other two processes to transport material away (so that weathering can, in some cases, continue) (1/3). Relative position on slope profile (1-2)

There is credit for issues of scale, frequency and volume (1-2).

Also credit reasonable attempts at an over-arching comment (1)

An answer that refers to only one (1)

Basic definition of both but no link (1).

(4 marks)

- (c) Note that the question does **NOT** ask for effects of mass movement on humans. Factors could include deforestation, down slope ploughing, footpath trampling, ski tourism etc. etc. However, a balanced view is required regarding non-human factors, possibly referring back to **Figure 2**. Human attempts to control mass movement are creditworthy.

Level 1 – Generic descriptor (1-3)

Basic awareness of some effects of human activity.

Level 2 – Generic descriptor (4-5)

Fuller knowledge/understanding with reference to examples of either human or non-human effects.

Level 3 – Generic descriptor (6-7)

Detailed awareness of the differing factors which affect mass movements on - different scales – fuller knowledge/understanding with secure exemplification and text rich in detail – some attempt to come to a view as to extent. Must refer explicitly to human activity.

(7 marks)

Total for this question: 15 marks

3 Cold Environments and Human Activities

- (a) The question refers to causes of low NPP and Biomass **NOT** effects.
At this level one would expect rather more than “very cold” – appropriate climatic data is creditworthy – low insolation – many months without sunlight within Artic Circle (1-3) Low angle of sunlight even in Summer – lower insolation despite long hours of sunlight (1-2).
Low precipitation – often in the form of snow – inhibits growth (1-2).
Limited decay pathways (1-2).
Limited nutrient recycling (1-2) Water logged, thin, acidic, infertile soils (1-2).
Little shelter from winds across wide expanses of plains – increases wind chill factor – reducing growth rates (1-2). Very short growing season, limited photosynthesis (1-2).
No credit here for contents of biome or Rain Forests. **(4 marks)**
- (b) The question requires links to be made between the factors and the food chain.
Intermediate links (such as water-logged peaty soils) carry credit here if linked to the food chain (1-2).
Food webs are simple (1-2).
Seasonal changes are important – migration of ruminants and predators, including examples (1-2) – great increase in biomass during summer season – stomata remain open during long periods of sunlight (1-3).
There may be some credit for noting that there is considerable difference between latitudes within the tundra.
NB The question refers to tundra **not** Alpine regions. **(4 marks)**
- (c) There are many possibilities within this question, all equally valid although a historical approach may be the way many candidates approach this using indigenous versus exploitative development. Another approach would be to contrast Alpine and Tundra regions.
- Uses can include routeways (through glacial trenches) or difficulties of access (extreme cold, permafrost melting, heaves etc) economic uses (and difficulties such as Trans-Alaskan pipeline) including oil and tourism, conflicting demands such as indigenous peoples, oil companies and political agendas.
- Level 1 – Generic descriptor (1-3)**
Basic awareness of human use(s) of cold environments.
- Level 2 – Generic descriptor (4-5)**
Fuller knowledge/understanding with reference to examples of a number of uses of the environment. Possibly an attempt to contrast uses.
- Level 3 – Generic descriptor (6-7)**
Detailed awareness of the contrasting ways in which the tundra and/or Alpine environment has been used – fuller knowledge/understanding with secure exemplification and text rich in detail. **(7 marks)**
- Total for this question 15 marks**

Mark Scheme for Synoptic Essays

Preamble

Examiners should bear in mind that these questions are synoptic in nature and offer candidates the opportunity to demonstrate knowledge and understanding:

1. across a range of geographical subject matter;
2. of connections between the different aspects of geography in the specification;
3. of the importance, where relevant, of human perspectives on themes and issues.

Candidates are advised of this both in the Assessment Unit Rubric and in the Note to Candidate which precedes the essay questions in Section B. Synoptic elements might therefore feature in answers matching all the criteria bands but can be expected to feature more prominently in higher mark bands. It will be seen that explicit synoptic content is a necessary feature of the two band ranges 21-27 and 28-30.

Additionally, essay writing is an important vehicle for the demonstration of communication skills – at level 3 these refer to writing in a manner appropriate to purpose and complex subject matter; organising relevant information clearly and coherently using specialist vocabulary as appropriate and ensuring clarity of meaning through legible text, accurate spelling, punctuation and grammar. (Key Skills – Communication Level 3 C3.3 [QCA]; Para. 13 AS/A Level Geography Specification Outlines [QCA].

Synoptic content and communication aspects should be kept in mind when assessing the unit and are incorporated into the criteria bands set out below which refer to knowledge, understanding and skills. Indicate synoptic content using the letter ‘s’ in the margin as appropriate.

CRITERIA BANDS

Examiners will use the criteria below to evaluate the work, placing the candidate’s performance in the appropriate band and attributing the mark from the left-hand column appropriate to the question concerned. They should seek the best fit from the band descriptor – work adjudged to be in a particular band might not contain all the features attributed to that band.

28 – 30

A very good answer. Consistently relevant to the theme and to the demands of the question. Evaluates explicitly where required. Displays a very confident range of knowledge and understanding by using the appropriate terminology, critically referring to concepts and theory where necessary and establishing relationships between different physical and/or human factors and processes. Synoptic elements are a prominent feature and are fully integrated into the answer and used to purposeful effect in respect of the question’s requirements. Demonstrates, where relevant, either implicitly or explicitly awareness of human perspectives upon geographical themes and issues. Argues coherently and in an organised, logical and balanced fashion. Support is consistent, accurate and detailed. A well developed essay style. Detailed and sophisticated communication skills with fluent and cogent writing style.

21 – 27

A good answer, which remains relevant to the theme and demands of the question. Evaluation may now only be implicit. Displays a confident range of knowledge and understanding, but with a few omissions at the lower end, e.g. some terminology missing or some pertinent relationships left unexplored. Synoptic elements should be a feature of the answer and seen to be meeting the questions requirements. Some possibly rather uncritical reference to theory; some reference to awareness of human perspectives and decisions taking on geographical issues and problems. Argues well, but organisation may be suspect in places. Support is invariably there, but may not always be detailed. A competent essay style. Effective communication skills with accurate spelling, punctuation and grammar.

14 – 20

A satisfactory answer ranging down to the mediocre, which always attempts, but not always succeeds to be relevant. Lacking in evaluation. Displays a reasonable grasp of knowledge, but understanding is suspect in places. Relevant theory and concepts might be mentioned but with basic uncritical application. The interconnections and relationships between different physical and/or human processes are briefly mentioned but understanding of their significance is limited. There is some synoptic content which is relevant to the question. Argument and analysis are partial and become less significant in relation to mere description. Increasingly unbalanced as an answer, and the logic and organisation are clearly deficient. Support is not detailed here, occasionally inaccurate and barely consistent. The bare bones of an essay format. Appropriate communication skills so that meaning is almost invariably clear with adequate language skills. Possibly some spelling/punctuation/grammar errors.

7 – 13

A very mediocre answer, which is only occasionally relevant to both the theme and the demands of the question. Decidedly deficient in knowledge and understanding with only simplistic notion of relevant theory and concepts. Little if any relevance to inter-relationships between physical and/or human processes and factors or subject matter from other elements in the specification. Increasing irrelevance in a predominantly descriptive context. Clearly lacks an ability to organise material and may drift into another answer. Support is scanty and usually suspect. A weak, barely perceptible, essay format. Basic communication skills – many spelling errors and/or oddities of grammar and punctuation.

1 – 6

A very weak answer, which shows little attempt to follow the theme and the demands of the question. A very low level of knowledge and understanding, with even the simplest of concepts avoided. Very inaccurate and may completely miss the point. No idea of how to organise material with haphazard format, evidence of guesswork and little or no support. No attempt at an essay format. Little or no language and communication skills. Many errors in spelling, punctuation and grammar.

4 Coast Processes and Problems

To what extent do coastal problems have a greater impact in the LEDW?

This question is designed to enable candidates to engage in a wide variety of management strategies, different locations and requires a measured view of “coastal problems”.

Although much of the content may come from within the specification there are several clear pathways to include synoptic elements, including economic, political, social and tourism and particularly MEDC/LEDC differences.

See generic scheme for criteria bands – examiners are reminded that clear synoptic content is required for credit of 21 and over.

Some attempt to classify or, at least, define coastal problems should attract credit. This may include reference to scale both in terms of land area and population size/density.

Problems may include the following:

- Flooding, impact of global warming, consequences and responses
- Coastal erosion, land loss, cliff slumping
- Other human impacts, offshore dredging, recreational use, destabilization of sand dunes, disturbance of estuarine environments and degradation of coral reefs.

Content may include:

- Consequences and responses to the above problems
- An awareness of the variety of scales and locations where such problems occur
- LEDC/MEDC question – some ideas of impact
- cost benefit, especially comparison of North Sea Surge and Netherlands/Thames Barrier with tropical cyclones in Bangladesh
- relative scales of impact on one hand and secondary impacts as well as ability to cope with the aftermath of disasters
- costs of rebuilding – would the infrastructure in, for example, in the Netherlands, cost much more to rebuild than LEDC’s such as Bangladesh?
- relative economic issues include trade, agriculture, shipping and tourism
- economic responses to tropical storms/hurricanes/tsunamis affecting infrastructure and attractiveness of an area as a tourist destination.
- Environmental issues, such as destruction of habitats and ecosystems.

To achieve more than 20 marks Candidates need to address both MEDC’s and LEDC’s.

A descriptive case study or series of examples of coastal problems (possibly management strategies) with no explicit relationship to the question but from which an answer may be inferred is unlikely to achieve more than 16 marks. Such a response with concluding comment which refers clearly and explicitly to the terms of the question and which offers some reason(s) as to why coastal problems have a greater impact on the LEDW? (or otherwise) may achieve 20 marks.

Discussion requires a debate to be held and a view should be stated. Any reasonable conclusion can be credited providing it is measured, realistic and related to essay content.

Total for this question: 30 marks

5 Geomorphological Processes and Hazards

Knowledge of plate tectonics helps us to understand many geomorphological processes but has not significantly increased our ability to manage geomorphological hazards. Discuss this view.

This question is designed to enable candidates to engage in a wide variety of management strategies, different locations and requires a measured view of “geomorphological hazards” which clearly include those which are **NOT** derived from plate tectonics, such as flooding, avalanches etc.

Although much of the content may come from within the specification there are several clear pathways to include synoptic elements, including economic, political, social and tourism and particularly MEDC/LEDC differences as well as physical factors, such as rivers etc.

This somewhat cynical view may be viewed as the “little learning is a dangerous thing” approach.

See generic scheme for criteria bands – examiners are reminded that clear synoptic content is required for credit of 21 and over.

Content may include

- A clear statement of our improved understanding of plate tectonics, although merely rehearsing the developments in our understanding of plate tectonics on its own is not sufficient to engage with the question at any real depth.
- Exemplars of coping with hazards (both in terms of preparation and response) effectively or otherwise – preparation can include earthquake warning methods, buildings designed (or retro-fitted) to minimise impact, earthquake drills – responses can refer to economic ability and emergency readiness.
- Increased awareness is variable within education systems, social mores and population pressures – why do people still live in the shadow of volcanoes?
- Clear MEDC/LEDC differences with exemplars.
- Examples of hazards which are not derived from plate tectonics such as river floods, avalanches, mudflows etc.
- In the recent past much is likely to be made of the issues surrounding the tsunamis of Boxing Day 2004. In this case geologists were aware of the submarine earthquake but there was no apparent infrastructure in place to issue warnings.

A descriptive case study or series of examples of, for instance, geomorphological hazards and possibly management strategies, with no explicit relationship to the question but from which an answer may be inferred is unlikely to achieve more than 16 marks. Such a response with concluding comment which refers clearly and explicitly to the terms of the question and which offers some reason(s) as to why knowledge of plate tectonics helps us to understand many geomorphological processes but has not significantly increased our ability to manage geomorphological hazards (or otherwise) may achieve 20 marks.

A variety of scales and exemplars is essential to achieve more than 20 marks. A good essay might adopt an historical approach – looking at the development of management techniques in parallel with developing understanding.

Discussion requires a debate to be held and a view should be stated. Any reasonable conclusion can be credited providing it is measured, realistic and related to essay content.

Total for this question: 30 marks

6 Cold Environments and Human Activity

Discuss the reasons for the diversity of use of landscapes which have been subject to glacial and periglacial processes.

This question is designed to enable candidates not only to engage in a supported series of comments regarding glaciated landscapes and periglacial landscapes but also to consider the many and varied ways in which those landscapes can and have been used. The central point of the question is to discuss **reasons** for their uses.

Examiners should note that the question refers to glacial and periglacial processes but does not require detailed comment on those processes but rather the landscapes they have created. These are not necessarily cold environments now.

Although much of the content may come from within the specification there are several clear pathways to include synoptic elements, including economic, political, social and tourism and possibly MEDC/LEDC (e.g. Himalayas) differences.

See generic scheme for criteria bands – examiners are reminded that clear synoptic content is required for credit of 21 and over.

Possible content

- Types of glaciated landscapes with examples from different areas – probably including the Alps, Lake District and Snowdonia
- Types of periglacial landscapes and examples – tundra regions, etc.
- Candidates may opt to put specific landscapes and specific uses together – this approach is viable
- Uses of glaciated landscapes with examples
- Attempts to classify by use (tourism, agriculture, HEP etc.)
- Differences in different areas. For instance, a comparison of Lake District/Scottish Highlands or Alps/Scandinavia, where land use has been affected by other factors, including climate, accessibility, economics etc.
- Positive and negative factors may also be used – such as agriculture being limited by steep slopes, thin soil, rapid run off etc., whereas the awe and wonder factor, challenging environments and abundant snow may attract tourism.
- Some comment referring to negative impacts of human uses may be appropriate but only within the context of the question.

A descriptive case study or series of examples of glacial and periglacial processes, with no explicit relationship to the question but from which an answer may be inferred is unlikely to achieve more than 16 marks. Such a response with concluding comment which refers clearly and explicitly to the terms of the question and which offers some reason(s) as to why use of these landscapes is so diverse (or otherwise) may achieve 20 marks.

An answer that refers only to glacial or periglacial landscapes and not their uses is unlikely to achieve more than 20 marks. An answer that refers only to glacial or periglacial landscapes is unlikely to achieve more than 20 marks.

A clear debate and a measured and supported conclusion are required to achieve more than 20 marks.

Total for this question: 30 marks