



## **General Certificate of Education**

# **Geography 6031**

## *Specification A*

**Unit 4      GGA4**

# **Mark Scheme**

*2007 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.

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## GGA4

### 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 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 or 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 Team Leader as necessary.

**Question 1**

- (a) Requires both name and appropriate location for credit. (1 mark for each correctly named and located) only 1 credit for each.

|                                      |   |
|--------------------------------------|---|
| Cliffs, steep/chalk                  | Along whole coastline, including stack/stump    |
| Caves/undercutting or wave cut notch | Centre of photo and stack                       |
| Arches                               | Foreground on stack                             |
| Stack/stump                          | Left foreground (2 of them, large & small)      |
| Wave cut platform                    | Very wide on left foreground, becoming narrower |
| Headland                             | Top centre-right                                |
| Cove/bay                             | Centre-left                                     |

(4 marks)

- (b) Also known as shore or inter-tidal platforms, which suggests the upper and lower limits of the platform, which slopes between 0.5° and 4°. Clearly a feature of erosion, relevant processes include abrasion (1-3) etc., leading to a wave cut notch in the cliff. As the cliff retreats the platform is extended landwards(1-3). Often covered in rock debris from the combination of weathering and marine erosion. This debris is temporary, being either reduced by attrition and or removed by waves – often laterally by long shore drift (1-3). Removal of debris exposes cliff to further erosion but this becomes less effective due to frictional effect (1-2). No credit for examples. (4 marks)

- (c) The question specifically refers to coastlines of natural beauty, so some kind of definition of natural beauty, along with leisure uses, would be a useful introduction.

Harm can include footpath erosion, both as sand dunes and cliff tops. Environmental degradation by building (Lands End, caravan sites, roads, access to beaches, etc.), pollution in various forms.

Good may include the fact that leisure use means that some sensitive areas have more control than might otherwise be in place (such as Pembrokeshire National Park, National Trust stewardship of many coastal sites, S.S.S.I.'s, etc.); may bring economic benefit to the area.

Any view as to extent is applicable providing that it is supported.

**Level 1 – Generic Descriptor (1-3)**

General comment about erosion, trampling, pollution – mostly negative.

**Level 2 - Generic Descriptor (4-6)**

More specific comments about harm with maybe some examples, possibly a hint of “good” in general economic terms with some reference to coastlines of natural beauty.

**Level 3 - Generic Descriptor (7)**

A supported answer that refers to both “harm” and “good” specifically linked to coastlines of natural beauty and has some comment regarding extent.

(7 marks)

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**Question 2**

- (a) An annotated diagram, if appropriate, is creditworthy here.

The focus, also known as hypocentre of an earthquake, is the place (rather than a point – e.g. the fault plane moved over a length of 300 km for the 1906 San Francisco Earthquake) within the lithosphere where the earthquake originates (1-3)

The epicentre is the point on the surface (often but not always directly above the focus because that is the shortest distance) where the earthquake is first felt and is usually the strongest. (1-3)

To achieve full marks there must be both focus and epicentre. (4 marks)

- (b) There are two parts to this question.

Firstly, the means by which earthquakes are measured; seismometers (or seismographs or seismoscopes) which are either inertial (with either a pendulum or a spring) or strain (with a rigid silica-glass tube up to 35m long) (1-3). Seismometers measure duration, magnitude (amplitude) and direction (horizontal and vertical).

Secondly, an understanding of the log scale. Calculations based on the Richter scale can show the amount of energy released by an earthquake. Each number represents a release of 10 times the energy represented by the next lower number. (The energy released can also be calculated from the Richter scale with each number representing 30 x increase in energy release at the epicentre) (1-3) (4 marks)

- (c) This is designed to allow students an opportunity to develop ideas on the factors, which affect the impact of an earthquake. It therefore moves away from the purely numerical and locational factors of parts a) and b) and into human impact.

Human factors can include density of population (Kobe), preparedness (earthquake drills, retrofitting); prediction (Pacific earthquake warning system), economic impacts (industry - Turkey, tourism - tsunami impacts on infrastructure) and also secondary impacts (disease, etc).

Answers which note MEDW/LEDW differences are also creditworthy.

An answer that deals solely in terms of seismology is also creditworthy; looking at wave amplitude, geological conditions, distance decay, etc.

**Level 1 – Generic Descriptor (1-3)**

Simplistic comments regarding either strength of earthquakes or distance from epicentre.

**Level 2 - Generic Descriptor (4-6)**

Developed comments, probably with exemplars, regarding human &/or physical factors, possibly with reference to other factors.

**Level 3 - Generic Descriptor (7)**

A response with exemplification as to extent, which includes both references to magnitude and to other factors, sound in knowledge and understanding, referring to human and/or physical factors.

(7 marks)

### Question 3

- (a) A list or similar, max 2 marks. Examiners should note that the question refers to “formation”.

Kames/kame terraces linked to ice margin lakes and debris filled crevasses (usually with limited stratification due to collapse) (1-4). Eskers linked to tunnels (sub-glacial will have clear stratification, englacial will be disturbed) (1-4). Kettle holes/lakes and/or varves (1-2).

Although the question clearly refers to Figure 3 the use of the word “likely” would allow some limited credit for other fluvio-glacial features such as outwash fans and even overflow channels (1-2).

One feature, very well explained, can gain 4 marks.

A diagram clearly related to the stimulus and showing formation (1-4). (4 marks)

- (b) The key difference is in sorting and stratification. Glacial deposits such as till are rarely sorted, although there may be some directional element in the long axis of sediment (1-3). Fluvio-glacial deposits are often stratified (seasonal change sun melting, etc) and sorted - credit the deposition of larger material nearer the ice front in an outwash fan and material becoming finer further away - linking this to the carrying capacity of the moving water. (1-3)

Must refer to both fluvio-glacial features and those derived from glacial deposition and have distinguishing terminology for full marks. (4 marks)

- (c) There are several routes to attempting this question, all are creditworthy if appropriate, providing they deal with uses. One route may be to contrast the physical uses of features of erosion with those of deposition; U-shape valleys being steep sided with limited opportunities for vegetation growth, compared to the better soils of , say, drumlins. Another approach could be to contrast scales, erosive features being generally larger than depositional ones.

Alternatively, the actual uses can be contrasted; tourism (climbing and skiing on the steep eroded slopes) against walking on the gentler (depositional) land; agricultural (where transhumance offers an opportunity to link both, seasonally); economic, such as the use of glaciated valleys for water supply and/or HEP.

#### **Level 1 – Generic Descriptor (1-3)**

A fairly simplistic notion of use(s) of glacial landscapes. References to only erosion or deposition. Little or no attempt at contrast(s).

#### **Level 2 - Generic Descriptor (4-6)**

An attempt to compare the uses of both areas, probably unbalanced and/or with limited depth and/or exemplification.

#### **Level 3 - Generic Descriptor (7)**

A well argued, well supported contrast of uses of both areas of glacial erosion and those of deposition.

(7 marks)

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## 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 organized, 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.



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**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 question's 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.

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**Question 4****To what extent is it best to work with nature in managing coasts?**

This question is designed to allow a broad interaction with the Coastal Management Strategies section of the specification, particularly its opening line; “Working with or at variance with nature”.

Any approach and/or any conclusion may be valid providing it remains within the remit of the question. Synoptic elements may possibly come from MEDW/LEDW contrasts, tourism, historical approaches and economics as well as breadth of approach. See generic mark scheme for criteria bands - examiners are reminded that clear synoptic content is required for credit of 21 and over.

An answer that considers “working with nature” and gives a valid definition of the term may range from merely defining it as soft engineering to the wider issues of sediment cells and to a broader, more holistic approach.

Relevant content may include:

- Flood protection, particularly Bangladesh (where working with nature is an economic necessity) and the Netherlands coast (where both approaches are utilised)
- Coastal protection schemes, especially hard and soft engineering, particularly in Holderness & / or Pett Level and the down drift impact of coastal protection
- Sand dune management (especially Netherlands) and salt marshes
- Barrages, especially Cardiff Bay
- The issue of rising sea levels and increasing frequency of storm surges such as those which struck the Southern US coastline in September 05
- The impact of increased leisure use of the coastline and problems of footpath erosion as well as pollution.
- Specific methods, such as groynes or revetments against beach nourishment
- Economic activities such as off shore dredging
- The use of artificial off shore bars to generate better surfing conditions
- Management strategies such as “hold the line”, “managed retreat”, etc.

An answer that relates to extent from whatever point of view be it environmental, economic or holistic and which deals with some idea of relative success or failure and which is well exemplified is likely to score well here.

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 that refers clearly and explicitly to the terms of the question and which offers some reason(s) as to why working with nature is (or is not) more appropriate may achieve top satisfactory marks.

To achieve the good band and above the answers must refer explicitly to working with and against nature. In addition, the answer should reach a conclusion as to extent, supported by appropriate argument and exemplification (examiners should note that reference to extent might appear at any point in the essay, including the introduction).

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**Question 5**

**The impact of geomorphological processes on the physical environment is often underestimated compared with their impact on the human environment. How far do you agree with this statement?**

This question relates directly to that section in the specification headed “Impact and response to geomorphological processes ...”. Although the word “hazard” does not appear in the question, it is to be expected that many candidates will consider this to be the main thrust of their response. However, a more measured approach, looking at the broader impacts of geomorphological processes is also creditworthy. In addition, the wording does not imply that all impacts are negative, but this may be the commonest interpretation. Therefore, answers which attempt to look at positive impacts, are also creditworthy.

Synoptic elements can be accessed by reference to geomorphological processes outside the specification, such as fluvial processes, a wider reference to environments, an awareness of the demands of news media and also an answer showing breadth.

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

Extent can be accessed on a number of levels and in a variety of ways; looking at the relative extent of one geomorphological process compared to others; considering the relative impacts particular hazards on the physical compared to the human environments.

Since the main thrust of the impacts section in the specification is relating to human issues, it may be expected that support and exemplars may not be as detailed for physical impacts. However, a response that refers to impacts and their assessment as being measured from a human point of view, including hazard perception, ‘nature taking its course’ and/or socio-religious views, is clearly creditworthy.

An answer that only deals with physical or human is unlikely to score higher than 16 marks. A descriptive case study or series of examples of say, geomorphological processes or hazards, 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 reference to both physical and human impacts may achieve top satisfactory marks.

In order to achieve the good band there should be some comment (implicit or explicit) as to how far the candidate agrees with the view (examiners should note that this might appear at any point in the essay, including the introduction).

**Possible content**

| <b>Process</b>     | <b>Physical</b>   | <b>Human</b>  |
|--------------------|---|---|
| Plate tectonics    | On the macro scale this is the process which determines much of the earth's landscape   | This process is generally so slow as to go un-noticed until one of the processes (usually at the margins - see below) has rapid impact.                         |
| Volcanic eruptions | The impact of eruptions on the physical landscape, relief, flora and fauna; on the atmosphere, both in terms of greenhouse gases and in particulates. | Positive impacts such as fertile soil, geothermal power, tourism, mineralization. Negative impacts such as death, destruction of property, infrastructure, etc. |
| Earthquakes        | Shifts in the landscape, relatively minor in the short term but representing large movements, both vertically and horizontally in the longer term.    | Almost entirely negative. Damage depending mainly on magnitude and location. Tsunamis are also relevant here.   |
| Mass movement      | Often small scale but persistent means of modifying the landscape - such as redistributing soil and regolith downslope.                               | Impacts rarely noticed unless rapid movement involved, such as landslides, avalanches, mudflows, etc.   |
| Glaciation         | Although not part of the "Geomorphological processes" sections, comments may be relevant, including erosional and depositional features.              | Impacts regarding relatively poor uplands and issues of drainage in the lowlands. Positive impacts of tourism.  |
| Other processes    | Fluvial processes are clearly synoptic and may be used to show the reworking of the landscape.  | Advantages of flood plains, silt, gravel, transportation, etc., against disadvantages of flooding, etc.   |

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**Question 6**

**Discuss the view that land uses of cold environments are affected more by economic demands than environmental considerations.**

This question is aimed at a consideration of the ways in which various cold environments have been utilised. It is phrased in the present tense, but there can be credit for use of past evidence to illustrate present issues and also a view that considers the future. The relevant sections of the specification are headed "Human activity, economic processes and resource management" and also "Present problems and future issues".

Note that the question refers to land (including ice sheets is reasonable) uses and so fishing and whaling are largely irrelevant, except where ports are involved, although cruise ships could be mentioned regarding land fall.

Synoptic elements can include tourism, economics, historical evidence as well as a breadth of answer. The synoptic elements involving politics, strategic issues and global considerations may also be relevant here. See generic scheme for criteria bands - examiners are reminded that clear synoptic content is required for credit of 21 or over.

**Possible content:**

- Tourism in its many forms (this may well be the major thrust of some answers); skiing in the Alps; mountain walking; rock climbing, etc
- Hydro electricity and/or water supply using U-shape valleys
- Agriculture (from traditional transhumance to bio fuels) and forestry, particularly softwoods
- Resource exploitation (in the Tundra, such as Northern Russia or Alaska)
- Environmental considerations can be specific, such as increased risk of avalanches, footpath erosion, transport links and/or general, including air quality, degradation of water supplies, visual pollution and particularly large scale oil spills
- Local economies of indigenous people, including desires for autonomy and control
- The impact of transport, buildings, etc., on regions of permafrost
- Sustainability and its possible role in responding to some of these issues, including conservation measures in the Alps, preserving transhumance, etc.

A descriptive case study or series of examples of say, human activity, 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 reference to both economic demands and environmental considerations may achieve top satisfactory marks.

To achieve marks in the "Good" category and above, the answer should consider both economic demands and environmental considerations and should have some clear reference as to whether cold environments are affected more by economic demands than environmental considerations with appropriate justification and support. Examiners are asked to note that this comment may occur at any point in the essay, even in the introduction.