



General Certificate of Education

Geography 6036

Specification B

GGB4 Global Change

Mark Scheme

2008 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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GGB4

GENERAL GUIDANCE FOR GCE GEOGRAPHY ASSISTANT EXAMINERS

General Instructions to Examiners on Marking

It is important that every Examiner marks the scripts to the same standard as the rest of the panel. All Examiners must operate the Marking Scheme in a similar and consistent manner, and hence, they must all participate in the application of that scheme at the Standardisation Meeting. In particular, they should take careful note of all decisions taken or changes made at the meeting. Examiners are allocated to a Team Leader for the period of examining, and any difficulties that arise should be discussed with that person.

The Marking Scheme

The Marking Scheme consists of two sections for each question or sub-question – the Notes for Answers and the Mark Scheme itself.

Notes for Answers (NFA)

These indicate the possible content for the various sections of the question paper. In some cases (for example short answer questions) the NFA may indicate the only response that is acceptable, but in many cases, they indicate either a range of suitable responses, or an exemplar of the type of response required. Therefore, in most cases the NFA do **not** provide model answers, and should not be regarded as such. More NFA may be added at the standardisation meeting if it is felt by the Principal Examiner that details of appropriate ways of answering the question have been omitted.

The Mark Scheme

This is provided in italics and provides the instructions to Examiners as to how they are to assess the work of candidates. The number of marks allocated within the mark scheme to a question should correspond to the number of marks for that question on the question paper.

There are two ways in which the Mark Scheme operates:

it indicates how the marks to short answer questions are to be allocated – usually to a maximum of 4 marks.

it indicates how Examiners should move through the Levels in a level response mark scheme – usually to all questions of 5 marks or more. Each Level has a levels descriptor, with clear statements of the “triggers” to move candidates from one level to another. Each Level contains a range of marks as shown on the Mark Scheme.

A number of features have been used to distinguish between Levels, for example:

a number of characteristics, reasons, attitudes, etc.

the degree of specification, for example the use of specific case studies, or accurate detail responses to more than one command word, for example, describe and suggest reasons

the degree of linkage between two aspects of the question

the depth of understanding of a concept.

The Marking Process

A sample of an Examiner's marked scripts will be marked again by a Senior Examiner according to the procedures set out by the Board. Also, the scripts may be re-examined at the Awards Meeting and the subsequent Grade Review. Therefore, it is most important that Examiners mark clearly according to the procedures set out below.

All marking should be done in red.

The right-hand margin should be used for marks only.

The overall mark for a question must be ringed at the end of the answer.

The total mark for the question must be transferred to the front of the script.

The left-hand margin is where an indication of the level achieved is written.

Comments and codes (see below) may also be written on the left.

Indications of the levels achieved may also occur in the body of the answer if this is easier for the Examiner to apply (e.g. in the marking of diagrams).

Ticks should be used for short answer responses and Level I responses only, with one tick representing one mark (to the maximum allowed in a Levels scheme).

Levels 2, 3 and 4 should be indicated on the script, and this symbol should be used each time this Level is achieved. Examiners may wish to bracket an area of text where this level of response has been achieved.

Once a candidate has reached Level 2, additional Level I credit should be indicated using a + symbol. If these points are of sufficient quality **one additional mark** can be awarded (assuming no further Level II points are made).

Examiners may indicate strong Level 2 or 3 material by writing "Level 2 (or 3) – "good" in the left hand margin of the script. The Examiner should ensure that this is reflected in the **awarding of an appropriate number of marks** at the end of the answer.

Level 3 is to be used only for questions of 9 marks or more, and Level 4 is to be used only for questions of 25 marks in total.

Other Mechanics of Marking

Underline all errors and contradictions.

Cross out irrelevant sections using a line from top-left to bottom right. (However, be careful to check that there is no valid material, however brief, in the mass of irrelevance).

Indicate repeated material with "rep".

Other useful marking codes can be used, for example, "va" for vague, "NQ" or "Not Qu." for failure to answer the question, "Irrel" for irrelevant material, and "SIF" for self-penalising material.

Put a wavy line in the left-hand margin to indicate weak dubious material.

If the rubric is contravened, mark all answers but count only the best mark towards the candidate's total mark for the script. Put the mark for the question on the front of the script in the usual way, but also write "RAM Rubric" on the front of the script.

Large areas of text must not be left blank – use the wavy line or write "seen" alongside the text.

All pages must have an indication that they have been read, especially supplementary sheets.

Unless indicated otherwise always mark text before marking maps and diagrams – do not give double credit for the same point made in the text and a diagram.

Quality of Language Descriptors

The following descriptors concerning the quality of language must be applied to **all** questions in which candidates are required to produce extended writing. To attain full marks available at a level of response, the appropriate Quality of Language descriptor must be achieved. Use the same quality of language levels as are used in the geographical element of the mark scheme under consideration.

Three-level descriptors

- LEVEL 1** Style of writing is suitable for only simple subject matter.
Expression of only simple ideas, using a limited range of specialist terms.
Reasonable accuracy in the use of English.
- LEVEL 2** Manner of dealing with subject matter is acceptable, but could be improved.
Reasonable clarity and fluency of expression of ideas, using a good range of specialist terms, when appropriate.
Considerable accuracy in the use of English.
- LEVEL 3** Style of writing is appropriate to subject matter.
Organises relevant information and ideas clearly and coherently, using a wide range of specialist vocabulary, when appropriate.
Accurate in the use of English.

Two-level descriptors

- LEVEL 1** Manner of dealing with subject matter is acceptable, but could be improved.
Reasonable clarity and fluency of expression of ideas, using a good range of specialist terms, when appropriate.
Considerable accuracy in the use of English.
- LEVEL 2** Style of writing is appropriate to subject matter.
Organises relevant information and ideas clearly and coherently, using a wide range of specialist vocabulary, when appropriate.
Accurate in the use of English.

SECTION A
Question 1**(a) Notes for answers**

The climate of the tropical regions of Africa with wet and dry seasons is transitional between the Equatorial rain forests and the hot deserts. Therefore, variations occur with increasing latitude. However, all areas are characterised by having a dry season (no or limited rain) and a wet season (when up to 90% of the annual rainfall falls).

At the rain forest margins:

- precipitation is over 1000 mm per year with one or two dry months
- the temperature ranges from 22C in the wet season to 28C in the dry season.

At the desert or semi-arid margins:

- precipitation is under 500 mm per year with 9/10 dry months, and the reliability of the rainfall decreases with increasing latitude
- the temperature ranges from 18C in the wet season to 34C in the dry season.

During the Dry Season, the Subtropical anticyclone moves over the desert margins of the area. The ITCZ is on the equatorial side. Hence these areas are affected by trade winds blowing from the land towards the coast (offshore).

During the Wet Season, there is the migration polewards of the ITCZ. This reverses the wind direction such that it blows from the sea to the land (onshore).

Mark scheme

Level 1 *simple statements of climate characteristics, with no detail in terms of direction, rainfall amounts or temperature readings* (0-3 marks)

Level 2 *detail of climatic variations; for example accurate statements/figures of wind, rainfall and temperature.* (4-7 marks)

(b) **Notes for answers**

In the northern hemisphere, precipitation is greater than potential evapotranspiration between July and September, whereas potential evapotranspiration is greater than precipitation between October and June.

When precipitation is greater than potential evapotranspiration, at first there is some refilling of water into the pores within the dry soil. This is soil moisture recharge. When the soil is saturated, excess water will have difficulty infiltrating into the ground, and may flow over the surface. This is soil moisture surplus.

When potential evapotranspiration is greater than precipitation, water is at first evaporated from the ground surface and transpired from plants. Water may also be brought up to the surface through capillary action and then evaporated. This is soil moisture utilisation. However, eventually the soil will dry out completely, creating a soil moisture deficit.

It therefore has:

- a lengthy period of moisture deficit, and a short period of moisture surplus
- total annual potential evapotranspiration greater than total annual precipitation.

Mark scheme

Reserve 2 marks for the construction of the diagram – a line for ppt and a line for evt.

(6 marks)

1 mark for correct identification or explanation of each of SM recharge, surplus, utilisation and deficit.

(c) **Notes for answers**

There is a very pronounced peak in the discharge of rivers during the late summer months of August to October. This corresponds not only to the heavy rainfall at this time, but more specifically to the period of water surplus in the soil moisture budget (see above). The spell of maximum precipitation in June to August, the soil moisture recharge, does not immediately lead to an increase in the discharge. Discharge reduces rapidly during the onset of the dry season, and then remains low from November to May during the water deficit period. The minimum discharge occurs soon after the period of highest temperatures, the time of peak evapotranspiration.

Mark scheme

- Level 1** *simple statements connecting river discharge to rainfall amounts. No references to the role of the soil moisture budget.* (0-3 marks)
- Level 2** *appropriate use of the soil moisture budget, for example, recognition that highest discharge occurs at a time of soil moisture surplus and not highest precipitation. Statements relating to the role of evapotranspiration will access this level.* (4-5 marks)

(d) **Notes for answers**

Most trees are deciduous, losing their leaves in the dry season, although some evergreens are also found. Their hard leathery leaves reduce transpiration losses, and some plants may be microphyllous (small leaved) to reduce transpiration.

In the tree savanna: a parkland exists with isolated acacia trees with low umbrella shaped crowns, shading root areas and thus reducing soil moisture evaporation. The trees show xerophytic characteristics, with dense cell fluids, hard waxy leaves, thorns, and protected stomata which all reduce water loss. The trees lose leaves in the dry season. The baobab with its very thick fleshy spongy trunk, insulative bark, and long tap roots bears leaves for only a few weeks. All of these reduce water losses.

In the grassland savanna: the grasses between the trees become shorter and sparser. The grass is perennial, it dies back during the dry season and then regrows from root nodules in the wet season. The grasses are tussocky, enabling some retention of moisture. The naturally created straw dies down and protects roots.

In the shrub or scrub savanna: there are mainly acacia trees, thorn bushes or short tufted grasses. Many generate short stems from a single stock, with deep branched roots and dormant seeds which compete for water. In some plants even the stems may be capable of photosynthesis. Some grasses are feathery and wiry, and turn their blades away from the strong sun, all of which reduces water loss. In the same way, thorns reduce transpiration by having small surface.

Mark scheme

- Level 1** *simple statements of adaptations with no link to species, or depth of understanding; or good description of one adaptation only.* (0-3 marks)
- Level 2** *more than one adaptation explained well.* (4-7 marks)

Question 2

(a) Notes for answers

E.g. The Growth of the E.U.

- 1970 – consisted of Italy, France, Belgium, Netherlands, Luxembourg and West Germany i.e. central Western Europe.
- 1973 – UK, Eire and Denmark join i.e. movement northwards incorporating one industrial and two agricultural nations.
- 1981 – Greece i.e. movement S.E. and involving a poorer agricultural country.
- 1986 – Spain and Portugal i.e. emphasising movement into southern European countries.
- 1995 – Austria (central Europe), Finland and Sweden (northern Europe) – more affluent economies.
- 2004/07 – Cyprus, Czech Rep., Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia, plus Romania, Bulgaria (07).

Other groups may include NATO, UN, OPEC, NAFTA.

Mark scheme

- Level 1** *simple statements of the grouping of nations with no attribution to clear time periods or chronology; or a good description of one growth “point” only.* (0-3 marks)
- Level 2** *more than one good description of periods of expansion with clear statements of time period or chronology for each stated change.* (4-7 marks)

(b) Notes for answers

Evidence pointing towards views against the grouping of nations (NB this is not the same as reasons for separatism):

- Political parties opposed to the grouping of nations – UKIP
- Negative votes in referendums on further developments/ constitutions within groupings
- Negative campaigning in national media e.g. views against the expansion of the E.U.

Mark scheme

- Level 1** *simple statements of pieces of evidence, or of attitudes against the grouping of nations; or one well-developed piece of evidence only.* (0-3 marks)
- Level 2** *two well-developed pieces of evidence.* (4-5 marks)

(c) (i) **Notes for answers**

Causes of separatism. Feelings of alienation due to. For example:

Historical allegiances, e.g. Quebec allegiances to France
 Peripheral location, e.g. Scots and Welsh nationalists
 Religious differences, e.g. the former Yugoslavia, Kurds in Turkey and Iraq
 Economic depression, e.g. Breton nationalism in France
 Cultural differences, e.g. Chechens in Russia
 Language differences, e.g. most of above (and Basques and Catalans of Spain) – often differences are manifested in terms of language and religion.

Note: many of these examples are due to a multiplicity of reasons.

Mark scheme

Level 1 *simple statements of reasons; or a detailed development of one reason/area only.* (0-3 marks)

Level 2 *a developed account of more than one reason/area.* (4-6 marks)

(c) (ii) **Notes for answers**

The consequences of separatist pressure may be either peaceful or non-peaceful:

- The establishment/maintenance of own societies and norms – separate cultural identities within a country (e.g. The Bretons in France)
- The protection of a language through the media and education (e.g. The Welsh, Catalan)
- The growth of separate political parties and devolved power (e.g. The Scottish and Welsh Nationalists)
- Civil disobedience (e.g. The Friends of Owen Glendwr)
- Terrorist Violence (e.g. The Basques, Chechnya)
- Civil War (e.g. East Timor, Tamil Tigers).

Mark scheme

Level 1 *simple statements of consequences; or a detailed development of one consequence only.* (0-3 marks)

Level 2 *an elaborative account of more than one consequence.* (4-7 marks)

Question 3

Notes for answers

Impacts and effects of hazards:

Burglary – theft of and from property, damage potential, invasion of privacy, fear of further attacks. Leads to unease amongst wider community, concern about policing levels, and appropriate responses to invasion of property.

E.g. Aids – damage to body’s defence mechanism in white blood cells, unable to fight certain infections, can be infected for several years yet remain relatively healthy, difficulty in obtaining life insurance, mortgages, difficulty with employment, schooling, social contacts, prejudice. Has secondary effects, particularly in LEDCs where families are adversely affected by loss of “bread winner”.

Responses – opportunities for case study material here:

Burglary – targeting of areas by police forces, community policing levels have increased in some parts, use of CCTV, neighbourhood watch schemes have been established, modification of the built environment from security entrances to buildings (old persons’ flats) to organisation of cul-de-sac streets (defensible space).

Insurance companies charge premiums according to postcode, and reduce premiums where effective prevention systems have been put in place. Victim support systems, and in some cases vigilanteism.

E.g. AIDS – national education programmes, and public awareness schemes through schools. Encouragement of safer sexual practices, condoms, reduction of number of partners, as well as safer drug practices e.g. needle exchanges. In the UK AIDS helplines, treatment of blood for transfusions, research programmes, testing programmes, support groups and help for families affected. In LEDCs movement towards recognition of scale of problem, empowerment of women, attempts to reduce degree of prostitution, and introduction of health schemes aimed at the identification of sexually transmitted infections. G8 pledge to give aid.

Effectiveness – comments on this will depend on the case study material offered by the candidates.

Burglary – an area to the east of Newcastle (Longbenton) – detailed survey of each crime that took place (points of entry, points of exit, times of day, age profile of offenders). As a result of outcomes of survey, restricted entries to flats were created, householders were given grants to fit security locks to all ground floor windows and doors, groups of youths were monitored by CCTV. In 18 months, crimes were reduced by 25%. However, to what extent did crime move to other areas, or to other types (car crime?)?

E.g. AIDS – Zimbabwe – one quarter of the adult population is affected, including 40% of pregnant women, and 70% of male patients attended STD clinics, and 86% of prostitutes. Clearly, programmes are not being effective yet. It is expected that life expectancy will reduce by 28 years. By 2006 there were 1 million orphans. Nelson Mandela has said that this is a crisis affecting Southern Africa – “AIDS kills those on whom society relies to grow the crops, work in the mines and factories, run the schools, and govern the nations”.

Development of vaccine? – but costs borne by whom, and field tested on whom?

Mark scheme

G	Level 1 (0-6 marks)	Level 2 (7-12 marks)	Level 3 (13-17 marks)	Level 4 (18-20 marks)
	Simple statements of the impacts of the hazards. Very generalised.	Detailed statements of the impacts of one of the hazards. Some use of case study material.	Well developed statements of the impacts of both of the hazards. Good use of case study material.	
	Brief outlines of responses to the hazards – either prevention or management.	Detailed statements of specific responses to one hazard – e.g. prevention schemes that are identified and named, and/or management strategies.	Developed statements of responses to both hazards – good use of case study material in a variety of locations and areas.	
		Simple comments on the success or otherwise of the responses.	Assesses the success of the responses to one of the hazards. Evaluative comments may be both positive and negative.	Good evaluative comments on the degree of success of management strategies of both hazards. A high level of synthesis throughout.
S	Level 1 (0-1 marks)	Level 2 (2-3 marks)	Level 3 (4-5 marks)	
	Information is adequately organised, and presented with a reasonably accurate use of English	Well organised and presented with an accurate use of English. Limited examples	Well organised and presented in a clear and logical manner with a very accurate use of English. Range of examples	

Question 4**Notes for answers*****Processes of tectonic activity.***

Constructive plate margins: occur when two plates are moving away from each other, magma flows upwards and spreads creating new areas of crustal material. This has produced mid oceanic ridges such as the Mid Atlantic ridge, and rifts in continental areas such as the East African Rift valley. Volcanoes are features of such areas.

Destructive plate margins: occur when two plates converge or collide. Crustal material is either destroyed or uplifted depending on the relative speed of convergence and relative densities of converging materials. Subduction occurs when an oceanic plate gives way beneath a continental plate producing an island arc and ocean trench. Fold mountains may also be created at the edge of the overriding continental plate. Where two plates converge and close an ocean between them, complex folding and faulting results creating mountain ranges. Volcanoes are also features of these areas, but the volcanoes tend to be more explosive.

Conservative plate margins: when two crustal plates slide past each other and the movement of the plates is parallel to the plate margin there is no creation or destruction of crust. There is no subduction, therefore there is no volcanic activity associated with this type of margin. The movement of the plates creates stresses between the edge of the plates; as sections of the plate rub past each other the release of friction triggers shallow focus earthquakes.

Landforms associated with plate boundaries.

Fold mountains: line of high mountains on W. side of Americas, similar belt across S. Europe into Asia (Himalayas). Result of crumpling of sedimentary layers caused by compression of earth's crust. Some metamorphism may have taken place.

Ocean trenches: deep (6000 m+), narrow (100 km), long (10,000 km) gouges in the ocean floor. Deepest go down to 10,000 km. Found close to continents around the edge of the Pacific Ocean. E.g. Peru-Chile, Aleutian, Marianas, Tongan.

Island arcs: found on landward side of ocean trenches. Caused by buckling effect of convergence on the continental plate resulting in a shallow sea between the island arc and the mainland. E.g. Aleutians, Japan, Marianas.

Rift valleys: caused by the down throw of rock strata between parallel faults which are a product of crustal tension. E. African Rift extends 5/6000 km from Jordan to Mozambique, with a depth in some places of 600 m. Rift valleys also occur in the central parts of mid-oceanic ridges.

Mid-Oceanic Ridges: ranges of submarine mountains consisting of basaltic rock. They can rise up to 3000 m above the ocean floor, extend up to 4000 km wide. Some stick out above sea surface (Ascension Is). The Mid Atlantic Ridge also has a central rift valley 30/50 km wide.

Volcanoes: consisting of extrusive materials such as lava and ash emerging from a central crater. Many variants of volcanoes – basaltic, acid dome, composite, cinder cone, caldera.

Faults: The San Andreas Fault in California is along the line of a conservative margin where the Pacific and North American plates move parallel to each other. They are both moving in the same direction but at different speeds. Transform faults run at right angles to the margin.

The relationship between landforms and tectonic processes.

Constructive plate margins: divergence, sea floor spreading, mid oceanic ridges, volcanoes, rift valleys, transform faulting.

Destructive plate margins: collision, subduction, trenches, island arcs, volcanoes, earthquakes, fold mountains.

Conservative plate margin: as detailed above.

Mark scheme

G	Level 1 (0-6 marks)	Level 2 (7-12 marks)	Level 3 (13-17 marks)	Level 4 (18-20 marks)
	Simple statements of processes of tectonic activity. Names of features generally given.	More detailed description of processes of tectonic activity at one plate boundary. Some use of named examples.	Well developed detail of processes at more than one type of plate boundary. Good use of case study material.	
	Simple statements of description of landform.	More detailed description, with correct identification of direction of plate movement linked to relevant landform.	Well developed description of a variety of landforms, with some recognition of variations in landform type according to named plate boundary.	
		Simple statements of links between landforms and processes, with good use of case study material.	Some recognition of process inter-relationships between landforms and processes e.g. Island arcs and trenches.	Systematic response to the task. Detailed and accurate account of the links between processes and landforms with a high level of synthesis throughout.
S	Level 1 (0-1 marks)	Level 2 (2-3 marks)	Level 3 (4-5 marks)	
	Information is adequately organised, and presented with a reasonably accurate use of English	Well organised and presented with an accurate use of English. Limited examples	Well organised and presented in a clear and logical manner with a very accurate use of English. Range of examples	