ASSESSMENT and QUALIFICATIONS ALLIANCE

Mark scheme June 2003

GCE

Geography B

Unit GGB4

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General Instruction

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:

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

(b) 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 II, III and IV should be indicated with a Roman II, III or IV 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.
- Examiners may indicate strong Level II or III material by writing "Level II (or III) – "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 III is to be used only for questions of 9 marks or more, and Level IV is to be used only for questions of 25 marks in total.

Other Mechanics of Marking

- Underline all errors and contradictions.
- Indicate repeated material with "rep".
- 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.

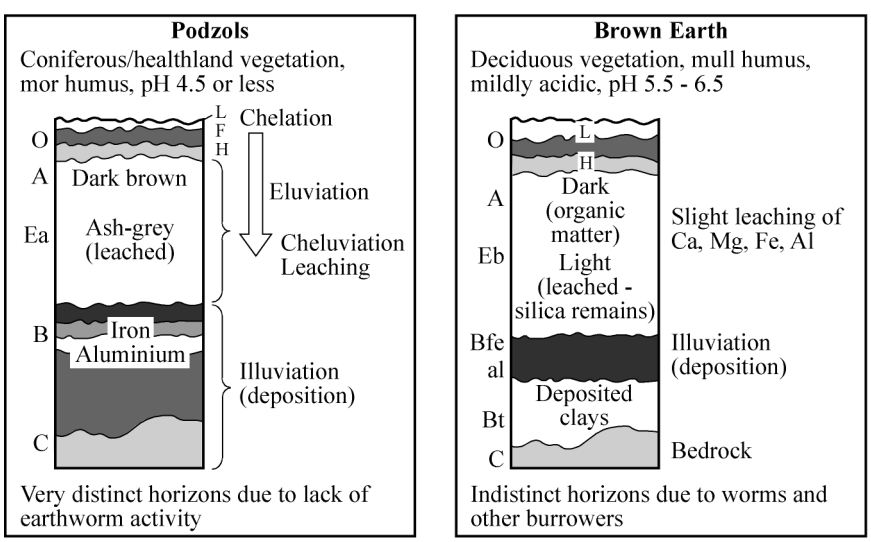
Question 1

(a) **Mull** is a mild humus which is soft, black in colour and rich in nutrients. It is produced by the action of bacteria and earthworms when the soil is not too acidic. It is associated with temperate deciduous woodlands and temperate grasslands.
Mor is an acidic form of humus. It is common in wet and cold environments and is associated with heathland areas and coniferous woodland. Mor is dark brown to black in colour, poorly decomposed and lacking in nutrients. Few species of soil fauna can tolerate its acidic conditions, earthworms being rare.
Moder is an intermediate type of humus recognised by some soil scientists.

Level 1 *identification of types of humus, but with no description; or a description of one.* ***0-2 marks***

Level 2 *description of more than one type of humus.* ***3-5 marks***
(5 marks)

(b) **i** N.B. Must be a diagram only, with annotations of description. See below.



(DIAGRAM)

Level 1 *a diagram of a soil profile, with up to 2 annotations of description, such as type of humus, colour of horizons.* **0-2 marks**

Level 2 *more detail to annotations with at least 3 separate annotations.*
Higher quality annotations may score more than one unit of credit, for example, "very distinct horizons (or a podsol) due to lack of earthworm activity" would score twice. **3-5 marks**
(5 marks)

ii Parent material

The influence of this factor varies with
The rate of weathering
The nutrient content of the parent material
The texture and permeability of the material

Climate
Direct effects are linked to the movement of water through the soil
Water budget and net flow (downwards from upper to lower horizons)
Movement of soil materials (leaching, podzolisation, lessivage etc.)

Climate also has an indirect link to other factors
Modified by topography – altitude, slope, mountain/valley climates
Influences the distribution of vegetation/fauna, etc.

Topography
Link between podzols and reasonably well drained upland Britain, and between brown earths and the warmer lowlands (300m). However, podzols are also a feature of sandy heathlands in lowland areas like Breckland.

Organic content
Brown earths associated with broad leaf deciduous forest – now mainly found beneath fertile improved farmland. Podzols strongly developed below acid-forming types of vegetation, lowland heaths, dry upland heather moors, confer forest.

Time
Soils develop over long periods of time and the soil character changes as soils move from the early development stage to a mature, steady state condition. The amount of time needed will vary with environmental factors (especially climate) and with soil type.

Level 1	*list of simplistic statements such as level of ppt, and nature of vegetation with no real depth as to why these have influenced the characteristics; or discussion of one factor only.*	***0-3 marks***
Level 2	*greater depth of understanding of how more than one factor has influenced the soil profile. This may include a range of soil processes all linked to net downward flow of water. To achieve 6/7 marks, a range of factors as in NFA must be developed.*	***4-7 marks (7 marks)***

iii Soils may be upgraded or degraded by human activity:
NB – soils do not have to be podsols or brown earths.
Upgrading – afforestation, wind breaks; rotation systems, planting of legumes; marling, mulching, liming; drainage; contour ploughing, terracing.
Degrading – reduction or removal of vegetation cover leading to soil erosion; soil compaction by ploughing, heavy vehicles, footpaths; overgrazing; acid rain; over fertilisation.

Level 1 *a simplistic list of human activities on soils; or a discussion of one human activity and its influence on soils.* ***0-3 mark***

Level 2 *a detailed discussion of more than one way in which human activity has influenced/changed one or more soils.* ***4-8 marks (8 marks)***

Question 2.

(a)

Tropical storms	**Volcanoes**
Caribbean Sea – Hurricanes China Sea – Typhoons Bay of Bengal – Cyclones Northern Australia – Willy willies Areas of high sea temps. 27C At least 5 latitude of Equator Originate on eastern side of oceans, but move W, intensifying as they move.	Convergent p. boundaries – Japan, South America Divergent p. boundaries – Mid Atlantic Ridge, E. African Ridge Hot spots – Hawaii Others – S. Europe

Level 1 *simple statements with regard to distribution, such as broad names of areas. No elaboration of location.* ***0-2 marks***

Level 2 *accurate statements of location with some attempt to categorise location. More sophisticated statements of distribution.* ***3-5 marks (5 marks)***

(b)

Tropical storms	**Volcanoes**
Diagram to include: massive build up of cloud central eye strong winds and rain height of storm dimensions of scale air movements in and out	Diagram to include: Layers of ash and /or lava (allow some variation according to lava type) Central vent, crater, secondary cones Magma chamber Secondary craters, lava flows Pyroclastics and other outputs.

Level 1 *a diagram of the hazard, with up to 2 labels of description.* ***0-2 marks***

Level 2 *at least 3 separate labels. Higher quality labels may score more than one unit of credit, for example, "very low pressure in the centre (of a tropical storm) due to rapid uplift of air, producing high clouds" would score twice.*

3-5 marks (5 marks)

(c) Effects will depend on the level of economic development of the country affected.

Tropical storms	**Volcanoes**
human casualties if not evacuated loss of crops, animals flooding of land damage to property transport routes destroyed large insurance losses homelessness and disease.	Human casualties if not evacuated destruction of land, property avalanches, mudflows, lahars, ash, gases infrastructure collapse homelessness and disease weather events after the eruption.

Level 1 *simple statements of effects which could apply to any such hazard No specific detail provided.* ***0-3 marks***

Level 2 *specific effects which can be clearly attributed to named hazards(s) access this level.* ***4-7 marks (7 marks)***

(d) Again responses to the hazards and their effects will depend on the level of economic development of the affected area.

Tropical storms	**Volcanoes**
Inability to leave area, or reluctance early warning systems and use of satellites	Inability to leave area or reluctance Monitoring systems – external and gaseous.
Use of warden/police systems to order evacuation attempts to seed storms to reduce strength planning schemes to reduce potential damage flood barriers, dykes.	Evacuation procedures. Attempts to divert lava flows. Planning to reduce potential damage.

Level 1 *simple statements of management strategies which could apply to any hazard. No specific detail provided.* ***0-3 marks***

Level 2 *specific statements of management strategies which can be clearly attributed to named hazard access this level.* ***4-8 marks***

(8 marks)

Question 3.

(c) A variety of groupings of nations can be described. Grouping can take place for economic reasons (e.g. the EU, NAFTA, World Trade group, G8), and for military purposes (NATO and the Global Alliance against terrorism).

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.

Reasons for growth
Economic include:
- free trade (possible attraction for inward investment)
- agricultural support (CAP)
- access to structural and other funding
- free movement of workers
- adoption of a common currency - the Euro

Social include:
- removal of passport control

Political include:
- security
- increased power on 'world scene'

Causes of separatism feelings of alienation due to
Historical allegiances – Quebec allegiances to France
Peripheral location – Scots and Welsh nationalists
Religious differences – the former Yugoslavia, Kurds in Turkey and Iraq
Economic depression – Breton nationalism in France
Cultural differences – Chechens in Russia
Language differences – most of above – often differences are manifested in terms of language and religion.

G	**Level I 0-6**	**Level II 7 – 12**	**Level III 13 - 17**	**Level IV 18 - 20**
	Simple statements of groupings of nations, names of organisations formed	More detailed description of groupings with names of countries and possible timings	Well developed detail of the groupings with understanding of spatial or temporal dimension	
	Simple statements of explanation.	Detailed explanation of one reason (economic, social, political).	Well developed discussion of a number of reasons for growth, with references to more than just one group of factors (economic, social and political)	
		Simple statements of the causes of separatism..	Detailed statements of the causes of separatism clearly attributed to the areas stated	Discussion of a variety of causes for separatism, again clearly attributed, but being distinct. Some assessment of strength of case for separatist pressures.
S	**Level I 0 – 1**	**Level II 2 – 3**	**Level III 4 –5**	
	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.

Immediately after the ice sheets had retreated (15,000 years ago?), Britain had a periglacial climate with tundra conditions prevailing. The maximum temperatures would have been only 6/7C in the summer months with temperatures well below freezing in the winter. With time, temperatures slowly increased. There was a slight glacial advance 10,000 years ago, when tundra conditions re-established themselves over Northern Britain. About 8000 years BP, boreal forests were established across Britain. Temperatures had risen, and summers were warmer than today, but winters were colder – the climate was much more continental. Similarly, winters were drier than at present. As sea-levels rose between 6000 to 3000 BC, Britain became more maritime. Winters became milder, summers cooler, with equable rainfall. This continental and then maritime pattern was repeated in the period of time from 3000 BC to 0 AD.

During the last 2000 years there have been similar periods of colder and warmer temperatures. For example during Roman time the climate was warmer as evidenced by the cultivation of vineyards in southern England. This also encouraged the growth of extensive deciduous woodlands. From 1550 to 1700, a Little Ice Age occurred across Europe. The River Thames froze, and it also was more stormy with many storms affecting the east coast of England. Global warming is now said to be causing temperatures to rise, and ppt levels to increase.

A variety of sources of evidence could be identified. They could include: dendrochronology, pollen analysis, historical records – written and drawn/painted, and landform evidence e.g. evidence of glaciation/fluvioglactaion. Depending on the source identified, candidates would be expected to then provide some elaboration of how the source could be used to show that climatic change has occurred. For example:
Pollen analysis provides information of dominant plants at a time in the past. They deposited pollen which becomes preserved in areas such as wet peat bog (anaerobic conditions). Since the type of vegetation at one time is a response to the climate at that time, we can use changes in pollen types in the same peat bog to provide evidence of climatic change.

Recent global warming is attributed to an increase in "greenhouse gases" – which is preventing heat escaping out into space, making the atmosphere warmer. The main culprit in this is carbon dioxide, which is increasing in amount in the atmosphere from the burning of fossil fuels and deforestation. Other such "gases" include CFCs, methane, and nitrous oxide. Many of these are produced by human activity, direct and indirect (e.g. CFCs – refrigeration and foams; methane – cattle ranching, rice production).

Temperatures are higher in the current decade compared with past records, but is this a small scale natural blip? Carbon dioxide levels in the atmosphere are much higher than air samples taken in ancient ice cores. The argument mainly concerns whether these two phenomena are inter-related, and not all countries believe this to be the case (viz. USA refusing to ratify the Kyoto Protocol).

In terms of the British Isles, the effects of global warming may be:
Rise in sea level flooding marshes, wetlands and destroying sand dunes
The overwhelming of coastal defences
The flooding of low lying cities, e.g. London and its underground system
Changes to farming – longer growing seasons (vineyards again?), incidence of insect borne diseases, more storm damage of crops.

G	**Level I 0 – 6**	**Level II 7 – 12**	**Level III 13 - 17**	**Level IV 18 - 20**
	Simple statements of climatic change, loosely attributed to a time period.	More detailed description of climatic change, with clear sense of time and sequence.	Well developed detail of climatic change, with clear chronology, covering a wide time period.	
	Simple statements of pieces of evidence of climatic change.	Detailed explanation of one piece of evidence for climatic change.	Well developed explanation of a variety of pieces of evidence for climatic change.	
		Simple statements of causes of global warming, and effects.	Detailed statements of causes and effects of global warming.	Recognition of complexity of the issue of global warming. Some recognition of the debate. Clear effects which are attributable to the B I.
S	**Level I 0 – 1**	**Level II 2 – 3**	**Level III 4 –5**	
	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.	