



General Certificate of Education

Geography 6036

Specification B

GGB4 Unit 4

Post-standardisation

Mark Scheme

2008 examination - June series

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

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GGB4

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:

- (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.
- Once a candidate has reached Level II, 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 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.
- 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.

Question 1

(a) **Notes for answers**

Mull is a mild humus which is soft, brown 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.

Mark Scheme

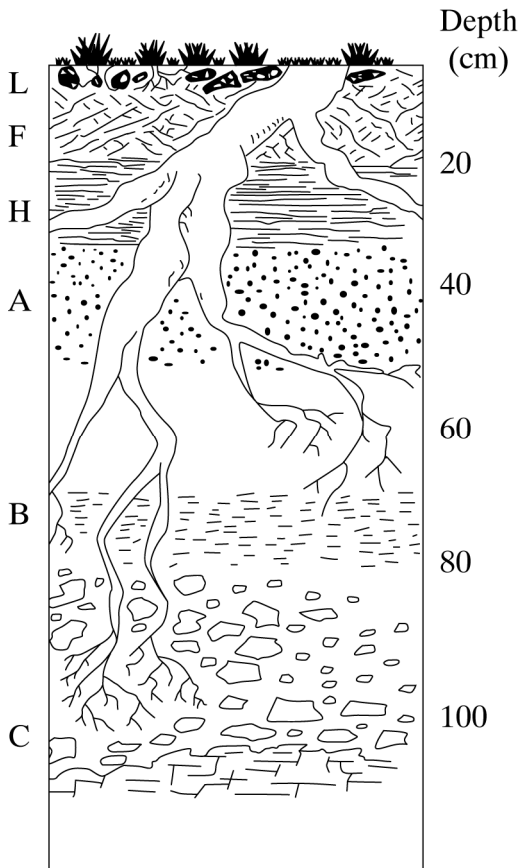
Level 1 *identification of types of humus, but with simple description; or description of one type only.* (0-3 marks)

Level 2 *detailed description of more than one type of humus.* (4-5 marks)

(b)(i) and (b)(ii) **Notes for answers**

N.B. Must be a diagram only in (i), with labels of description. Diagrams which follow should be of use for both (i) and (ii).

Brown Earth



Litter may be several cms thick under deciduous woodland. Merges with dark brown mild mull humus Ph 5.7. This returns bases to the soil and allows soil fauna to thrive. Bacterial breakdown is rapid, worms incorporate organic material. Boundaries between horizons blurred.

Brown colour; presence of humus which has been moved down; paler at depth. With precipitation > evaporation and mildly acidic conditions Ca, Mg, Na and K are leached downwards along with clay particles; may be an Eb layer. Lighter brown; pH 6.75 to 6.5.

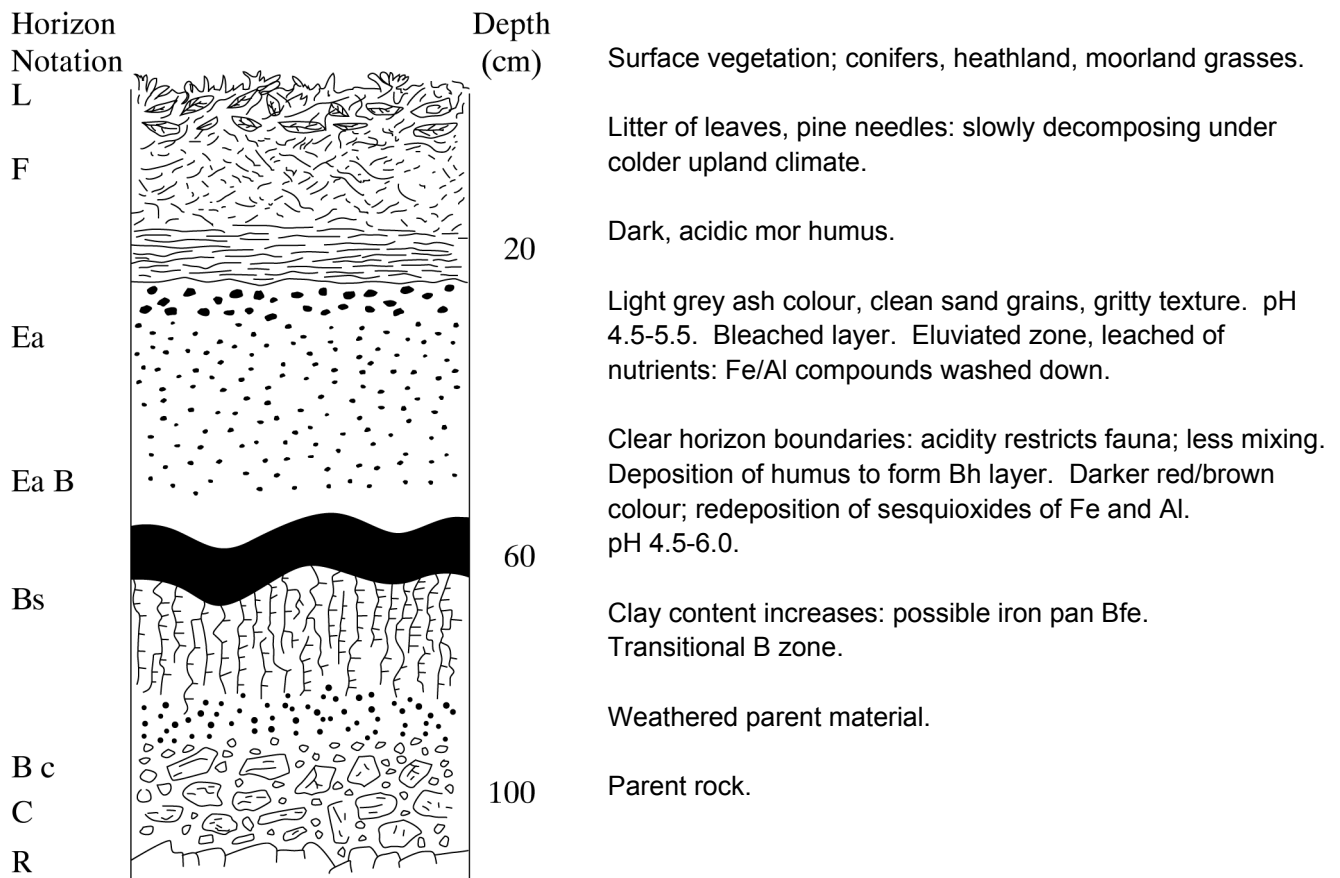
Although leaching is slight the products from the eluvial A horizon may be moved down and the sesquioxides of Al and Fe redeposited in the B horizon to give a darker layer than in A.

Lessivage; the movement of clay particles in suspension, may produce 'clay skins' around roots. May produce a Bt layer.

Roots abstract bases which are recycled through decomposition of leaf litter.

Usually loamy texture throughout the profile; crumb structure in A horizon, more blocky lower down.

Podzol



Gley.

	<p>Ground water gley.</p> <p>Dark brown-black organic layer; little decay. PH 4.5 Sharp boundary Upper limit of winter water table.</p> <p>Little organic matter; blue-grey colour</p> <p>Possible mottling; orange brown patches often along rootlets where air can enter the soil in the summer. Indistinct boundary. Lower limit of summer water table.</p> <p>Clayey texture, structureless form. High base status; few nutrients lost because of impeded drainage. (Possible clay layer (Bt horizon) or iron pan (Bfe layer) in a surface water gley.</p> <p>Weathered parent material</p>
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(b)(i) **Mark Scheme**

- Level 1** (a diagram of a soil profile) with up to 2 labels of description, such as type of humus, colour of horizons. (0-3 marks)
- Level 2** more detail to labels with at least 3 separate labels. Higher quality labels may score more than one unit of credit, for example, ("very distinct horizons (of a podsol)) due to (lack of earthworm activity") would score twice. (4-5 marks)

(b)(ii) **Mark Scheme**

- 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 explanation of one characteristic only. (0-3 marks)
- Level 2** greater depth of understanding of how more than one factor (e.g. precipitation, vegetation type, rock type) have influenced the characteristics in the soil profile. (4-7 marks)

(c) **Notes for Answers**

Soils may be upgraded or degraded by human activity:

N.B. Soils do not have to be podsoles 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.

Mark Scheme

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

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

Question 2

(a) **Notes for answers**

Tropical cyclones

Caribbean Sea – Hurricanes

China Sea – Typhoons

Bay of Bengal – Cyclones

Northern Australia – Willy willies

Areas of high sea temperatures: 26°C

At least 5° latitude of Equator

Originate on eastern side of oceans, but move W.

Earthquakes

Convergent p. boundaries –

Japan S. America, S. Europe

Divergent p. boundaries –

Mid Atlantic Ridge, E. African Ridge

Conservative plate boundaries –

San Andreas fault

Mark Scheme

Level 1 *simple statements with regard to distribution, such as broad single names of areas. No elaboration of location.* (0-3 marks)

Level 2 *accurate statements of geographical location with some attempt to categorise locations. More sophisticated statements of distribution.* (4-5 marks)

(b) Notes for answers**Tropical cyclones:**

Tropical cyclones represent the end product of a range of weather systems that can develop in the tropics. They begin with an area of low pressure into which warm air is drawn in a spiralling manner. Small-scale disturbances enlarge into tropical depressions with rotating wind systems and these may grow into a much more intense and rapidly rotating system, the cyclone. Why tropical storms should be triggered into becoming cyclones is not entirely clear, but there are several conditions that need to be present in order to generate such a disturbance:

- an oceanic location with sea temperatures over 26°C (continuous source of heat to maintain rising air currents)
- a depth of ocean of at least 70 metres (sufficient warm water – a large supply of moisture to provide latent heat, released by condensation, to drive the system)
- a location at least 5° north and south of the equator in order that the Coriolis force can bring about the maximum rotation of air (the Coriolis force is weak at the Equator and will stop a circular air flow from developing)
- low-level convergence of air in the lower atmospheric circulation system
- rapid outflow of air in the upper atmospheric circulation.

Earthquakes:

The vast majority of earthquakes occur along plate boundaries, the most powerful being associated with destructive margins. At conservative margins, the boundary is marked by a fault movement along which produces the earthquake. Perhaps the most famous of these is the San Andreas fault of California where the fault line represents the boundary between the North American and Pacific plates. Some earthquakes occur away from plate boundaries and are associated with the reactivation of old fault lines. It has also been suggested that man could be the cause of some minor earthquakes by building large reservoirs where the water puts pressure on the surface rocks or by the subsidence of deep mine workings.

Mark Scheme

- | | | |
|----------------|--|--------------------|
| Level 1 | <i>simple and generalised statements of causes of the hazard (i.e. of process), with no depth or detail.</i> | <i>(0-3 marks)</i> |
| Level 2 | <i>specific causes of the hazard access this level, possibly with good use being made of case studies and named earthquakes/cyclones. Credit sophistication at this level.</i> | <i>(4-5 marks)</i> |

(c) **Notes for Answers**

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

Tropical cyclones

human casualties if not evacuated
 loss of crops, animals
 flooding of land
 damage to property
 transport routes destroyed
 large insurance losses
 homelessness and disease

Earthquakes

human casualties
 destruction of land, property
 large insurance losses
 infrastructure collapse
 homelessness and disease
 breakage of utility pipes, e.g. gas
 secondary fires

Mark Scheme

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

Level 2 *specific statements which can be clearly attributed to named hazard (4-7 marks)*
access this level. Reserve 7 marks for consideration of all of
physical built and human effects.

(d) **Notes for answers**

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

Tropical cyclones

Inability to leave area, or reluctance
 Become refugees
 Early warning systems and use of satellites
 Use of warden/police systems to order evacuation
 Attempts to seed storms to reduce strength
 Planning schemes to reduce potential damage
 Flood barriers, dykes
 Aid

Earthquakes

Inability to leave area or reluctance
 Become refugees
 Preparation before event (FEMA)
 Modification of buildings
 Education, drills, supplies, posters
 Fire prevention – smart meters
 Land-use planning to minimise risk
 Aid

Mark Scheme

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

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

Question 3

Notes for answers

Immediately after the ice sheets had retreated (15000 years ago), Britain had a periglacial climate with tundra conditions prevailing. The maximum temperatures would have been only 6/7°C in the summer months with temperatures well below freezing in the winter. With time, temperatures slowly increased. There was a slight glacial advance 10000 years ago, when tundra conditions re-established themselves over Northern Britain.

About 8000 years BC, 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 times 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 1800, 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/fluvioglaciation. 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 a 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).

We should be prepared to accept any direction of discussion – either in favour of global warming, or against.

In terms of the possible future effects of global warming, they may be:

- a rise in sea level flooding marshes, wetlands and destroying sand dunes
- the overwhelming of coastal defences by storm surges
- the flooding of low lying cities, eg London and its underground system
- changes to farming practices and crops - longer growing seasons, more storm damage of crops
- an invasion of alien weeds, and pests and diseases into agriculture
- shrinkage of soils, especially clays, which may affect foundations of buildings
- greater use of air conditioning systems
- changes to global climatic elements (eg. the Conveyor belt, NAD)

Mark Scheme

G	Level 1 0 - 6	Level 2 7 - 12	Level 3 13 - 17	Level 4 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.	More detailed outline of one piece of evidence for climatic change.	Well developed detail of a variety of pieces of evidence for climatic change.	
		Simplistic statements of discussion re change and future effects.	More discursive points which present a more sophisticated, or factual, or detailed, or maybe balanced, view of the likelihood of future change and effects.	A clear, detailed, account is presented which covers both nature and scale of climatic change. For this level to be reached Level III must be achieved at least twice.
S	Level 1 0 - 1	Level 2 2 - 3	Level 3 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**Notes for answers**

The **reasons** for the growth of TNCs:

- TNCs are able to control or co-ordinate economic activities in different countries and can develop intra-firm trade within and between units of the same corporation in two countries. In this way the TNC has control over terms of trade and can reduce the effects of quota restrictions on the movement of goods.
- TNCs have the ability to take advantage of spatial differences in factors of production and government policies at the global scale. They can exploit differences in the availability of capital, labour costs and land and building costs; they can take advantage of cheaper labour in less developed economies. TNCs can also take advantage of different government policies; tax levels, subsidies/grants, environmental controls (less strict in some countries) and can get round trade barriers by locating in the 'market' economy.
- TNCs have geographical flexibility and can shift resources and production between locations at the global scale to maximise profits.

A **global product** is a product that contains components made in a variety of countries. For example, a Vauxhall Corsa is assembled in Spain from components manufactured in Austria (engine), Germany (gearbox), Spain (seats and trim, bodywork). The term can also be applied to a product which is **marketed** on a global scale, for example, Coca Cola, and many food and personal hygiene products. The spread of a global consumer culture has been important to the success of many TNCs. The mass media have been used very effectively to encourage consumers to "want more than they need". In the modern age of sophisticated advertising, very small differences between products or even tiny improvements in them can determine variations in demand in differing parts of the world. The power of brands and brand names and the **global marketing** strategies of the companies owning those brands is a very powerful feature in the global economy. Branding of this type works very well in terms of food, alcoholic and soft drinks, and fashion. Western consumer culture has invaded markets across the globe and many authorities on the subject have pointed to the penetration of the USSR and its satellites by "western" companies as a factor that led to the eventual disintegration of the Eastern Bloc.

The development of global products and global marketing therefore, has been encouraged by:

- The growth of TNCs who are able to operate factories in a number of countries and bring products together for final assembly and market them successfully
- The growth of communication systems and advertising that has led to the demand for such products around the world
- Increased purchasing power, particularly in LEDCs that has led to an expansion of demand for consumer items
- The franchising of production by TNCs to locally based producers.

TNCs are a driving force behind **economic globalisation**. As the rules regulating the movement of goods and investment have been relaxed and the sources and destinations of investment have become more diverse, such companies have extended their reach. There are now few parts of the world where the influence of TNCs is not felt and in some areas they are a powerful influence on the local economy. Many TNCs are also involved in a web of **collaborative relationships** with other companies across the globe.

TNCs may have a variety of **impacts on a host country**:

Favourable:

- they provide employment and thereby raise living standards
- they improve the level of skills and expertise within a country
- they cause foreign currency to be brought into a country, improving the balance of payments
- they cause a multiplier effect, increasing economic activity
- they encourage a transfer of technology into the country.

Unfavourable:

- many of the jobs are of low skill in LEDCs
- managerial positions tend to be brought in rather than developed locally
- most of profits are sent back to home country
- corners are often cut in terms of health and safety
- they exert political muscle
- globalisation of decision making sometimes leads to short term investment, and the TNC may pull out at short notice.

Also, there are **impacts within the country of origin**:

- the development of managerial and research skills
- there will be a general rise in income levels - the whole nation will benefit from overseas investments; greater desire to invest in overseas operations
- wider share ownership - individuals, and corporate groupings more willing to become involved in foreign investments.

G	Level 1 0 - 6	Level 2 7 - 12	Level 3 13 - 17	Level 4 18 - 20
	Simple statements of reasons.	Detailed statements of reasons for growth. Use of case study material accesses this level.	Well-developed statements of reasons, with good use of a variety of case study material.	
	Simple statements of relationships.	More detailed statements of relationships, which may involve some use of case study material.	Well developed statements of relationships. Sophistication of response should be credited here, which may reflect the complexity of the links.	
		Simple statements of impacts on host / origin countries or globally.	More discursive points re. impacts which present a more sophisticated, or factual, or detailed, or maybe balanced, view.	A clear, detailed, account is presented which covers both growth and impacts of TNCs, and the relationships as stated. For this level to be reached Level III must be achieved at least twice.
	Level 1 0 - 1	Level 2 2 - 3	Level 3 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.	