

GCE 2004

June Series



Mark Scheme

Geography B (GGB1)

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Question 1

- (a) Factors: density amounts of vegetation cover; type of vegetation; season, intensity of precipitation.

1 mark for each factor.

0-2 marks

- (b) (i) Lag time is the time between the maximum rainfall input and the peak discharge.

2 marks for a well expressed definition.

0-2 marks

- (ii) A steep slope angle and a high drainage density would tend to produce a shorter lag time; a steep gradient would encourage faster overland flow enabling water to reach the channel quicker; a high drainage density would reduce the distance between the point of impact of rainfall and the nearest channel; this would also speed up the transfer of water into the channel system.

1 mark for each valid reason and overall effect.

0-3 marks

- (c) The long profile is steeper in the upper section dropping from 440m (asl) to 320m in less than 1km. Generally becomes more gentle with short sections of steeper gradient; at 1.4km and 7 to 7.5km. Broadly concave profile. The valley becomes deeper, more incised and wider. Opportunity for candidates to give detail on scale of features.

We should expect to see some explanation in terms of processes; vertical erosion through abrasion/traction; pot holing of the channel floor; lateral erosion causing widening; aided by meander widening and migration to produce a wider, flatter floor; perhaps a river cliff.

Level 1 *Simple description of shapes; no attempt to describe variations; no scaling.*

0-3 marks

Level 2 *Better, description of variations **OR** some reference to specific processes and shapes.*

If clear descriptions and reference to processes; top of level.

4-8 marks

Level 3 *As above, but link between cross profile shape, processes and position on long profile.*

9-10 marks

Question 2

- (a) (i) Renewable could include wind, water (hydro, wave/tidal, barrage etc.), biomass, geothermal, solar.
Non-renewables include coal, oil, gas, nuclear.

1 mark for each example.

0-2 marks

- (ii) Renewables, such as wind turbines, solar power, hydro-power, tidal barrages and biomass conversion are potentially infinite. These tend to be ‘cleaner’ and less harmful to the atmosphere, but can have other effects on the environment. Expensive to develop but cheaper to operate. Usually implemented on a smaller, more localised scale.

Up to 2 marks for each well developed ‘advantage’.

0-4 marks

- (iii) Clearly depends on the system chosen; must be non-renewable.

We should expect to see some reference to FACTORS/REASONS; likely to be influenced by resource availability; ease of mining; costs/capital; link to ease of transfer/market demands etc.

Level 1 *System identified, no development beyond availability of that resource in the country; general level of comment..*

0-2 marks

Level 2 *Answer links development to at least two factors/reasons; well illustrated for **That** system in an MEDC or LEDC.*

3-4 marks

- (b) An opportunity to develop ideas on attitudes towards environmental/social issues resulting from using particular types of energy.

Acid deposition; dry deposition of SO₂, NO₂ and nitric acid and the wet deposition of sulphuric acid and compounds of ammonium. The major cause is the burning of fossil fuels in power stations, smelting of metals and vehicle exhaust fumes.

Greenhouse gases: increased concentration of CO₂ in the atmosphere. CO₂ allows incoming short wave radiation to pass through but absorbs some of the long wave radiation emitted from the Earth to space. This produces a warming; the greenhouse effect. One of the major reasons for the increase in CO₂ is the burning of fossil fuels containing hydrocarbons – coal, oil, gas – but large-scale deforestation has also contributed as trees are a major store of non-atmospheric carbon dioxide.

Deforestation: removal of forested land by cutting or burning. Environmental impact on hydrology and soil erosion but also a contributory factor to the effects of increased CO₂ levels (as above).

Removal may be for fuel, exploitation of commercial timber, or to provide space for other economic activities such as industry or commercial agriculture.

Strategies/Solutions: use of catalytic converters; burning fuels with lower

sulphate content, reduction in fossil fuels, gas desulphurisation schemes; reduce overall demand for electricity and car travel. Planned programmes of timber cutting to avoid depletion.

Level 1 *Answer at a general level for nature of causes and strategies; “use renewables” type of answer; lacks detail.* **0-3 marks**

Level 2 *Clear description of nature plus **either** causes or specific linked strategies are presented.
Clear comment on nature, cause **and** developed strategy(ies) sufficient for full credit. .* **4-7 marks**

Question 3

- (a) The general pattern is that the central boroughs have higher deprivation; deprivation decreases with distance from City (the centre/CBD). Highest deprivation is immediately to the N,S and E of City. There is a greater deprivation in a zone either side of the river.
The periphery has lower deprivation; except for Enfield to the north and Hounslow to the south east.
Many boroughs are above England average – high deprivation.

0-4 marks*One point for each valid comment on the pattern.*

- (b) Generally there are more families with children in the outer suburbs and more elderly population in the inner suburbs; therefore a higher proportion of population is over 65 in central wards and a higher proportion under 16 in outer wards.
Recent trends in gentrification and redevelopment of central areas has modified this pattern to some extent; younger people (20-30) have moved back into the inner areas.
There have been more retirement facilities, old peoples bungalows for example, being built in outer wards; usually for wealthy residents. There has also been the ultimate segregation of the elderly in residential homes; council and private. These may be located on edge of CBD in old housing units; but are also found in suburbs of larger urban centres.
Pattern could vary considerably from one urban centre to another.

Level 1 *A basic answer; may present one idea of where one age group live; without comment on any form of segregation.*

0-2 marks

Level 2 *Considers age segregation relating to more than 1 group and makes some comment on element of changes..*

3-5 marks

- (c) Foreign Direct Investment is investment which has a **foreign source** (usually a TNC) and which goes **directly into the point of consumption** i.e. it is not given to the government to distribute; Nissan investment at Washington in Tyne and Wear would be an example of FDI.

*2 marks for a well defined term.***0-2 marks**

- (d) Overseas investment contributes to regional economies and employment through its effect upon linkage with other companies; the multiplier effect; impact upon services/utilities; tax yield; local authority revenues. It can reduce local unemployment; or may trigger migration of workers to meet labour shortfall in an area..

Level 1 *Answer at a general level; reduces unemployment; provides more capital for firms.*

0-2 marks

Level 2 *Developed answer with clear links between investment and impact; a well developed point on either economy or employment gives entry to level; but there must be some development of both elements for full credit.*

3-5 marks

Question 4

- (a) The methods will depend upon the nature of the investigation, but the method must be suitable for the stated hypothesis.

Level 1 *General idea of study is clear but methods are superficial, an idea of 'what was measured' but no detail.* **0-2 marks**

Level 2 *Methods clearly link to **well stated hypothesis**; it is clear how data for each variable was collected.* **3-5 marks**

- (b) Detail depends upon chosen technique; answer requires some indication as to how the technique was applied; it should be clear how the data was analysed. This could be by reference to a presentational method (scattergraph/kite diagram etc); a statistical method or by comparison with a 'model'. It is often difficult to separate presentation and analysis, for example in the use of scattergraphs but interpretation of trend line is needed. In the case of comparison to a model then some assessment of the extent to which the example matches the model is required.

Level 1 *Answer names the method and gives simple reference to its use.* **0-2 marks**

Level 2 *Answer presents clear reference to the application of the technique.*

It should be clear as to the relevance of the method in the analysis of data. **3-5 marks**