



ASSESSMENT and
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ALLIANCE

Mark scheme

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GCE

Geography B

Unit GGB1

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Unit 1: The Dynamics of Change

General guidance

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 I**
- 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 II**
- 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 III**
- 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 I**
- 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 II**
- 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) *1 mark for each correctly labelled link* (5 marks)

- (b) A drains a predominantly urban catchment; largely built up land.
B drains an area of mixed woodland in the upper catchment with some heathland near the source. The lower section drains through an area of mixed farming.

A is likely to produce a much more flashy hydrograph because of the impermeable nature of much of the surface. Water will be channelled via gutters/drains into underground drainage systems designed to move water very quickly away from the urban area. There will be short lag time. In B there will be some evapotranspiration (although this would vary seasonally) an infiltration via the root systems; this will slow down the release of water and produce a more gentle hydrograph. Even if the land was already saturated from antecedent conditions there will be some interception from the vegetation cover; this would increase the lag time and flatten the hydrograph.

Level I *Answer describes the influence of land use without linking this to aspects of run off characteristics* (0-2 marks)

Level II *Answers make a clear link between land use and run off characteristics* (3-5 marks)

5 marks

- (c) As discharge and velocity increase, the river is capable of carrying a wider range of particle size. This is based on upon the Hjulstrom Curve; as Q/vel increases, silts and sand particles are picked up, followed by clays and small gravel with larger gravel at higher velocities. As vel/Q decreases, particles are deposited in accordance with size, largest first. Particles can be transported at a velocity that is lower than required to pick them up.

Answers may refer to capacity and competence; capacity increases according to the third power of the velocity, i.e. if the velocity doubles then capacity increases by 2^3 (8 times). Competence is related to the sixth power of velocity; if velocity doubles then competence increases by 2^6 (64 times).

Level I *A general answer that describes the basic increase in the size of material carried, but makes no reference to transport/deposition sequence or to different grades of sediment.* (0-3 marks)

Level II *Answer makes a link between changes in vel/discharge and ability to pickup and transport different material; there must be some reference to both pick and transport (or depositional sequence) to achieve full credit.* (4-7 marks)

7 marks

- (d) Candidates can refer to any aspect of erosion and deposition and relate these to any aspect of channel shape.
One approach could be to consider a meandering section of a stream and to link erosion processes to the undercutting on the outside bend and the deposition of material on the inside bend to form a point bar.
Or candidates could link erosional processes to the formation of a gorge section etc.
Allow any answer that looks at erosion and deposition in relation to shape; even if they are not applied to the same section of a channel.

Level I *Answer describes processes with no clear link to shape.
Answer dealing with plan only – max. top 1* (0-4 marks)

Level II *Answer links specific processes to the nature of the channel shape; e.g. the role of abrasion on the outside bend; the sequence of deposition on the point bar.* (5-8 marks)

8 marks

Question 2

- (a) (i) Longevity is the increase in life expectancy.

*1 mark for reference to life expectancy; 1 mark for reference to **increase** in life expectancy.*

Fertility is the average number of children each woman in a population will bear (the average number of children born to a woman during her lifetime).

*1 mark for reference to number of children born; 1 mark for reference to **average number**.*

(4 marks)

- (ii) The percentage of population in the older age groups is rising; there is an increase in the number of percentage of elderly dependent population. This is sometimes referred to as the ‘demographic time bomb’. There is a smaller percentage of economically active population to support this growing number of the elderly. This has implications for economic growth; pension provision; health provision and cost. It may have implications for the age of retirement and attitudes towards extended working life. It has some impact on the availability of housing stock and the provision of specialist care and accommodation etc.

Credit up to 3 marks for each well developed problem.

(6 marks)

- (b) The answer will of course depend upon the energy systems selected; the answer must refer to one renewable and one non-renewable. Coal, oil, gas and nuclear are non-renewable. HEP, wind turbines, biomass, wood fuel, biogas units, solar etc are renewable.

The question is asking for reasons for their development; the factors that influenced their use; availability of that resource (or lack of fossil fuel resources); capital (or lack of); government policies etc.

The two chosen systems should also be compared in relation to environmental issues that result from their use. This is likely to focus on their contribution (or otherwise) to acid rain, greenhouse gases or deforestation; or in the case of nuclear, to the problems of disposal of waste.

Level I *Answer deals with one system; suggests basic reasons for development.*

(0-3 marks)

Level II *Answer gives reasons for both systems.
Or, Develops detailed reasons or environmental issues on one.
Two systems with some detail on each can go to top level.*

(4-8 marks)

Level III *Answer provides sound reasons for both and gives some comparison of environmental impact.*

(9-10 marks)

10 marks

Question 3

- (a) (i) Overseas investment was dominated by the USA in 2000/01; about 55% of the annual investment.
 There was very strong investment from other partners in the EU; combined investment; about 22%; although individually they are very small compared with USA.
 Other countries with strong historical links, such as Canada (and India) provide only about 5%.
 Japan is the second largest single contributor with just over 7%.
 The pattern is dominated by MEDCs.
 Credit scale of job creation/reduction in unemployment.

Credit comments relating to the relative contribution (quantified) or aspects of pattern in terms of MEDCs/former colonial links/EU.

(4 marks)

- (ii) Inward investment can have significant effects upon the economy; job creation; injection of capital from outside (i.e. not from the Exchequer or tax payer); stimulus to the multiplier effect (cumulative causation and linkage); effect upon component suppliers/distribution or marketing companies; impact therefore on unemployment; demand for goods and tax yield. Investment may create additional costs in terms of pollution control; it may threaten local or home-based companies in competition.

The focus is on economic effects; allow any 3 ways that are developed.

Level I *Answer identifies general areas of 'effects' without showing how the investment has an impact on the economy*

(0-3 marks)

Level II *Answer establishes a clear link between the investment and effect. Any three different impacts, well expressed, can achieve full credit.*

(4-6 marks)

6 marks

- (b) The projects are dominated by services and manufacturing (likely to be high tech industries); employment that is not so dependent upon male employment, unlike many of the traditional manufacturing industries that have declined during the phase of de-industrialisation.
 The increase in educational attainment and progression to higher education has created a greater number of females with academic qualifications and this may link to e-commerce and R&D.
 Customer contact centres and services may have fostered employment for females; perceived as being very good in dealing with customers; the 'public face' of a company is often female.
 Females can compete on more equal terms for employment in these activities.
 Along with many other factors, the changing nature of employment opportunities has encouraged greater female participation.

Answers may suggest that other factors have also played a role; this would be seen as part of an answer on the contribution made by the types of investment.

Level I *Answer deals with ideas on a general level; jobs suited to females.* (0-3 marks)

Level II *Answer makes some specific points linking type of employment with particular/perceived characteristic, i.e. why females may be regarded as being particularly suited. Three well made points can achieve full credit.* (4-5 marks)

5 marks

(c) The pattern of the segregation is generally that the wealthy live in the suburbs/urban fringe and the poor live near the CBD; this pattern has been modified to some extent in the last 30 years as a result of:

- (i) outward movement of poorer residents to parts of city periphery in 'overspill estates' following redevelopment of inner urban areas;
- (ii) recent movement of wealthier residents towards the edge of CBD and older housing areas in the inner suburbs; gentrification, growth of redeveloped brownfield sites; young, well educated, professional, white collar workers in some parts of inner area.

There is segregation both between the inner and outer areas and between different areas within the inner and outer zones.

The general pattern has therefore become more varied.

Level I *Answer describes the changes in general terms* (0-3 marks)

Level II *Answer considers the overall change; inwards and outwards with some development of ideas in terms of modification to general pattern needed for full credit. Good answer on one 'movement' can access LII.* (4-5 marks)

(4-5 marks)

5 marks

- (d) (i) The hypothesis should be clearly stated; this could be a directional hypothesis or a null hypothesis.
Analysis could be undertaken
- (iii) through the use of a presentational technique such as a scattergraph and trend line
 - (iv) through the application of a statistical technique, such as Spearman
 - (v) through comparison of results with some theoretical (textbook) model.

Any method is acceptable providing that the hypothesis can be tested using that method.

Level I *Answer indicates the nature of the investigation and provides some idea of method used.* (0-2 marks)

Level II *Appropriate method of analysis is developed; it is clear how the analysis was undertaken. Hypothesis must be clearly stated for full credit.* (3-5 marks)

(3-5 marks)

5 marks

- (ii) The question is inviting candidates to comment on the outcome of their investigation; what did it add to their understanding?
It may have reinforced ideas studied in class; it may have indicated that the real world behaves in a more complex way than textbooks suggest. Candidates could relate their findings to theoretical studies; one would expect some reference to the particular study/locality/anomalies etc. Allow credit for general ‘benefit’ of studying in the field.

Level I *Answer is at a general level; assisted learning/illustrated things studied in class;
No indication as to how results did contribute to improved understanding*

(0-2 marks)

Level II *Answer makes some specific reference to results and link to better understanding; some reference to specific environment/topic/anomalous data.*

(3-5 marks)

5 marks