

GCE 2004

June Series



Mark Scheme

Geography A (GGA3)

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SECTION A

Question 1

- (a) (i) Primary succession occurs on new/bare surfaces (1) which have not been previously vegetated (1) + 1 for e.g. A sequence of stages occurs (1) where vegetation changes (1) in height/coverage/diversity (1) until that vegetation which is in harmony with the precipitation/temperature characteristics dominates (1)... This is climatic climax – the end stage of the succession (1) 4x1 – undeveloped point; 2x(1+1) per developed point. Any combination. **(4 marks)**

- (ii) Labels for characteristics likely to relate to -
 √s - amount of cover
 - overall height and relative height of cover
 - diversity of species
 - contrasts within area of photograph

Evidence of secondary succession likely to relate to:

- √s - presence of dead trees (clearly in abundance) indicating former succession;
 - nature of arresting factors (perhaps five as trunks (charred) remain;
 - current vegetation clearly different – not trees...not climatic climax.

1 per undeveloped point; 1+1 per developed point. Any combination:
 max 6 for features/evidence, min 2.

- (b) (i) 4x1 for correctly plotting figures.
 Maximum 3 if hectares destroyed by lightning not showed. **(4 marks)**

- (ii) Description
 Loss of land by fire fluctuates widely (1) – from below 10000 to over 90000 hectares in short live period (1).
 Overall, increase in land lost in more recent years (1).
 Contribution of lightning fires to land lost generally greater when overall amount high (1).
 However, there are exceptions to this (1) e.g. 1987 when a much larger proportion of land lost was due to lightning fires (1) over 1/340% (1).

Explanation

Fluctuation likely to neglect variation in weather conditions (1)...some conditions – hot, dry...more susceptible to fire outbreaks (1).
 Similarly, prevalence of lightning determined by atmospheric conditions (1).
 Human impact also...have more effect when weather conditions conducive (1) and flames more difficult to control e.g. if windy – greater impact (1)
 Carelessness...barbecues, discarded cigarettes threat (1).

- (c) (i) Description of pattern of forest damage –
 clear cluster of greatest damage in central part of map – adjacent countries of Germany, Netherlands, Switzerland. Only Finland reaches similar levels away from this cluster.
 Eastern Europe areas of Poland, Czech and Slovak Republics have levels between 15 and 29.9, as does Belgium – these are adjacent to highest areas.
 Elsewhere figures relatively low – with western and southern areas – such as Norway, France and Italy – having less than 15 % damage.
 Description of pattern of proportion of sulphur from external sources
 large variation - Scandinavian countries all receive at least $\frac{3}{4}$ of sulphur from other countries; this is similarly the case in Austria and Switzerland.
 More western countries – France and especially UK receive less than $\frac{1}{2}$ / $\frac{1}{4}$ respectively from other countries...and similarly proportion in southern countries of Italy and Spain are lower.
 Substantial variation in more central areas with Germany having 44% from outside, Belgium over $\frac{3}{4}$.
 Comment (c) may relate to reasons for either pattern –
 e.g. areas of greatest damage due to high acidity of rainfall, perhaps caused by origin of rain mass, wind direction;
 areas of low population density; limited use of fossil fuels;
 Scandinavian areas limited internal sources of sulphur to contribute to acid rain.

or may relate to possibility of a link between the two components,
 e.g. may explore whether high population of damage equates with high proportion of sulphur from external sources – some evidence in Finland but generally no clear link. Norway/Sweden have relatively little damage but a high proportion of sulphur from external sources.

or may relate to issue regarding impact of pollution – sulphur – from other countries on national forests, e.g. Germany has highest level of damage, yet only approximately half of sulphur of national origin.

Level 1: 1-3 marks

Describes features of pattern of forest damage;
 May refer to one pattern only;
 May be overgeneralized or a lot of specific detail;
 Without clearly appreciating concept of pattern.

Level 2: 4-6 marks

Targets description to patterns in a meaningful way – e.g. perceives importance of central cluster;
 Notes importance of external sources in Scandinavia;
 Clearly refers to both patterns;
 Will begin to connect.

Level 3: 7-8 marks

Purposeful and clear description of patterns which considers features of L2 above but where description is fuller and e.g. low number also considered.

(8 marks)

Will clearly connect about reasons, link or nature of issues.

- (ii) Economic issues - cost of technology needed and impact on profit;
- long term costs of developing new energy sources – wind, tidal, solar; and impact of decline of mining in some areas, e.g. Selby coalfield due to close 2004;
 - impact on countries which are industrialising – NICs may suffer if need to consider increased costs due to technological improvements.

Political issues - nationally relate to role of governments in seeking to enforce legislation to reduce emission levels;

- contrasts between such legislation in e.g. MEDCs, NICs, LEDCs;
- consideration of relative contribution/ reduction levels, e.g. UK example in context of Poland, Russia;
- main political issues relates to international context – problem is international – pollution crosses boundaries and therefore the solution needs to be international;
- agreements need to be reached and adhered to;
- UK needs to achieve substantially greater reduction to bring it in line with those countries such as Netherlands, Belgium. This is especially important when its position is considered – west of Europe and the prevailing winds which transport sulphur into neighbouring countries.

(4 marks)

Level 1: (1-4 marks)

Describes issues identified;

Heavy reliance on Figure 5;

May be unbalanced with limited appreciation of different categories.

Level 2: (5-7 marks)

Begins to use information to consider a variety of issues with some understanding of the two categories;

Some awareness of international context;

May be unbalanced;

Will make tentative comment – some discussion present;

Reference to some information beyond Figure 5.

Level 3: (8-10 marks)

Clearly target information to question – economical and political issues clearly identified;

Clear awareness of international context;

Relatively balanced;

Will make clear explicit comment in discursive account;

Uses information beyond Figure 5.

(10 marks)

- (d) (i) Open-ended, general hypothesis, issue, question:
e.g. Erosion alongside footpaths will affect vegetation. 1 mark
- Directional, clear, specific hypothesis, issue, question:
e.g. Woodland areas of high recreational use will have less species diversity than those of low recreational use. 2 marks
- Must be of an appropriate small scale and relate to title of topic to be valid **(2 marks)**
- (ii) Any small scale study is valid. **(6 marks)**
- Primary data item must be relevant to purpose to be creditworthy.
Purpose of study e.g. to define the CBD (1) using a number of different criteria such as land use, height (1) and see whether all give some area (1).
Area studied e.g. that within inner road (1) (i.e. 1 for precise identification of area) as this was some starting point (1) could then extend/reduce (1) – may refer to ease of access, nearness, etc.
Primary data item – land use (no mark for data item).
Transects selected (1) in different directions going through core/CBD (1)
land use recorded by noting exact function of building (1) by looking through window, at names (1) such as mobile phone shop, clothes shop (1), and this was recorded on a detailed base map showing individual buildings (1).
- Up to 2 for question topics on questionnaire. Minimum 1 reserved for each subsection.

SECTION B

Question 2

- (a) Greenfield sites
 NB either statement not both
- areas which have not been built on before. (1)
 - usually found on periphery of cities. (1)
 - areas of countryside – woodland, agricultural land. (1)
 - subsequent development would be major change/ having significant environmental impact.
- Brownfield sites
 NB either statement not both
- areas which have previously been built up. (1)
 - likely to be fringe of central areas, inner city area. (1)
 - may have derelict buildings/wasteland. (1)
 - may require clearance. (1)
- 4x1 mark 3 for either/if distinction not clear. **(4 marks)**
- (b) (i) Labels relating to site –
Size – relatively large (1) and reference to actual size e.g (1)
Relief – flat – no contours (1) – therefore easy to build. (1)
Access – clear service road servicing site. (1)
- Labels relating to situation –
Access – adjacent to major road – A180 (1) – dual carriageway with clear access off in both directions. (1)
 Connect as to why this is valuable. (1).
Position in town – on edge of Grimsby (1) therefore more space. (1)
 Lack of buildings around – to west (1) suggested Greenfield site (1)
 land likely to be cheaper on edge. (1)
Labour force – Many housing areas nearby – likely to provide workforce. (1)
 Large, modern estates on edge of Wybes Wood. (1)
 But also commuter villages e.g. Healing. (1)
 Perhaps providing housing for management opportunities at a number of levels.
Leisure/sound/environment – e.g. golf courses, museums, Cleathorps seaside resort. Seen as important in attracting workers (key workers especially).
- 8x1, or 4x(1+1) any combination.
 Minimum 2, maximum 6 on either site or situation.
 Features must be arrowed or written on to directly access marks. **(8 marks)**
- (ii) Layout –

Access is easy via central service, road within park. (1)
 Each individual unit has own doorstep parking. (1)
 Landscaping around edges of business park, service road.
 And especially in central area where there is a small lake. (1)
 Variety of size units available (1) – no particular zoning by size (1) area
 nearest A180 access has been developed most. (1)

Units –

Show individual design features. (1)
 Clearly very modern – 1990s/2000. (1)
 Feature a lot of glass – modern building materials. (1)
 Immediate surroundings vary – interesting brickwork paths. (1)
 ‘futuristic ornaments’ (1) to more traditional shrubbery. (1)

Attractiveness –

Convenience of individual car parks. (1)
 Pleasant, attractive, environment results from landscaping. (1)
 This ought to enhance worker performance. (1)
 Varied size can accommodate small and larger businesses. (1)
 Buildings offer modern accommodation – bright, light, comfortable (1)
 Should enhance morale of workforce (1)

Minimum 2 for each element.

8x1 unless well developed in which case allow 1+1 per clearly
 elaborated point. **(8 marks)**

- (c) Site is found adjacent to rivers and former docks.
 Area adjacent to docks appears to have been redeveloped – new houses,
 warehouse style dockside apartments.
 Retail park has 2 main stores – large, regular shaped buildings – in white
 – distinctive in landscape. Very large car parks.
 Some (minimal) landscaping in very built-up environment. Adjacent to
 dual carriageway.
 Some older buildings – probably factory towards foreground left and
 single Victorian building – large, with chimney on corner is bottom
 right.
 Advantages – essentially on brownfield site, likely to relate to using
 areas of valuable land in inner city areas; otherwise likely to be
 wasteland, derelict buildings development of area as a whole unit
 services, and residential population ought to ensure economic survival of
 inner area.
 Improvements should enhance attractiveness/raise profile/prestige of
 city; ought to reduce traffic congestion by reducing need to commute out
 of town.
 Ought to contain development/sprawl by reducing building on greenfield
 sites and therefore reduce pressure on such areas.
Level 1: (1-3 marks)
 Describes characteristics shown on Fig 9.
 Generalised features may refer only to certain elements.

Level 2: (4-6 marks)

Considers different elements of description required seeks to offer some evidence from fig 9.

Begins to note advantages.

Level 3: (7-9 marks)

Clearly and purposefully describes necessary components of description.

Specific evidence offered in support from fig 9.

Comments on advantages of such developments.

(9 marks)

- (d) (i) 2x2 for correctly plotting population figures.
Max 3 if line not added.

(4 marks)

- (ii) Economic benefits:

Opening up of large areas in different sectors of the economy – primary, secondary and tertiary. Large amount of employment generated and clearly major contribution to GDP.

Economic costs:

Costs of providing infrastructure, maintaining water supplies, increasing land costs, congestion, time wasted – diseconomies resulting from massive expansion.

Social benefits:

Influx of people has led to development of many social facilities .e.g. golf courses, fun city.

Social costs:

Rapid growth of Phoenix – over 1 million added, almost 85% growth rate in decade 1990-2000. Growth too fast/too big – community development?

Environmental benefits:

Transformed desert areas into productive land altered barren landscape into one which is multi-coloured due irrigation.

Environmental costs:

Clearly urban sprawl – massive, rapid expansion of built-up area.

Traffic a problem - too many cars - congestion and impact on air quality.

High pressure in desert giving rise to photochemical smog.

Depletion of water stores, need to consider further attempts to find further sources, and at what cost impact already in context of Colorado.

Comment likely to refer to balance of costs and benefits to relative impact economically, socially, environmentally. May perceive benefits mainly economic, whilst costs environmental.

Level 1: (1-4 marks)

Describes some costs and/or benefits.

May be completely imbalanced.

Will not identify different categories.

Level 2: (5-7 marks)

Describes costs and benefits.

Begins to refer to evidence categories generally correctly identified.

May refer to own knowledge.

Will begin to discuss and comment – tentively.

Level 3: (8-10 marks)

Clearly describes a variety of costs and benefits.

Clear, correct classification of types.

Refer to evidence.

Will refer to some aspects of own knowledge.

Clearly discusses – explicit, summative comment.

(10 marks)

- (e) (i) Open-ended, general hypothesis, issue, question:
e.g. New development in the CBD have styled the centre. (1 mark)

Directional, clear, specific hypothesis, issue, question:

e.g. The development of shopping malls, marina areas, and leads to a movement of the core/centre in the direction of the new development.

(2 marks)

Must be of an appropriate small scale and relate to title of topic to be valid.

(2 marks)

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