OCR
RECOGNISING ACHIEVEMENT

GCE

Geography A

Advanced GCE **A2 7832**

Advanced Subsidiary GCE **AS 3832**

Combined Mark Schemes And Report on the Units

June 2005

3832/7832/MS/R/05

Oxford Cambridge and RSA Examinations

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All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the Report on the Examination.

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MARK SCHEMES FOR THE UNITS

REPORT ON THE UNITS

Mark Scheme 2680
June 2005

1 On this paper you will see that the questions are marked out of the following maximum marks:

2
4
6
10

2 For the vast majority of questions we will use **LEVEL MARKING** based on **generic descriptors** with clarification on the specific content requirements given on a question-by-question basis. Level marking will always be used for questions marked out of a maximum of 6 and 10 and usually (but not always) for questions marked out of a maximum of 4.

3. On the following pages are the generic descriptions for the various maximum marks. Please use these when marking the level marked questions in conjunction with the additional advice and guidelines given in the main mark scheme document. A key feature of using the generic descriptors is that our professional judgement is called upon a great deal.

4. You will see that in the generic descriptions there are clear progressions in the standards expected. For example:

'High level' answers tend to be:

'clear'
'good'
'effective'
'developed'
'clearly present'

'Middle level' answers tend to be:

'sound'
'reasonable'
'present'
'some'

'Low level' answers tend to be:

'basic'
'little or no'
'lacks substance'
'limited'

The descriptors for 'middle level' answers could include the top of Level 1 in answers marked using only two levels.

LEVEL MARKING - QUESTIONS MARKED OUT OF A MAXIMUM OF 4

LEVEL 2: 3-4 marks
LEVEL 1: 0-2 marks

LEVEL 2

- A **clear** answer with **good** understanding and knowledge
- Some **development** of ideas
- **Effective** use of geographic terminology
- A **clear** level of written communication

LEVEL 1

- A more **limited** answer with **basic** understanding and knowledge
- **Limited** or **no** development of ideas
- **Basic** use of geographic terminology
- **Limited** level of written communication

LEVEL MARKING - QUESTIONS MARKED OUT OF A MAXIMUM OF 6

LEVEL 2: 5-6 marks
LEVEL 1: 0-4 marks

LEVEL 2

- A **clear** answer with **good** understand and knowledge
- **Development** of ideas
- Examples and or data/evidence **clearly integrated** into the answer
- Links are **effectively** made
- **Effective** use of geographic terminology
- **Clear** use of written communication

LEVEL 1

- A **more limited** answer with perhaps **reasonable** knowledge but **basic** understanding
- **Limited or no** development of ideas
- **Limited or no** integration or use made of examples or data/evidence
- **Limited or no** links are made
- **Limited** use of geographic terminology
- **Limited** level of written communication

'DEFINITION' QUESTIONS FOR 2 MARKS

A general idea of the definition = 1 mark
A clearly stated definition = 2 marks

'STATE AND EXPLAIN' - QUESTIONS FOR 3/6 MARKS

- State = 1 mark
- Explain = 2 marks - a basic explanation = 1 mark
  a developed explanation = 2 marks.

Detailed criteria for each question can be found in the mark scheme.

LEVEL MARKING – QUESTIONS MARKED OUT OF A MAXIMUM OF 10

Ten Mark Questions

Levels mark scheme

This question has three requirements:

- description;
- explanation;
- examples/case study/ies.

Level 3 **[8-10 marks]**
Answers will fulfil all three requirements.

- A **clear** answer with **good** understanding and knowledge
- Both description and explanation **clearly present**
- **Development** of ideas
- Examples/data/evidence are **clearly integrated** into the answer
- Links are **effectively** made
- **Effective** use is made of geographic terminology
- A **clear** level of written communication

The best answers will exceed the requirements of the mark scheme in the degree of depth and/or detail. These candidates will be performing at full A level rather than AS standard. (It is hoped that all PEs will be able to provide an exemplar of an answer of this high quality scripts as a benchmark at standardisation meetings; such answers must not depress the marks of candidates performing at AS standard).

Level 2 **[5-7 marks]**
Answers will fulfil two of the three requirements for description, explanation and examples/case study/ies.

- A **sound** answer with perhaps **reasonable** knowledge but **less convincing** understanding
- Both description and explanation are **present**
- **Some development** of ideas
- **Little or no use** of examples/data/evidence
- **Some attempt** at linkage is made
- **Some use** of appropriate geographic terminology
- A **reasonable level** of written communication is present

Level 1 **[0-4 marks]**
Answers with some understanding of one of the three requirements for description, explanation and examples/case study/ies.

- The answer **lacks substance** and offers **only basic or unconvincing or no** knowledge/understanding
- **Only one** of description or explanation is present
- **Little or no development** of ideas
- **No use** made of examples/data/evidence
- **Basic or no** links made
- **Little or no** use of appropriate geographic terminology
- **Basic level** of written communication

THREE FINAL REMINDERS

1 Please mark positively

e.g. within the parameters of the mark scheme wherever a candidate attempts links between two aspects of a question award L2 rather than L1 or L3 rather than L2 for the 10 mark questions

Where there is evidence of undertanding and some substance, award L3 rather than L2.

2 Please use the full range of marks.

3 The paper is marked out of 100.

Hydrology

1 Study Fig 1 (insert) which shows mean monthly precipitation and evapotranspiration for Ottawa, Canada (45º 27' N, 75º 42' W).

(a) (i) What is meant by evapotranspiration? [2]

It is the change from water to water vapour from vegetation.
Accept combined water loss from evaporation and transpiration.
The idea of combination is apparent.

(ii) Suggest why there is so little evapotranspiration between December and March. [2]

Indicative content: *Low amounts of evapotranspiration in December to March due to the lower temperatures and therefore the lack of foliage and photosynthesis from deciduous vegetation.*

Point mark: 1 mark for reference to low temperatures; 1 mark for reference to reduced amount of vegetation.
Or one reason with some development can gain 2 marks.

(iii) With reference to Fig.1 explain why surface run off is likely to be the lowest from June to August. [4]

Indicative content:. *Temperatures are higher therefore higher amounts of evaporation and transpiration leading to less water available There is slightly less precipitation in the summer months therefore low level of surface runoff.*

Level one (0-2 marks)
At this level there is very little development in terms of explanation. The lower end is more list like while at the top end there might be two factors listed with limited development. Inaccurate use of geographical terminology.

Level two (3-4 marks)
Candidates provide a full explanation at the top of this level. At the lower end the explanation is good but not full. Reference should be made to the graph for answers in this level. At least one factor is explained. Accurate use of geographical terminology.

(b) Explain why groundwater flow accounts for a larger proportion of a river's discharge in the summer than it does in the winter in the UK. [6]

Indicative content: *Summer time often sees lower precipitation and therefore there is less infiltration, percolation and throughflow as the higher temperatures see the surface layers dry out relative to lower layers. Therefore the rivers from groundwater flow receive more water, as the layers above are relatively dry. In wintertime there is an increase in the amount of infiltration, throughflow and surface runoff. Reference to water table is acceptable. Therefore a river will receive a relative increase in the amount of water from throughflow and a relative decrease in the amount of water from groundwater flow. In summer there is more vegetation, therefore more interception and so a relative increase in groundwater flow due to less throughflow/surface runoff. Accept freezing for an explanation of winter proportions.*

Level one **(0-4 marks)**
Candidates attempt to explain in little detail why there is a difference. The answers may consider only summer or winter or there may be an imbalance towards one season. Inaccurate use of geographical terminology.

Level Two **(5-6 marks)**
Candidates explain clearly why there is a relative increase in summer. Winter and summer are considered or other water transfers are discussed and hence there is reference to the proportionality. Confident and accurate use of geographical terminology.

If candidates make sensible observations but it is clear they are not discussing the UK then there should be a maximum of Level One.

(c) Describe and explain how human activities influence flows and stores of water in <u>one</u> or more named drainage basin. [10]

Indicative content: *Humans can hinder or increase flows in a drainage basin. They are able to increase or decrease the stores of water in drainage basins. Urban areas humans will increase the rate of flow and decrease the stores by constructing drainage systems, storm drains, road cambers all of which are designed to remove water quickly (surface flow) and therefore reduce storage (groundwater). This effect is also due to impermeable surfaces, which lead to less infiltration, percolation and throughflow. In rural areas farming may increase the flow of water due to improving soil structure and adding to organic matter (reducing the clay content). Effects can be negative due to, e.g. to incorrect ploughing procedures. Stores may be increased due to damming of a river and therefore reduced flows downstream of the river. Levees by themselves are not acceptable. Stores include surface storage increasing due to impermeable surfaces and the relative decrease in the soil store. Recognise interception store.*

Level one **(0-4 marks)**
Candidates describe human activities but explanation is lacking and there is no reference to influence. There is no direct reference to drainage basin. Answers may be list like towards bottom of this level.
Inaccurate use of geographical terminology.

Level Two **(5-7 marks)**
Candidates describe and explain with increasing detail how human activities influence either flows and/or stores. Reasonable use of geographical terminology. Maximum of 7 if no named drainage basin or no specific information about a drainage basin.

Level Three **(8-10 marks)**
Candidates describe and explain in detail how humans influence both flows and stores. There is clear, detailed reference to a named drainage basin. Confident and accurate use of geographical terminology. Two activities done well should achieve full marks.

Total marks [24]

Ecosystems

2 Fig 2 (insert) a sand dune transect showing changes in vegetation cover and soil.

(a) (i) What is meant by the term plant succession? [2]

Plant succession is the change in number and/or type (1) of species over time (1).
Change in vegetation with some qualification.
The idea of something replacing something else.
Implication of time is critical.

(ii) Explain the differences in pH and soil organic content on the grey dunes and on the heathland areas as shown on Fig.2. [6]

Indicative content: *pH reduces from alkaline to acid from the shoreline inland. Sea spray is slightly alkaline. This is due to distance from the beach and the calcium carbonate from the shells. There is much less vegetation present closer to the beach as conditions are too inhospitable for many types of vegetation. Rate of decomposition on heathland is slower due to acidity. The further from the sea the longer the time for development and so leaching is of more importance which increases acidity. Acidity from the coniferous forest due to decomposition will flow down onto the heathland. Waterlogging at B which is close to water table affects decomposition.*

Level one (0-4 marks)
Candidates state the differences but explanation is thin or, at the bottom of the level, missing. Candidates might only consider pH or soil organic content. Inaccurate use of geographical terminology.

Level two (5-6 marks)
Candidates explain clearly the reasons for changing pH and soil organic content. Both must be considered for level 2. Confident and accurate use of geographical terminology.

One mark for the statement of differences (maximum of two marks). Other four marks are for explanation.

(b) Describe and explain how vegetation adapts to the physical environment of sand dunes. [10]

Indicative Content: *At the Embryo dunes vegetation needs to be halophytic. Further inland at the main dune ridge plants need to be xerophytic. Adaptations include protected stomata to reduce transpiration; long roots to tap fresh water; marram grass leaves align themselves with wind to reduce water loss. Further inland as soil becomes acidic plants need to be able to tolerate this (e.g. heather). Little/no vegetation on the foredunes due to harsh conditions is acceptable, as is more vegetation inland. However, this is not enough for level III.*

Level One (0-4 marks)
Candidates describe adaptations of sand dunes vegetation but explanation is absent.
Inaccurate use of geographical terminology.

Level Two **(5-7 marks)**
Candidate describes and explains adaptations of sand dunes vegetation. They may focus on one type of vegetation. Reasonable use of geographical terminology.

Level Three **(8-10 marks)**
Candidates describe and explain clearly the adaptations of sand dune vegetation to the conditions on the dunes. One species with adaptations carefully explained can reach top of level III. Confident and accurate use of geographical terminology.

(c) Suggest reasons why plant succession might not reach its climatic climax stage. [6]

Indicative content: *Reasons can be natural or, more likely, due to human interference and activity will affect the succession of plants. Reasons might include recreation, leisure, military, activity, agriculture, and urban development. Candidates need to refer to more than one type of activity and to explain the effect on the processes. Human interference needs to be qualified. Plagioclimax is acceptable.*

Level 1 **(0 – 4 marks)**
Candidates state one or more reasons but explanation is thin at the top of this level. Inaccurate use of geographical terminology.

Level 2 **(5 – 6 marks)**
Candidates state more than one reason and explain clearly why climatic stage is not reached. Confident and accurate use of geographical terminology.

Four marks can be given to one reason explained well.

Total marks [24]

Atmosphere

3 What is meant by the terms:

(a) (i) Albedo? [2]

Albedo is the amount of solar radiation that is reflected.

(ii) Longwave radiation?

Longwave radiation is the outgoing heat/energy emitted from the earth's surface.

Energy reflected from the earth's surface is not acceptable (0 marks).

Study Fig. 3 (insert) which shows the balance of incoming and outgoing radiation.

(b) (i) State and explain <u>two</u> reasons why only 51% of incoming solar radiation reaches the Earth's surface. [6]

Indicative content: *Backscattering can lose about 6% of the incoming solar radiation by particulate matter in the troposphere; clouds can reflect the incoming solar radiation but this is dependent upon the type of cloud; the atmosphere and clouds also absorb some incoming radiation. Accept explanation of albedo. Clouds absorbing and then reflecting as the second reason is acceptable. The explanations should differ. Ozone layer is acceptable.*

For each factor: 1 mark for the statement of the reason and a further 2 marks for the quality of the explanation. As far as possible each factor should be marked separately.

It is possible for a candidate to achieve four marks on one factor if more than one statement is made (e.g. clouds reflecting and absorbing). There are only two marks for reasons.

(c) One outcome of the local energy budget is the formation of fog. Under what circumstances is fog most likely to form? [10]

Indicative content: *Reference can be made to advection, radiation or hill fog. Fog forms when there is a low atmospheric movement and calm conditions; few clouds to contain heat being emitted from the earth therefore outgoing Longwave radiation is lost from the earth, the air near to the earth's surface is chilled by conduction; low level condensation occurs due to cooling of the air; fog is formed. Other circumstances include high relative humidity perhaps associated with rivers, lakes etc; urban pollution producing hygroscopic nuclei. Advection is by movement of air over a cooler area. All fog is dispersed when temperatures rise.*

Level 1 (0 – 4 marks)

Candidates identify circumstance(s) but there is no attempt to explain the circumstance(s). Inaccurate use of geographical knowledge.

Level 2 **(5 – 7 marks)**
Candidates identify a range of circumstances but offer no explanation or link to fog is the bottom of this level. There is more explanation of circumstances at the top of this level. Reasonable use of geographical knowledge.

Level 3 **(8 – 10 marks)**
Candidates identify and explain a range of circumstances that lead to the formation of fog and there is a link with processes of fog formation. One type of fog done very well can reach top of level III. Confident and accurate use of geographical knowledge.

(d) Name and describe the characteristics of <u>two</u> air masses that affect the weather of the British Isles. **[6]**

Indicative content: *Polar maritime – cold temperatures, low humidity, source area from polar regions, tracks across the oceans, stable in source area but becomes less stable as it tracks southwards. Tropical maritime – warmer temperatures, higher humidity, relatively low stability, source area from tropics and tracks across the ocean. Polar continental with low temperatures and low humidity. Tropical continental with high temperatures and low humidity. Arctic Maritime with low temperatures and relatively high humidity. Origin/source is not acceptable. The direction it is moving is acceptable. Accept Arctic by itself but do not accept Tropical, Continental without reference to the track.*

1 marks for each correctly named air mass that affects the British Isles.
2 marks for the quality of description of the characteristics of that named air mass.
The air mass description should correspond.

One air mass done very well could achieve a maximum of four marks.

Total marks [26]

Lithosphere

4 Study Fig.4 (insert), which shows the major tectonic plates and distribution of earthquakes.

(a) (i) What is meant by the term tectonic plate? [2]

A section of Lithosphere that moves.
Section of crust is acceptable.
Implication of movement is acceptable.
Floating (on the mantle) is acceptable for idea of movement.

(ii) Describe the distribution of earthquake activity shown in Fig. 4 [4]

Indicative content: *Earthquakes are confined to narrow strips. They are not truly global phenomena. Occur on destructive, constructive and conservative plate's boundaries. There are some anomalies where there is an intra-plate earthquake.*

Level 1 (0 – 2 marks)
Candidates describe where earthquakes occur with reference to the type of plate boundary for the top of this level. Answers that are purely locational (e.g. Pacific Ocean, Atlantic Ocean) are level one.

Level 2 (3 – 4 marks)
Candidates describe in detail the distribution of earthquakes with reference to named places. Reference to different plate boundaries must be present for top of level 2. For the top of level 2 either detail about the density of distribution or reference to an anomaly is made.

(iii) Explain the distribution of earthquake activity shown in Fig. 4. [6]

Indicative content: *Most earthquake activity is associated with plate boundaries. Destructive plates because of subduction; constructive plates because of convection currents and the pushing away of plates; conservative boundaries due to elastic rebound theory. Intra plate earthquakes are lower frequency but may occur along old fault lines or in response to movement at plate boundaries.*

Level 1 (0 – 4 marks)
Candidates attempt to explain but detail is lacking. Candidates describe at least one plate boundary. One boundary mentioned and explained well will be the top of level one. A generic explanation of earthquakes with no explanation of individual boundaries could be top of level one. Two mentioned but weak explanation will be in level one.

Accurate use of geographical terminology could raise the mark to the top of this level.

Level 2 (5 – 6 marks)
Candidates explain in detail the movements of at least two boundaries. Confident and accurate use of geographical terminology.

Accurate use of geographical terminology could raise the mark to the top of this level.

(b) Explain why volcanic activity occurs at location Y. [4]

Indicative content: *Convection currents in the mantle bring magma to the surface. The plates are forced to move away from each other and volcanic activity occurs .*

Level 1 (0 – 2 marks)
Candidates attempt to explain but the answer is lacking in detail. Inaccurate use of geographical terminology.

Level 2 (3 – 4 marks)
Candidates explain clearly why volcanic activity occurs at location Y. There is reference to convection currents for the top of the level. Confident and accurate use of geographical terminology. Terminology is key and accurate use is the trigger for this level.

(c) Explain the formulation of the landforms found at destructive boundaries such as location X on Fig.4. [10]

Indicative content: *Landforms include ocean trench, fold mountains, volcanoes, volcanic island arcs.*
The most important process is subduction as the plates move towards each other. The oceanic crust is forced to subduct, which forms the ocean trench. Subduction and friction of the plates leads to volcanoes developing. As the plates move towards each other there is folding of the continental plate and so fold mountains develop. Crumpling Earthquakes are not a landform. Batholiths and plutons related to the landforms are acceptable but there must be a link to the landform.

Level 1 (0 – 4 marks)
Landforms are identified but the processes are poorly explained or not explained at all. Geographical terminology is used inaccurately. Point mark each landform.

Level 2 (5 – 7 marks)
Candidates begin to refer to process but there is no link with landform at the bottom of this level and the start of a link at the top of the level. Geographical language is used reasonably well. One landform explained very well can achieve the top of level two.

Level 3 (8 – 10 marks)
Candidates link the process with the landforms of destructive boundaries and refer to more than one landform. Geographical language is used confidently and accurately.

Total marks [26]

Mark Scheme 2681
June 2005

1. Population

(a) Study Fig 1 (Insert) which shows the percentage of population aged over 60 by county and unitary authority in southern England, 2001. Fig 2 (Insert) shows the county and unitary authority names.

(i) Describe the pattern of population aged over 60 in southern England shown in Fig 1. [6]

Level 2 **5 – 6 marks**
A clear description that focuses on distribution. The discriminator from Level 1 is the use of a summative statement. Reference to both areas of higher and lower values is needed for full marks.
Max 5 marks if no reference to either place names or % figures or anomalies.

Level 1 **0 – 4 marks**
A basic description that focuses on distribution which does not go beyond reference to areas of either higher or lower values alone.
Up to 4 marks may be awarded for descriptions that refer to counties in a more haphazard way.
At the lower end of this mark range up to 2 marks may be awarded for mere listing of counties and related figures.

Indicative content.

Possible summative comments might include :-

- A peripheral pattern of higher %s of over 60s
- Higher %s of over 60s in counties with a coastline
- Increase in % of over 60s with distance away from the London-Midlands belt
- Use of regional descriptors e.g. SW England, Eastern England, London-Midlands

(ii) Suggest reasons for this pattern. [6]

Level 2 **5 – 6 marks**
Clear understanding concerning possible factors that explain the distribution of the population aged over 60. A Level 2 response will include at least two reasons.

Level 1 **0 – 4 marks**
Basic understanding; one developed explanation of a valid reason may be awarded up to 4 marks.
Listing of reasons may be credited up to the top of Level 1.
At the lower end of this mark range up to 2 marks for simplistic, basic comments only.

Indicative content.

Possible reasons include :-

- Migration of retired population to coastal areas where there are environmental benefits plus services available e.g. in resort settlements
- Migration of retired population to rural areas where there are environmental benefits and available / appropriate / affordable housing stock
- Age selective migration of younger population from remoter, isolated areas leaves a higher proportion of population aged over 60
- %s of population aged over 60 are lower where there are best job prospects for younger people e.g. London, Cambridge, Berkshire, Midlands axis
- Migration of retired population away from the negative externalities of urban areas, (where they may have spent their working life), down the settlement hierarchy to smaller rural service centres

(b) Fig 3 (Insert) shows that death rates in some LEDCs are lower than in some MEDCs. State and explain <u>one</u> possible reason for this. [3]

Answers should refer to population structures and life expectancy.

Death rates are lower in some LEDCs because there is a high % of young people and an increasing life expectancy. As a result a high % of the population has not reached life expectancy.
Death rates are higher in many MEDCs because there is a high % of older people. A higher proportion of this population is close to the life expectancy.

1 mark for reference to age structure;
1 further mark either for LEDC / MEDC comparison of age structure or for reference to life expectancy;
1 mark for demonstrating a link to the death rate.

(c) With reference to <u>one</u> named country, describe and explain its uneven spatial distribution of population. [10]

Level 3 8 – 10 marks
Detailed knowledge and convincing understanding of a country. Uneven spatial distribution of its population is explained with reference to at least two different areas. Specific reference to named regions or settlements / figures is expected at this level.

Level 2 5 – 7 marks
Clear knowledge and understanding of a country. Spatial variations in its population are mentioned but not in such detail e.g. in terms of limited coverage of a country. There is explanation of only one area. Place detail is less secure.

Level 1 0 – 4 marks
Basic knowledge and understanding of a country. At this level the answer is largely descriptive with perhaps only brief, if any, reference to one area. Place detail is very weak.

Indicative content.

Possible types of factors influencing population distribution include:-
- Physical
- Economic
- Social
- Political

Max 6 marks for responses which are wholly generalised.

[Total : 25]

2. Rural Settlement

Study the 1: 50 000 OS map extract of part of eastern Scotland.

(a) (i) What is meant by the term <u>site</u> of a settlement? [2]

The land on which a settlement has been built.
2 marks for a clear definition; 1 mark for a less clear statement.

(ii) With reference to specific evidence from the OS map extract, state <u>two</u> possible reasons for the site occupied by Rait (2226). [2 + 2]

1 mark for a relevant site factor and a second mark for supporting map evidence.

Indicative content.

Possible answers include :-
- Relatively gentle slopes for building – wider spacing of the 40m and 50 m contours
- Sheltered by steep slopes/higher land to north and west
- Water supply – unnamed stream in the Glen of Rait
- Dry site – elevated site above 40m avoiding possible flooding on lower lying poorly drained land

No marks for defence or factors connected to situation rather than site.

(b) Using evidence from the OS map extract, suggest reasons for the low order of Rait in the settlement hierarchy. [6]

Level 2 5 – 6 marks
A clear response in which two factors are stated.
The discriminator from Level 1 is that at least one factor is explicitly linked to the low order of Rait.
Whilst not essential for full marks, correct use of terms such as threshold population and centrality might confirm good understanding.
Max 5 marks if no specific reference to map evidence.

Level 1 0 – 4 marks
A basic response in which factors not linked to status may be awarded up to 4 marks.
At the lower end of the mark range (max 2 marks) there might be description of Rait's situation only (or a description of its services / status only) with little or no understanding of the link between relevant limiting factors and status.

Indicative content.

Possible answers include :-

- Competition from nearby larger centres such as Inchture, St Madoes, Errol
- Difficulty of access – minor roads only
- By – passed by the A90 dual carriageway
- Limited scope for expansion on surrounding steeper slopes
- Sparsely populated area to the north and west on the Braes of the Carse
- Relatively small size / population of Rait itself also suggests that threshold populations of many shops and services could not be met

(c) Compare the shape and layout of Longforgan (3130) with that of Inchture (2828). [4]

Level 2 **3 – 4 marks**
A clear description of the two layouts that compares the two settlements.
Statement of the overall shape of each village plus a further descriptive point such as a characteristic of the street pattern is expected for full marks.

Level 1 **0 – 2 marks**
A basic description that might not focus on layout or offers separate descriptions of the two settlements.

Indicative content.

Possible points include :-

- Longforgan has a more linear shape or layout along minor roads parallel to the A90 or the contours of West bank and East bank plus an extension S.E. towards Castle Huntly
- Inchture is more nucleated with a compact, square shape including a development of cul–de–sacs to the SE of the B953

(d) The settlement pattern in the lowland area of the map extract, the Carse of Gowrie, is predominantly nucleated.

(i) What is meant by the term <u>nucleated settlement pattern</u>. **[2]**

A settlement pattern in an area or region which is dominated by villages/towns.
1 mark only for a less clear statement; no marks for reference to a single nucleated settlement.

(ii) State and explain <u>two</u> possible factors which lead to the development of nucleated settlement patterns. **[6]**

Level 2 **5 – 6 marks**
A clear explanation that focuses on nucleated settlement <u>patterns in an area</u>.
The account should include at least two reasons.

Level 1 **0 – 4 marks**
A basic response in which only one valid reason for the development of a nucleated settlement pattern is offered may be awarded up to 4 marks.

At the lower end of the mark range (max 2 marks) the answer may state reasons for the growth of a single nucleation – where the idea of settlement pattern in an area is not clear.

Indicative content.

Possible responses may include physical, cultural and other evolutionary factors such as :-

- Dry point sites in an area of poor drainage
- Wet point sites in an area where surface water is scarce
- Areas in which communal agriculture developed in the Middle Ages (no individual land ownership) such that farmers lived in villages rather than isolated farms
- Areas where defence has been a priority
- Where there are strong planning influences in an area such as Key settlement policy
- Development of small mining communities e.g. on a concealed coalfield area

[Total : 24]

3. Urban Settlement

Study Fig 4 (Insert), a Goad Shopping Centre Plan for part of Norwich Central Business District (CBD), 2003.

(a) With reference to Fig 4 describe the main features of the commercial land use. [4]

Level 2 3 – 4 marks
A clear response. For full marks two characteristics of the land use are identified and described plus detailed reference to each stating specific data on the map (e.g. named shops / services / streets).
Max 2 marks if no specific reference to evidence on the map

Level 1 0 – 2 marks
A basic response in which one characteristic of the land use is identified and described.
Answers which merely list individual features / establishments with no description should be placed in Level 1.

Indicative content.

Possible answers include :-
- High density of buildings / limited open space
- High proportion of financial institutions – mainly in larger premises e.g. Nat West
- High proportion clothing and shoe shops e.g. concentration of L/WR
- High proportion of outlets for food and drink – mainly near junction of London St and St Andrews Hill
- Pedestrian area

(b) Explain why there is a tendency for commercial activities to concentrate in the CBD of cities in MEDCs. [6]

Level 2 5 – 6 marks
A response in which there is clear understanding of at least two reasons for the dominance of commercial activity in the centre of an urban area.

Level 1 0 – 4 marks
A basic response in which one valid reason is explained may be awarded up to 4 marks. Listing of valid reasons without development may be awarded up to 4 marks.
At the lower end of the mark range responses may offer little more than descriptions of types of commercial activity found in CBDs.

Indicative content.

Possible reasons include :-
- Concept of bid-rent – housing and manufacturing cannot match the rent paying ability of commerce
- Advantages derived from linkages between centrally located commercial activities
- Historically the most accessible location – convergence of roads – threshold populations more easily met
- Focus of public transport systems
- Central location in relation to rest of city

(c) Explain why out–of–town locations have become more attractive for commercial activities in MEDCs in the last 30 years. [6]

Level 2 5 – 6 marks
A clear response which shows understanding of at least two reasons. Reasons may relate to the disadvantages of CBD locations and / or alternative attractions elsewhere for commercial activities (retail and office functions).

Level 1 0 – 4 marks
A basic response in which one reason only is explained may be awarded up to 4 marks.
Listing of undeveloped valid reasons may be awarded up to 4 marks.
At the lower end of the mark range (max 2 marks) responses may include no more than description of types of out-of-town locations in which commercial activity is found.

Indicative content.

Possible reasons include :-
- Rising cost of land / rent in the CBD encourages decentralisation to cheaper sites
- Shortage of space in the CBD may be resolved by relocation out-of-town e.g. larger outlets / parking space
- Traffic congestion reduces CBD accessibility compared to sites, for example, at M-way junctions in the rural–urban fringe
- Improvement in public transport and personal mobility means less reliance on a central location in terms of access by shoppers and workers
- Unattractive areas of discard and blight may encourage decentralisation to a more modern building in a more pleasant environment
- Improvements in telecommunications reduces need to be located in close proximity to services in the CBD
- Growth of office / retail parks beyond suburbs leads to decentralisation
- Commercial functions which are large or have expanded may take advantage of economies of scale at a more extensive site

(d) With reference to one or more named urban areas in MEDCs describe and account for the growth of distinctive residential areas. [10]

Level 3 8 – 10 marks
Detailed knowledge and understanding of the processes which cause the growth of residential areas in an MEDC city or cities. The discriminator from Level 2 is that the response includes an account of at least two different processes.
The chosen residential areas may be distinctive either by housing type or by socio-economic groups of residents.
Reference to named areas / neighbourhoods is expected.

Level 2 5 – 7 marks
Clear knowledge and understanding of processes which cause growth of residential areas.
At this level there may be more limited coverage with perhaps reference to only one process; place detail is less secure. The response may be weighted more towards description than explanation. The discriminator from Level 1 is that there is some appropriate explanation.

Level 1 **0 - 4 marks**

Basic knowledge of process; place specificity is weak. Answers may offer little more than description with little understanding of the reasons for the growth of a residential area.

Indicative content.

This question is open to wide ranging interpretation. As a guide, the better responses might include reference to processes such as :-

- concentric growth historically e.g. as a result of the development of urban transport systems
- suburbanisation since about 1960 e.g. arising from increased personal mobility
- urban planning e.g. LA housing schemes / development of brownfield sites
- invasion and succession, producing distinctive concentrations of ethnic minorities
- gentrification of areas by individuals and families of higher economic status
- the roles of private and public 'gatekeepers'
- the influence of physical factors
- changes in stage of family life cycle / family status
- segregation by income

A detailed and accurate theoretical response (which is wholly generalised) may be awarded marks up to the top of Level 2.

[Total : 26]

Mark Scheme 2682
June 2005

Geography Specification A

Advanced Subsidiary G.C.E (AS 3832)

Marking Conventions in respect of scripts

1 All scripts are liable to outside scrutiny or a re-mark following a Result Enquiry. It is therefore essential that the marking and comments on the scripts are clear to an observer, sample marker or any re-marking after the grading. Please keep to the conventions outlined by the Principal Examiner and avoid individual idiosyncrasies. Mark in red biro or red ink. (Team leaders mark in red and re-mark in green.) Useful abbreviations for inclusion in the text include:

D description
E explanation
K knowledge

Fill in the boxes on the front page of the script.

2 The only marks placed in the right-hand margin of the script are the sub-marks given on the question paper and in the mark scheme. Please add helpful comments in the text where they help to explain your decision, but do not express your frustrations, views on the candidate's ability or the competence of their teacher! Under no circumstances should you put sarcastic or derogatory comments on the scripts. In the text you should indicate where marks are being awarded. Where levels are used you should indicate the highest level achieved and where appropriate the achievement of lower levels.

3 Please do not cross out text.

4 Add comments where appropriate to indicate the dialogue you are having with the script. Research has identified ticks as a sign of rushed or casual marking so please do not use them.

5 Every section of an answer must show evidence of having been read. Do not think that you can 'skim' through irrelevant patches. They may be worthy of some credit. Sometimes candidates add a few lines on extra sheets or at the back of an answer book. If this additional piece gains no marks make sure that you indicate that it has been read. If you get to a margin decision, at the end of a longer piece of writing, e.g. is it worth full marks (10) or (9) then take a positive stance and award 10.

6 Where the rubric has been infringed you need to mark all of the work and to select the best answer within the rubric. Cancel with a single line any marginal marks that you have to exclude. Make a note of the infringement on the front of the script.

7 If you suspect dishonest practice contact your team leader to discuss the issue and then follow the guidelines provided.

8 Your checker must follow the instructions on the reverse of the Checker's claim form.

Thank you for following all of these procedures accurately.

NB. Hard-copy 'Live' exemplars of candidates' work will provided to all examiners at the standardisation meeting, as an attachment for this mark scheme. Where possible each level will be demonstrated for each question.

State the title of your Geographical Investigation below:

1 (a) Describe the sampling process you used in the collection of primary data in your Geographical Investigation. [5 marks]

Indicative content:

- Sampling may be *specified* as systematic, random, stratified systematic, stratified random, opportunistic, with examples from the actual Geographical Investigation.
- ***Or:*** Sampling method may be *described* without identifying specific type
  - *E.g. equal number of males and females sampled for interview to be fair.*
  - *E.g. sites on a river were spaced out to show how the river changes with distance from the source.*
- Sampling methodology may be objective *(e.g. channel characteristics)* or subjective *(e.g. environmental impact assessment).*
- Number of each sample to be collected.
- Organisation of resources to carry out data collection.
  - *E.g. 24 people divided into teams of 4 to collect data as quickly as possible.*
- Variations in the sampling process in response to site conditions.
  - *E.g. poor access to river meant sites not always systematic*.
- Different variables may need to be sampled in different ways.
  - *E.g. quadrats for plant coverage every 200 metres and change in soil infiltration rates every 400 metres.*

The following content is applied to each level:

- The level of detail.
- The use of geographical terminology.
- The clarity of the description.

Level 2 (3-5 marks)

The sampling process is clearly described with reference to their own Geographical Investigation (i.e. refer to variables measured).
The answer is *developed* by referring to aspects of the sampling process (see indicative content).

Level 1 (0-2 marks)

There is unlikely to be reference to or a clear link to their own Geographical Investigation.
The sampling process is specified or described simply.
There is *very little development* of the answer.

If the title of the Geographical Investigation is not given after "State the title of your Geographical Investigation below", Max 3 marks.

(b) Explain why you chose this sampling process for your primary data collection. [5 marks]

Indicative content:

- Explanation of the type of sampling with examples from the actual Geographical Investigation.
  - Systematic: even coverage, no personal preference.
  - Random, equal chance of being selected, no bias.
  - Stratified systematic/random: if more than one group (strata) the relative proportion in each group is taken into account.
  - Opportunistic: needs must sampling.
- Development of the description of the sampling process. Candidates may have given an initial explanation for the sampling method in (a) which is expanded in (b). ***DO NOT CREDIT DUPLICATION***.
  - *E.g. equal number of males and females sampled for interview (a) to be fair (a or b) as each gender may have different opinions (b).*
  - *E.g. sites on a river were spaced out (a) to show how the river changes with distance from the source (a or b) because as the catchment becomes larger downstream increased erosion gives a larger channel cross sectional area and there are greater water inputs (b).*
- Objective *(e.g. channel characteristics):* quantitative measurement can be very accurate. Subjective *(e.g. environmental impact assessment):* cannot be measured any other way therefore need to make an informed judgment.
- Representativeness and convenience of collecting the given sample size.
- Organisation of resources to carry out data collection:
  - *E.g. 24 people divided into teams of 4 (a) to collect data as quickly as possible (a or b) as there is a time limit (b).*
- Local site conditions made it difficult in the best way possible.
  - *E.g. poor access to river meant sites not always systematic (a) but reasonably representative data could still be collected (b).*
- Different variables may need to be sampled in different ways.
  - *E.g. plant quadrats every 200 metres and change in soil infiltration rates every 400 metres (a) as the plant communities did not change very frequently (b).*

The following content is applied to each level:

- The level of detail.
- The use of geographical terminology.
- The clarity of the explanation.

Level 2 (3-5 marks)

The explanation of the sampling process is clearly described with reference to their own Geographical Investigation.

The answer is *developed* by referring to:

Either: **more detail** is given for **fewer aspects.**

Or**: less detail** is given for **more aspects**.

Level 1 (0-2 marks)

There is unlikely to be reference to or a clear link to their own Geographical Investigation.

The explanation of the sampling process is simple.

The response may be descriptive rather than explanatory.

There is *very little development* of the answer.

Method need not be named as long it relates to (a).

(c) With more resources, how would you have improved the primary data in your Geographical Investigation? [10 marks]

Indicative content:

The following could have improved primary data:

- More variables (either additional or alternatives).
- Larger sample sizes.
- Different sampling methodology (e.g. random not systematic).

These could have been enabled by more of the following resources (various combinations acceptable):

- More people to collect data.
- More time.
- More money.
- More accurate or reliable instruments.

The following content is applied to each level:

- The level of detail.
- The use of geographical terminology.
- The clarity of the discussion.

Level 3 (8-10 marks)

One or more improvements to **primary data** are discussed **well**.
There is **good** reference to the Geographical Investigation.
The response is realistic and achievable.

The resources **used to improve**

Level 2 (5-7 marks)

Either **One or more** improvements to **primary data** are discussed **moderately well**.
Or **More** improvements to **primary data** are discussed **less well**.
There is **some** reference to the Geographical Investigation.
The response is not necessarily realistic and achievable.

Level 1 (0-4 marks)

Improvements to the primary data are discussed in a **basic manner,** e.g. only a suggestion of more data being collected.

2 (a) Compare the possible value of a 1:25 000 and a 1:50 000 OS map in an AS Geographical Investigation. [10 marks]

Indicative content:

Area covered (whether small or large) and how this links to:

- The aims of the investigation.
- The types of factual information needed for the investigation (can be at introduction, planning, data collection, data analysis and data presentation stages).
- The level of detail needed for the investigation (can be at introduction, planning, data collection, data analysis and data presentation stages).

The following content is applied to each level:

- The level of detail.
- The use of geographical terminology.
- The clarity of the comparison.

If no comparative statements, Max. top Level 2.
If scales wrong way round, Max. top Level 1.

Level 3 (8-10 marks)

Either The comparison is **balanced** and points are discussed **well**.
Or More points are made, but in **less depth**.
Both map scales are referred to in each aspect of the comparison.

Level 2 (5-7 marks)

Either The comparison is **less well balanced** and points are discussed **moderately well**.
Or More points are made, but in **less depth**.
Both map scales are likely to be referred to in each aspect of the comparison.

Level 1 (0-4 marks)

The comparison is made in a **basic manner**.
It is unlikely that both map scales are referred to in each aspect of the comparison.

(b) In the box provided below, draw a simple sketch map, such as might be used in an AS Geographical Investigation. Annotate your sketch map to identify three of the essential properties of a good sketch map.

[10 marks]

Indicative content:

- Title – to indicate purpose and/or location of the study area.
- Key – to explain content and/or symbols of the sketch map.
- Orientation – to show relative locations and/or aspect of features on sketch map.
- Scale / Grid reference – to enable interpretation of distances.
- Annotations – to highlight geographical features of the sketch map.
- Annotations – to show that a sketch map is a simplified version of a published map, e.g. contains only data needed for the Investigation.

The following content is applied to each level:

- The level of detail.
- The use of geographical terminology.
- The clarity of the sketch map.

If more than 3 essential properties are given, credit the best three.

Level 3 (8-10 marks)

Either **Two** properties are annotated **well**.
Or **Three** properties are annotated **in less depth.**
Good sketch map.

Level 2 (5-7 marks)

Either **Two** properties are annotated **moderately well**.
Or **Three** properties are annotated **in less depth.**
Two or more properties are given.
Likely to be a **moderately good** sketch map. This will enter Level 2 provided 2 or more properties are identified.

Level 1 (0-4 marks)

One or more properties are identified with **little or no** annotation.
One or more properties are given.
Simple sketch map.

3 (a) Fig. 1 (opposite) shows the annual rainfall totals for 25 years at two meteorological stations A and B. How would simple descriptive statistics (measures of central tendency and of variation) help you to summarise this data? Do not carry out any calculations. [10 marks]

Indicative content:

Central Tendency	**Dispersion/variation**
Mean Definition	**Standard deviation (spread around the mean)** Definition
Gives one summative value from many individual values	Accounts for all values in dataset
For B: symmetrical distribution of data (therefore calculated value is meaningful)	Individually and for comparison: gives weight to extreme values in dataset
Can be used for further calculation to show variation, e.g. standard deviation	A and B have similar absolute values (ideally calculate coefficient of variation which standardises datasets from different localities)
The data sets are not small	**Range** Definition
Median Definition	Simple maximum variation in each dataset
Gives one value from many individual values	**Interquartile range (spread around the median)** Definition
Not affected by extreme values	For B: symmetrical distribution
Each value is given equal weighting	
The data sets are not small	
Mode Definition	
Able to show unimodal (B) and bimodal (A) information	***Others may be considered***: percentile/quartile deviation; mean deviation; coefficient of variation; index of variability; relative variability; variance.
Both A and B have clear modal peaks	
Able to compare A and B meaningfully	
The data sets are not small	

The following content is applied to each level:
- The level of detail.
- The use of geographical terminology.
- The clarity of the discussion.

There is no credit for calculations.

Level 3 (8-10 marks)
Either **One or more** central tendency and **one or more** variation are discussed **well**.
Or **More** measures are discussed **in less depth.**
Central tendency and variation are discussed.
There ***may be*** recognition that the 2 datasets present different challenges.
There may be discussion regarding comparing the two datasets.

Level 2 (5-7 marks)
Either **One or more** central tendency and **one or more** variation are discussed **moderately well**.
Or **More** measures are discussed **in less depth.**
Unlikely that there will be recognition that the 2 datasets present different challenges.
Central tendency and variation are discussed.

Level 1 (0-4 marks)
Central tendency *and/or* variation discussed in a **basic manner,** with little reference to the datasets.

(b) Describe and explain how a statistical test, such as Spearman Rank Correlation, would help you to examine the association between two variables, for example temperature change and height, or house prices and distances from a city centre.

[10 marks]

Indicative content:

- Concept of association: Spearman's Rank Association test
  - Null hypothesis states that there is no significant association (relationship) between 2 data sets.
  - There are 2 data sets at an ordinal or interval scale.
  - ***And/or*** a sketch or description of a scattergraph showing understanding of association between 2 variables.
- Carrying out the test:
  - Each data set is converted to an ordinal scale by ranking the numbers from the highest (rank 1) to the lowest (rank x).
  - The difference between the ranks of each of the paired variables (d) is found.
  - These differences are squared (d^2) and then summed (Σd^2).
  - Calculate the coefficient (r_s) from the formula:
    $r_s = 1 - [6\Sigma d^2 / (n^3 - n)]$ where n = number of ranked pairs.
- Meaning of the outcome and its significance:
  - The calculate value ranges between +1 and -1. 0 = no correlation; 1 = perfect correlation.
  - A test of significance (usually at 95%) is carried out to see whether the relationship could have occurred by chance.
  - Using n – 2 degrees of freedom, the calculated value (r_s) is compared to the critical value on the t-tables. If r_s > tables value, accept the alternative hypothesis.

It is unlikely that a test other than Spearman's will be used. However, Pearson's and Chi Squared are appropriate.

The following content is applied to each level:

- The level of detail.
- The use of geographical terminology.
- The clarity of the description and explanation.

There is no need to refer to the examples of variables in the question.

Level 3 (8-10 marks)

All 3 of concept of association, how to carry out test, meaning of outcome and its significance level are discussed **well**.

Level 2 (5-7 marks)

Either **2** of concept of association, how to carry out test and meaning of outcome and its significance level are discussed **moderately well**.

Or **All 3** of concept of association, how to carry out test, meaning of outcome and its significance level are discussed **in less depth.**

Level 1 (0-4 marks)

1 or more of concept of association, how to carry out test and meaning of outcome and its significance level are discussed in a **basic manner**.

Mark Scheme 2683
June 2005

AO1 Knowledge (0-11 marks)

Section A		Section B
6-7	**Level 3** Substantial knowledge of themes, processes, concepts, environments, and where appropriate specific examples.	4
4-5	**Level 2** Sound knowledge of themes, processes, concepts, environments, and where appropriate specific examples.	2-3
0-3	**Level 1** Basic knowledge of themes, processes, concepts, environments and examples.	0-1

A02 Critical Understanding of Content (0-10 marks)

Section A		Section B
4	**Level 3** Authoritative understanding of concepts, theories and content including examples where appropriate.	5-6
2-3	**Level 2** Sound understanding of concepts, theories and content including examples where appropriate.	3-4
0-1	**Level 1** Basic understanding of concepts, theories and content and examples where appropriate.	0-2

AO3 Application of knowledge and critical understanding to unfamiliar contexts (0-12 marks)

Section A		Section B
3	**Level 3** Clear application of relevant knowledge and understanding to the question set.	8-9
2	**Level 2** Sound application of relevant knowledge and understanding to the question set.	5-7
0-1	**Level 1** Limited application of relevant knowledge and understanding to the question set.	0-4

AO4 Skills and techniques including communication skills (0-12 marks)

Section A		Section B
5-6	**Level 3** Clear structure and organisation. Communication is clear with maps, diagrams, statistics, if appropriate. Confident use of geographical terms.	5-6
3-4	**Level 2** Sound structure and organisation. Communication is sound with maps, diagrams, statistics, if appropriate. Some accurate use of geographical terms.	3-4
0-2	**Level 1** Poor structure and organisation. Much inaccuracy in communication and limited and/or ineffective use of different forms. Little confidence in the use of geographical terms.	0-2

Section A

Group A Options

Option 1: Coastal Environments

1 Study the 1:50 000 OS map extract of part of the North-West Wales coast and Fig. 1 which shows the location of the map extract in its regional setting.

(a) Describe the depositional coastal landforms and their distribution shown on the map.

[20]

(b) Explain how a variety of influences are responsible for these coastal landforms.

[25]

(a) This stretch of coastline includes a variety of depositional features for the candidates to describe. It end of the extract and describe the pattern as if travelling along the coast, while others might try a more systematic approach. If the latter is convincing then it is likely to be a Level 3 response in AO3 but the former approach, done well can also reach this Level. If there is no reference to the map then level 1 in AO3 is the maximum. There is potential for AO4 marks to be gained for sketch maps as well as for accurate map reading skills. Points include;

- bays containing either sand or sand/shingle deposits
- vary in length from extensive Porth Neigwl c. 6 km long to smaller stretches
- vary in width – relatively narrow beach at Porth Neigwl c.f. wider accumulation at Abersoch and Llanbedrog
- spit development at Pwllleli
- absence of mud flats

(b) The question makes reference to 'a variety of influences' which the more aware candidates will pick up on. A response that makes a convincing effort to include a variety of influences is likely to reach Level 3 in AO3; those who are much more simplistic in their explanations will not be awarded above bottom of Level 2 in AO3. AO1 + 2 should be rewarded on their respective merits even if there is incorrect observation or if erosional features are the focus; such responses will not reach above Level 1 in AO3. Points include;

- origins of sediment – cliff erosion e.g. headlands
- origins of sediment – rivers e.g. Afon Soch
- movement of sediment – longshore drift e.g. on eastern facing stretch
- movement of sediment – role of swash e.g. Porth Neigwl
- deposition of sediment – low c.f. high energy locations
- wave energy
- tidal influence
- changing sea level – post-glacial rise
- man

2 (a) Describe how the coast operates as an open system. [20]

(b) How might variations in beach profiles be explained? [25]

(a) The phrase 'the coast as an open system' is taken directly from the Spec. and so candidates should be familiar with ideas such as inputs, stores and processes and outputs. This allows candidates to demonstrate their knowledge and understanding of this fundamental concept in general rather than being restricted to a specific aspect of coasts. The idea of the exchange of energy and materials across the boundaries of the coastal system is important for the top mark in AO2. It would be possible to gain full marks with a well labelled diagram, as many of them will have no doubt in the first few sides of notes on this topic. Points include;

- energy inputs – winds, waves, tides
- material inputs – marine e.g. products of cliff erosion and terrestrial e.g. products of sub-aerial, fluvial, glacial processes
- stores and processes – beaches, dunes, marshes, mud-flats, cliffs and shore platforms
- outputs – energy and materials – some retained within the coastal system e.g. sediment on beaches, some transferred out of the system e.g. sediment carried off-shore

(b) As beaches are formed from unconsolidated sediments, they are inherently dynamic and can adjust to changing energy inputs. The relationship between sediment characteristic and the energy inputs is crucial here for top level marks in AO2. Points include;

- role of sediment size – shingle / sand contrast
- role of wave type – high / low energy
- The literature is not always clear regarding wave type with what seems to be the same wave type given different terms. We must read a script with care so as to distinguish between the incompetent and those whose knowledge and understanding take a different nomenclature than our own.
- wave type – key here is the swash-backwash interaction. Higher energy waves tend to produce shallower profiles. Waves arrive in relatively rapid succession and so the swash of a subsequent wave meets the backwash of the previous wave. The ability of that subsequent wave is, therefore, interfered with and so the net movement of sediment is seawards. Lower energy waves tend to produce steeper profiles for the opposite reasons outlined for the higher energy waves.
- sediment size – key here is the permeability of the sediment. This in turn tends to relate to the size of sediment. The larger, more permeable sediment has a swash that travels unimpaired up the profile as the backwash percolates seaward through the pores of the sediment. On sediment with lower permeability backwash returns across the surface interfering with the subsequent swash and its ability to transport material landward.

An indication of a higher level response might be in the mention of one or other of the following; seasonal profiles (sweep zones); beaches in low wave energy environments (Mediterranean); man's role (beach nourishment or extraction), as is the sophisticated argument surrounding process-form relationships i.e. does the wave type create the beach or does the beach create the wave type.

3 (a) With reference to specific coastlines, describe how human activities impact on coastal systems. [20]

(b) Explain why it can be difficult for management strategies/schemes to respond to these impacts. [25]

(a) The need to respond explicitly to the first phrase in the question is clear and will be assessed in AO3. Coastlines is deliberately plural as it is unlikely that one specific coastline as usually delineated at A2 will contain all the possible human activities. If a response does focus on one particular stretch and does seem to have covered the range of human activities that 'can be reasonably expected of an A2 student in the time allowed' then top Level marks are justified. The use of the word 'impact' is deliberate as it allows the widest possible range of activities both positive and negative. It is hoped that responses will not be a catalogue of eco-babble negativity. If it is answered solely in terms of management/coastal defence then top of Level 2in AOs 1, 2 + 3 is the maximum. An effective example here might be the multi-purpose Delta Scheme in the southern Netherlands. Points include;

- recreation
- industry
- housing
- transport
- farming
- fishing

(b) The Spec states that sources of conflict and resultant management strategies/schemes are to include a contemporary case study. This should provide a secure basis for a response here. The link between impacts and management will advise the level to award in AO3, with no link explicit then bottom of Level 2 is the maximum. Depending on that case study will be the range and types of difficulty and so we must be open to a diversity of answers here. Points include;

- physical difficulties e.g. dynamic nature of coastal system; hard engineering difficulties
- human difficulties e.g. coastal system such as a sediment cell crossing several administrative boundaries
- financial cost
- land use zoning; protection of some areas e.g. National Trust land

An interesting contemporary issue is that of 'managed retreat' as regards allowing some locations to flood as the human activity, often agriculture, is deemed not worth defending. Increasing numbers of examples e.g. around the Wash and along the Essex coast.

Option 2: Fluvial Environments

4 Study the 1:50 000 OS map extract of part of the North-West Wales.

(a) Describe how you might measure changes in the velocity and discharge of the Afon Soch between 260308 and 284274. [20]

(b) Explain how in any river, discharge and sediment help in understanding downstream changes in channel shape. [25]

(a) Methods of measuring velocity and discharge are explicitly stated in the Spec. This stretch if the riv as a stimulus so candidates can achieve the higher levels within the various AOs with detailed and relevant reference to their own field work. Credit anything that is appropriate for a sixth-former to be realistically capable of achieving and the type of equipment likely to be available. Comments about a sensible sampling strategy and risk assessment are also appropriate. Perhaps an indication of a top Level candidate in AO2 is mention of the difficulty in measuring bankfull discharge and or taking account of changes over time.

(b) This sub-part takes the theme of discharge and sediment and asks candidates to relate these to channel shape. River channel shape is adjusted to carry the maximum discharge and sediment transported from upstream. It is important for the AO3 marks that the response does link the variables with variations in channel shape. Points include;

- river channels respond to increases in discharge by adjusting their width and depth
- as discharge increases these two dependent variables increase at different rates for different river channels
- in general channel width increases proportionately more rapidly than channel depth as discharge increases
- where channel materials are fine-grained and cohesive (silt, clay) channel sides tend to be steep and depth increases proportionately more rapidly that width as discharge and velocity increase
- where channel materials are coarse and non-cohesive (sand and gravels), width tends to increase rapidly as discharge and velocity increase.
- a higher level response might refer to the contrast between bed-rock channels and alluvial channels as the former take so much longer to respond to changes in discharge. Fieldwork in upland regions might have observed this contrast. Such comments are likely to take the response to Level 3 in AO2.
- Sediment calibre changes downstream – upper reaches tend to have larger sized sediment resulting in a rough channel shape. Thus more energy proportionately is used overcoming friction, less available for erosion so channel development restricted. Vice versa in lower reaches.
- a response that is clear in its understanding that it is bankfull discharge that determines the cross-sectional shape of most rivers is likely to be Level 3 in AO2. Relating this to the difficulty in measuring / estimating bankfull discharge is likely to see the response at Level 3 in AO3.

5 (a) What factors influence changes in a river's base level? [20]

(b) Show how both the long and cross profile of a river and its valley can reflect changes in base level. [25]

(a) Descriptions must focus on base level, 'the controlling theoretical level down to which, but not below which a river can lower its valley by fluvial erosion.' AOs 1 + 2 will assess the knowledge and understanding of the variety of base levels that can influence a river and how they can change through time. Some AO4 marks might come from effective diagrams. Points include:

- eustatic change i.e. sea level changes both positive and negative
- isostatic change i.e. land level changes both positive and negative
- local base level changes e.g. localised tectonic movements – Tertiary in N. Wales for example
- river capture – can be local or on a larger scale
- man's role e.g. in flooding a valley and changes upsteam of a reservoir

(b) The crucial assessment concern here is how effective is the answer at relating changes in base level to landforms of both long and cross profile, with AOs 2 + 3 in particular being used. There need not be an equal balance between the two categories but the complete absence of comment about one would restrict the mark in AO3 to bottom of Level 2. A response that is secure in its knowledge and understanding of rejuvenation landforms but is implicit about their origins will score well in AOs 1 + 2 but is unlikely to reach beyond middle of Level 2 in AO3. There are good opportunities for AO4 marks to be awarded for diagrams. Content might include the following;

- **changes in valley shape in cross profile e.g. valley-in-valley; canyons/gorges**
- **ingrown and intrenched meanders – both examples of incised meanders i.e. where and when a river cuts down into solid bedrock**
- **river terraces both paired and un-paired**
- **knick-points – rapids and waterfalls**

When a response includes comments about a rise in base level and, therefore, a decrease in energy, this might indicate a higher Level answer, e.g. in AO3, depending on the conviction of the writing/diagrams. It is appropriate for such an answer to contain material dealing with features of aggradation such as estuaries and deltas, in particular in the context of the post-glacial rise in sea level over the past 18 000 years.

6 Study the 1:50 000 OS map extract of part of the North-West Wales.

(a) Describe changes in the Afon Soch valley between its source at 249353 and its mouth, 313283. [20]

(b) Suggest reasons for these changes. [25]

(a) It is a matter of assessment which up-stream channel is the river but the one identified here has been chosen as it should be relatively clear for the candidates to follow given the constraints of an exam assessment. Those responses making a genuine attempt to describe this particular river valley are likely to receive Level 3 marks in AO3 whereas those who simply recall pre-learned material will not rise beyond Level 1 in AO3. Points include;

- a response that looks at the initiation of the river on a north-west facing slope in a fairly open valley is perhaps an indication of a higher Level candidate in AO3
- the valley soon becomes the characteristic V-shape with steep sides and little or no flat land on either side. Inter-locking spurs are not well developed here but candidates are entitled to suggest their presence in 24 34.
- Just below the village of Sarn Meyllteyrn the river is joined by two tributaries in quick succession and the valley begins to widen out. Estimates of the valley floor width might be given, c.200 metres, with the break of slope between the floodplain and the valley side clear, especially to the south-west.
- the river valley widens as the river heads south-east
- at 289 269 the river turns abruptly north with the valley having a steep slope defining its eastern boundary and the floodplain extending away to the west
- as the river turns east to flow into the sea it flows through a steep sided section, almost gorge like.

(b) Responses that try to explain this particular real world valley are likely to receive Level 3 marks in AO3 and we should remember the conditions the candidates are working under to generate these responses. This is however, a specialist Option and one would hope they have looked at a good number of OS maps to appreciate the variety of fluvial forms. Points include.

- the first stretch is where water is beginning to accumulate into a discernable flow and valley is part of the open upland slopes coming from Tyn Llidart – a point likely to be made only by the higher Level responses
- rapid vertical erosion exceeds the rate of valley slope denudation in upper course helping generate the V-shaped valley
- a limited amount of meandering lies behind the beginnings of the inter-locking spur development
- lateral erosion and deposition are more in evidence in the lower reaches. Mention of the downstream migration of meanders would be appropriate here. Deposition occurs both laterally and vertically
- the ‘gorge’ towards the mouth is more challenging to explain and probably only the higher Level responses will attempt this. Given the only evidence the candidates have is the OS map we must be open to sensible suggestions on the basis of that evidence.
- the small river mouth reflects the relatively small catchment area it is draining

Option 3: Glacial and Periglacial Environments

7 (a) Describe the ways in which a glacier moves. [20]

(b) Explain the relationship between ice movement and the formation of erosional landforms. [25]

(a) Effective descriptions of ice movement and the different types of glacial sediment will gain marks in AO1 and 2. AO4 marks might be earned through effective diagrams. Points include;

- basal sliding – pressure melting
- internal deformation
- bed deformation
- variations in movement within a glacier – related to frictional drag of valley sides and bottom
- extending and compressing flow
- surges

(b) Perhaps the most effective way of linking movement with erosion is by the use of energy – the more energy the ice has the more it is able to erode and vice versa. For AO3 marks it will be important that the response explicitly links movement with erosional landforms. A catalogue of landforms is a likely indication of a weaker response and so should not receive more than bottom of Level 2 in AO3. The explicit link between movement and erosional landforms is likely to indicate a Level 3 response in AO3. Points include;

- comments about cold and warm based ice, movement and erosion are relevant
- comments about movement and abrasion and plucking/quarrying are relevant
- cirques – rotational sliding of glacier ice to create over-deepened basin and upward direction of ice movement at lip
- glacial troughs including trough heads where ice converges increasing its velocity and erosional capacity
- over-deepening of glacial valleys (ribbon lakes) due to increased velocity and erosional capacity – various reasons e.g. narrowing of valley; convergent ice from tributary glaciers
- roche moutonées
- striations
- there is the generic point about extending and compressing flow relating to ice depth with erosion by ice increasing with increasing thickness of ice. The top Level responses might include here comment about the movement of debris away from and towards the boundary between ice and bedrock and the effect of erosional capacity

8 (a) Describe the ways in which debris moves downslope in periglacial landscapes. [20]

(b) Explain how some landforms in periglacial landscapes show the influence of seasonal variations in climate. [25]

(a) This first sub-part focuses on the processes of mass movement found in peri-glacial regions. There is quite a range of processes that might be included with the AO1 + 2 marks assessing the quality of the knowledge and understanding of these. Points include;

- solifluction – the key mechanism and without this the response can only be assessed at Level 1 in AO1. It is the slow, downslope flow of surface material (waste) saturated with water. Various texts include a variety of processes within this term so we must be open to a variety of responses here. Some include soil creep, mud-flows and debris flows; there are, however some key points that a Level 3 response in AO1 + 2 are likely to include such as movement is of the active layer; it can occur on very gentle slopes e.g. 1^0 or 2^0; highly seasonal. The particles making up the surface of the land lose their shear strength due to loss of friction and cohesion. Variations in the rate of solifluction are due to climate, slope and vegetation cover but typically are in the order of 1 – 10 cms/year
- gelifluction; again there is a degree of variation in how this term is used amongst the texts but generally it seems to be identified as a type of solifluction affecting both frozen ground and areas where permafrost is present. Be open to a variety of descriptions.
- frost heave leading to creep – can be distinguished from solifluction although often part of this as it makes the waste more susceptible by increasing the spaces between particles
- debris flows – more rapid downslope movement e.g. 5m/sec
- rock glaciers
- debris slides where sheets of surface waste moves downslope
- rock fall where freeze-thaw action is pronounced e.g. spring and autumn
- wash processes

(b) This follows on from the first sub-part and asks for an explicit link to be made between seasonal climate and landform development – assessed in AO3. It might an indication of a higher Level candidate if these landforms were not only located in present-day peri-glacial regions but also reference was made to their presence in locations such as the UK representing the legacy of the end of the last Ice Age – assessed in AO1. Points include;

- solifluction / gelifluction sheets – vast expanses of smooth terrain often at low angles
- ploughing blocks
- lobes and terraces
- stone garlands / stone steps
- turf-banked terraces
- block streams
- asymmetric valleys
- ice wedges / veins / lenses

9 (a) Describe the role of flowing water in glacial deposition. [20]

(b) Explain how glaciation can modify pre-glacial drainage patterns. [25]

(a) Glacio-fluvial processes are the focus here and can include pro-glacial features as well as ice-contact features as both involve flowing water not ice. It is likely to be an indication of a higher Level response in AO2 when the competence of the flowing water is mentioned. AO4 marks can be earned through the effective use of diagrams. Points include;

- sorting, size and shape of sediment
- outwash plain / sandar
- valley train
- kame; kame terrace
- esker
- varves

(b) The rearrangement of drainage patterns as a consequence of glaciation is specified in the Spec as part of the section on the effects of deglaciation. The emphasis is on rearrangement of a pre-existing drainage pattern – assessed under AO3. There is a wide variety of material that could be employed to answer this question and we can anticipate some convincing use of exemplar material, possibly with supporting maps / diagrams that might earn AO4 marks. Points include;

- river diversion due to a number of causes at different scales e.g. watershed breaching e.g. River Severn at Ironbridge; diversion due to terminal moraine blocking former path e.g. urstromtäler of North European Plain, rivers Oder and Elbe for example
- glacial overflow / spillway e.g. Lake Pickering
- river capture often associated with breached watersheds
- straightening of valleys
- modification of long profile e.g. corrie lakes; ribbon lakes; rapids
- lochans
- kettle holes
- whole scale (regional) deposition obscuring drainage patterns through infilling of former valleys e.g. East Anglia

Option 4: Hot arid and Semi-arid Environments

10 (a) Describe the characteristic soils of hot arid and semi-arid environments. [20]

(b) Explain the relationship between climate, soils and vegetation in hot arid and semi-arid environments. [25]

(a) The quality of the description of aridisols will be assessed under AO1 + 2. Points include;

- low organic content, > 3%
- dominantly mineral soils of an immature and skeletal type
- not particularly subject to leaching so soluble salts tend to accumulate at a depth in the profile equal to the depth of percolation or to level of water table
- concentration of salts – solonchaks (white alkali soils) when sodium chloride dominates and solonetz (black alkali) when sodium carbonate dominates
- generally low clay content – mostly sandy or silty in texture = very free draining if no crust development

(b) The crucial assessment task here is to identify the degree to which the response brings together these three components, rewarded in AO3. The inter-linkage of these three components ought to be well known and understood. Where a response focuses exclusively, vegetation to the exclusion of soils, then middle of Level 2 in AO3 is the maximum. Points include;

- range of climate conditions but all locations considered here are short of water for continuous or even regular seasonal plant growth.
- soils lack horizon development as minimal water infiltration and percolation
- high temperatures promote high rates of evaporation and this leads to capillary action hence the deposition of salts at surface
- plants therefore need to adapt to such conditions e.g. halophytes
- lack of moisture in the soil results in adaptations e.g. xerophytes – succulents store water in their leaves, stems and roots e.g. cacti; prickly pear + euphorbias. Large root system relative to plant mass above ground. Phreatophytes – long tap roots which seek out deep water e.g. date palm, tamarisk and mesquite
- other plants evade drought by having a life cycle that sees them as seed capable of surviving for many years in the soil until rain arrives. The complete life cycle is then accelerated through a few weeks so that the next generation of seed is produced ready to survive the next prolonged drought
- many desert plants are woody and spiny to prevent being grazed. Spines can replace leaves as this reduces water loss and a woody structure prevents collapse when water is particularly scarce

11 (a) Describe the landform features of sand deserts. [20]

(b) Explain how these features are formed. [25]

(a) Although the popular image of a desert as a 'sea of sand', the classic erg, is misleading, there are extensive areas of deserts where sand dominates. Here candidates are invited to write about sand based landforms. AO1 and 2 will assess the depth and detail of knowledge and understanding of the landforms; for example, the higher Level responses are likely to offer some idea of scale of landforms. AO3 will reflect their ability to focus on sand landforms; if there is no reference to dunes Level 2 is the maximum in AOs 1, 2 +3. Points include;

- ergs – from Arabic and referring to an extensive area (>125 km^2) of sand. Some are vast e.g. Rub'al Khali, Saudi Arabia 560 000 km^2
- a wide variety of dune forms can be described here;
  1. barchan – crescent shaped, horns pointing downwind, height 1 – 30m
  2. seif / linear – long, straight ridge parallel to wind direction. Up to 100m high and 100 km long
  3. parabolic – U-shaped with open end of U facing upwind. Variable in scale
  4. star – isolated hill resembling a star in plan. Ridges converge from basal points to central peak up to 100m high
  5. transverse – asymmetric ridge up to 50 km long and up to 70m high. Parallel ridges about 1-2 km apart
- ripples – small scale features at right angles to prevailing wind direction. 1 to 500 mm high
- features modified by sand e.g. mushroom rocks; ventifacts

(b) Explanation should focus on the landforms described in (a) and is likely to concentrate on the role of wind. There are some general points that could be made as well as dealing with the specific conditions that lead to particular sand landforms. Candidates are likely to concentrate on dunes and this can lead to top level marks across the AOs. Points include;

- low rainfall so that vegetation cover limited leads to unconsolidated surface materials, mostly sand, more easily moved by wind. A point likely to be found only amongst the higher Level responses in AO3
- wind velocity exceeds threshold velocity for entrainment – generally c. 20km/hr
- saltation and suspension
- supply of sand e.g. barchan and seif limited, transverse abundant
- nature of wind regime e.g. barchan constant wind; seif strong wind varying within one general direction; transverse reducing wind velocities; star wind from all directions
- shape of ground surface e.g. regular surface allows longitudinal systems to evolve. Topographic barriers can help generate transverse dune systems
- air flow – e.g. helical flows in the formation of sief dunes ; turbulence in lee of basic asymmetric mobile dune
- perhaps the very best responses will make the point that there is such a complexity of dune forms and one type can readily merge into another that clear separate explanations are too simplistic

12 Study Fig. 2 which shows a desert landscape in Death Valley, California.

(a) Identify the desert landform features, A, B and C and describe their characteristics. [20]

(b) How are these features likely to have been formed? [25]

(a) The picture, as the candidates know, is from Death Valley, California. This is part of the basin and range situation common in south-west USA. We must be sensible regarding the identification of the landform features and be flexible in terminology and indeed possibilities on the basis of this particular photograph.

- A - mountain front, range front, scarp. Steep slopes often 40^0, unvegetated, intensely dissected with 'wineglass' valleys cut into the face. Possibility of wadi / small canyon
- B – alluvial fan coalescing into baj(h)ada (alluvial apron). They vary greatly in size, both depth and width and length, with some of the largest in the world found in Death Valley. Delta like feature spreading in a radial pattern from an outlet in the range front. Much shallower angle c.f. range front and tend to decline in slope angle the further from the range front the fan extends. Tend to find coarse material grading to finer particles across the fan from front to back. If water table close to the surface can have vegetation growing on it.
- C – playa / former lake bed. Low angled (< 5^0 – playas generally <2^0) Playas or salt lake occupy centres of the basin. Made up of layers of clay and or silt that usually contain large amounts of soluble salts. Can be occupied by ephemeral water. Colonised by halophytic vegetation. Pediment also accepted.

(b) If there is a mis-recognition in (a) credit should be given in AO 1 + 2 to correct knowledge and understanding of the landform feature as identified by the candidate. AO3 will reach no higher than bottom of Level 2 compared to a candidate who identified correctly the features when level 3 is possible. An equal treatment of the three features is not needed to gain the maximum mark. Points include;

- A – range front – references to tectonic activity appropriate here and might indicate a Level 3 response. The front is part of the faulted block mountain that have been tilted to form asymmetric ranges with this being the steeper slope. The front is weathered both mechanically and chemically by a variety of processes e.g. granular disintegration; crystal growth and solution. Action of running surface water can be seen in the valleys that have their outlet in the front. This particular image has clear evidence of gullying.
- B – alluvial fan a depositional landform which develop where a flow of water running off the range front meets a much gentler slope. The break in slope results in significant energy loss in the stream/river so deposition of the suspended and bed load occurs. The water breaks out into smaller distributaries and produces a fan shaped feature. Material often graded from coarse to fine across the fan as the flow of water is intermittent. Often layered also reflecting periods of different flow intensities. Where the fans are close to each other they can coalesce to form a baj(h)ada (alluvial apron). Sometimes these cover up pediments. Form varies with successive inputs of water.
- C – playa – key process here is that evaporation greatly exceeds inputs. The basins tend not to have outlets, as water never builds up to levels that would generate outflow. Fine silts, clays and evaporite deposits make up the playa. In places conditions are suitable for vegetation to colonise.

Option 5: Applied Climatology

13 Study the 1:50 000 OS map extract of part of the North-West Wales coast and Fig. 1 which shows the location of the map extract in its regional setting.

(a) Describe the likely variation in climate due to the topography of the area of north-west Wales shown on the OS map extract. [20]

(b) Explain how these climatic variations are likely to influence the pattern of human activities in the area. [25]

(a) Topo-climates are a major sub-heading within this Option. Within this, attention is drawn to the climate of slopes and valleys and so this will be our main focus. Clearly AO3 marks will depend on the use an answer makes of the map. Points include;

- south facing slopes c.f. north-facing – temperature contrasts
- west-facing c.f. east-facing – contrast in exposure to prevailing westerly winds – average and maximum contrasts
- altitude differences – not that large but enough to make a difference in temperature, precipitation amount and type, frost, hill fog

(b) The question asks for an explicit link to be made between topo-climate and human activities. The degree to which a response achieves this will be assessed in AO3. The range of possibilities as to what we can accept as human activities is wide and any sensible interpretation of what might the pattern be is acceptable. The scale of the map means that a degree of supposition is sensible. Points include;

- location of settlements e.g. farms, Abersoch's original site centred around 316 283 is sheltered from the south-west wind
- what woodland there is tends to be on more sheltered slopes
- likely contrasts in agriculture

14 (a) Describe 'wind throw' and the circumstances under which it occurs. [20]

(b) Explain the climatic differences between forests and their surroundings. [25]

(a) Wind throw refers to the complete up rooting of trees, not just physical damage such as limb or crown loss. Points include;

- extreme / catastrophic weather events e.g. storm of 1987 in Southern and eastern England; 1999 Vosges
- role of soil in anchoring trees e.g. sandy / clay contrast but also depth of soil e.g. chalk rendzina c.f. brown earth
- antecedent rainfall patterns in influencing moisture levels of soil before strong winds
- location of trees e.g. exposed positions on headlands
- also allow effects of volcanic eruptions if it is made clear that it is the very strong air movements (blast) that cause the throwing e.g. Mt. St. Helens eruption

(b) The question is clear in the requirement to describe the contrasts between forests and their surroundings. Temperature, radiation, wind speed and humidity can be expected in the higher Level responses. Responses offering contrasts between forest types, e.g. deciduous/evergreen likely to be higher Level. Points include;

- temperature – forests have relatively low albedo c.10% of solar radiation reflected c.f. c.25% grassland. During the day shaded areas in forests receive less insolation than open areas; at night reduced loss of long-wave radiation due to forest canopy c.f. open areas and increased content of water vapour also helps trap more long-wave energy. In summary, daytime temperatures lower, night-time higher than surrounding areas
- wind speeds reduced within forest
- latent heat (evaporation) contrasts – possible seasonal contrasts here depending on forest type – a likely indication of a higher Level response. Forest humidity is generally higher by about 10% than surrounding areas.
- seasonality in terms of leaf cover e.g. conifers in winter, deciduous in summer

15 (a) Describe the contribution of meteorological factors to major air pollution episodes.

[20]

(b) With reference to examples, explain how major air pollution episodes cause human problems. [25]

(a) Meteorological factors are explicitly stated in the Spec. Candidates might chose to answer by using a single detailed case study or by considering a range of situations – either can result in top Level marks. Points include;

- temperature including inversions
- wind – as regards directional spread of pollution and in relation to concentration of pollutants
- precipitation – acid rain

(b) There are many possibilities for candidates to employ here and as in sub-part (a) candidates might chose to answer by using a single detailed case study or by considering a range of situations – either can result in top Level marks. There are possibilities for the consideration of local, national and global scale initiatives, which might be an indication of a Level 3 response. Points include;

- air quality – health issues e.g. asthma
- air quality – loss of economic productivity with people off work
- air quality – children not at school
- air quality – disruption of communications e.g. airport closure

Section B

Group B Options

Option 6: Agriculture and Food

16 (a) Describe how relief influences agricultural systems. [20]

(b) How may technology be used to overcome physical obstacles to agricultural production? [25]

(a) Within the section on the influence of the physical environment on agricultural systems, relief is explicitly mentioned. Three elements contribute to relief's influence, altitude, slope and aspect. Clearly their influence is inter-linked with factors such as climate, something the better responses are likely to make clear and can be rewarded in AO2. Responses might try a generic approach, describing factor by factor how relief influence agricultural systems. An alternative approach might be to look at a single farm where, within the farm, a variety of relief is found and results in a variety of land-uses. Either can lead to top Level marks. It is vital for Level 3 marks in AO3 that the individual points are explicitly linked to agricultural practices. Points include;

- altitude – mostly via climate e.g. temperature and length of growing season; precipitation; hours of sunshine; but also soil quality. An interesting point is the different influence altitude has at various latitudes e.g. zonation of land-use in the tropics - a point likely to indicate a Level 3 response
- aspect – a local scale factor with similar influences to altitude
- slope – relates to ability to work the land e.g. influence on mechanisation but also differences amongst livestock e.g. cattle c.f. sheep

(b) The question is opened out in this sub-part to include any physical obstacle, not just soils, and examples can be drawn from both LEDCs and MEDCs but must be tied to physical obstacles. Pests and diseases count here. Can be a broad brush approach or develop fewer ideas in greater detail. There is a wealth of material and at a variety of scales from a large-scale irrigation project to the installation of field drains by one farmer in a particular area of his land. Technology should also be given a wide interpretation from the high-tech approach of modern glasshouses and genetic modifications to low stone walls in the Sahel.

17 (a) Describe the main features of one type of farming as an agro-ecosystem. [20]

(b) Explain why some types of farming are more sustainable than others. [25]

(a) Agro-ecosystems are a major head within this Option with four elements explicitly stated energy and nutrient flows; productivity; diversity and stability; and sustainability. AO3 marks will reflect the degree to which the response relates their case study to the idea of a particular agro-ecosystem. Maximum of Level 1 in AO3 if no farming 'type' is clear. Convincing knowledge and understanding of the chosen farming type is likely to reflect a Level 3 response in AO1 + 2.

(b) The relationship between agriculture and the environment operates in two directions. Agriculture has a huge impact on cultural landscapes and ecosystems as well as being broadly influenced by the physical landscape. Sustainability can be investigated in terms of the former looking at the impact on the physical environment but also its effects on the social and economic environments. Sustainability can be seen in physical or economic or cultural ways.
There are several ways of approaching this topic, all equally valid, so we must be open to however the response is crafted. It is important that as comparison is in the question then comparison should be in the answer with separate accounts of farming types reaching but not exceeding bottom of Level 2 in AO3. Some responses might chose to compare through time, also a valid approach.

18 (a) Describe current global variations in food shortages and famines. [20]

(b) Explain why the security of food supplies varies from one region to another. [25]

(a) Food supplies are explicitly mentioned in the Spec. with food shortages and supplies being explicitly stated. The question asks for 'global variations' and without this Level 1 in AO3 is the maximum. Points include:

- generally in the last few decades of 20th century, world food output increased more rapidly than did world population.
- increase in output more rapid in LEDCs than MEDCs albeit from a much lower base
- MEDC / LEDC contrast in terms of actual yields
- LEDC clearly divided between Asia + L. America and Africa – in latter there were some regions where food output per person actually fell
- number of people suffering food shortage generally fallen in Latin America and Caribbean and most of Asia but risen in sub-Saharan Africa.
- famine – increasingly seen as a decline in the access to food rather than a decline in the available food supply. Either way, famines have a spatial pattern with sub-Saharan Africa often figuring. The more convincing responses are likely to identify locations throughout the LEDCs where famine has struck

(b) Food security (insecurity) relates to the identification of people with access to sufficient nutritious food needed to keep them alive and healthy. As in sub-part (a) there is a clear spatial framework within which responses should be set. The question simply uses the term 'region' and interpretation of this should be left to the candidate. It is likely that answers will use the global scale referring to continents but intra-national material is relevant. It is important that as comparison is in the question then comparison should be in the answer with separate accounts of regions reaching but not exceeding bottom of Level 2 in AO3. Points include;

- increases in yields in relation to population growth – key idea here concerns the ability of yield increase to match or outstrip population growth so that food production per person increases. Africa, in particular sub-Saharan Africa is a region of concern but so too are areas of Asia and L. America.
- technology (in its widest definition e.g. bio-technology as well as mechanisation and irrigation) used to overcome physical obstacles – MEDC regions more able to achieve this but also some parts of other regions
- globalisation of food production resulted in MEDCs sourcing food from LEDCs where TNCs control significant areas of prime agricultural land that is therefore, not used to produce local staples. This also includes production of non-food products such as flowers
- ability of MEDC regions to source food from wherever using income from non-agricultural activities
- political obstacles to increasing food production in some areas e.g. where civil / international conflicts arise
- physical obstacles e.g. drought affects some regions more than others

Section B

Group B Options

Option 7: Manufacturing Industry: Location, Change and Environmental Impact

19 (a) Outline the factors that lead to some industries clustering in space. [20]

(b) Explain why regional industrial specialisation brings both advantages and disadvantages. [25]

(a) A factor led description would be a secure way to approach this question. The level of
knowledge and understanding of each factor will advise the Level to award in AO1 + 2. Points include;

- raw materials e.g. traditionally iron and steel – coking coal, iron ore, limestone; chemicals – salt
- energy e.g. coalfields; HEP and electro-metallurgy e.g. Norway
- skilled labour
- government influence e.g. regional policy can 'direct' investment to certain locations; at a smaller scale – local government industrial estates
- tidewater – break of bulk points e.g. Europort-Rotterdam; Tees-side
- transport infrastructure e.g. M27 high-tech
- component suppliers

(b) The need to explain advantages and disadvantages is clear but there need not be an equal treatment for top Level marks: to reach Level 2 marks in AO3 there will need to be consideration of both. Again good quality exemplification will strengthen a response with both AO1 + 2 referring to the use of examples. The term 'regional' should not preclude material referring essentially to an urban area and can receive a broad interpretation. Points include;

- specialisation promotes linkage of various types e.g. supplies of materials and components; availability of specialist services such as transport and maintenance
- specialisation generates pool of skilled labour
- reduced transport times between suppliers and customers – encouraged Just In Time operations
- leads to an 'all one's eggs in one basket' i.e. if that particular industrial sector goes into recession then the entire region suffers and vice versa when growth occurs
- specialisation can lead to large urban-industrial conurbations developing that can lead to dis-economies of scale e.g. congestion; constrained location; pollution
- competition for labour and the resulting higher wage costs

20 (a) Describe the attraction of coastal locations to certain types of manufacturing industry. [20]

(b) Explain the consequences of a factory closure on communities at a local scale. [25]

(a) Knowledge and understanding of appropriate industries will be assessed in AO1 + 2 with credit going to descriptions of large scale processing industries. The better responses might point out that it is not just the coast but rather specific locations with particular features – an indication of Level 3 in AO2. Points include;

- influence of raw materials – bulky imports that undergo weight loss during processing i.e. break of bulk sites
- influence of markets – products could be shipped out
- influence of transport – raw materials imported in large carriers that require deep water access
- economies of scale – large scale factory needs large scale site. Room for building and possible expansion. Relatively cheap land – salt marsh and mud flats which can be reclaimed.
- concern about noxious fumes – some coastal sites allow ready dispersal of pollutants
- ship-building!
- attraction not solely large scale processing e.g. movement of Japanese/Taiwanese electronic firms to coastal locations in China partly for ease of export of assembled goods

(b) The consequences of manufacturing are explicitly stated in the Spec. Local scale is capable of a de

- multiplier in reverse
- loss of local taxes e.g. lack of money for infrastructure upkeep
- unemployment – will affect all groups but particularly hard hit are those unlikely to find alternative employment e.g. those with very specialist skills; those over 45 (mm!);
- new jobs likely to be in service sector or lighter manufacturing – difficulties for retraining especially those with only basic education and who might have left education at an early age
- out-migration – probably easier for those with transferable skills e.g. IT; those with education to degree level
- air / land / water pollution as a result of dereliction
- social and cultural consequences e.g. loss of community; impact on individual families of unemployment
- positive factor – accelerates restructuring of the local economy attracting government and private capital + FDI. This point is a possible indicator of a Level 3 response.

21 (a) Under what circumstances does industrial inertia influence the location of manufacturing industry? [20]

(b) Explain how changes in the global distribution of manufacturing industry have been influenced by labour. [25]

(a) Industrial inertia is 'the tendency for industry, once established, to remain in its existing location rather than to move with changing economic circumstances.' AO3 will assess the degree to which a response relates this definition to manufacturing location. Points include;

- localised skilled labour force
- localised specialist support services e.g. haulage contractors / maintenance
- significant fixed capital owned by the industry accumulated in a particular location
- significant fixed capital owned by society e.g. infrastructure such as roads

These are seen in several heavy industries e.g. iron and steel, chemicals and industries with a strong reliance of particular labour skills such as pottery / ceramics in Staffordshire. Coal-fields remain important, albeit much reduced, manufacturing locations.

(b) On average labour accounts for c. 25% of total costs in manufacturing. Responses that show how labour quality and or availability are also important are likely to reach Level 3 in AOs 1, 2 + 3; labour cost alone is unlikely to receive higher than bottom of Level 2. The question is also specific in its focus on global scale and we can expect to read some convincing exemplification. Points include;

- labour costs – LEDC / MEDC contrast and the role of TNCs
- labour quality – New International Division of Labour e.g. HQs in MEDCs and NICs, branch plants in NICs and LEDCs
- labour availability – relates to previous two points e.g. rapid growth of manufacturing in SE China
- increasing quality of labour in NICs and some LEDCs allows more skilled employment to develop

Option 8: Service Activities: Location, Change and Environmental Impact

22 (a) What is meant by 'hierarchy' and 'centrality' in the location of service activities? [20]

(b) Explain the changes in many service hierarchies during the past 40 years. [25]

(a) The concepts of hierarchy and centrality are explicitly mentioned in the Spec. and are fundamental to an understanding of the location of service activities. AO1 will assess the security of knowledge of the concepts with AO2 marking the degree of understanding to service provision. It is important that the response links the concepts to location as without this then Level 1 in AO3 will be the maximum. Points include;

- hierarchy – an ordered system that places its elements according to their relative status. In this particular context responses are likely to describe how a service hierarchy contains many centres supplying low order functions with fewer centres at each respective level up in the hierarchy supplying higher and higher order functions at each level. It is important for the higher level marks in AO2 that the response contains the point that at each successive level in the hierarchy, not only are there distinguishing higher order functions but also all the functions in the level(s) below it.
- centrality – a measure of how important a service centre is in terms of providing goods and services. At each successive level in a hierarchy the centrality also increases. Measures of centrality might be mentioned e.g. variety of functions; total numbers of functions; area of retail floorspace; total population is used as a simple indicator.
- the link with location is made through the point that not all functions need to be available everywhere and indeed it is not possible for this to be achieved normally as thresholds are not met
- the question does not restrict the candidate to dealing with these ideas in either a rural or an urban context

(b) As with sub-part (a), the question is open-ended as regards the context(s) in which the answer can be placed. The idea of change is well-established as regards service provision both intra-urban and in rural areas. Points include;

- population change leading to threshold decline or growth
- planning decisions e.g. key settlement policies
- decisions by major retailers and service providers such as banks to rationalise and achieve economies of scale
- decisions by providers of public services e.g. health and education to rationalise and achieve economies of scale
- decisions by individuals made on the basis of improved personal mobility especially private car ownership
- growth in competition from mail order and inter-net retailing

23 (a) Describe the characteristics and locations of retailing found within the Central Business District (CBD). [20]

(b) Explain how and why planners try to maintain the status and quality of retailing in the CBD. [25]

(a) Two retailing components make up this question, characteristics and locations. It will be possible for a response to achieve top of Level 2 / bottom of Level 3 marks with a strong preference to describing one of these components, but the highest marks should be reserved for those answers making a sustained and convincing attempt to describe both. Comments either about retailing beyond the CBD or offices are irrelevant. We should be open to the candidate's choice of scale of urban centre although realistically a clearly defined CBD only emerges in medium and large scale centres.

Points include;

- high-order comparison retailing tends to dominate
- strong presence of national / international chains
- strong presence of clothing / household good
- strong presence of food retailing especially 'fast' including coffee culture
- specialist retailers e.g. jewellery;
- retailing rarely occupies highest value land (PLVI) especially in the larger CBDs e.g. capital cities and regional centres
- multiples dominate a location and then with increasing distance from this specialist and medium order units can locate
- some CBDs have large scale centre/mall developments
- clustering of similar outlets

(b) It is likely that responses will make widespread use of exemplar material and this could be very effective in the context of this question. The two components in the question, 'how' and 'why' are both needed for the highest marks but an equal treatment is not needed to reach top of Level 2 in AO3. Points include;

- construction, in partnership with private sector, of under-cover centres
- improved access e.g. bus, train and cars including parking and park and ride schemes
- pedestrianisation of some streets
- environmental improvements e.g. cleaning of old buildings, landscaping including greenery
- why – desire to maintain a vibrant centre, avoid negative image/perceptions that would apply to whole urban area
- why – maintain tax revenue
- why – competition from out-of-town centres

24 (a) Describe the characteristics of the following types of service locations: regional shopping centre; office park; edge city. [20]

(b) Explain how the decentralisation of service activities has brought advantages and disadvantages. [25]

(a) These three types of service locations are explicitly stated in the Spec. under the heading 'Retailing and office location out-of-centre'. Points include;

- regional shopping centre – planned edge of town shopping centre, comparable in scale and range of shops to the central shopping area of a large town or city. Offer the full range of high street shops. Dominated by chain stores, multiples. Most are fully enclosed with services such as restaurants/ coffee bars/cinemas. Extensive car parking surrounds them.
- office park – planned edge of town cluster of offices occupying purpose built buildings. Depending on the local planning legislation they can be several stories high but not of skyscraper proportions. Set in landscaped grounds with extensive car parking. Supporting services such as food retailers and health club facilities often present.
- edge city – city-like settlements on the fringes of existing urban settlements. Most common in USA. Made up of socially and economically high status residential areas that in USA are increasingly divided into gated communities. Often located in spatial association with office parks and shopping malls. Private car transport dominates.

(b) The two components in the question, 'advantages' and 'disadvantages' are both needed for the highest marks but an equal treatment is not needed to reach top of Level 2 in AO3. A purely descriptive answer rather than one that seeks to explain might indicate a weaker response; such a response should not receive more than bottom of Level 1 in AO3. The question does not limit the candidate as to how they wish to answer this as the impact of such developments affects not only the services but also the communities in which they operate. Points include;

- cheaper land
- more space
- improved environment e.g. for residential areas and office parks
- improved access – benefits both providers e.g. deliveries and journey to work of employees from suburban or fringe locations and customers
- modern constructions more suitable for present day operations e.g. offices with all their cabling
- loss of green-belt / fringe land
- increased road congestion in suburban / fringe locations
- loss of economic vitality in central locations
- disadvantages to some social groups due to their restricted mobility

Option 9: Tourism and Recreation and their Environmental Impacts

25 Study the 1:50 000 OS map extract of part of North-west Wales and Fig. 1 which shows the location of the map extract in its regional setting.

(a) Describe the types of tourist resources shown on the OS map extract. [20]

(b) Explain how tourism and recreation can play an important role in regional development. [25]

(a) The need to identify and assess resources for tourism is a well-established theme in this Option. The stimulus of the OS map gives a clear context in which candidates can describe resources. Three categories of resources are explicitly stated in the Spec; it is difficult to state with a firm certainty which category some of the map evidence might fall into and so Level 3 marks can be given in AOs 2 + 3 for responses that offer convincing description of a variety of responses. It is important that 'resources' and not attractions are the focus so that a response that focuses only on tourist features as given by the blue symbols on the map does not receive more than bottom of Level 2 in AO2. Points include;

- coastline – including beaches, cliffs islands; footpaths
- harbours including marina at Pwllheli
- National Trust land indicating scenic resource
- camping and caravan sites
- tourist information e.g. Abersoch
- leisure centre (Pwllehi); golf courses
- historical sites e.g. Standing Stone 28 32
- small towns, villages, hamlets and isolated farmsteads

(b) The topic of tourism and recreation as part of regional development strategies is under the heading 'The influence of government on tourism and recreation' and can be set in either a MEDC or LEDC context. Responses can take the stimulus of sub-part (a) and its particular place location but responses do not need to restrict themselves to this location. Points include;

- impact on employment
- infrastructure investment that has all year round benefits such as roads
- conservation of physical landscapes and ecosystems that act as a draw for tourists also benefit a traditional way of life
- impact on local services by providing them with increased income seasonally which helps maintain them through the low season
- urban tourist developments
- recreation facilities attracts local people, often all year round e.g. swimming pools / leisure centres – generates employment + wealth

26 (a) What is meant by the life cycle (Butler) model of a tourist location? [20]

(b) Explain how changing social and economic circumstances have influenced where people take their holidays. [25]

(a) The Butler model of tourism development is explicitly stated in the Spec. and should be well known to the candidates. There are opportunities for AO4 marks to be gained via a convincing diagram – labelling the axes correctly might help advise AO1 mark.. Some six stages are usually recognised but their nomenclature varies amongst texts so we must be flexible here. Some texts attribute this life-cycle model to Briggs. See overleaf for outline of the model. The stages are usually considered as follows;

- exploration – low visitor numbers; few tourist facilities; relies on outside organisations; attraction often physical or cultural resource e.g. Kamchatka; Kirgystan
- involvement – local residents begin to be involved in tourist industry providing facilities; tourist season recognisable e.g. Amazon; Vietnam
- development – increasing numbers of tourists; increasing use of trans-national organisations; growing tension between locals and tourists e.g. Gambia; Prague; Estonia
- consolidation – local economy more reliant on tourism; rate of growth in numbers slowing e.g. earlier Mediterranean resorts
- stagnation – low numbers stationary; resort no longer perceived as fashionable; physical fabric beginning to look run-down lacking in investment e.g. some Mediterranean resorts
- decline – some seaside resorts e.g. Morecombe / Rhyl; rejuvenation – some sea-side resorts e.g. Brighton / Llandudno; stabilisation – some resorts holding their own e.g. Scarborough / Broadstairs

(b) The focus is clear in the question and so AO3 marks will reflect how successful a response is at dealing with these sets of circumstances. The clear linking of social and economic with changing patterns of holidays is likely to indicate a response worthy of Level 3 in AO3. The question is deliberately open so as to allow the inclusion of material from a wide time band. Points include;

- limited time for holidays meant a spatial restriction – day outings to a local seaside location e.g. Liverpool to New Brighton; Cardiff to Penarth
- limited disposable income meant a spatial restriction
- increasing amounts of time off allowed longer journeys
- increasing disposable income allowed longer journeys
- these points can be exemplified in changes to holiday patterns from the midC19th to the present day
- social can include knowledge and understanding about overseas locations
- economic can include comments about the comparative low cost of fuel allowing greater distances to be covered e.g. flying but also cars
- increasing disposable incomes and longer holiday entitlements allow many to take shorter breaks out of the main summer season. These can be to traditional resorts or to urban areas for ‘city breaks’
- improving economic and social circumstances in some LEDCs destinations

27 (a) Outline the factors that have led to mass tourism. [20]

(b) Explain why some tourist destinations have developed alternative types of tourism.

[25]

(a) To read some scripts is to believe that mass tourism is a product of the later 20th century. Those responses suggesting that it began in the late 19th century are more likely to receive Level 3 marks in AO2. It is important that the higher Level responses are characterised by a description of the circumstances giving rise to mass tourism and that those who simply describe the forms should not receive more than top of Level 1 bottom of Level 2 in AOs 2 + 3. The most convincing responses might recognise that there are similarities between the late 19th and late 20th century developments. Points include;

- role of transport – railways and larger scale jet aeroplanes
- development of new resorts – Blackpool and Malaga
- provision of relatively affordable accommodation – boarding houses and high-rise hotels
- more leisure time
- more disposable income

(b) Alternatives can be seen in a variety of locations and responses can select freely from these. The top level marks in AO3 will go to those responses which clearly state the reasons for the particular style of tourist development being discussed. The regurgitated case study will rarely lift the answer above bottom of Level 2 in AO3. Central to these alternatives is the sustainability of their style of development. This is to be seen not just in terms of the physical environment but also for the human environment such as economic and cultural aspects. Generally such alternatives are smaller in scale. If the response solely deals with resort change then top of level 2 in AOs 2 + 3 is the maximum. Points include;

- eco-tourism - sustainablity
- heritage tourism
- adventure / wilderness tourism
- rethinking an existing tourist destination e.g. Newquay – traditional bucket and spade to surfing; Exmouth marina development
- urban areas not previously tourist destinations exploiting heritage / cultural resources e.g. Birmingham / Newcastle upon Tyne

Mark Scheme 2684
June 2005

People and Environment Options

GENERIC ASSESSMENT CRITERIA

1 Knowledge of content (0-8 marks)

Level 4	Candidates have detailed knowledge of appropriate themes, processes and specific environments and places. They have detailed knowledge of relevant concepts, principles and theories, and of a wide range of geographical terms. They have detailed knowledge of the connections between different aspects of geography represented in the specification.	**7-8 marks**
Level 3	Candidates have clear knowledge of appropriate themes, processes and specific environments and places. They have clear knowledge of relevant concepts, principles and theories, and of a range of geographical terms. They have clear knowledge of the connections between different aspects of geography represented in the specification. There must be evidence of synoptic connections with other parts of the specification to achieve more than level 2.	**5-6 marks**
Level 2	Candidates have sound knowledge of some appropriate themes, processes and specific environments and places. They have sound knowledge of some relevant concepts, principles and theories, and of some geographical terms. They have sound knowledge of some connections between different aspects of geography represented in the specification.	**3-4 marks**
Level 1	Candidates have basic knowledge of some appropriate themes, processes and environments and places. They have basic knowledge of some relevant concepts, principles, theories, and geographical terms. They have basic knowledge of some connections between different aspects of geography represented in the specification.	**0-2 marks**

2 Critical understanding of content (0-22 marks)

Level 4	Candidates have detailed critical understanding of the content of the specification and have detailed critical understanding of the connections between the different aspects of geography represented in the specification.	**18-22 marks**
Level 3	Candidates have clear critical understanding of the content of the specification and have clear critical understanding of the connections between the different aspects of geography represented in the specification. There must be evidence of synoptic connections with other parts of the specification to achieve more than level 2.	**12-17 marks**
Level 2	Candidates have sound critical understanding of some of the content of the specification and have sound critical understanding of some of the connections between the different aspects of geography represented in the specification.	**6-11 marks**

Level 1	Candidates have basic critical understanding of some the content of the specification and have basic critical understanding of some connections between the different aspects of geography represented in the specification.	**0-5 marks**

3 Application of knowledge and critical understanding in unfamiliar contexts (0-22 marks)*

Level 4	Candidates apply their knowledge and critical understanding of the specification content and connections to different aspects of geography represented in the specification, relevantly and where appropriate at a range of scales. They evaluate arguments, ideas, concepts and theories in detail.	**18-22 marks**
Level 3	Candidates apply most of their knowledge and critical understanding of the specification content and connections to different aspects of geography represented in the specification, relevantly and where appropriate at a range of scales. They evaluate arguments, ideas, concepts and theories clearly. There must be evidence of synoptic connections with other parts of the specification to achieve more than level 2.	**12-17 marks**
Level 2	Candidates apply some of their knowledge and critical understanding of the specification content and connections to different aspects of geography represented in the specification, relevantly. They attempt a basic evaluation.	**6-11 marks**
Level 1	Candidates explain contexts using basic ideas and concepts.	**0-5 marks**

* **Maximum 11 marks for application and 11 marks for evaluation**

4 Communication (0-8 marks)

Level 4	Candidates use an appropriate range of communication skills fluently and in different formats; present information within a logical and coherent structure; where appropriate, synthesise information from a variety of sources; use spelling, punctuation and grammar with a high level of accuracy; and employ geographical terminology with confidence.	**7-8 marks**
Level 3	Candidates use an appropriate range of communication skills clearly in different formats; present information within an effective structure; use spelling, punctuation and grammar with accuracy; and use a range of geographical terms.	**5-6 marks**
Level 2	Candidates use a limited range of methods to communicate knowledge and understanding; make some effort to structure their work; and use spelling, punctuation and grammar with some accuracy; and have a basic knowledge of geographical terminology.	**3-4 marks**

Level 1	Candidates use a limited range of methods to communicate knowledge and understanding; make only a basic attempt to structure their work; use spelling, punctuation and grammar with variable accuracy, and have only sparse knowledge of geographical terminology.	**0-2 marks**

1 'Geographical isolation is the principal obstacle to regional development'. Comment on the accuracy of this statement using examples from the EU. [60]

A01 Knowledge of content (0-8 marks)

Level 4 7-8 marks
Candidates will have detailed knowledge of a range of examples from the EU where the statement is appropriate and where it is not. They will use concepts such as the core-periphery model to explain their examples. A good range of physical, economic, social and political factors will be cited as alternative obstacles

Level 3 5-6 marks
Candidates will have clear knowledge of a range of examples where the statement is appropriate and where it is not. They may use concepts such as the core-periphery model to explain their examples. A range of physical, economic, social and political factors will be cited as alternative obstacles

Level 2 3-4 marks
Candidates will have sound knowledge of a limited range of examples where the statement is appropriate and where it is not. They will have limited knowledge of basic concepts and theories to explain their examples. A limited range of physical and human factors will be cited as alternative obstacles.

Level 1 0-2 marks
Candidates will have limited knowledge of examples where the statement is appropriate or where it is not. They do not seek to offer appropriate concepts to explain their examples.

A02 Critical understanding of content (0-22 marks)

Level 4 18-22 marks
Candidates will demonstrate detailed understanding of cause-effect impact of isolation and other physical, economic, social and political factors on regional development. This is underpinned by an effective use of concepts or theories to explain causes of differences in regional development in the EU.

Level 3 12-17 marks
Candidates will demonstrate a clear understanding of cause-effect impact of isolation and other physical and human factors on regional development. They may use a limited range of models to explain some of the differences in regional development in the EU.

Level 2 6-11 marks
Candidates will demonstrate a sound understanding of cause-effect impact of isolation and other physical and human factors on regional development. They may use a model to explain some of the differences in regional development in the EU.

Level 1 0-5 marks
Candidates will demonstrate a limited or vague understanding of cause-effect impact of isolation and a limited range, if any, of other physical and human factors on regional development. There will be no attempt to use models or theories to explain differences in regional development in the EU.

A03 Application of knowledge and critical understanding in unfamiliar contexts (0-22 marks)

Level 4 **18-22 marks**
Candidates apply their knowledge and critical understanding of geographical isolation and the impact of a variety of factors on the levels of regional development within the EU at a variety of scales and/or over time/development. Candidates at this level will argue that isolation is not the principle factor responsible today. Some may even question the concepts of regional development and 'obstacle'.

Level 3 **12-17 marks**
Candidates apply their knowledge and critical understanding of geographical isolation and the impact of a variety of factors on the levels of regional development within the EU. Candidates at this level will argue that isolation may not be the principle factor responsible.

Level 2 **6-11 marks**
Candidates apply some of their knowledge and critical understanding of geographical isolation and the impact of a variety of factors on the levels of regional development within the EU. Candidates at this level may attempt a basic evaluation of the principle factors responsible.

Level 1 **0-5 marks**
Candidates apply limited or vague knowledge and critical understanding of geographical isolation and the impact of some of the factors on the levels of regional development within the EU. Candidates at this level will offer little, if any, evaluation or will accept the quote as accurate.

Maximum 11 marks for application and 11 marks for evaluation

A04 Communication (0-8 marks)

Use generic assessment criteria

2 'The exploitation of commonly-owned transnational resources brings ruin to all'. Discuss with reference to the EU's Common Fisheries Policy. [60]

A01 Knowledge of content (0-8 marks)

Level 4 7-8 marks
Candidates will have detailed knowledge of the EU's Common Fisheries Policy and a range of examples where the statement is appropriate and where it is not. They will use concepts such as conservation policies or management of a semi-renewable resource. A good range of physical, economic, social and political factors will be cited as reasons for either exploitation or 'ruin'.

Level 3 5-6 marks
Candidates will have clear knowledge of the EU's Common Fisheries Policy and examples where the statement is appropriate and where it is not. They will demonstrate knowledge of some concepts such as conservation policies or management of a semi-renewable resource. A range of physical, economic, social and political factors will be cited as reasons for either exploitation or 'ruin'.

Level 2 3-4 marks
Candidates will have sound knowledge of the EU's Common Fisheries Policy and a limited range of examples where the statement is appropriate and where it is not. A limited range of physical and human factors will be cited as reasons for either exploitation or the EU policy.

Level 1 0-2 marks
Candidates will have limited knowledge of the EU's Common Fisheries Policy and a very limited range of examples where the statement is appropriate and where it is not. Few physical and human factors will be cited as reasons for the EU policy.

A02 Critical understanding of content (0-22 marks)

Level 4 18-22 marks
Candidates will demonstrate detailed understanding of cause-effect impact of overexploitation of 'commonly owned' resources and the physical, economic, social and political factors that then lead to 'ruin'. There may be some reference to concepts such as reverse multiplier. This is underpinned by an effective use of concepts of conservation and management as expressed in the EU's Common Fisheries Policy.

Level 3 12-17 marks
Candidates will demonstrate a clear understanding of cause-effect impact of overexploitation of 'commonly owned' resources and the physical and human factors that then lead to 'ruin'. There will be some reference to concepts such as conservation and/or management of commonly owned transnational resources as expressed in the EU's Common Fisheries Policy.

Level 2 6-11 marks
Candidates will demonstrate a sound understanding of the cause-effect impact of overexploitation of 'commonly owned' resources and some of the physical and human factors that then lead to 'ruin'. There will be limited reference to concepts such as conservation and management of commonly owned transnational resources as expressed in the EU's Common Fisheries Policy.

Level 1 0-5 marks
Candidates will demonstrate a limited understanding of the cause-effect impact of overexploitation of 'commonly owned' resources and few, if any, of the physical and human factors that then lead to 'ruin'.

A03 Application of knowledge and critical understanding in unfamiliar contexts (0-22 marks)

Level 4 **18-22 marks**
Candidates apply their knowledge and critical understanding of the degree of exploitation and its resulting impact on local and national economies (i.e. issues of scale and time). They also effectively show how EU policy may be helping or hindering the development of such a transnational resource. Candidates at this level will argue that exploitation does not always lead to 'ruin to all'. It may depend on the scale or locality etc. Some may even question the concept of 'ruin' as being too emotive.

Level 3 **12-17 marks**
Candidates apply their knowledge and critical understanding of the degree of exploitation and its resulting impact on local or national economies. They also effectively show how EU policy may impact on the development of such a transnational resource. Candidates at this level will probably argue that exploitation does not always lead to ruin to all.

Level 2 **6-11 marks**
Candidates apply some of their knowledge and critical understanding of the degree of exploitation and its resulting impact on local economies. They also show in a limited way how EU policy may impact on the development of such a transnational resource. Candidates at this level will probably argue that exploitation does lead to problems so requiring EU intervention.

Level 1 **0-5 marks**
Candidates apply limited or vague knowledge and critical understanding of the overexploitation of fish stocks and its resulting impact. They also show a limited evaluation of the impact of the EU's policy. Candidates at this level will probably argue that exploitation does lead to 'ruin'.

Maximum 11 marks for application and 11 marks for evaluation

A04 Communication (0-8 marks)

Use generic assessment criteria

3 To what extent does the EU's global trade benefit it at the expense of its trading partners? [60]

A01 Knowledge of content (0-8 marks)

Level 4 7-8 marks
Candidates will have detailed knowledge of the EU's global trade (both visible and invisible) and will distinguish between MEDC and LEDC partners. They may use economic concepts such as comparative advantage. A good range of benefits will be cited as well as impacts on the EU and a range of trading partners.

Level 3 5-6 marks
Candidates will have clear knowledge of the EU's global trade (both visible and invisible) and will distinguish between MEDC and LEDC partners. A range of benefits will be cited as well as impacts on the EU and a range of trading partners.

Level 2 3-4 marks
Candidates will have sound knowledge of the EU's global trade and will distinguish between MEDC and LEDC partners. A range of benefits will be cited as well as some of the impacts on the EU and some of its trading partners.

Level 1 0-2 marks
Candidates will have limited or vague knowledge of the EU's global trade. Some of the benefits may be cited.

A02 Critical understanding of content (0-22 marks)

Level 4 18-22 marks
Candidates will demonstrate detailed understanding of the causes of the benefits and impacts of trade between trading partners. Some understanding of the concepts of trade restrictions and dumping can be expected. There should be a clear understanding that MEDC and LEDC differ in the composition of their exports, imports and trade balances.

Level 3 12-17 marks
Candidates will demonstrate a clear understanding of the causes of the benefits and impacts of trade between trading partners. Some understanding of the concepts of trade restrictions or dumping can be expected. There is an understanding that MEDC and LEDC differ in the composition of their exports and imports.

Level 2 6-11 marks
Candidates will demonstrate a sound understanding of the main impacts of trade on the EU and some of its trading partners. There is some understanding that MEDC and LEDC differ in the composition of their exports and imports.

Level 1 0-5 marks
Candidates will demonstrate a limited or vague understanding of some of the main impacts of trade on the EU and a few of its trading partners. There is limited understanding that MEDC and LEDC differ in the composition of their exports and imports.

A03 Application of knowledge and critical understanding in unfamiliar contexts (0-22 marks)

Level 4 **18-22 marks**
Candidates apply their knowledge and understanding of the EU's global trade pattern and balance to demonstrate that it brings both negative and positive impacts to both the EU and its MEDC and LEDC trading partners. There is a detailed and effective evaluation where some exceptions are cited e.g. Free trade could do more harm or where unfair trade is still better than no trade. Some may see it as reflecting the 'partner's' stage of development. There will be a clear evaluation of the extent with some appreciation that this is not 100%.

Level 3 **12-17 marks**
Candidates apply their knowledge and understanding of the EU's global trade pattern and balance to demonstrate that it brings both negative and positive impacts to both the EU and its LEDC trading partners. There is an effective evaluation of the impact where some exceptions are cited where partners benefit. There will be a sound evaluation of the extent.

Level 2 **6-11 marks**
Candidates apply some of their knowledge and understanding of the EU's global trade pattern to demonstrate that it brings both negative and positive impacts. There is a basic overall evaluation.

Level 1 **0-5 marks**
Candidates apply limited knowledge and understanding of the EU's global trade pattern to demonstrate that it brings benefits. There is limited, if any, overall evaluation.

Maximum 11 marks for application and 11 marks for evaluation

A04 Communication (0-8 marks)

Use generic assessment criteria

Option 2: Managing Urban Environments

4 'Urban areas present a major threat to the physical environment at different scales'. Consider the accuracy of this statement. [60]

Candidates may see 'different scales' as referring to urban areas or physical environments. Either is acceptable.

A01 Knowledge of content (0-8 marks)

Level 4 7-8 marks
Candidates will have detailed knowledge of examples of the impact of named urban areas (or urban activities e.g. transport, building, pollution etc) on a range of physical environments including atmosphere, water, soils, ecosystems etc There should be detailed knowledge of case studies at different scales.

Level 3 5-6 marks
Candidates will have clear knowledge of examples of the impact of urban areas on a range of physical environments including atmosphere, ecosystems etc There should be clear knowledge of case studies at different scales.

Level 2 3-4 marks
Candidates will have sound knowledge of a limited range of examples of the impact of urban areas on aspects of the physical environment. Case studies may be a little thin.

Level 1 0-2 marks
Candidates will have only limited knowledge of the impact of urban areas on some aspects of the physical environment. There will be no attempt at case studies.

A02 Critical understanding of content (0-22 marks)

Level 4 18-22 marks
Candidates will demonstrate detailed understanding of the causal links between urban areas and threats to the environment. Cause and effect will be well understood at a range of scales e.g. global v very local at this level candidates will look at some of the concepts of ecological or climatic impacts such as food chains or global warming.

Level 3 12-17 marks
Candidates will demonstrate a clear understanding of the causal links between urban areas and threats to the environment. Cause and effect will be understood at a sound range of scales e.g. global v very local at this level candidates may look at some of the concepts of ecological or climatic impacts such as food chains or global warming.

Level 2 6-11 marks
Candidates will demonstrate a sound understanding of the links between urban areas and a limited range of threats to the environment. Cause and effect will be understood but at a limited range of scales e.g. single urban area.

Level 1 0-5 marks
Candidates will demonstrate little understanding of the links between urban areas and threats to the environment. Few of the latter will be identified. Cause and effect will not be clearly understood and may refer to only a very limited range of scales e.g. single urban area.

A03 Application of knowledge and critical understanding in unfamiliar contexts (0-22 marks)

Level 4 **18-22 marks**
Candidates apply their detailed knowledge and critical understanding of the impact of different scales of urban areas on a variety of environmental factors to produce a detailed evaluation of whether the statement is totally accurate. Differences in impact caused by location e.g. Tropical v Temperate, technology and/or over time may well be considered. At this level candidates should be expected to suggest there are some benefits for the environment albeit often short lived or as a response to such threats e.g. green belts, urban parks etc

Level 3 **12-17 marks**
Candidates apply their knowledge and critical understanding of the impact of different scales of urban areas on a variety of environmental factors to produce an evaluation of whether the statement is totally accurate. At this level candidates should be expected to suggest that the evaluation of this will vary with the scale of the urban area but this may also differ due to physical or human factors.

Level 2 **6-11 marks**
Candidates apply some of their knowledge and critical understanding of the impact of a limited range of scales of urban areas on the physical environment to produce an evaluation which broadly supports the statement.

Level 1 **0-5 marks**
Candidates apply limited or vague knowledge and understanding of the impact of the size of urban areas on the physical environment to produce little, if any, evaluation of the statement.

Maximum 11 marks for application and 11 marks for evaluation

A04 Communication (0-8 marks)

Use generic assessment criteria

5 'Social exclusion in urban areas in MEDCs is most strongly influenced by location'. Discuss this viewpoint. [60]

Social exclusion can cover a variety of groups that find themselves marginalised by society or choose to exclude themselves e.g. wealthy old in USA. Answers can take two distinctive routes: 1) social exclusion is caused by location or 2) Conditions these groups experience are influenced by location

A01 Knowledge of content (0-8 marks)

Level 4 7-8 marks
Candidates will have detailed knowledge of a range of examples of both urban areas, drawn from the MEDC, and of groups that are excluded. They will use concepts or models to suggest generic causes of exclusion e.g. rent-bid. A good range of physical, economic, social and political factors will be cited as alternative influences.

Level 3 5-6 marks
Candidates will have clear knowledge of a range of examples of urban areas, drawn from the MEDC, and of groups that are excluded. Some knowledge of concepts can be expected. A sound range of physical, economic, social and political factors will be cited as alternative influences.

Level 2 3-4 marks
Candidates will have sound knowledge of a limited range of examples of urban areas, drawn from the MEDC, and of some of the groups that are excluded. There will be some knowledge of other influences.

Level 1 0-2 marks
Candidates will have little knowledge of examples of urban areas and of the groups that are excluded. Knowledge of social exclusion is insecure. There will be no knowledge of other influences.

A02 Critical understanding of content (0-22 marks)

Level 4 18-22 marks
Candidates will demonstrate detailed understanding of the cause-effect impact of location on a variety of disadvantaged (or other 'excluded' groups – as some will see the wealthy as a group that chooses to exclude itself!) groups as well as the impact of other physical, economic, social and political factors on these groups. This is underpinned by an effective understanding of models or theories to explain how/why such groups tend to be geographically marginalised in urban areas.

Level 3 12-17 marks
Candidates will demonstrate clear understanding of the cause-effect impact of location on a variety of disadvantaged groups as well as the impact of some of the other physical, economic, social and political factors on these groups. There is some attempt to use models e.g. land use models to explain how/why such groups tend to be geographically marginalised in urban areas.

Level 2 6-11 marks
Candidates will demonstrate sound understanding of the cause-effect impact of location on some of the excluded groups but understanding of location and social exclusion may be a little unclear.

Level 1 0-5 marks
Candidates will demonstrate limited or little understanding of the impact of location on groups and understanding of location and social exclusion may be confused.

A03 Application of knowledge and critical understanding in unfamiliar contexts (0-22 marks)

Level 4 **18-22 marks**
Candidates apply their knowledge and critical understanding of the causes of segregation of groups within urban areas to evaluate the comparative role of location and the role of other physical and human factors e.g. planning, at a variety of scales, locations e.g. London v a New town, and/or over time. At this level location should be examined as a concept – i.e. is it geographical or has it other meanings. Candidates at this level should offer examples for and against this statement and may even question what is cause and what is effect.

Level 3 **12-17 marks**
Candidates apply their knowledge and critical understanding of the causes of segregation of groups within urban areas to evaluate the comparative role of location, in a variety of meanings or scales, and the role of some of the other physical and human factors. Candidates at this level should offer examples for and against this statement.

Level 2 **6-11 marks**
Candidates apply some of their knowledge and critical understanding of the causes of segregation of groups within a limited range of urban areas to evaluate the role of location and the role of some of the other human factors. Candidates at this level will probably agree with or disagree with rather than debate the statement's accuracy.

Level 1 **0-5 marks**
Candidates apply only limited or vague knowledge and critical understanding of a few of the causes of segregation of some groups within a single part of an urban area e.g. Brixton. There is no attempt at an evaluation of the statement.

Maximum 11 marks for application and 11 marks for evaluation

A04 Communication (0-8 marks)

Use generic assessment criteria

6 To what extent can self-help solve the social and economic problems of cities in LEDCs? [60]

A01 Knowledge of content (0-8 marks)

Level 4 7-8 marks
Candidates will have detailed knowledge of well exemplified wide ranging social and economic problems in a number of cities in LEDCs as well as a variety of self-help schemes. They may use concepts or models to explain their case studies e.g. reverse multiplier effect etc.

Level 3 5-6 marks
Candidates will have clear knowledge of a range of social and economic problems in cities in LEDCs (although a single city with contrasting examples is acceptable at this level) as well as a variety of self-help schemes.

Level 2 3-4 marks
Candidates will have sound knowledge of a range of social and economic problems in cities in LEDCs (although a single city with contrasting examples is acceptable at this level) as well as at least one self-help scheme.

Level 1 0-2 marks
Candidates will have limited or vague knowledge of some of the social and economic problems in cities in LEDCs, probably one city, and with limited knowledge, if any, of a self-help scheme.

A02 Critical understanding of content (0-22 marks)

Level 4 18-22 marks
Candidates will demonstrate detailed understanding of how self-help schemes can solve a variety of social and economic problems but also will show a clear understanding of their limitations and/or the role of other physical, economic, social and political factors as alternative solutions.

Level 3 12-17 marks
Candidates will demonstrate clear understanding of how self-help schemes can solve a variety of social and economic problems but also will offer some understanding of their limitations and/or the role of other physical and human factors as alternative solutions.

Level 2 6-11 marks
Candidates will demonstrate a sound understanding of how self-help schemes can solve a variety of problems and also offer some understanding of their limitations.

Level 1 0-5 marks
Candidates will demonstrate limited or vague understanding of self-help schemes with little understanding of how they can solve problems.

A03 Application of knowledge and critical understanding in unfamiliar contexts (0-22 marks)

Level 4 **18-22 marks**
Candidates apply their knowledge and critical understanding of the role of a range of self-help schemes to assess and evaluate how effective they can be in solving social and economic problems. At this level some appreciation of scale, location and variations over time can be expected. Candidates will understand self-help as limited in its impact and may suggest alternatives or see the problems as part of or stage in economic development.

Level 3 **12-17 marks**
Candidates apply their knowledge and critical understanding of the role of a range of self-help schemes to assess how effective they can be in solving social and economic problems. Candidates may see self-help as limited in its impact and may suggest alternatives. Some clear assessment of 'extent' is expected.

Level 2 **6-11 marks**
Candidates apply some of their knowledge and critical understanding of the role of self-help schemes to assess how effective they can be in solving social and economic problems. Some assessment of 'extent' is expected.

Level 1 **0-5 marks**
Candidates apply limited or vague knowledge and critical understanding of self-help schemes to thinly assess how effective they can be in solving urban problems. Little, if any, assessment of 'extent' is offered.

Maximum 11 marks for application and 11 marks for evaluation

A04 Communication (0-8 marks)

Use generic assessment criteria

Option 3: Managing Rural Environments

7 To what extent can a modern, efficient farming industry and a habitat-rich, biodiverse countryside co-exist in MEDCs today? [60]

The stress is on modern efficient farming so candidates should look at systems such as agribusinesses but there are alternatives which are modern and efficient.

A01 Knowledge of content (0-8 marks)

Level 4 7-8 marks
Candidates will have detailed knowledge of a range of examples of modern farming types and habitats from MEDCs where the statement is accurate and where it is not. They will use concepts such as sustainability, agribusinesses, countryside stewardship etc

Level 3 5-6 marks
Candidates will have clear knowledge of a range of examples of modern farming types and habitats from MEDCs where the statement is accurate and where it is not.

Level 2 3-4 marks
Candidates will have sound knowledge of a limited range of examples of modern farming types and habitats from MEDCs.

Level 1 0-2 marks
Candidates will have limited or vague knowledge of modern farming types and habitats from MEDCs.

A02 Critical understanding of content (0-22 marks)

Level 4 18-22 marks
Candidates will demonstrate detailed understanding of how modern farming can impact on habitats in both negative and positive ways and why/how co-existence is important. A clear understanding of what is meant by efficient farming and biodiverse countryside is expected.

Level 3 12-17 marks
Candidates will demonstrate clear understanding of how modern farming can impact on habitats in both negative and positive ways. An understanding of what is meant by efficient farming and biodiverse countryside is expected.

Level 2 6-11 marks
Candidates will demonstrate sound understanding of how modern farming can impact on habitats. Some understanding of what is meant by efficient farming and biodiverse countryside is expected.

Level 1 0-5 marks
Candidates will demonstrate limited or vague understanding of how modern farming can impact on habitats. Little, if any, understanding of what is meant by efficient farming and biodiverse countryside is likely.

A03 Application of knowledge and critical understanding in unfamiliar contexts (0-22 marks)

Level 4 **18-22 marks**
Candidates apply their knowledge and critical understanding of the impact of modern, efficient farming on the environment to assess and evaluate how effective they can be in co-existing. Candidates should explain the concept of efficient farming and why that then has a large habitat impact. Some evaluation of why co-existence is important is expected together with some appreciation of the way this may vary with scale, location and over time. A clear evaluation of extent is required.

Level 3 **12-17 marks**
Candidates apply their knowledge and critical understanding of the impact of modern, efficient farming on the environment to evaluate how effective they can be in co-existing. Candidates should explain the concept of efficient farming and why that then has a large habitat impact. Some evaluation of why co-existence is important is expected. An evaluation of extent is required.

Level 2 **6-11 marks**
Candidates apply some of their knowledge and critical understanding to evaluate how farming and biodiverse countryside can co-exist. Candidates may explain the concept of efficient farming and why that then has a large habitat impact. Some evaluation of extent is required.

Level 1 **0-5 marks**
Candidates have limited or vague application of knowledge and critical understanding and offer little evaluation of how farming and biodiverse countryside can co-exist.

Maximum 11 marks for application and 11 marks for evaluation

A04 Communication (0-8 marks)

Use generic assessment criteria

8 How important is a sustainable hierarchy of rural service centres to the economic and social well-being of rural communities in MEDCs? [60]

A01 Knowledge of content (0-8 marks)

Level 4 7-8 marks
Candidates will have detailed knowledge of well exemplified rural areas in the MEDC with evidence of knowledge of both the service hierarchy and the economic and social well being of the rural communities. At this level a contrasting pair of detailed examples might be appropriate. They may use concepts or models to explain their case studies e.g. range and threshold etc. but this is not essential**.**

Level 3 5-6 marks
Candidates will have clear knowledge of exemplified rural areas in the MEDC with evidence of knowledge of both the service hierarchy and the economic and social well being of the community in the area.

Level 2 3-4 marks
Candidates will have sound knowledge of a limited range of examples (possibly a single case study) of rural areas in the MEDC with some evidence of basic knowledge of both the service hierarchy and the community in the area.

Level 1 0-2 marks
Candidates will have limited or vague knowledge of a few examples (possibly a single case study) of rural areas in the MEDC. There is only very basic knowledge of the service hierarchy and/or the community in the area.

A02 Critical understanding of content (0-22 marks)

Level 4 18-22 marks
Candidates will demonstrate detailed understanding of the inter-relationships of service hierarchy and the economic and social well-being of the rural communities. A detailed understanding of this cause-effect relationship is expected. At this level 'sustainable' needs to be appreciated.

Level 3 12-17 marks
Candidates will demonstrate clear understanding of the inter-relationships of service hierarchy and the economic and social well-being of the rural communities. A clear understanding of this cause-effect relationship is expected. Some understanding of sustainability is expected.

Level 2 6-11 marks
Candidates will demonstrate sound understanding of the inter-relationships of service hierarchy and the economic and social well-being of rural communities. Some limited understanding of sustainability is expected.

Level 1 0-5 marks
Candidates will demonstrate limited or vague understanding of the inter-relationships of service hierarchy and the well-being of rural communities. Little, if any, understanding of sustainability is expected.

A03 Application of knowledge and critical understanding in unfamiliar contexts (0-22 marks)

Level 4 **18-22 marks**
Candidates apply their knowledge and critical understanding of the impact of service provision and its hierarchy on the economic and social well being of rural communities to evaluate the importance of its sustainability at a local or national scale. At this level some appreciation of scale, location e.g rural SE England v highlands of Scotland and variations over time can be expected together with the impact varying with the nature of the population or groups e.g. rural poor v wealthy retired. A clear evaluation of importance is required.

Level 3 **12-17 marks**
Candidates apply their knowledge and critical understanding of the impact of service provision on the economic and social well being of rural communities to evaluate the importance of its sustainability. At this level some appreciation is expected that the impact may vary with differences in location e.g. rural SE England v highlands of Scotland. An evaluation of importance is required.

Level 2 **6-11 marks**
Candidates apply some of their knowledge and critical understanding to evaluate in a basic way the impact and thus the importance of service provision on the economic and social well being of rural areas.

Level 1 **0-5 marks**
Candidates are limited and vague in the application of their knowledge and understanding to the impact of rural services and offer little evaluation of its importance on rural areas.

Maximum 11 marks for application and 11 marks for evaluation

A04 Communication (0-8 marks)

Use generic assessment criteria

9 'The future of the countryside in MEDCs is for recreation rather than for food production'. How far do you agree with this statement? [60]

A01 Knowledge of content (0-8 marks)

Level 4 **7-8 marks**
Candidates will have detailed knowledge of well exemplified countryside areas in the MEDC together with a range of recreation (e.g. active v passive) that occurs or could occur there. At this level a contrasting pair of examples might be appropriate e.g. upland v lowland areas. Knowledge of alternative futures may be offered e.g. for urban development as in the greenbelt in the UK

Level 3 **5-6 marks**
Candidates will have clear knowledge of exemplified countryside areas in the MEDC together with a range of recreation (e.g. active v passive) that occurs there. At this level a contrasting pair of examples might be appropriate e.g. upland v lowland areas.

Level 2 **3-4 marks**
Candidates will have sound knowledge of a limited range of examples of countryside areas in the MEDC together with some of the types of recreation that occur there. At this level a single example might be offered as a case study.

Level 1 **0-2 marks**
Candidates will have limited or vague knowledge of the countryside areas in the MEDC together with a limited knowledge of the types of recreation that occur there.

A02 Critical understanding of content (0-22 marks)

Level 4 **18-22 marks**
Candidates will demonstrate detailed understanding of the comparative benefits of food production and recreation as well as some understanding of the likely social and economic trends that impact on the countryside e.g. increased leisure time, cheap food imports, increased personal transport etc. An understanding of the economic and/or political pressures that underlie this debate should be demonstrated.

Level 3 **12-17 marks**
Candidates will demonstrate clear understanding of the comparative benefits of food production and recreation as well as some understanding of the likely social and economic trends that impact on the countryside e.g. increased leisure time, food imports, increased personal transport etc. An understanding of the economic pressures that underlie this debate may be demonstrated.

Level 2 **6-11 marks**
Candidates will demonstrate sound understanding of the comparative advantages of food production and recreation for the countryside.

Level 1 **0-5 marks**
Candidates will demonstrate limited or vague understanding of the comparative advantages of food production and recreation for the countryside.

A03 Application of knowledge and critical understanding in unfamiliar contexts (0-22 marks)

Level 4 **18-22 marks**
Candidates apply their knowledge and critical understanding of the impact of likely social and economic changes to assess their likely impact on the countryside. At this level some appreciation of scale, location e.g. rural SE England v highlands of Scotland and variations over time can be expected together with the decision varying with the nature of the area e.g. soil fertility, relief etc , its local population size/type e.g. countryside near to large population clusters, etc. A clear discussion of the statement is expected with at an attempt to evaluate how far it is the likely future.

Level 3 **12-17 marks**
Candidates apply their knowledge and critical understanding of the impact of likely economic changes to assess their likely impact on the countryside. At this level some appreciation of location e.g. rural SE England v highlands of Scotland together with the decision varying with the nature of the area e.g. soil fertility, relief etc. A discussion of the statement is expected.

Level 2 **6-11 marks**
Candidates apply some of their knowledge and critical understanding to assess the likely impact on the countryside. At this level some evaluation of why recreation might replace food production can be expected. Most candidates will probably agree with the statement.

Level 1 **0-5 marks**
Candidates offer only limited or vague application and evaluation of the statement. Most candidates will probably agree with the statement.

Maximum 11 marks for application and 11 marks for evaluation

A04 Communication (0-8 marks)

Use generic assessment criteria

Option 4: Hazardous Environments

10 'Prediction is more successful for some natural hazards than for others'. Discuss this statement. [60]

A01 Knowledge of content (0-8 marks)

Level 4 7-8 marks
Candidates will have detailed and well exemplified knowledge of the predictability of a variety of natural hazards e.g. tropical storms v earthquakes together with a good range of physical (e.g. relief, geology, climate etc) economic, technological, social and political factors that influence the ability to predict.

Level 3 5-6 marks
Candidates will have clear knowledge, with examples, of the predictability of a variety of natural hazards e.g. tropical storms v earthquakes together with a range of physical (e.g. relief, geology, climate etc) and human factors that influence the ability to predict.

Level 2 3-4 marks
Candidates will have sound knowledge of a limited range of examples of natural hazards that range in their predictability e.g. tropical storms v earthquakes together with a some knowledge that a number of other factors influence the ability to predict.

Level 1 0-2 marks
Candidates will have limited or vague knowledge of natural hazards that range in their predictability and there is little, if any, knowledge that a number of other factors influence the ability to predict.

A02 Critical understanding of content (0-22 marks)

Level 4 18-22 marks
Candidates will demonstrate detailed understanding of the inter-relationship of the nature of the hazards and their predictability as well as the impact and inter-relationship of various factors on the relative success of attempts to predict.

Level 3 12-17 marks
Candidates will demonstrate a clear understanding of the inter-relationship of the nature of hazards and their predictability as well as the impact of some of the factors on the relative success of attempts to predict.

Level 2 6-11 marks
Candidates will demonstrate sound understanding of the inter-relationship of hazards and their predictability. Limited understanding is demonstrated of the role of other factors in the relative success of attempts to predict.

Level 1 0-5 marks
Candidates will demonstrate limited or vague understanding of the inter-relationship of hazards and their predictability.

A03 Application of knowledge and critical understanding in unfamiliar contexts (0-22 marks)

Level 4 **18-22 marks**
Candidates apply their knowledge and critical understanding to evaluate why prediction does vary in its relative success – some relates to the nature of the hazard and some relates to the capacity to predict. Some appreciation that this statement's accuracy will vary with scale, location e.g LEDC v MEDC and vary over time can be expected. A clear conclusion to the discussion is expected.

Level 3 **12-17 marks**
Candidates apply their knowledge and critical understanding to evaluate why prediction does vary in its relative success – some relates to the nature of the hazard and some relates to the capacity to predict.

Level 2 **6-11 marks**
Candidates apply some of their knowledge and critical understanding to evaluate why prediction does vary in its relative success probably relating this to the nature of the hazard or the capacity of an area to predict.

Level 1 **0-5 marks**
Candidates apply only limited or vague knowledge and understanding of the topic and offer little or vague evaluations of why prediction varies

Maximum 11 marks for application and 11 marks for evaluation

A04 Communication (0-8 marks)

Use generic assessment criteria

11 To what extent do the *causes* of mass movement hazards depend more on human than on physical factors? [60]

A01 Knowledge of content (0-8 marks)

Level 4 7-8 marks
Candidates will have detailed and well exemplified knowledge of the main types of mass movement together with a detailed range of physical factors e.g. relief, material, vegetation cover, drainage etc and human factors e.g. deforestation, drainage, slope modification etc that act as causes.

Level 3 5-6 marks
Candidates will have clear knowledge of the main types of mass movement, with examples, together with a range of causes. These may include: physical factors e.g. relief, material, vegetation cover, drainage etc and human factors e.g. deforestation, drainage, slope modification etc

Level 2 3-4 marks
Candidates will have sound knowledge, with examples, of the main types of mass movement. There is some knowledge of physical and human causes of mass movement.

Level 1 0-2 marks
Candidates will have limited or vague knowledge of the main types of mass movement. There is some limited knowledge of physical and human causes of mass movement. Exemplification will be thin or non-existent.

A02 Critical understanding of content (0-22 marks)

Level 4 18-22 marks
Candidates will demonstrate detailed understanding of the inter-relationship of human and physical factors as causes of a variety of forms of mass movement. Cause and effect will be well understood.

Level 3 12-17 marks
Candidates will demonstrate clear understanding of the inter-relationship of human and physical factors as causes of a variety of forms of mass movement. Cause and effect will be clearly understood.

Level 2 6-11 marks
Candidates will demonstrate sound understanding of the inter-relationship of human and physical factors as causes of mass movement. Cause and effect will be understood but in little depth.

Level 1 0-5 marks
Candidates will demonstrate limited or vague understanding of the inter-relationship of human and physical factors as causes of mass movement. Cause and effect will not be understood.

A03 Application of knowledge and critical understanding in unfamiliar contexts (0-22 marks)

Level 4 **18-22 marks**
Candidates apply their knowledge and critical understanding to evaluate the extent to which human factors or physical factors, or a combination of these, cause a variety of types of mass movement. Some appreciation that this will vary with scale, location e.g LEDC v MEDC and vary over time can be expected. Many may point out that human activity may also reduce it as well as cause it. A clear assessment of the extent is expected.

Level 3 **12-17 marks**
Candidates apply their knowledge and critical understanding to evaluate the extent to which human factors or physical factors cause a variety of types of mass movement. Some appreciation that this may vary with location e.g. LEDC v MEDC. Many may point out that human activity may also reduce it as well as cause it. An assessment of the extent is expected.

Level 2 **6-11 marks**
Candidates apply some of their knowledge and critical understanding to evaluate the extent to which human factors or physical factors cause a variety of types of mass movement. Some limited assessment of the extent is expected.

Level 1 **0-5 marks**
Candidates offer only limited or vague evaluation of the extent to which human factors or physical factors cause mass movement.

Maximum 11 marks for application and 11 marks for evaluation

A04 Communication (0-8 marks)

Use generic assessment criteria

12 Assess the relative impact of primary and secondary hazards caused by hurricane and tropical storm events. [60]

A01 Knowledge of content (0-8 marks)

Level 4 7-8 marks
Candidates will have detailed and well exemplified knowledge (a single case study may be sufficient) of the main types of primary hazards such as wind speeds, heavy rainfall, storm surges etc and secondary hazards such as those caused by the primary e.g. landslides, flooding, disease, dam failures etc and those that result as the hurricane decays e.g. heavy rainfall, tornadoes etc.

Level 3 5-6 marks
Candidates will have clear knowledge of the main types of primary hazards and secondary hazards and show clear knowledge of appropriate examples.

Level 2 3-4 marks
Candidates will have sound knowledge of a limited range of types of primary hazards and secondary hazards and show limited knowledge of appropriate examples.

Level 1 0-2 marks
Candidates will have limited or vague knowledge of primary hazards and secondary hazards and show very limited knowledge, if any, of appropriate examples.

A02 Critical understanding of content (0-22 marks)

Level 4 18-22 marks
Candidates will demonstrate detailed understanding of the inter-relationship of primary and secondary hazards and their relative impact on human and physical environments. Cause and effect will be well understood.

Level 3 12-17 marks
Candidates will demonstrate clear understanding of the inter-relationship of primary and secondary hazards and their impact on human and physical environments. Cause and effect will be understood.

Level 2 6-11 marks
Candidates will demonstrate sound understanding of the inter-relationship of primary and secondary hazards and some of their impact on human and physical environments.

Level 1 0-5 marks
Candidates will demonstrate limited or vague understanding of primary and secondary hazards and show only vague understanding of their impact on human environments.

A03 Application of knowledge and critical understanding in unfamiliar contexts (0-22 marks)

Level 4 **18-22 marks**
Candidates apply their knowledge and critical understanding to evaluate and assess the extent to which primary and secondary hazards, or combinations of them, impact on the human and physical environments. Some appreciation that this will vary with scale, location e.g. upland area v lowland coast, level of technology/development e.g. LEDC v MEDC and vary over time can be expected. Many may point out that the impact is more dependent on 'other' factors than the nature of the natural hazards e.g. density of population etc.

Level 3 **12-17 marks**
Candidates apply their knowledge and critical understanding to evaluate and assess the extent to which primary and secondary hazards impact on the human and physical environments. Some appreciation that this will vary with location e.g. upland area v lowland coast and level of technology/development e.g. LEDC v MEDC can be expected.

Level 2 **6-11 marks**
Candidates apply some of their knowledge and critical understanding to assess the extent to which primary and secondary hazards impact on the human and physical environments. Most will conclude it is the primary hazards that have the greatest impact.

Level 1 **0-5 marks**
Candidates apply limited or vague knowledge and limited critical understanding to assess the extent to which primary and secondary hazards impact on the human and physical environments. Assessment will be vague.

Maximum 11 marks for application and 11 marks for evaluation

A04 Communication (0-8 marks)

Use generic assessment criteria

People and Environment Options

GENERIC ASSESSMENT CRITERIA

1 Knowledge of content (0-8 marks)

Level 4	Candidates have detailed knowledge of appropriate themes, processes and specific environments and places. They have detailed knowledge of relevant concepts, principles and theories, and of a wide range of geographical terms. They have detailed knowledge of the connections between different aspects of geography represented in the specification.	**7-8 marks**
Level 3	Candidates have clear knowledge of appropriate themes, processes and specific environments and places. They have clear knowledge of relevant concepts, principles and theories, and of a range of geographical terms. They have clear knowledge of the connections between different aspects of geography represented in the specification. There must be evidence of synoptic connections with other parts of the specification to achieve more than level 2.	**5-6 marks**
Level 2	Candidates have sound knowledge of some appropriate themes, processes and specific environments and places. They have sound knowledge of some relevant concepts, principles and theories, and of some geographical terms. They have sound knowledge of some connections between different aspects of geography represented in the specification.	**3-4 marks**

3 Application of knowledge and critical understanding in unfamiliar contexts (0-22 marks)*

Level 4	Candidates apply their knowledge and critical understanding of the specification content and connections to different aspects of geography represented in the specification, relevantly and where appropriate at a range of scales. They evaluate arguments, ideas, concepts and theories in detail.	**18-22 marks**
Level 3	Candidates apply most of their knowledge and critical understanding of the specification content and connections to different aspects of geography represented in the specification, relevantly and where appropriate at a range of scales. They evaluate arguments, ideas, concepts and theories clearly. There must be evidence of synoptic connections with other parts of the specification to achieve more than level 2.	**12-17 marks**
Level 2	Candidates apply some of their knowledge and critical understanding of the specification content and connections to different aspects of geography represented in the specification, relevantly. They attempt a basic evaluation.	**6-11 marks**

Level 1	Candidates have basic knowledge of some appropriate themes, processes and environments and places. They have basic knowledge of some relevant concepts, principles, theories, and geographical terms. They have basic knowledge of some connections between different aspects of geography represented in the specification.	**0-2 marks**

Level 1	Candidates explain contexts using basic ideas and concepts.	**0-5 marks**

* Maximum 11 marks for application and 11 marks for evaluation

2 Critical understanding of content (0-22 marks)

Level 4	Candidates have detailed critical understanding of the content of the specification and have detailed critical understanding of the connections between the different aspects of geography represented in the specification.	**18-22 marks**
Level 3	Candidates have clear critical understanding of the content of the specification and have clear critical understanding of the connections between the different aspects of geography represented in the specification. There must be evidence of synoptic connections with other parts of the specification to achieve more than level 2.	**12-17 marks**
Level 2	Candidates have sound critical understanding of some of the content of the specification and have sound critical understanding of some of the connections between the different aspects of geography represented in the specification.	**6-11 marks**

4 Communication (0-8 marks)

Level 4	Candidates use an appropriate range of communication skills fluently and in different formats; present information within a logical and coherent structure; where appropriate, synthesise information from a variety of sources; use spelling, punctuation and grammar with a high level of accuracy; and employ geographical terminology with confidence.	**7-8 marks**
Level 3	Candidates use an appropriate range of communication skills clearly in different formats; present information within an effective structure; use spelling, punctuation and grammar with accuracy; and use a range of geographical terms.	**5-6 marks**
Level 2	Candidates use a limited range of methods to communicate knowledge and understanding; make some effort to structure their work; and use spelling, punctuation and grammar with some accuracy; and have a basic knowledge of geographical terminology.	**3-4 marks**

Level 1	Candidates have basic critical understanding of some the content of the specification and have basic critical understanding of some connections between the different aspects of geography represented in the specification.	**0-5 marks**

Level 1	Candidates use a limited range of methods to communicate knowledge and understanding; make only a basic attempt to structure their work; use spelling, punctuation and grammar with variable accuracy, and have only sparse knowledge of geographical terminology.	**0-2 marks**

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June 2005

The 1000 Word Report Mark Scheme

Planning and Data Collection

Level 3 (8-10 Marks)

- A well planned investigation with a clear and justified focus.
- The amount and nature of the primary and secondary data are well matched to the task and are the result of appropriate data collection techniques.
- There is a clear sense of location and place and of the relevant geographical theory and/or generally accepted ideas.

Level 2 (5-7 Marks)

- A planned investigation with a focus that is partly justified.
- The amount and nature of the primary and secondary data are reasonably matched to the task and are the result of mainly appropriate data collection techniques.
- There is a sense of location and place and of the relevant geographical theory and/or generally accepted ideas.

Level 1 (0-4 Marks)

- Little evidence of a planned approach and a poorly focused investigation with little or no justification.
- There is a poor match between the amount and nature of the primary and secondary data and the task. The appropriateness of the data collection techniques are questionable and/or weak.
- There is a limited sense of location and place with little or no reference to the relevant geographical theory and/or generally accepted ideas.

Analysis and Presentation of Findings

Level 3 (8-10 Marks)

- Candidates show a good understanding, applying through description and explanation, their knowledge accurately and relevantly.
- Candidates show a developed understanding of the connections between different aspects of the geography represented in the investigation.
- The analysis and presentation are of an appropriate breadth, depth and accuracy.

Level 2 (5-7 Marks)

- Candidates show understanding, through description and explanation, by applying their knowledge with some degree of accuracy and relevance.
- Candidates show an understanding of the connections between different aspects of the geography represented in the investigation.
- The analysis and the presentation show some of the breadth, depth and accuracy required.

Level 1 (0-4 Marks)

- Candidates show limited understanding through description with no or limited explanation. They struggle to apply their knowledge accurately or relevantly.
- Candidates make little or no attempt to show the connections between different aspects of the geography represented in the investigation.
- The analysis and the presentation lack the breadth, depth and accuracy required.

Evaluation and Conclusion

Level 3 (8-10 Marks)

- The report as a whole uses an appropriate range of communication skills fluently and presents information within a logical and coherent structure.
- Information from a variety of sources is synthesised competently.
- The candidate evaluates arguments and makes well-reasoned judgements and conclusions including the potential and limitations of evidence and approaches.
- The candidate writes discursively.

Level 2 (5-7 Marks)

- The report as a whole uses a reasonable range of communication skills and presents information in a structured manner.
- Some attempt is made at synthesising information from a variety of sources.
- The candidate makes some attempt at evaluating and commenting upon arguments including the potential and limitations of evidence and approaches.

Level 1 (0-4 Marks)

- The report as a whole uses a limited range of communication skills and has little formal structure.
- There is little or no synthesis.
- The candidate shows little awareness of arguments and makes little or no attempt to draw conclusions.
- The candidate adopts a largely descriptive approach.

OVERALL ASSESSMENT CRITERIA

Level	Max 15 marks	Max 13 marks	Max 4 marks
3	12-15	11-13	3-4
2	7-11	6-10	2
1	0-6	0-5	0-1

LEVEL 3
Candidates show:

- Good knowledge of sources of information and have a clear sense of place and location, where relevant.
- Their knowledge is applied appropriately to familiar and unfamiliar geographical contexts. Candidates display skill in interpreting a range of sources of spatial and/or temporal geographical information where appropriate.
- They identify appropriate geographical questions in a range of contexts and formulate effective approaches to enquiry.
- Candidates demonstrate application of a range of skills and techniques to present and analyse the data.
- Where relevant, the candidate shows a wide knowledge of primary and secondary data sources.
- Conclusions are reasoned, with the outcomes and methods being evaluated.
- The limitations of the investigation are recognised.
- The work follows a logical and coherent structure with geographical terms used confidently.
- Spelling, grammar and punctuation are accurate.

LEVEL 2
Candidates demonstrate:

- A sound knowledge of appropriate techniques and understanding of the nature of geographical investigation.
- There is a sense of location and place.
- Geographical questions are formulated with reasonable effectiveness with some application of techniques to familiar and unfamiliar geographical contexts.
- Some skill is shown in the interpretation of spatial and/or temporal geographical information.
- Knowledge is applied to reach some valid conclusions and candidates are able to comment upon the effectiveness of their methodology and the validity of the outcome.
- Written answers are structured and spelling, punctuation and grammar are used with reasonable accuracy.
- A range of geographical terms are used.

LEVEL 1
Candidates show:

- A basic knowledge of the nature of geographical enquiry and of the techniques specified.
- Explanation and understanding of skills required in geographical investigation are limited.
- Candidates can identify basic relevant geographical questions when presented with familiar contexts and can suggest and adopt approaches to enquiry.
- Basic techniques are used with a limited range of methods to present and analyse evidence.
- Candidates are able to reach simple conclusions and identify strengths and weaknesses of their enquiries.
- Written work is poorly structured often with inaccurate spelling, punctuation and grammar.
- Basic and sometimes inaccurate use of geographical terms.

SECTION A

Guidelines in addition to the Generic Mark Scheme.

ALL QUESTIONS DEMAND SPECIFIC REFERENCE TO THE CANDIDATE'S 1000 WORD REPORT.

A1 (a) Based on the findings of your 1000 word Report, justify a further hypothesis or question you could usefully investigate. [15]

LEVEL MARK

- A valid hypothesis or question which is a logical development of the investigation rather than wholly different study or theme.
- An explanation of why this hypothesis or question would be an appropriate development of the investigation (e.g. how it would add depth, breadth, a new perspective, complement the existing study etc.).

(b) Critically assess the reliability of the findings of your investigation. [15]

LEVEL MARK

An evaluation of findings might include: an assessment of the quality of the data e.g. sample size, how accurately the data represents the target population (sampling strategy, time and resources for data collection, the geographical appropriateness of secondary data, spatial and temporal dimensions of the population which complicate data collection etc.); an assessment of the appropriateness of the hypotheses or questions formulated at the outset; statistical significance and problems of data analysis.

Level 3: Must reference project in answer.

A2 (a) Describe how *either* geographical theories *or* your prior understanding of geographical processes led to the formulation of one hypothesis *or* question in your investigation. [15]

LEVEL MARK

- Relevant answers will show how theory a hypothesis or question has been derived logically from theory or processes.
- A description of either formal theory (e.g. central place theory, interaction theory, scree slope development etc.) or physical, social, economic, demographic etc. processes.
- Candidates need to be aware of the scale and feasibility.

(b) To what extent were the outcomes of your investigation consistent with *either* the relevant geographical theories *or* geographical processes? [15]

LEVEL MARK

An evaluation which considers the relationship between the investigation's findings and theory or standard processes. Both congruences and anomalies should be discussed, exemplified and explained.

Clear links to enquiry needed.

A3 (a) To what extent was your data collection strategy a compromise between a desire for accuracy and a need for practicality? [15]

LEVEL MARK

- Sampling strategies must balance the need for accuracy against the limits imposed by time, cost and in human geography, the responsiveness of people. This is most evident in the choice of sample size e.g. number of respondents in a questionnaire survey, number of transects in a sand dune study etc. Sampling strategies may be less elaborate than ideal e.g. systematic rather than stratified surveys.
- Examples of compromises include: avoiding more personal questions when interviewing shoppers e.g. income; measuring only the median axis of sediments, stratifying a population using only one, rather than two or three criteria; inappropriate timing of pedestrian flows or beach profiling; difficult access to sites which have been chosen randomly; assessment of risk etc.

(b) Show how your choice of analytical methods was influenced by the characteristics of the data in your investigation. [15]

LEVEL MARK

- Analytical methods are drawn fairly widely to include both descriptive statistics (measures of central tendency and dispersion), inferential statistics (correlation, regression, U test, Chi-squared) and some charts (e.g. charts showing the influence of one variable on another).
- The characteristics of the data might include: scales of measurement (e.g. nominal, ratio, ordinal); continuous or discontinuous; locational or non-locational; frequency distribution (normal, skewed, bi-modal etc.).
- Relevant responses will focus on the relationship between the data characteristics and the choice of analytical methods.

SECTION B

B1 (a) Outline the following sampling strategies: (i) systematic (ii) stratified. [4]

Systematic sampling involves selecting items/individuals at regular intervals from a population. The sampling interval is usually determined randomly or where the population is finite, by the simple size. Stratified sampling recognises that the population comprises sub-sets. These sub-sets are identified and samples selected in proportion to their size or extent or importance.

Study Fig.1 (Insert) a 1:2500 OS map extract showing part of a residential suburb with a varied stock of around 600 houses, in a small town in northern England. Figs.2a and 2b show some house types in this suburb, and Fig.3 is an extract of the electoral register for the area.

You have been asked to conduct an investigation into the commuting behaviour (e.g. place of work, length of journeys-to-work, transport used etc.) of people living in the suburb of which Fig.1 represents only a small part.

(b) Using only the information in Figs.1 to 3 (Insert), describe how you would investigate patterns of commuting behaviour in this suburb using (i) a systematic sampling strategy and (ii) a stratified sampling strategy. [13]

LEVEL MARK

(i) The sampling interval will depend on the target sample size. With 600 households a 10 to 20 per cent sample may be feasible. The electoral register provides a convenient sample frame. The simplest procedure (if a 10 per cent sample survey were chosen), would be to work systematically through the electoral register and select every 10^{th} household.

(ii) The only meaningful criterion that could be used to stratify the population is house type. From Fig.1 we can identify detached, semi-detached and terrace housing. Housing types are a useful surrogate for social, economic and demographic status of the population, all of which influence commuting behaviour. Housing types can be transferred to the electoral register, and the proportion of each type calculated. Thus, if 40 per cent of household occupy terraces, a similar proportion will be included in the sample. It is assumed that some streets have more than one type of housing.

(iii) Candidates who stratify using post codes or grid square sampling from the map will be credited.

(c) In the context of this investigation assess the relative merits of the two sampling strategies you described. [13]

LEVEL MARK

- Sampling strategies can be assessed in terms of their accuracy and ease of data collection. Assessment should be in the context of this example, rather in generalised terms. A systematic sample is easier to implement but where streets have more than one type of housing, or have fewer than 10-15 houses, systematic sampling may be insensitive to the social, economic and demographic make-up of the suburb.
- Stratified sampling is more time consuming, requiring the identification of each household's house type, and sampling in proportion to the housing types. However, stratified sampling potentially gives a more accurate sample. In this example, where commuting behaviour is likely to vary according to social, economic and demographic factors, a stratified approach is likely to provide more representative data than simple systematic sampling.

B2 Study Figs.4 and 5 (Insert) which show the results of a questionnaire survey on the place of origin of shoppers in the market town of Richmond in North Yorkshire. Fig.4 shows the number of shoppers interviewed and the total population in 5 kilometre zones around Richmond. In Fig.5 the values on the y axis are the ratio of shoppers to the total population in each 5 kilometre distance zone.

(a) Describe the relationship between shoppers and distance in Fig.5. [4]

LEVEL MARK

The relationship is inverse or negative. The number/density of shoppers declines with distance from Richmond. Initially there is a rapid decline over the first 5 kilometres, thereafter the decline is more gradual. Beyond 25 kilometres the number of shoppers is negligible. The relationship would be linear on logarithmic graph paper.

(b) Explain how a correlation technique could assist in the statistical analysis of data in Fig.5 and suggest why the results of this statistical analysis should be treated with caution. [13]

LEVEL MARK

The specification requires knowledge and understanding of two correlation techniques: Spearman Rank, and Pearson's Product Moment. Both are appropriate in this example, though only one is required. Correlation measures the association between pairs of values in a data set. It gives a precise measure of association which varies between +1 (perfect positive correlation) and –1 (perfect inverse or negative correlation). Zero indicates no association between variables. The alternative to correlation is 'eyeballing' a scatter chart. This is subjective and therefore open to varying interpretation. However, in this instance any correlation coefficient will be based on just 5 pairs of values. Such a small data set, even with a high level of correlation, is unlikely to produce statistically significant results. Any outcome must therefore be treated with caution.

(c) Discuss critically the advantages of taking the analysis of shopping and distance in Richmond a stage further by fitting a regression line (best-fit trend line) to the data in Fig.5. [13]

LEVEL MARK

- A further analytical refinement is to fit a simple regression line (best-fit trend line) to the scatter of points in Fig.6. Such a regression line would take the form y = a + bx, where y is the density of shoppers, a is the value of y when x is 0, and b is the gradient of the line. One advantage of regression is that it allows us to predict y (shopper density) from x (distance). As information on density of shoppers is difficult to obtain, a simple predictive model such as this might be useful. A second advantage is that the regression equation provides a summary of the relationship between x and y. This might be useful if we wanted to extend the study and make comparisons between Richmond and other market centres in terms of hinterlands and distance decay.

- In this example the relationship between shopping density and distance does not appears to be curvilinear rather than linear. Critical evaluation of simple regression might conclude that such analysis would be inaccurate and inappropriate in this instance.

B3 Study Figs.6 and 7 (Insert) which show the Burnsall and Arthington sites chosen for sampling limestone bedload sediments on the River Wharfe, and the sample distributions of limestone bedload sediments for the two sites in Fig.8. The data in Fig.8 were collected on point bars, (triangular-shaped areas of gravel deposits opposite the undercut bank on riverbends) using a combination of transect and quadrat sampling methods.

(a) With the help of a sketch graph, name and justify <u>one</u> method of representing the data in Fig.8. [4]

LEVEL MARK

The data in Fig.7 could be plotted as histograms, frequency distribution curves, pie charts or divided bar charts. Because the data form a frequency distribution, histograms or frequency curves would be most appropriate. However, any graphical method which shows proportions of a whole (segments of circles or bars) is also appropriate.

(b) Describe the technique of quadrat sampling and comment on its advantages and disadvantages. [13]

LEVEL MARK

- Quadrat sampling is a type of spatial sampling. Quadrats or squares which usually measure 1m x 1m or 0.25m x 0.25 m, and sub-divided into a number of smaller squares are located randomly. For sediments and rock particles samples are selected at the intersection of the quadrat's internal cross wires. In vegetation studies the smaller internal squares may be used to identify the presence or absence of species, the dominant species, the amount of vegetation cover etc.

- Quadrat sampling is simple, easy to use and relatively objective method of spatial sampling. However, it does have some problems. The size of the quadrat must be appropriate for the scale of the phenomena studied. A 1m x 1m quadrat may be useful for analysing pebble and scree-sized particles, but of little value for large rock fragments such as boulders and cobbles. Similarly herbaceous vegetation may be sampled accurately with a 1m x 1m quadrat, but a much larger quadrat would be needed to sample woody plants such as shrubs and trees. For small quadrats the area sampled may be only the tiniest fraction of the total study area. Quadrat sampling of vegetation also encounters problems when plant communities are layered (e.g. moss layer, herbaceous layer, understorey etc.).

(c) State <u>one</u> hypothesis that could be tested from the data in Fig.8. Justify the use of statistical analysis to test your hypothesis, and assess the suitability of the Chi2 test for the analysis of the data in Fig.8. [13]

LEVEL MARK

- Possible hypotheses: there are significant differences in the size distribution of bedload sediments at Burnsall and Arthington; there is a significant downstream decrease in sediment size between Burnsall and Arthington; sediments are smaller at Arthington than at Burnsall.

- A hypothesis is a statement which is verifiable.

- Statistical analysis is justified because the difference between the two data sets may not be statistically significant. The two samples are comparatively small, and although the data may have been collected objectively, the observed differences could result from chance. To eliminate this possibility we use a statistical test.

- Chi2 is an appropriate test. It tests the significance of the difference of two distributions – the observed distribution and the expected. Expected values are based on the assumption of randomness. The data are on a ratio scale (rather than interval scale) and are therefore suitable for Chi2. There are few cells with expected values of less than 5. The Chi2 test is non-parametric and is therefore distribution free. It makes no assumptions about the normality of the population.

REPORT ON THE UNITS
June 2005

Chief Examiner's Report

General Comments

The performance of candidates has again been approximately equivalent to previous sessions. There was considerable variation between centres and within centres. The top quartile of candidates produced work of an impressive quality showing a very encouraging level of knowledge, understanding and application with some excellent and detailed examples or case studies.

AS

Assessment is largely by short structured questions. Performance did vary across the components. Responses to 2680 (physical environment) were relatively weaker than 2681 (human environment) but by far the weakest element was the written section of 2682 (geographical investigation) although this was lifted by the report component in which nearly 75% achieved at the highest grade.

A2

Assessment is largely by extended writing which allows effective differentiation. Overall performance was stronger on the synoptic paper, 2684, and weaker on the Personal Investigative Study, 2685. Units 2685 and 2686 (investigative skills) performed very similarly although the latter did noticeably better at B grade.

As A2 is assessed via options it is possible for candidates to experience a limited range of geography. Few centres study applied climatology and service activities in 2683 and the geography of the EU and managing rural environments are unpopular in 2684. This selectivity does re-emphasise the importance of the synoptic paper which draws together the strands of the whole two year A level geographical experience.

Overall

There have been very few communications from centres expressing concerns about aspects of the unit examinations this session and mostly these have been easily incorporated in the marks schemes at standardisation. These schemes have to be very flexible as candidates have very inventive minds and read into questions some quite original, and valid, interpretations.

There are some common themes throughout all the components:

- Candidates must carefully read and answer the question set rather than produce prepared answers that lack relevancy.
- Candidates need to understand and use effectively geographical definitions and technical terms.
- In short section answers candidates would be best advised to develop a few points in depth rather than many superficial ones.
- Often the level of candidate's response is held back by the poor quality of English.
- Centres should ensure that candidates are familiar with OS maps and understand how to interpret them.
- More candidates should emphasise the spatial context of their work and stress location. Some need to refer to far more examples or case studies.

Coursework at all levels also suffered some common limitations:

- Too many candidates produce over-length work often with excessive appendices or annotations.
- Shared fieldwork in which the candidate fails to make their individual role clear.
- Excessive repetitive diagrams representing the same data.
- Including **all** the questionnaires used within the appendices
- Candidates didn't always understand why they were using the statistical tests they were nor the implications of the results they achieved
- Centres should ensure candidates do not use plastic folders and greater care needs to be taken in filling in the cover sheets.

It is not always evident that candidates show progress from AS to A2 in their coursework and geographical skills.

Particular Points to note

Centres are reminded of the changes to some of the units in terms of assessment.

For unit 2683 two questions will be set per option rather than the current three starting with examinations in June 2007.

For unit 2686 assessment will be by examination paper **only** from June 2007. The revised unit 2686 will not have a report or a section A on the examination paper. Instead candidates will be required to answer two questions out of three provided in what is currently section B.

The Physical Environment (2680)

General Comments

While Hydrology continues to be a relatively strong section of the specification, it was pleasing to note the continued improvement, in general in the responses to the Atmosphere. The section on the Lithosphere produced a very mixed range of responses, but this year it was the Ecosystems section that presented the greatest difficulties to candidates.

Examiners felt that a number of common weaknesses in responses point to areas in which candidates could improve their performance.

- Most answers to questions involving definitions of technical terms lack either precision or accuracy or both. While many candidates gained both marks on such questions by conveying an understanding of the term being defined, many of these would have been able to have done so more easily with greater conciseness and precision. In particular candidates should avoid using a word that is part of the term being defined in their definitions. This was especially true in definitions of "tectonic plate". Where the word "plate" was regularly used.

- In both ten and six mark questions that require explanation, candidates would be best advised to identify two or three elements relevant to the question and explain those in detail, rather than identify many different elements and then develop explanations only briefly. The more extended explanations allow candidates access to the higher mark levels. In the more detailed comments on individual questions below, this point will be exemplified.

Comments on Individual Questions

1 While this section was, as in previous years effectively answered, it did not stand out as clearly as in previous years as the best answered section. Many candidates scored highly, but not as many did as well on the ten-mark question, because answers were not angled to answer the question set.

a(i) Only a minority of candidates defined the term "evapo-transpiration" effectively. Some gained some credit for defining transpiration, and many recognised that the term represented a combination of evaporation and transpiration. The best answers clarified both forms of transfer as illustrated in the following: "The water lost to the atmosphere through direct evaporation from the surface and lost through the respiration of plants."

(ii) This was generally well done, with almost all candidates identifying whether lower temperatures or lack of foliage for transpiration. Better answers identified both factors or developed one. A few were rather vague, referring to sunlight rather than temperature.

(iii) Responses to this question were mostly good. It is good to see more candidates obeying the command words in the question by actually referring to the Figure. It was, perhaps, surprising that many candidates picked out the generally lower precipitation in June to August, rather than the more obvious dramatically higher levels of evapotranspiration shown on graph. However, this did not prevent candidates providing good

explanations for the low levels of surface runoff. Where some candidates failed to gain full marks, in spite of sound explanations, was either in the lack of reference to the graph or in the lack of a clear link to surface runoff.

b Although many answers identified relevant factors influencing groundwater flow, including lower higher precipitation in winter, higher evapotranspiration and interception in summer, there was a tendency for candidates to omit reference to proportionality indicated in the question. Some candidates did not reach Level 2 because they referred only to summer, and did not contrast winter conditions. As with the previous question, candidates need to be encouraged to make the link in explanation to the terms in the question, in this case groundwater flow.

c As in previous years, this question contained three elements:

- The identification of human activities that might influence drainage basin hydrology
- The impact of those activities on flows and stores in the basin
- Explanations of those impacts

For level 3 to be achieved, all three elements must be present.

The best answers clearly covered all three aspects, and did so in relation to a clearly identified river basin. Level 3 answers were characterised by a focus on two or three different human activities, followed by a detailed description and explanation of their impact. The most common human activities identified and explained fully were urbanisation and either afforestation or deforestation.

Answers reaching Level 2 showed one of three limitations:

- Competent to good explanations of the impact of human activities, but lacking any material specific to the river basin identified. In some cases, although a named river basin was identified, the written material could have been any river basin. Identification of the urban areas in a river basin would raise such answers to Level 3.
- Identification of a large number of human activities with statements about their impacts, but with no explanation of these statements. For example, a number of candidates correctly suggested that urbanisation would reduce infiltration and increase surface flow and storage, but did not explain why this would happen.
- A concentration on human activities and their impact on the river, rather than the whole basin. Although such answers were relevant to the question, they were narrow in focus, and because of the emphasis on the river, tended to ignore the concept of water stores.

There was tendency amongst a significant number of candidates not to answer the question set. Such responses made some relevant comments; much of what was written was irrelevant to the question and, therefore, could not gain credit.

The most effective case studies used were based upon the Yangtse, Ouse and Lune. Some candidates, however did not clearly identify a drainage basin, but referred to areas such as Bangladesh, London, etc. A limited number of candidates named no drainage basin or place at all. Candidates should be encouraged to name clearly the river involved in their chosen basin.

2 In general, the answers on this section were, this year, the weakest of all four sections. Candidates struggled to develop explanations of points made in the different parts of the question.

a(i) Definitions of plant succession were generally weak. Although most candidates produced some idea of vegetation replacement, very few had the crucial element of time.

(ii) This question produced a very mixed range of answers. Most candidates were able to identify the differences, which gained some credit at Level 1. Even so, there was considerable confusion over acidity, with a significant number of candidates suggesting a high pH represented a high level of acidity. Explanations of these differences were weaker. The best answers referred, in relation to acidity, to the salinity of the grey dune, either from salt spray or more convincingly, the decay of shells. Candidates who referred to the release of humic acids on the heathland also scored effectively under explanation. In relation to organic content, many candidates mentioned the amount of decaying organic matter from vegetation, but did not develop explanations of this very far.

b This question provided most candidates with the greatest difficulty, probably because it did not follow the form of previous 10 mark question in this section. The weakest answers simply described the plant succession along a sand dune. More candidates did recognise the importance of different environmental conditions, and picked out the harshness of the embryo and foredunes, the high water table in the slacks and/or the high acidity in the healthland. There was less concentration on the term “adaptation” in the questions. The most effective answers focussed on one or two species, most commonly marram grass, and identified adaptations, such as long roots, folding leaves and nodules. Where these adaptations were linked to environmental conditions candidates clearly moved into level 3.

c This question, in spite of being similar to some questions in previous years, produced generally weak answers. A significant number of candidates clearly did not understand the concept of climate climax. Some of these referred to reasons why individual plants did not develop, while others suggested that climatic factors might intervene, when the whole point for a climatic climax is its adaptation to the climate. That said, the majority of answers did identify possible reasons, both human and natural preventing climatic climax. Deforestation, grazing and trampling on sand dunes, amongst many, were all correctly identified human factors, while fire, volcanic activity, landslide and flooding were identified on the natural side. However, were most candidates failed to reach Level 2 was in the lack of development of the explanation of why these factors prevented the development of a climatic climax. Statements such as “grazing animals prevents areas reaching climatic climax” are correct, but lack the development to gain the top marks. To gain the Level 2 marks, such an answer needs to explain that the animals eat the shoots of shrubs, which would then succeed the grasses in the succession.

3 Answers to this section confirmed the improved performance recognised last year, while some candidates showed a sound to good grasp of this component in the specification.

a(i) Definitions of albedo were generally good, with the vast majority identifying proportion or amount of reflectivity of a surface. Some candidates, however, did exhibit confusion by referring to absorption rather than reflection.

(ii) In contrast, candidates' definitions of long-wave radiation were largely inaccurate. A significant proportion of candidates mistakenly referred to radiation reflected from the earth's surface. Those candidates, who identified it as radiation first absorbed by the earth (or indeed other bodies) and re-emitted, scored well.

b As with other state and explain questions, some candidates did not reach Level 2, because of the lack of development in explanations. Most candidates identified cloud cover as a relevant factor, but then did not develop their explanations of why, beyond stating that it prevented radiation reaching the surface. Good answers developed explanations by identifying reflectivity of clouds or absorption by water vapour. Candidates who recognised that 4% of the solar radiation was actually reflected from the earth's surface gained credit, but as with other factors, needed to develop their explanations.

c The question on fog produced a very mixed response. Some candidates showed clear confusion, linking fog to evaporation and warmer conditions rather than to condensation and cooling. Others identified some relevant circumstances, such as cooler temperatures, high humidity, clear skies, etc, but did not develop their answers to link these conditions to the development of fog, through discussion of process. The best answers linked their responses to particular types of fog, such as radiation and advection fogs. Such approaches allowed the candidates to clearly identify the circumstances where such fog developed and to explain the process of fog formation developing from those circumstances.

4 **a(i)** Definitions of a tectonic plate were generally good, although many candidates are still inclined to use the term "plate" again in their definition. Where some candidates did not gain the second mark here was ignoring the concept of the plate moving or floating on the underlying mantle/aesthenosphere.

(ii) Most candidates described the pattern of earthquake distribution well. It was pleasing to note that the majority of candidates are now skilled at describing distributions. The best answers not only related the distribution to plate boundaries and identified specific locations in the world (e.g. The Pacific Ring of Fire), but also picked out anomalies and/or differences in density.

(iii) Explanations of the distribution were, however, less well completed. Some candidates repeated some of what they had already written in response to Q a(ii). Most candidates discussed only destructive boundaries and there was a tendency to vagueness here. The best responses identified friction, the build up of pressure and its subsequent release.

b As with several other questions requiring explanation, many candidates did not develop their explanations sufficiently to reach Level 2. Most answers identified that the plates were moving apart, which allowed magma to the surface, but went no further. The best answers referred to the mechanisms of plate movement through reference to convection currents, ridge push or slab pull.

c The best parts to answers on this question related to volcanoes, with clear explanations of subduction, melting of the subducted plate (and sometime sediments and water) creating less dense magma, which rises through the overlying plate to produce volcanoes or island arcs. Ocean trenches were also frequently mentioned, but explanations of their formation were less clear, most candidates simply mentioning subduction. In contrast, explanations of fold mountains were relatively weak. The vast majority of candidates discussing fold mountains are under the erroneous impression that they are the result of the plates themselves folding, when they should be discussing the folding and crumpling of sediments on the edges of the convering plates. The following represents an excellent example of explanation of fold mountains:

"The leading edge of the continental plate scrapes off sediment and adds it to the leading edge to form an accretionary prism. The scraped sediments are folded, faulted and uplifted to form fold mountains like the Andes"

2681 The Human Environment

General Comments

The range of marks elicited by this paper was very wide. At the upper end of this range there were many scripts of very high quality. Clearly candidates were well prepared; they demonstrated an ability to produce concise, well-expressed answers. There was good use of terminology and sensible application of factual knowledge and understanding to the question in hand.

Features of a most encouraging trend in recent sessions have been :

- the unprompted use of brief examples in the shorter sections
- the inclusion of sketch maps and diagrams
- statement of specific OS map evidence in support of explanations
- the preparation of brief plans for each of the two extended question

See Principal Examiner's Report 2681 January 2005.

At the lower end of the mark range the main deficiencies for many candidates were :

- in developing explanations beyond a brief, basic statement
- in producing some connection between their basic statement and the exact requirements of the question

Limiting factors in each instance were the quality of language and inadequate use of geographical terms. Candidates are reminded that examiners take into account the quality of language where an answer requires an extended piece of writing, assessed in three levels.
Spelling and legibility of scripts were also noticeable problems. Some lower level responses were lengthy but they were not developed in an appropriate way either being repetitious or digressing from the point of the question.

Whilst not exhaustive, a simple classification of question type plus basic requirements for each might be helpful :

- definition of terms (2 marks) – precision is needed for two marks; one mark will be awarded for a less clear response which shows some understanding
- 'describing' questions (4 or 6 marks) – a summative statement is usually the discriminator between Levels 1 and 2. Specific reference to data on the map, graph etc is needed for full marks.
- 'state and explain' questions (6 marks) – two clear explanations are needed for the award of a mark in Level 2.
- extended questions (10 marks) – two detailed explanations are required for a Level 3 response. See past Mark Schemes for examples.

The following comments relate to each part question in the June 2005 examination. It might be instructive to consider these in conjunction with the Mark Scheme. Examples of actual responses are included (*in italics*); these may be useful in the preparation of future candidates.

Comments on Individual Questions

1. Population

(a) (i) Many candidates achieved a Level 2 response in their description of the pattern of population aged over 60 in southern England (choropleth map). This type of question requires a clear summative statement, reference to data from the source and identification of any anomalies. A typical response meeting these requirements was,

The greatest percentage of people over 60, over 25%, are invariably in coastal areas such as Norfolk by the North Sea and particularly clustered in Dorset, Devon and Cornwall in the south. With distance inland the percentage of those over 60 decreases with under 19%, the lowest bracket, in Greater London. However there are some inland areas with a higher 21 – 22% over 60 population such as Oxfordshire while some coastal areas such as Medway have only a 19% over 60 population.

(ii) *There were fewer candidates who achieved full marks in their explanation of the pattern of population over 60. Reasons were often insufficiently developed in a clear and concise way. Nevertheless there were many appropriate responses showing good understanding, for example,*

Elderly people tend to leave cities when they retire. This is to escape the city life which has crime, congestion and pollution problems associated with it. Housing is also often cheaper in coastal areas away from the main cities. Coastal areas tend to offer nicer conditions such as warmer climate and more space. Retirement homes are often on the coast so elderly people may prefer to live near other elderly people.

(b) *Many candidates understood the importance of age structure in explaining why the death rates of some LEDCs are lower than those of some MEDCs; for example,*

If a country has an elderly population (such as Germany) then the CDR will be higher even if health care is better. This is because a higher proportion of people are reaching the end of their life span than in a country (such as Chile) which has a more youthful population.

Some candidates referred to degenerative diseases and other inappropriate factors such as war, industrial pollution, road accidents and diet

(c) *There were many high quality accounts of the uneven spatial distribution of population in a country. The most frequently cited examples were Brazil, Chile, Peru, USA, China, Australia, UK, and Mexico. The best responses included detailed descriptions and explanations of at least two regions of the country. Candidates were able to demonstrate detailed knowledge and understanding of physical, social, economic and political factors. Selected paragraphs from Level 3 responses include,*

Approximately 90% of Brazil's population live in a narrow 500km band along the east coast clustering around cities such as Sao Paulo, Rio de Janeiro and Belo Horizonte…the ports are where the Portuguese colonised in the 16th century…The area is prosperous due to rich terra rosa soils that are ideal for commercial coffee growing, and natural resources such as minerals (gold, bauxite, iron ore and diamonds) and energy (oil) encourage industrial development. The interior of Brazil is less densely populated. This is because exploration of the interior was delayed

by a steep coastal escarpment and the inaccessibility created by the dense Amazon rain forest. Manuas a centre for the rubber trade and Brazilia the federal capital are anomalies of high population in the sparsely populated interior. The Sertao of the northeast is barren and arid with only dispersed rural farmsteads and little federal investment.

Some candidates based their answer on a more simplistic rural-urban contrast with both limited knowledge of place and limited understanding of factors; for example, they referred only to the push and pull factors of internal migration to Mexico City. Others lapsed into accounts of Chinese population policies. Clearly these were instances of rehearsed answers to past questions which the candidates had been unable to adapt adequately to this particular question.

2. Rural Settlement

(a) (i) Whilst most candidates were able to define the site of a settlement, many confused this term with situation. Examples of correct responses were,
The site of a settlement is… the actual land the settlement stands upon… and…*the land which the settlement physically occupies*…and…*the area or plot the actual settlement is built on.*

(ii) Many candidates explained the site of Rait clearly and they supported their answer with appropriate evidence from the OS map extract (Carse of Gowrie). The most common reference was to water supply from the small stream in the Glen of Rait. Other correct responses referred to its relatively flat site suitable for building, or its elevated site avoiding possible flooding. There were a number of references to features extrinsic to Rait; these related more to its situation than its site.

(b) Rait's position in the settlement hierarchy of the area was evident to most candidates. The problem for many in answering this question was in linking the low order of this village to the identifiable map evidence. The better candidates were able to do so using terminology correctly. For example, they gave reasons why the threshold population of only low order services could be met in Rait and / or why other settlements in the area had higher degrees of centrality. For example,
Rait is located in a fairly steep -sided valley, Glen of Rait, so additional building and expansion may be difficult. There may be not much room to grow thus the terrain may have restricted Rait from ascending the settlement hierarchy. It is also relatively inaccessible because of its distance from the A90 and this would not have helped its cause as few people would want to reside there compared to Errol 2522 or Inchture 2828 built on flat land. Both have a school and out compete Rait. Services are discouraged from establishing themselves in Rait as their threshold population would not be met.

(c) *Most comparisons of the shapes of Longforgan and Inchture included the correct linear / nucleated contrast. There were some candidates who were unable to use these basic terms; many others could not offer any further comment on the layout of the two settlements. Typical of the better responses was,*
Longforgan is a linear settlement which has grown up along the A90 and there has been slight ribbon development SW towards the prison 3029. Inchture, however, is a nucleated settlement and is a square cluster of

mainly residential buildings with cul de sacs.

(d) (i) *Few candidates understood the idea of a nucleated settlement pattern; most described an individual nucleated settlement. The better definitions showed understanding of this type of pattern pertaining to a wider area such as,*

Nucleated settlement pattern is when the area is dominated by nucleated settlements rather than dispersed isolated hamlets…*or*…This is where villages dominate the landscape as opposed to isolated dwellings or hamlets.

(d) (ii) *Explanations of nucleated settlement patterns revealed limited knowledge and understanding of rural settlement patterns; many candidates accounted for single nucleated settlements only. There were some good responses relating to the communal working of land or to the location of scarce resources both of which encourage nucleation; otherwise there was little understanding of the historical or geographical perspective.*

It was encouraging that some candidates referred to the nucleated settlement pattern on the Carse of Gowrie using data on the OS map extract and other examples in support of their explanations. A typical Level 2 response was,

There are two main factors which lead to the development of nucleated settlement patterns. These are physical and cultural. Firstly physical factors encouraging nucleated settlement could be on a lowland area due to the quality of soil and around a scarce resource such as a dry area in an otherwise marshy area for example in the Fens. Cultural factors may also encourage nucleated settlement. The Anglo-Saxons used to form nucleated settlements on open fields so they were able to share workloads and equipment, the community would be nearby and it was convenient for farming.

3. Urban Settlement

(a) *The main features of commercial land use as shown on the Goad shopping centre plan for part of Norwich CBD were readily identified by the majority of candidates. Some responses were limited by the fact that there was no specific reference to detail on the plan itself. Examples of Level 2 responses included,*

There appear to be many banks and building societies such as the Woolwich and Nat West found on London Street. There are clothing shops grouped on St Andrews Hill…*or*…The main features of the land use are high order comparison shops / chain stores for example Blacks camping goods or Ann Summers lingerie. There is a relatively high number of bars and restaurants e.g. Butlers S/W Bar.

(b) *Explanations of the concentration of commercial activity in CBDs were not particularly well developed. Many answers included little more than simplistic statements concerning accessibility, transport routes and high pedestrian flows. The better answers demonstrated understanding of the bid-rent concept and / or reasons why threshold populations could be met in this area. For example,*

There are large numbers of potential customers in the CBD. This is due to public transport, communication links and the high accessibility of the CBD. Shops will remain profitable because thresholds will be met. There is also

the prestige of owning a shop in the centre of town. Bid rent theory also states that land is the most expensive in the centre of cities. Consequently it is only large scale corporate firms and banks who can afford to locate here. Land is too expensive for residential use.

(c) *Reasons for the increasing attractiveness of out-of-town locations were more securely understood, although some candidates tended to discuss advantages for customers rather than factors of location for commercial activity. High marks were achieved where relative land values, advantages of economies of scale, benefits derived from greater accessibility and increased personal mobility were considered. In some instances the answer was supported with reference to a named example. An example of a Level 2 response was,*

Out of town locations are more widely accessible to individuals from the suburbs and surrounding rural areas for example Bluewater near the motorway network A2 / M25 with increased car ownership. Land is cheaper away from the centre and there is more available space so car parking and larger buildings can be provided. Superstores like Sainsburys and Halfords often need large amounts of space to display their goods.

(d) *Processes accounting for the growth of distinctive residential areas in MEDC urban areas were clearly understood. Candidates were able to draw from many aspects of the Specification to answer this question. There were examples of the entire range of possible responses including suburbanisation, gentrification, segregation by income and/or ethnicity, physical/population growth through time, changes in the family life cycle and local authority planning. It was pleasing to see detailed answers, which were clearly based on fieldwork and use of census data. Others incorporated relevant details of the various urban models. There were many Level 3 responses with clear knowledge of intra-urban place names from a variety of urban areas, for example Leicester, Guildford, Eastbourne, Swansea, London, Manchester, Birmingham, Leeds and Los Angeles. Some candidates included helpful sketch maps or diagrams. The following are typical of many responses,*

…inner city areas such as Sparkbrook and Sparkhill are similarly run down. Their residential areas consist mainly of industrial era terraces. Gentrification and filtering have produced a wide range of residents from young professionals with small children or no children who have redone houses in some areas to immigrants who have larger families and create distinct communities. These communities may influence the area sufficiently to create features unusual for British cities such as mosques. In the suburbs there is a similar divide between areas such as Bilsley a council estate and Packwood an area of detached houses on the edge of the city. The council estate has a lower proportion of car ownership and indoor toilets than Packwood…

…distinctive residential areas in Leeds appeared in the mid-20th century when council estates were built. Two large estates are the Woodhouse and the Parkhouse estates. These areas are out of the centre of Leeds and were built on cheap peripheral land by the council to meet housing demands after the Second World War…

…in Swansea there are distinctive residential areas. Around the industrial area of the lower Swansea valley there is much high-density low quality terraced housing built in the 19th and early 20th century. This housing is bought by lower income groups who cannot afford higher quality housing and who want to live near the city centre as many cannot afford a car. As

> the Hoyt model suggests in the west there is a high status residential area in a less polluted environment with lower density suburban housing. This is also the case in the Mumbles area developed on the edge of Swansea where land is cheaper and access to the coast is desirable for the retired of higher economic status…
>
> …in this part of Cheltenham there are high concentrations of flats, apartments and bed-sits. These are usually occupied by young adults. This is because they are near transport links, close to the city centre for work and leisure and the houses are cheaper. As they become older and have children they move out to the suburbs. These often contain detached and semi-detached housing with gardens. Families are attracted to these as they have fewer urban problems, they are safer and have more space for their families…

In summary, Question 1 (Population) and Question 3 (Urban settlement) were well answered. Question 2 (Rural settlement) was often significantly weaker than the other two.

Geographical Investigation (2682)

General Comments

Most Candidates used their Reposts constructively in order to answer Question 1, which was a clear discriminator between those who had clearly understood the programme of work leading to the Report, as opposed to those mechanically following instructions. However, many answers were indicative of high quality field work being carried out. Candidates were asked to refer to their own study, but many failed to do so.

The objective of Question 2 was to elicit the Candidate's understanding of how maps and sketches are used in the context of the AS level investigation. The discrimination lay in the ability of Candidates to provide detail regarding the function of maps.

The purpose behind Question 3 was to ascertain the understanding of statistical techniques commonly used in AS level investigations. Differentiation was determined by knowledge of techniques and applications to previously unseen data scenarios.

Most Candidates attempted all parts of the paper. A number of Candidates did not attempt one or both parts of Question 3. Very few appeared to mismanage the time available.

Candidates found the level of difficulty for this paper harder than for January 2005; in particular Question 3 posed problems, even though they were largely knowledge (rather than interpretation based). Differences in the quality of responses reflected differences in teaching and coverage of material.

For all questions the accepted types were flexible, with credit gained either by considering a few issues in detail or by looking at a range of ideas in less depth.

Summary of the Outcomes for Questions 1, 2 and 3

Nearly all Candidates clearly understood the requirements of Questions 1 and 2 (a), with Question 1 being the most easily understood. Question 3 (a) was also understood by most Candidates, although overall there was a limited level of detail in discussing the use of descriptive statistics. Questions 2 (b) and 3 (b) proved more challenging.

The overall level of attainment for Question 1 was good. The overall level of attainment was lower for Question 2 and 3. However, as is typical of this type of examination, Candidates performed well at particular questions, thereby leading to fewer very good and very poor marks. Thus, Candidates well versed in their Geographical Investigation performed well in Question 1 but were not necessarily able to deal with the less predictable nature of Question 2, which is not based on their Geographical Investigation directly, but requires application of their knowledge. The outcome for Question 3, especially (b) relates to Candidates' knowledge and confidence in their understanding of statistical tests, which is excellent at a number of Centres.

Comments on Individual Questions

1. **(a)** Many Candidates gained 4 or 5 marks at the top of level 2. The sampling may be specified as systematic, random, stratified systematic, stratified random, opportunistic, or in response to site conditions, with examples from the actual Geographical Investigation or the sampling method may be described without identifying the specific type. The size of each sample to be collected is given. There may be reference to: the need to sample different variables in different ways; how human resources were organised in order to carry out data collection.

Qualities of A grade Candidates: The sampling process is clearly described with reference to their own Geographical Investigation (i.e. refer to the variables measured, the actual sample size, length of transect). The answer is developed by referring to aspects of the sampling process (e.g. gradient measured at every break of slope as conditions change there). A few good diagrams were also included (but not necessary for full marks).

Other Candidates: Most Candidates were able to specify at least one named element of their sampling process. Many were able to produce a detailed description of the sampling techniques used. Candidates that had undertaken physical studies usually gained more credit as such studies tend to have well organised sampling frameworks. Conversely, many did not realise that the contents of a questionnaire or description of how to measure a variable (e.g. particle size, gradient) do not relate to sampling. Weaker Candidates did not refer to or make a clear link with their own Geographical Investigation (e.g. no reference to the sample size or sampling interval); furthermore, the sampling process was described simply. Many Candidates knew the terms, but did not know what they meant – in particular stratified sampling was confused with systematic. Many Candidates gave the answer to (b) as part of this answer as well as or instead of in (b).

(b) Most Candidates entered the bottom of Level 2. Without duplication (a), reasons are given for the type of sampling used, e.g. systematic ensures no personal preference; an equal number of males and females are interviewed as they may have different opinions and in order to be representative of the population; frequent measurements of gradient on a psammosere as the plant community changes rapidly. Alternatively the explanation may show how the sampling makes it possible to answer the question, e.g. pedestrian counts can help identify the boundary of the CBD.

Qualities of A grade Candidates: The explanation of the sampling process is clearly described with reference to their own Geographical Investigation. The answer is developed by referring either more detail is given for fewer aspects or less detail is given for more aspects.

Other Candidates: Weaker Candidates did not refer or make a clear link with their own Geographical Investigation. The explanation of the sampling process was simple, being descriptive rather than explanatory. The lack of understanding as to why the sampling process had been chosen is a serious risk with field centre led investigations; Centres should ensure that Candidates are able to say more than “the field centre chose the sampling methodology” or that “ this was the best or simplest method in the time available.” A lot of irrelevant material was included without reference to the investigation. Candidates did not understand the difference between the

terms “representative,” “reliable” and “accurate” (this comment also applied to ©). However, nearly all Candidates from a few Centres correctly referred to how representative the sample had been.

(c) Most Candidates entered Level 2 and a good number entered Level 3. The following could have improved primary data: more variables (either additional or alternatives); larger sample sizes; different sampling methodology. These could have been enabled by more resources such as more people to collect data, more time and money or more accurate reliable instruments. Realistic suggestions for the improvements enhance the quality of the answer.

Qualities of A grade Candidates: One or more improvements to primary data are discussed well. There is a good reference to the Geographical Investigation (i.e.) suggested values for improved sample size are given). The response is realistic and achievable. These Candidates had a very clear idea about specific improvements and used a good range of geographical thinking.

Other Candidates: Most Candidates recognised that it was possible to discuss all aspects of primary data, whereas (a) and (b) only concerned sampling. Specific improvements to their sampling schemes produced the most successful responses. The improvements to their sampling schemes produced the most successful responses. The response of weaker Candidates was not necessarily realistic and achievable and made limited reference to the Geographical Investigation (e.g. suggestions for improvements were general “more of the same” responses without giving values for improved sample sizes or real details of better instrumentation such as pH testing kits). Some Candidates, including those who scored well on other questions, discussed only problems without referring to specific improvements. A number of Candidates referred to secondary data clearly enhanced the collection of primary data (e.g. improved selection of sampling sites).

2. (a) Most Candidates entered Level 2, but few gained high marks. There is reference to the area covered (whether small or large) and how this links to the aims of the investigation; the types of factual information needed for the investigation; and the level of detail needed for the investigation.

Qualities of A grade Candidates: Either the comparison is balanced and points are discussed well or more points are made, but in less depth. Both map and scales are referred to in each aspect of the comparison. Such Candidates gave appropriate examples of what the different scale maps show (e.g. 5 metre contours on 1:25000 maps) and how they can be used to plan and conduct an AS investigation. Higher scoring Candidates were able to discuss the scales used within their own investigation and suggested possible areas of investigation. This was done better when discussing the use of 1:50000 maps (e.g. investigations into settlement hierarchies).

Other Candidates: Many Candidates were unable to express themselves clearly and there was a great deal of repetition throughout many answers. The most common and correct level of detail referred to was the presence of field boundaries on 1:25000 maps. Many had no sense of what the maps show, suggestion, for example, that only main roads are shown on 1.50000 and that they do not show contours, woodland, car parks, post offices and churches. Indeed they were incorrectly regarded by many as regional maps

or even able to show national location. Conversely, some discussed 1.25000 maps as if there were at the 1.10000 scale, suggesting that they show detailed land use descriptions, street and show names – even road markings and pavement widths. Some Candidates talked about maps in general and made no comparative points. However, typical responses addressed the differing levels of detail, the physical area covered, and the application to small or large scale investigations. A substantial proportion of Candidates from most Centres confused the level of detail for the 2 scales. As with Question 1 many used the term "accurate" inappropriately. The weakest Candidates did not allocate a scale to the description.

(b) There was great variation in responses: many Candidates stayed in Level 1 (see comments below). A good number entered Level 2; few entered Level 3. The main elements are a title (to indicate purpose and/or location of the study area); a key (to explain content and/or symbols of the sketch map); orientation (to show relative locations and/or aspect of features on sketch map); scale (to enable the interpretation of distances); annotations (either to highlight geographical features of the sketch map or to show that a sketch map is a simplified version of a published map, e.g. contains only data needed for the Investigation).

Qualities of A grade Candidates: Either two properties are annotated well or three properties are annotated in less depth. Good sketch map. Where sketch maps had clearly formed an important part of their investigation, Candidates were able to draw on the skill and knowledge developed through their enquiry.

Other Candidates: Many Candidates simply placed 3 components on the map but did not provide annotations to explain their purposes. Many did not have a sense of the appropriate scale for a sketch map. There was evidence that many Candidates did not know what a sketch map is – or had misread the questions – resorting instead to profiles and perspective "3D2 field sketches.

3 **(a)** Many Candidates reached the top Level 2; but many stayed in Level 1. The measures of central tendency and the mean, median and mode, whilst standard deviation, interquartile range and range are the most common measures of variation. Their attributes can be considered in terms of describing how they are calculated or – more advanced – how they are used. For example, the mean encompasses all values, but skewed by anomalies; the median is not affected by extreme values; the moder shows bimodal distributions. In terms of variation the standard deviation describes the extent of spread and enables good comparison, whilst the interquartile rand excludes extreme values. There is recognition that the 2 datasets pose different challenges, but that appropriate descriptive statistics enable meaningful comparison.

Qualities of A grade Candidates: Either one or more central tendency and one or more variation are discussed well or more measures are discussed in less depth. Central tendency and variation are discussed. There may be recognition that the 2 datasets present different challenges. There may be discussion regarding the comparison of the two datasets. Such Candidates provided good descriptions of how to calculate the statistics and moved on to discuss some aspects of whether they included extreme, anomalous or bimodal data.

Other Candidates: Most Candidates knew the types of central tendency and were able to summarise how they were calculated; but few were able to describe their application – it had been expected that this would have been the substantive content of the responses. Knowledge of measures of variation was even hazier, with limited discussion of their characteristics. Many failed to address measures of variation at all. Frequently, the extent of weaker answers was recognition that the 2 datasets could be compared using descriptive statistics. A substantial number of Candidates discussed analytical tests such as Spearman or Mann-Whitney; or they referred to data presentation techniques. Some Candidates ignored the instructions and carried out some basic calculations or just described the data shown in the two graphs. Weak answers did not move beyond GCSE as they only named the statistics without any further development. The use of diagrammatic representation of two datasets for Question 3(a) appeared to confuse some Candidates, who also did not understand what the x and y axes variables represented, e.g. suggesting that they showed monthly variation.

(b) The question elicited some excellent answers, whilst others were weak. There was a clear differentiation between Centres. Some Candidates entered Level 3; many reached the middle of Level 2; but many stayed in Level 1. There are three elements to carrying out the Spearman's Rank Association text. The concept of association identifies the null hypothesis [that there is no significant association (relationship) between 2 data sets]. Alternatively a sketch or description of a scatter graph shows understanding of association between 2 variables. Secondly, the test is carried out. The main stages are to rank the data and calculate $r_s = 1 - [6\sum d^2 / (n^3 - n)]$ where n = number of ranked pairs. Thirdly, the meaning of the outcome and its significance (usually at 95%) is carried out to see whether the relationship could have occurred by chance. Using n – 2 degrees of freedom, the calculated value (r_s) is compared to the critical value, If r_s > tables value, accept the alternative hypothesis. The Chi^2 and Pearson's Coefficient can also be described.

Qualities of A grade Candidates: All 3 of concepts of association (referring to the null and alternative hypothesis), how to carry out test, meaning of outcome and its significance level are discussed well. Not all aspects have to be covered in depth in order to attain full credit – but understanding of the 3 components must be demonstrated.

Other Candidates: A number of Candidates did not know what Spearman's rank correlation test is – confusing it with Mann Whitney. Many responses that tackled Spearman showed poor breadth of knowledge, with Candidates describing one part of the 3 stages of the process in much greater detail, but giving an unbalanced answer. In particular, the concept of association was not developed, with the exception of a few Centres. Many had endeavoured to memorise the formula, but with varying success. Typical responses wither considered the meaning of +1/0/-1 *or* how to interpret R_s against the tabulated critical value. Even more able Candidates wrongly interpreted the statistics or did not develop the interpretation. A substantial number of Candidates referred to confidence levels but did not explain what they mean. Weak Candidates stated that 0 = negative correlation and made no reference to -1; many assumed that proximity to +/-1 denoted high correlation, without referring to sample size. Indeed, very few mentioned the degrees of freedom (the formula often being confused with that for the Chi^2 test). Some Candidates referred to computer

programmes and had not performed the calculations manually. A few Candidates discussed the Chi^2 test with reasonable success, whilst a number of weak Candidates described Mann-Whitney or measures of central tendency.

2682/01 – Geographical Investigation (Written Paper)

GENERAL COMMENTS

Most Candidates used their Reports constructively in order to answer Question 1, which was a clear discriminator between those who had clearly understood the programme of work leading to the Report, as opposed to those mechanically following instructions. However, many answers were indicative of high quality field work being carried out. Candidates were asked to refer to their own study, but many failed to do so.

The objective of Question 2 was to elicit the Candidate's understanding of how maps and sketches are used in the context of the AS level investigation. The discrimination lay in the ability of Candidates to provide detail regarding the function of maps.

The purpose behind Question 3 was to ascertain the understanding of statistical techniques commonly used in AS level investigations. Differentiation was determined by knowledge of techniques and application to previously unseen data scenarios.

Most Candidates attempted all parts of the paper. A number of Candidates did not attempt one or both parts of Question 3. Very few appeared to mismanage the time available.

Candidates found the level of difficulty for this paper harder than for January 2005; in particular Question 3 posed problems, even though they were largely knowledge (rather than interpretation based). Differences in the quality of responses reflected differences in teaching and coverage of material.

For all questions the accepted types of response were flexible, with credit gained either by considering a few issues in detail or by looking at a range of ideas in less depth.

Summary of the Outcomes for Questions 1, 2 and 3

Nearly all Candidates clearly understood the requirements of Questions 1 and 2 (a), with Question 1 being the most easily understood. Question 3 (a) was also understood by most Candidates, although overall there was a limited level of detail in discussing the use of descriptive statistics. Questions 2 (b) and 3 (b) proved more challenging.

The overall level of attainment for Question 1 was good. The overall level of attainment was lower for Questions 2 and 3. However, as is typical of this type of examination, Candidates performed well at particular questions, thereby leading to fewer very good and very poor marks. Thus, Candidates well versed in their Geographical Investigation performed well in Question 1 but were not necessarily able to deal with the less predictable nature of Question 2, which is not based on their Geographical Investigation directly, but requires application of their knowledge. The outcome for Question 3, especially (b) relates to Candidates' knowledge and confidence in their understanding of statistical tests, which is excellent at a number of Centres.

DETAILED COMMENTS ON INDIVIDUAL QUESTIONS

Question 1 (a)

Many Candidates gained 4 or 5 marks at the top of Level 2.

Indicative content: The sampling may be specified as systematic, random, stratified systematic, stratified random, opportunistic, or in response to site conditions, with examples from the actual Geographical Investigation or the sampling method may be described without identifying the specific type. The size of each sample to be collected is given. There may be

reference to: the need to sample different variables in different ways; how human resources were organised in order to carry out data collection.

Qualities of A grade Candidates: The sampling process is clearly described with reference to their own Geographical Investigation (i.e. refer to the variables measured, the actual sample size, length of transect). The answer is developed by referring to aspects of the sampling process (e.g. gradient measured at every break of slope as conditions change there). A few good diagrams were also included (but not necessary for full marks).

Other Candidates: Most Candidates were able to specify at least one named element of their sampling process. Many were able to produce a detailed description of the sampling techniques used. Candidates that had undertaken physical studies usually gained more credit as such studies tend to have well organised sampling frameworks. Conversely, many did not realise that the contents of a questionnaire or description of how to measure a variable (e.g. particle size, gradient) do not relate to sampling. Weaker Candidates did not refer to or make a clear link with their own Geographical Investigation (e.g. no reference to the sample size or sampling interval); furthermore, the sampling process was described simply. Many Candidates knew the terms, but did not know what they meant – in particular stratified sampling was confused with systematic. Many had not taken heed of the instruction to describe in the question. Some Candidates gave the answer to (b) as part of this answer as well as or instead of in (b).

Question 1 (b)

Most Candidates entered the bottom of Level 2.

Indicative content: Without duplicating (a), reasons are given for the type of sampling used, e.g. systematic ensures no personal preference; an equal number of males and females are interviewed as they may have different opinions and in order to be representative of the population; frequent measurements of gradient on a psammosere as the plant community changes rapidly. Alternatively, the explanation may show how the sampling makes it possible to answer the central question, e.g. pedestrian counts can help identify the boundary of the CBD.

Qualities of A grade Candidates: The explanation of the sampling process is clearly described with reference to their own Geographical Investigation. The answer is developed by referring either to more detail is given for fewer aspects or less detail is given for more aspects.

Other Candidates: Weaker Candidates did not refer to make a clear link with their own Geographical Investigation. The explanation of the sampling process was simple, being descriptive rather than explanatory. The lack of understanding as to why the sampling process had been chosen is a serious risk with field centre led investigations; Centres should ensure that Candidates are able to say more than “the field centre chose the sampling methodology” or that “this was the best or simplest method in the time available.” A lot of irrelevant material was included without reference to the investigation. Candidates did not understand the difference between the terms “representative,” “reliable” and “accurate” (this comment also applies to (c)). However, nearly all Candidates from a few Centres correctly referred to how representative the sample had been.

Question 1 (c)

Most Candidates entered Level 2 and a good number entered Level 3.

Indicative content: The following could have improved primary data: more variables (either additional or alternatives); larger sample sizes; different sampling methodology. These could have been enabled by more resources such as more people to collect data, more time and money or more accurate or reliable instruments. Realistic suggestions for the improvements enhance the quality of the answer.

Qualities of A grade Candidates: One or more improvements to primary data are discussed well. There is good reference to the Geographical Investigation (i.e. suggested values for improved sample sizes are given). The response is realistic and achievable. These Candidates had a very clear idea about specific improvements and used a good range of geographical terms in their answers. Many were realistic, appropriate and demonstrated wider geographical thinking.

Other Candidates: Most Candidates recognised that it was possible to discuss all aspects of primary data, whereas (a) and (b) only concerned sampling. Specific improvements to their sampling schemes produced the most successful responses. The response of weaker Candidates was not necessarily realistic and achievable and made limited reference to the Geographical Investigation (e.g. suggestions for improvements were general "more of the same" responses without giving values for improved sample sizes or real details of better instrumentation such as pH testing kits). Some Candidates, including those who scored well on other questions, discussed only problems without referring to specific improvements. A number of Candidates referred to secondary data – whereas this was seldom a problem in (a) and (b); credit was given where the use of secondary data clearly enhanced the collection of primary data (e.g. improved selection of sampling sites).

Question 2 (a)

Most Candidates entered Level 2, but few gained high marks.

Indicative content: There is reference to the area covered (whether small or large) and how this links to the aims of the investigation; the types of factual information needed for the investigation; and the level of detail needed for the investigation.

Qualities of A grade Candidates: Either the comparison is balanced and points are discussed well or more points are made, but in less depth. Both map scales are referred to in each aspect of the comparison. Such Candidates gave appropriate examples of what the different scale maps show (e.g. 5 metre contours on 1:25000 maps) and how they can be used to plan and conduct an AS investigation. Higher scoring Candidates were able to discuss the scales used within their own investigation and suggested possible areas of investigation. This was done better when discussing the use of 1:50000 maps (e.g. investigations into settlement hierarchies).

Other Candidates: Many Candidates were unable to express themselves clearly and there was a great deal of repetition throughout many answers. The most common and correct level of detail referred to was the presence of field boundaries on 1:25000 maps. Many had no sense of what the maps show, suggesting, for example, that only main roads are shown on 1:50000 and that they do not show contours, woodland, car parks, post offices and churches. Indeed they were incorrectly regarded by many as regional maps or even able to show national location. Conversely, some discussed 1:25000 maps as if they were at the 1:10000

scale, suggesting that they show detailed land use descriptions, street and shop names – even road markings and pavement widths. Some Candidates talked about maps in general and made no comparative points. However, typical responses addressed the differing levels of detail, the physical area covered, and the application to small or large scale investigations. A substantial proportion of Candidates from most Centres confused the level of detail for the 2 scales. As with Question 1 many used the term "accurate" inappropriately. The weakest Candidates did not allocate a scale to the description.

Question 2 (b)

There was great variation in responses: many Candidates stayed in Level 1 (see comments below). A good number entered Level 2; few entered Level 3;

Indicative content: The main elements are a title (to indicate purpose and/or location of the study area); a key (to explain content and/or symbols of the sketch map); orientation (to show relative locations and/or aspect of features on sketch map); scale (to enable the interpretation of distances); annotations (either to highlight geographical features of the sketch map or to show that a sketch map is a simplified version of a published map, e.g. contains only data needed for the Investigation).

Qualities of A grade Candidates: Either two properties are annotated well or three properties are annotated in less depth. Good sketch map. Where sketch maps had clearly formed an important part of their investigation, Candidates were able to draw on the skill and knowledge developed through their enquiry.

Other Candidates: Many Candidates simply placed 3 components on the map but did not provide annotations to explain their purpose. Many did not have a sense of the appropriate scale for a sketch map. There was evidence that many Candidates did not know what a sketch map is – or had misread the question – resorting instead to profiles and perspective "3D" field sketches.

Question 3 (a)

Many Candidates reached the top of Level 2; but many stayed in Level 1 (see comments below).

Indicative content: The measures of central tendency are the mean, median and mode, whilst standard deviation, interquartile range and range are the most common measures of variation. Their attributes can be considered in terms of describing how they are calculated or – more advanced – how they are used. For example, the mean encompasses all values, but skewed by anomalies; the median is not affected by extreme values; the mode shows bimodal distributions. In terms of variation the standard deviation describes the extent of spread and enables good comparison, whilst the interquartile range excludes extreme values. There is recognition that the 2 datasets pose different challenges, but that appropriate descriptive statistics enable meaningful comparison.

Qualities of A grade Candidates: Either one or more central tendency and one or more variation are discussed well or more measures are discussed in less depth. Central tendency and variation are discussed. There may be recognition that the 2 datasets present different challenges. There may be discussion regarding the comparison of the two datasets. Such Candidates provided good descriptions of how to calculate the statistics and moved on to discuss some aspects of whether they included extreme, anomalous or bimodal data.

Other Candidates: Most Candidates knew the types of central tendency and were able to summarise how they were calculated; but few were able to describe their application – it had

been expected that this would have been the substantive content of the responses. Knowledge of measures of variation was even hazier, with limited discussion of their characteristics. Many failed to address measures of variation at all. Frequently, the extent of weaker answers was recognition that the 2 datasets could be compared using descriptive statistics. A substantial number of Candidates discussed analytical tests such as Spearman or Mann-Whitney; or they referred to data presentation techniques. Some Candidates ignored the instructions and carried out some basic calculations or just described the data shown in the two graphs. Weak answers did not move beyond GCSE as they only named the statistics without any further development. The use of diagrammatic representation of two datasets for Question 3 (a) appeared to confuse some Candidates, who also did not understand what the x and y axes variables represented, e.g. suggesting that they showed monthly variation.

Question 3 (b)

This question elicited some excellent answers, whilst others were very weak. There was a clear differentiation between Centres. Some Candidates entered Level 3; many reached the middle of Level 2; but many stayed in Level 1.

Indicative content: There are three elements to carrying out the Spearman's Rank Association test. The concept of association identifies the null hypothesis [that there is no significant association (relationship) between 2 data sets]. Alternatively a sketch or description of a scattergraph shows understanding of association between 2 variables. Secondly, the test is carried out. The main stages are to rank the data and calculate $r_s = 1 - [6\Sigma d^2 / (n^3 - n)]$ where n = number of ranked pairs. Thirdly, the meaning of the outcome and its significance are considered: r_s ranges between +1 and -1. 0 = no correlation; 1 = perfect correlation; a test of significance (usually at 95%) is carried out to see whether the relationship could have occurred by chance. Using n – 2 degrees of freedom, the calculated value (r_s) is compared to the critical value. If r_s > tables value, accept the alternative hypothesis. The Chi^2 and Pearson's Coefficient can also be described.

Qualities of A grade Candidates: All 3 of concept of association (referring to the null and alternative hypothesis), how to carry out test, meaning of outcome and its significance level are discussed well. Not all aspects have to be covered in depth in order to attain full credit – but understanding of the 3 components must be demonstrated.

Other Candidates: A number of Candidates did not know what Spearman's rank correlation test is – confusing it with Mann Whitney. Many responses that tackled Spearman showed poor breadth of knowledge, with Candidates describing one part of the 3 stages of the process in much greater detail, but giving an unbalanced answer. In particular, the concept of association was not developed, with the exception of a few Centres. Many had endeavoured to memorise the formula, but with varying success. Typical responses either considered the meaning of +1/0/-1 *or* how to interpret R_s against the tabulated critical value. Even more able Candidates wrongly interpreted the statistics or did not develop the interpretation. A substantial number of Candidates referred to confidence levels but did not explain what they mean. Weak Candidates stated that 0 = negative correlation and made no reference to -1; many assumed that proximity to +/-1 denoted high correlation, without referring to sample size. Indeed, very few mentioned the degrees of freedom (the formula often being confused with that for the Chi^2 test). Some Candidates referred to computer programmes and had not performed the calculations manually. A few Candidates discussed the Chi^2 test with reasonable success, whilst a number of weak Candidates described Mann-Whitney or measures of central tendency.

2682/02 Geographical Investigation (Report)

General Comments

Overall Standard: The majority of Candidates entered Level 1, with few remaining in Level 4. Few Candidates did not include all five stages of a Report. Candidates are demonstrating substantial development compared to GCSE, particularly in the analysis and evaluation of outcomes. The quality of written English was generally high. Whilst there is evidence of good practice at many Centres in terms of organising data collection and teaching methods, the necessarily heavily teacher directed approach offers less scope for independent initiative from students. However, an important role of this AS Report is to provide the basis for independent research at A2.

Content: The essence of a good report is relevance and quality not quantity. The data collected and analysis should relate to the question that has been identified at the beginning of the Report. This includes reference to any models and theories that have been presented. The aim itself should set the target of examining 2 or 3 hypotheses, so that they can be discussed in depth, rather than a superficial description of numerous variables. There was a balance between physical and human investigation topics, encompassing a variety of subjects. Nearly all Reports were field studies centre or Centre led: differentiation was achieved by assessing the Candidate's skill in manipulating the data that is collected.

Supporting figures: As with the textual content, a few well chosen, appropriate figures can gain as much credit as many pages of repetitive poorly conceived and irrelevant figures. Thus, it is important for the reader to be able to compare like for like variables on the same page – with the same scales on axes for graphs. There is seldom any justification for presenting the same data in several different ways.

Length of Report: There were numerous rubric infringements. Those Candidates that substantially exceed the word limit are penalised so that they will not enter Level 1. Those that exceed the word limit to a lesser extent are not able to achieve more than 14 marks.

Comments on Administration and Presentation

1) Authentication Sheet CCS202

The Authentication Sheet was introduced in November 2003, yet a substantial number of Centres are not using it. The latest version should be used and the instructions adhered to.

2) Rubric Error: Length of Report

The stated length of Reports was often substantially above 1,000 words, and there were many more cases where the stated word count bore no resemblance to the actual word count. This was either due to miscounting or the use of tables with considerable prose content that had not been included in the word count. **In the interest of fairness for all Candidates the word count should be adhered to and an accurate word count supplied.** It should also be noted that concise writing is an important skill.

3) Format

Nearly all Candidates used the 5 stages format suggested in the Specification: Identifying a Question; Development of a Strategy; Collection of Data; Analysis, Interpretation and Evaluation; and Presentation of a Summary. Some Candidates used alternative headings which were recognisable as the 5 stages, as were those using a full essay style approach

without headings. For the latter, the structure of the Report was often more difficult to understand.

4) Presentation

(a) The preferred method of presenting the Report is for it to be ***held together with a treasury tag***. There is no need for folders, wallets, clip and lever arch files, clips, staples or plastic envelopes all cause administrative problems and are less easy to mark. The inclusion of numerous field data collection sheets is detrimental to the Report – a summary of the outcomes should be neatly reproduced in the Report itself.

(b) There is generally a good ***standard*** of presentation within the Reports such as:

- Easy to read text which has been proof read. Beware of American spell checkers on Microsoft which turns “Goad” into “Geode” and ”quadrat” into ”quadrant” – which do not make sense in the context of these investigations. Handwritten reports can score just as highly as typed ones!
- The sheets are in the ***order*** in which they should be read.
- ***Page numbering*** is used.
- Figures, photographs, graphs and tables are ***cross-referenced*** at the appropriate place in the text.

(c) The purpose of ***figures, tables, photographs and graphs*** is to:

- Provide evidence of the data collected.
- Specifically relate to the question and hypotheses chosen for investigation.
- They should be neatly presented (appropriate shading graded to match “high” to “low”, using rulers) and given appropriate titles and labels.
- Show an awareness of appropriate methods of representing data. For example:

- A large scale map extract – with the scale and key given – to show the location of the investigation. This map or a larger scale one will show the location of sampling sites. A map of the UK is usually meaningless in the context of these investigations.
- Appropriately annotated photographs.
- Only one technique used to present one relationship or piece of data.
- The same graph used to present the same variables at two different sites.
- Graphs of variables that need like for like comparison are placed on the same page with the same scales, e.g. all the cross sections of a river study on one page.
- Axes are labelled correctly.

- Line graphs should not purport to show a relationship where it cannot exist, e.g. if there are 8 randomly selected soil samples in each of two woodlands, sample 1 in wood A cannot be compared with sample 1 in wood B. However, if a systematic line transect is taken every 25 metres into each of these woods, there is a case for comparing positions along the transects.

Comments on the Five Stages of the Report

The subject matter of the Reports was nearly always appropriate, since the Candidates were able to take advice from their Centre. Physical topics such as psammomeres and river studies tend be both popular and executed successfully. Candidates are reminded that in a 1,000 word Report there is no room for irrelevance. A reasonable balance between the sections is necessary – too much space devoted to how to calculate Mann-Whitney leaves little room for evaluation. Reports must clearly relate to and refer to a specific location.

Identifying a Question

Indicative content: Contextual information should be included, i.e. the location and background information about the area. A question for investigation must be clearly stated and is usually supported by up to 3 hypotheses that can be tested.

Qualities of A grade Candidates: succinct contextual information (including a relevant labelled map), a clear question and correct supporting hypotheses or aims – for example: the null hypotheses (H_o) = there is no relationship between distance downstream and the discharge; the alternative hypothesis (H_1) = the discharge is expected to increase with distance downstream. The null hypothesis states that no relationship is expected between two variables, whilst the alternative hypothesis states that a relationship is expected, and indicates the direction/nature of this expected relationship.

Other comments: The question is generally well presented. Weak Reports are highly imbalanced – they may have little (or no) contextual information **or** a lengthy description of the context. The map, if any, is inappropriate and poorly labelled. The hypothesis, if any, is not clearly related to the question or its purpose is not understood; the stated hypotheses do not correspond with the relationships considered in analysis – or even with the data collected. Alternatively numerous hypotheses are proposed which cannot be analysed in depth and often leads to an imbalanced Report with a lengthy Collection of Data section and limited Analysis, Interpretation and Evaluation. A substantial number of Level 2 Candidates suffered from using too many variables leading to substantially over length Reports or rather meaningless generalised Reports within the word limit.

Development of a Strategy

Indicative content: The reason for selecting the investigation location is given. Background theory, such as a model, should be presented and there may be justification for the expected outcomes in this section (alternatively it may be given in the Analysis, Interpretation and Evaluation stage). Risk assessment relevant to the site is desirable. Secondary data is likely to be discussed. There is a plan to make field notes about local site conditions (either written or with sketches or photographs) that can be referred to in the interpretation of relationships and anomalies. The organisation of data collection materials is discussed, together with how the data is to be represented and tested.

Qualities of A grade Candidates: The expected outcomes are justified in terms of theory, e.g. the discharge increases downstream due to increased inputs to rivers towards the

estuary. The risk assessment specifically relates to the study site and is realistic. Preparation for data collection is discussed, e.g. preparing data collection forms and collecting equipment.

Other Candidates: This stage is often weak compared to the rest of the Report. Weaker Candidates make this section overlap with the next stage or even places the content in the wrong order. There is an excessive description of safety procedures for the risk assessment. There is no reference to geographical theories or how the data collection is to be organised.

Collection of Data

Indicative content: The sites/transects for measurement are selected and the type of sampling used (pragmatic, random, systematic, stratified) is defined. The sample size for each transect (if used) and each site thereon is given and is appropriate, e.g. a few variables collected at 10 sites gives more meaningful results than many variables at 4 sites. The data to be collected is relevant to the aims/hypotheses: when groups collect many variables, individual Candidates should only refer to those relevant to their chosen hypotheses both in data collection and analysis. The method for collecting the data in the field is described. There is a summary of questionnaires and assessment forms used or examples can be attached.

Qualities of A grade Candidates: This is a well balanced section: the sampling location is identified, the type of sampling is clearly understood and described. The data to be collected is relevant to the aims/hypotheses. There is a concise description of how data is collected in the field.

Other Candidates: The data collection is generally well presented with appropriate methods being used – this is achieved by most Candidates. However, there is a tendency to make this "easy" section long at the expense of the Analysis, Interpretation and Evaluation. Weaker Candidates do not know the correct names for the sampling methods used, omit the number of samples, and discuss far more variables than is appropriate for the stated aim/hypotheses. Some misunderstand the purpose of this stage and simply produce the graphs, photographs etc. under this heading.

Analysis, Interpretation and Evaluation

Indicative content: For each part of this stage it is clear which hypothesis or aim is being discussed. The outcomes are summarised and relationships, if any, are explored using secondary data and field evidence. All the data that has been collected is referred to. Statistical tests may be applied and the application of models to the data collected is referred to. Appropriate formulae are used and the units of measurement are given. The reasons for geographical theory not applying to the investigation are considered.

Qualities of A grade Candidates: The text is clear, relevant and relates to figures/tables/maps/photographs and all the data collected. There is a serious attempt to explain relationships and anomalies – possibly with the use of field notes and clearly referenced secondary evidence. The relationship between the outcomes of the hypotheses may be referred to. There is numerical evidence that a statistical test has been carried out; the calculations are correct; confidence levels are tested; and appropriate formulae are used for the data. There is a clear discussion of the extent to which geographical theory is apparent at the site.

Other Candidates: The quality of the analysis section is highly variable. Weaker Candidates present lengthy descriptions of the outcomes but do not note anomalies or explain

relationships. Interpretation consists of poorly expressed, generalised statements and there is no reference to geographical theory – particularly models noted earlier in the Report. They do not understand the meaning of some variables, e.g. confusing altitude and gradient. More able Candidates note anomalies and give simple generic explanations usually related to methodology and site conditions. They attempt to explain relationships. In many cases statistical tests are incomplete – a failing of stronger Candidates that appears to be related to particular Centres. Mann-Whitney (difference between data sets) is confused with Spearman (association between data sets). Computational errors are common, e.g. the formula for Spearman omits "1-.." Weaker Candidates simply state that the study went well and outcomes were as predicted – even when they were not. Land use models are dealt with in a summary manner if at all.

Presentation of a Summary

Indicative content: The Summary highlights the main outcomes of the investigation in relation to the aims, together with a short explanation of these outcomes and their limitations.

Qualities of A grade Candidates: The Summary does not repeat information verbatim from the Analysis, Interpretation and Evaluation stage. It gives a clear summary of the outcomes and highlights limitations of the investigation. This is often the weakest part of the Report. Weaker Candidates bring in analysis and evaluation that has not been discussed in earlier stages. Alternatively, the Summary consists of two or three lines with little substance.

Other Candidates:

This is often the weakest part of the Report. Candidates bring in analysis and evaluation that has not been discussed in earlier stages. Alternatively, the Summary consists of two or three lines with little substance.

Unit 2683: Options in Physical and Human Geography

General Comments

The team of examiners assessing the scripts submitted for this module were pleased with the positive responses that many candidates generated. There are clearly large numbers of young geographers secure in their knowledge and understanding of patterns and processes and who can substantiate their conceptual grasp with authoritative real world references. There are, however, those who, despite several weeks of in depth study of the chosen physical and human topics, fail to engage with the material. This is all too apparent in their scripts as they simply *'fail to answer the question set'*. Thus although these candidates have probably performed well with routine tasks, their rather mechanistic approach leaves them less than well prepared to tackle questions under timed conditions. The regurgitation of pre-learned material is not going to lift such candidates into the higher Levels in the mark scheme, something colleagues examining at AS level have drawn to the attention of Centres with regard to the extended responses in Modules 2680 and 2681. A2 candidates have, therefore, experience of the mental manipulation required to apply their knowledge and understanding to a particular question and yet, in this module, they are earning fewer marks than they and we would wish because they are *'failing to answer the question set'*.

Mention must be made at the start of these comments of the concern examiners feel regarding Ordnance Survey map interpretation. In this particular paper five questions employed the map extract of part of the Lleyn Peninsular. Only occasionally did examiners come upon a script where there was strong evidence of competence in map reading and interpretation. It is worrying when, at A2, candidates can not give accurate grid references nor appreciate the scale of the patterns represented on the map.

On the plus side examiners reported a trend towards the more appropriate employment of sketch maps and diagrams in support of answers. The most successful maps and diagrams were those including accurate and appropriate labelling / annotations and that were not drawn too small!

Comments on Individual Questions

Option 1: Coastal Environments

1. This was the first of the five questions making use of the OS map extract, here asking for a description of both the type of depositional landforms and their distribution. Too often candidates failed to respond to the question's requirement to describe both type and distribution of the depositional landforms, thus denying themselves the Level 3 marks. Weaker candidates described erosional landforms when much attention was directed towards the headlands. There were answers whose authors fell into the group identified in my introductory comments as those who had a mechanistic approach as they offered a list of all the depositional landforms they could remember whether or not they were present on the map; tombolos, deltas and even the occasional cuspate foreland were 'seen'. The more convincing answers included the scale of the landforms, in particular the various beaches, and also saw that there was a variety of material making up the beaches.

In the second sub-part, explanations were generally sound and some responses made effective use of diagrams; in the more secure answers, sketch maps of this actual coastline were effectively deployed. Whilst long shore drift was a significant explanatory process, too many candidates could not extend their answer beyond this. The role of rivers contributing sediment or the role of man, as for example on the beach at Morfa Gors, was

too often ignored. It was in this sub-part that examiners also reported reading extensive accounts of coastlines other than this one, the Holderness coast, Spurn Head and Chesil Beach prominent amongst these.

2. This question picked up on what is possibly either an introductory topic or indeed a summative element in the teaching of this topic, the idea of the coast as an open system. Most candidates were confident in the basic idea of a system and could identify inputs and outputs. Weaker candidates rarely went beyond this including only a limited range of inputs and outputs. Sound candidates tended to develop the concept to a level where throughputs were identified with the strongest responses indicating a strong grasp of the significance of the stores of material present in the coastal system such as beaches and deltas. Well labelled diagrams had the potential to deliver much, if not all, of this answer. In part (b) candidates tended to be secure in their knowledge of what constitutes a beach profile and were able to offer a sound understanding of the role of wave and sediment type. The higher level responses were distinguished by their inclusion of one or other of seasonal variations, the role of man and the idea of feedback loops. Examiners were pleased to read references to fieldwork with some candidates making very effective use of sketch diagrams of particular locations.

3. This was probably the most popular question from this Option but one to which candidates tended to have a disappointingly narrow approach. In the first sub-part 'human activities' were generally limited to management schemes, in particular in the context of sand dunes although the more convincing students included material on activities such as housing, industry and agriculture. There were some most encouraging sketch maps / diagrams in the better answers referring to specific coastlines.

The second sub-part drew some highly engaging responses when candidates offered a broad approach, discussing hard and soft engineering schemes, managed retreat and made explicit the links between management and difficulties. The weaker answers tended to see difficulties solely in terms of conflict of interest such as the impact of management in one location on other parts of the coastline; specific physical difficulties in particular received insufficient attention. Candidates should also be reminded that when offering case study material these should be works of fact and not fiction; examiners are not impressed with the allocation of types of management to specific locations that are not employed in these sites.

Option 2: Fluvial Environments

4. This question used the map extract as its stimulus inviting candidates to suggest techniques for the measurement of changes in velocity and discharge for a section of a small river. These techniques are explicitly mentioned in the Specification and it is hoped that candidates studying this specialist Option at A2 will have experience of rivers in the field. It is disappointing to report therefore, that few candidates offered secure descriptions of suitable techniques and some seemed unsure of what constitutes 'discharge'. Issues concerning sampling were weakly tackled by most although those candidates who kept their eyes on the map offered sensible approaches including the very practical concern of legal access to the river. The second sub-part discriminated effectively amongst the candidates with the stronger answers able to relate the three variables together to offer convincing explanations. It was particularly disappointing that too rarely mention was made of the role of bank-full discharge.

5. Most candidates tackling this question were comfortable with a range of factors that influence changes in base level with eustatic and isostatic processes commonly described. The stronger candidates were characterised by their references to smaller scale and more localised changes such as can occur as a consequence of river capture. In the second part the descriptions of landforms within the long and cross profile were generally well known with many good references to knick points and terraces; here effective use was made of real world examples. For many candidates, however, their mark did not reach

Level 3 as they did not make explicit the link between base level change and actual landforms.
Centres should be aware that for a significant number of candidates base level was confused with base flow.

6. This question returned to the map for its setting and while responses to sub-part (a) were generally sound they were rarely substantial. Most often mentioned was the widening of the valley with distance downstream and the changes in sinuosity. Here also was an example of candidates mechanistically approaching the question with mention of landforms studied as part of the course, braiding and ox-bow lakes for example, but not present on this particular map; phrases such as '…you would expect to find…' were not helpful. The key discriminator in sub-part (b) was if the candidate applied their knowledge and understanding to this particular river. Candidates aware of the change from vertical to lateral erosion, the changing nature of deposition and processes such as meander development and migration lifted themselves in to Level 3 when they applied such explanations to the Afon Soch valley. Another key discriminator concerned recognition of the unusual presence of the 'gorge' and possible explanations involving base level changes such as localised isostatic change.

Option 3: Glacial and Periglacial Environments

7. This was overwhelmingly the most popular question in this Option and drew a wide range of responses. The weaker ones tended to focus in sub-part (a) on descriptions of mass balance and processes of accumulation and ablation with little or no mention of ice movement. Candidates writing about basal sliding and internal deformation moved their responses into Level 2 while the best answers contained convincing descriptions of compressing and extending flow and or bed deformation. Examiners reported many answers making effective use of diagrams in this sub-part.
In the second sub-part the key area of discrimination concerned those able to link clearly ice movement with landform development and those who tended to offer pre-learned explanations of landform development. The inclusion of cirques was welcome but too many candidates reproduced material that began with a small snow patch and ended with a classic cirque but which hardly gave ice movement a mention. Simply offering abrasion as a key process was insufficient unless its efficacy was related to movement. A few candidates who had clearly been encouraged to think about landform development mentioned the issue of moving ice as transporting already weathered material rather than as an agent of eroding solid rock.

8. A small minority of candidates chose to focus on periglacial landforms and processes and most of these were not effective responses. Few were able to describe the range of processes of mass movement and some made no mention at all of solifluction. Sub-part (b) was also disappointingly handled as the key element of seasonality seems not to have been considered by candidates studying this specialist Option. Examiners were surprised by the relative weakness of answers on this topic as previously periglaciation has often generated some very secure responses.

9. Those candidates who attempted this question concerned with the role of flowing water tended to fall into one of two groups, either highly competent or weak. The former described in detail a variety of landforms such as esker, kame and kame terrace and outwash plain and the role flowing water has in their formation. Such candidates also went on to show how drainage patterns can be modified by a period of glaciation using suitable exemplification such as river diversion, Rivers Thames and Severn prominent here, and the imposition of lakes on a drainage pattern such as ribbon lakes in valleys. Generally though candidates in the second sub-part tended to be relatively narrow in their appreciation of the ways drainage patterns can be modified.

Option 4: Hot arid and Semi-arid environments

10. This was not a popular question within this Option and tended to be either well answered or not. The better descriptions of aridisols were secure in their knowledge of the various types of soils and tended to employ helpful diagrams of soil profiles to enhance their descriptions. In sub-part (b) candidates tended to be more secure in their understanding of the relationship between climate and vegetation than when trying to relate soils and vegetation. Those candidates who could structure their knowledge and understanding within a systems approach so that inputs, stores and processes and outputs were known and understood were at an advantage in explaining relationships.

11. This was the most popular question within the Option but sadly too many candidates saw this as an opportunity to 'write all they could remember about desert landforms'. Thus descriptions of landforms extended to inselbergs, mesa and buttes and even ephemeral streams. Those who focussed on sand deserts, in particular the wide variety of dunes, tended to score highly. Examiners were very pleased with the quality of diagram material that often accompanied the descriptions, in particular when they featured an indication of scale. Explanations of the encyclopaedic descriptions were, of necessity, thin, but those who had offered a more appropriate range of landforms in (a) rarely offered less than sound explanations. Again these responses featured effective diagrams, especially when attempts were made to encompass the three-dimensional element of dune formation.

12. The photograph of Death Valley, California drew some encouraging responses. Most candidates offered sensible suggestions for the three landform features and were able to give detailed descriptions of these landforms. Candidates can be reassured that if their suggestions are reasonable from the evidence offered in the photograph then examiners will accept them. Explanations tended to be convincing with the role of flowing water given appropriate prominence in many responses. It was also encouraging to read detailed accounts of weathering processes in connection with the range front where this was the identified feature.

Option 5: Applied Climatology

As colleagues will know, a small minority of Centres choose this Option and so examiners have a very limited exposure to responses to the three questions. Comments are thus subject to significant influence from a particular style of answer. It is hoped, however, that Centres will find the published mark scheme and the following comments of value.

13. This was rarely chosen with literally a handful of answers seen. It is hoped that the OS map resource will help support the teaching of the topic of topo-climates within this Option.

14. Also tackled by a small number of candidates who tended to know the climatic contrast between forests and their surroundings very well but were less secure in their knowledge of the circumstances under which wind throw can occur. The three key contrasts between forests and their surroundings, temperature, wind speed and humidity were generally well known and understood.

15. This was the most popular question within this Option and, as one might expect, produced a range in quality of answers. The better responses in sub-part (a) picked up the term 'meteorological' in the question to offer good details of factors such as the role of temperature inversions and wind. The weaker responses tended to launch into narrative accounts of pollution episodes in which meteorological factors were mentioned almost incidentally and required the examiner to extract the relevant material. In the second sub-part it was often in the range of problems discussed that discrimination was seen amongst the candidates.

Option 6: Agriculture and Food

16. A good number of candidates tackled this question that focussed on the role of the physical environment on agricultural systems. Generally candidates were secure in their knowledge of the relationship between relief and agriculture although details of, for example the relationship between relief, climate and agriculture were not readily forthcoming, for example the impact on soil development. The role of aspect was the least well described element of relief and it was disappointing that few descriptions of local scale influences were read by examiners. Perhaps Centres might look at the potential field work can have in helping deliver this topic. In sub-part (b) most responses offered a wide range of strategies that farmers employ to overcome physical obstacles usually dealing with aspects of climate, relief or soils. The better answers were able to offer secure exemplification from a variety of contexts both MEDC and LEDC. Examiners were encouraged to read those scripts where the candidate had given some thought to the answer and included comments about the obstacle distance to market can provided and how infrastructure, vehicle technology and methods of packaging can help farmers overcome distance.

17. Despite agro-ecosystems being a major heading in the Specification, few candidates selected this question. Some of the answers were from candidates whose knowledge of an agro-ecosystem was so limited that they could offer only a basic description. As with the previous question, this was an opportunity for candidates to describe, in detail on the basis of field study, a farm they had studied as an example of a particular farming type such as dairying or market gardening. In the second sub-part nearly all candidates considered the only form of sustainable farming to be organic. It was a concern that for most candidates sustainability was only seen as being an issue with the physical environment to the neglect of the economic and social environments. Too often very simplistic arguments were forwarded that could not be supported by any depth of material.

18. The third question in this Option was probably the most popular and generated some very high quality responses with, in general, sub-part (b) more successfully tackled than (a). Descriptions of current global variations in food shortages and famines tended not to be developed with the depth and authority expected at A2 level. Too often candidates were satisfied with a succession of vague assertions about LEDC / MEDC contrasts with differences between and within continents rarely explored. For example, many considered the whole of Africa as suffering from food shortages and famine ignoring the significant regional variations that exist in food supply. This was also an example of the introduction of pre-learned material with little regard being paid to the question as some candidates gave lengthy accounts of the Irish potato famine. Sub-part (b) was usually answered with greater security with many candidates discussing a range of physical, economic and social/ political influences that are resulting in a lack of security in food supplies. Thus references to the Sahel, Zimbabwe and parts of Asia were included. Only the better scripts contained reference to locations where food security has been achieved such as Western Europe in which context the CAP was appropriately included.

Option 7: Manufacturing Industry: Location, Change and Environmental Impact

19. The topic of clustering within the context of manufacturing industry was a popular choice for candidates with many offering sound descriptions. Perhaps the most secure route to a high level answer was to offer a clear factor led description employing such points as the role of raw materials, energy, labour, government for example. It is disappointing that not more candidates are aware of the benefit that a historical perspective can offer to this Option as an appreciation of the evolution of industrial patterns would help some candidates be more secure in their descriptions and understanding of industrial

processes. It was also disappointing that so few candidates included material on clusters in non-MEDC locations such as northern Mexico and south-east Asia. In sub-part (b) candidates seemed more at home with disadvantages than advantages with extensive use being made of examples such as north-east England and South Wales.

20. Most descriptions of the attractions of coastal locations centred on the import of raw materials and the export of finished products which, with appropriate exemplification, led them into Level 2. It was in the context of the iron and steel industry in the UK, however, that examiners reported reading many outdated responses. An historical perspective is welcome but should be stated as such and it is an expectation that candidates have a secure grasp of contemporary patterns. Research using the inter-net and the business sections of newspapers would give pupils a more convincing grasp of current patterns. There were some unconvincing references to the residential desirability of coastal areas with industry locating there to take advantage of the labour supply. While one can not but agree with the use of ship-building as a choice of industry it would have been helpful if candidates had described the attributes of a coast that this industry needs such as the increasing depth of water as the scale of shipping has increased.

Candidates tended to employ a range of physical, economic and social issues when explaining the consequences of a factory closure on local communities. Many of the responses to this sub-part were encouraging in both the depth and detail of the material discussed with effective use made of examples such as Consett or areas in South Wales. There were those who strayed into, although some made straight for, a discussion based on coal mining, and it is disappointing that candidates continue to use inappropriate material from primary industry.

21. Examiners were pleased to read authoritative responses dealing with the concept of industrial inertia but were puzzled in the context of question choice when they came across, as they did quite often, scripts whose content gave no indication of any knowledge and understanding of the term. The better answers usually opened with a secure definition of the term, followed by a convincing description of a range of influencing factors such as localised labour skills and significant fixed capital. Exemplification usually focussed on heavy industrial enterprises such as iron and steel in South Wales or specialist steel in Sheffield: descriptions of the evolution of chemical clusters such as Tees-side and the Mersey estuary were also relevant here. In the second part most candidates were able to distinguish between the contrasts in labour costs of locations in MEDCs and NICS and LEDCs, although candidates need to be aware of the dynamic nature of the labour market with wage rates and unit labour costs a variable factor through time. Thus some countries such as Taiwan and South Korea are not really appropriate as cheap labour locations when compared to China or Vietnam and more recently some manufacturing has been shifting amongst Asian economies. The more convincing responses were able to pick up on the role of labour skills in influencing the locations of research and development establishments and headquarters but also the location of high-tech industries in locations such as Colorado and Rhône-Alpes.

Option 8: Service Activities: Location, Change and Environmental Impact

As colleagues will know, a small minority of Centres choose this Option and so examiners have a very limited exposure to responses to the three questions. Comments are thus subject to significant influence from a particular style of answer. It is hoped, however, that Centres will find the published mark scheme and the following comments of value.

22. Generally examiners were disappointed by the lack of clarity as regards the definitions of the terms ‘hierarchy’ and ‘centrality’. At A2 level some depth and detail are required when describing such concepts such as the point that at each successive level in a hierarchy, not only are there distinguishing higher order functions but also all the functions available in centres which are at lower levels in the hierarchy. The better candidates were setting

their descriptions firmly within a real world context, something that fieldwork would help secure. Most candidates were more at home with the second part of the question discussing a range of factors that can help explain changes in service hierarchies. Their arguments tended to focus on issues concerned with counter-urbanisation and the role of changing personal mobility.

23. Most of the responses to this question were sound or good when describing the characteristics of retailing found within the Central Business District. Candidates were less convincing when describing locations with the weaker scripts containing no references to such patterns as the contrasts between high and lower order retailing within the CBD. Again this is a topic where direct reference to fieldwork tended to offer a strong framework for the answer. In sub-part (b) candidates often wrote with authority about a range of measures and frequently these were placed within a convincing real world context.

24. The three types of service locations specified for attention in this question received unequal treatment from the majority of candidates. Regional shopping centres and office parks were handled competently with effective examples supporting the descriptions. Candidates were much less secure in their descriptions of 'edge city' with many opting for 'edge *of* city'. Most candidates generally handled the second part of the question effectively. Responses tended to offer an encouraging range of advantages and disadvantages with a preference for the negatives. Those candidates who were able to discuss the pros and cons in terms of different stake holders put themselves clearly into the higher Levels.

Option 9: Tourism and Recreation and their Environmental Impacts

25. The OS map was the basis for sub-part (a), which asked candidates to describe the types of tourist resources available in the area shown. Tourism as a resource-based industry is the first major heading in this Option in the Specification with three sub-headings, natural, cultural and heritage. The best approaches took these three headings, or ones very similar, and wrote a structured response on this basis. Very few candidates, however, identified a substantial range of resources at the depth and detail one might reasonably expect at A2 Level for a specialist study of this Option. For some the beginning and end of the exercise was with a reading of the OS map symbols in the key, printed in blue and given the heading 'Tourist Information'. Thus they missed out on the variety of physical / natural features such as the beaches and the cliffs. It was in the context of this question that examiners were disappointed by the poor quality of the map reading and the superficial attention given to correct map references.

In sub-part (b) candidates generally managed to produce a sound response, taking them into Level 2. The positive impacts tourism can have were well understood but exemplification was not often particularly convincing. Some of the more authoritative responses developed a good discussion on the basis of both MEDC and LEDC material. One location that received scant attention and yet was a potentially rich vein of material was the development of urban tourism and its impact on development such as in and around Bilbao or Glasgow.

26. This was the second most popular question in the Option. Most candidates demonstrated either a sound or substantial knowledge of the principles of the Butler model, however, there was quite a disparity in their grasp of the detail. Examiners were well aware of the variation in the naming of the stages that exists and accepted any appropriate term. Some excellent responses drew an accurate graph, its axes labelled, and offered detailed descriptions of each stage including the support of sensible current examples. A significant number of candidates were able to chart the evolution of an individual resort with accurate association between stage in the model and chronology. Examiners were also encouraged when a response included a comment to the effect that this is a model and, therefore, is a representation of reality and so one should not expect an individual resort's chronology to match perfectly such a generalisation.

In the second sub-part, candidates also tended to generate sound responses although there were fewer Level 3 responses than might have been expected, as there was a tendency to lose the focus on social and economic circumstances and drift off into other factors. Some of the best responses arose when the candidate had an authoritative grasp of the issue from an historical perspective and was thus able to link explicitly changes in social and economic circumstances and holiday patterns. A key element in the success of a response was the ability to focus on the idea of *changing*, as too many scripts simply wrote about a particular social or economic circumstance and thus became something of a ramble through points the candidate could remember.

27. Clearly the term 'mass tourism' acted as a strong attraction for the majority of candidates who had studied this specialist Option. While there were many effective responses, in particular from those possessing a substantial appreciation of the historical evolution of the tourist industry, there were many who offered rather limited answers, including the complete absence of a definition. This latter group treated this question as an opportunity to 'write all they could remember' about factors such as transport, legally authorised holiday, income levels, education levels and the volume of media attention given to holidays. Many of these are relevant to this question but need linking explicitly to the rise of mass tourism in order to help lift the answer to the upper reaches of the mark range, while some simply did not apply such as the role of Concorde or a reduction in the number of hours worked in a week. Thomas Cook it seems has been responsible for all sorts of things!

The second part of the question saw some very encouraging answers as candidates focussed sharply on 'alternatives', offering substantial exemplification of various types such as eco-tourism and urban-based tourism. Examples were drawn from both LEDC and MEDC contexts and often included sketch maps. Such candidates were also most likely to offer sensible comments about the sustainability of such ventures, which is a concept not restricted to remote rain-forests, such as seaside resorts adapting in order to remain viable. It was disappointing that not more candidates could write, with authority, about not only physical sustainability but also economic and social / cultural sustainability. The weaker candidates tended to become immersed in the problems that some tourist locations face and offered too much vague assertion.

2684: People and Environment

General Comments

Candidates produced a bi-modal distribution of performance. The cluster that achieved the top grade did so by directly answering the question, using detailed examples and case studies and making obvious synoptic links. Those more marginal candidates had two or more of these essential elements missing. There were too many in this group reflecting poor preparation by the individual candidates or in some cases entire centres.

The questions on this unit are open-ended and so require careful thought and planning. Plans also help examiners trace the logic of the candidates thinking. It was encouraging to see that the majority of candidates do present brief plans and it was those answers that tended to have a tighter better focused structure.

The responses are marked by component and candidates' responses varied greatly between these components:

1) Knowledge of content – more successful candidates demonstrated detailed knowledge of case studies, relevant concepts and geographical terms. Some weaker candidates made no reference to any location apart from 'e.g. Africa' type exemplification. Candidates should appreciate that this is a geography examination so some concept of location and/or place is essential. Without this clear grounding in the real world candidates can not expect to do well.

2) Critical understanding of content – this was more effective for the majority of candidates with a demonstration of an appreciation of cause-effect and an understanding of the connections between different aspects of the subject (including synoptic connections). Clearly the basic concepts are well taught and understood by candidates.

3) Application and evaluation – this is the crucial component as it requires the higher level analytical and discursive skills to apply the understanding and knowledge to answer the question set. It is the evaluation aspect that usually distinguishes the better candidate and this year was no exception. The higher achieving candidates evaluated arguments, concepts and statements in detail with some encouraging insights. Weaker candidates tended to agree with any quote regardless of the scale, location or time period. Many candidates could still improve their responses by using a less descriptive approach in their answers.

4) Communication – this varied tremendously as in most years. This is an essay paper and so requires lengthy extended discursive writing. Weaker candidates found even the most basic forms of communication difficult. For example:

'The earthquake led to an even bigger disaster happened which no one could of predicted to off happened.'

is all too typical. The misspelling of basic words like there (confused with their) and where (were) were common. Weaker candidates also struggled with the concept of the paragraph. Graphs and diagrams were often included, which had little relevance to the discussion, as an attempt to meet the criteria of 'in different formats'. There are still too many instances of candidates spending a lot of time with coloured pencils and rulers as if marks were to be gained simply by neatness of presentation. At the other end of the scale stronger candidates wrote with a fluency and organization that they, and their schools, should be proud to have produced in examination conditions. Candidates should

be reminded that a total of 16 marks is available on this unit specifically to reward effective communication so it is important to present their work in a readable form with a clear introduction and conclusion and in a structured format. A high proportion of candidates do not use formal punctuation, especially the comma.

Candidates must appreciate that their answers should:

- **Relate directly to the question set**. Some offered pre-learnt answers, e.g. on the development of shanty towns for Q 6, which had only passing relevance to the actual question.
- **Give examples**. Stronger candidates quoted detailed knowledge of locations and some drew relevant maps. Weaker ones gave vague references; e.g. for Q 5 the areas of exclusion were exemplified by 'Manchester'.
- **Be clearly synoptic**. Most of the questions had clear possibilities for synoptic links e.g. Q4 could have linked into food chains or global warming. Weaker candidates offered little evidence of synoptic connections or answers contained quotes such as:

  " A synoptic link is Los Angeles and air pollution"

  The synoptic link should be seamless so the discussion flows.

Selection of questions

This is of concern as so few candidates and centres elect to do the EU and rural management options. Nearly all candidates do the hazards option and this year this resulted in nearly 80% of candidates doing question 10. The urban management section was equally popular but at least there was a more of an even spread between the 3 questions.

Other points

- Please encourage candidates to put the numbers of the questions chosen on the front of the examination paper
- The waste of paper is a concern where some centres give entire answer books of 16 pages as supplementary answer sheets many of which do not exceed a page in use

Comments on Individual Questions

Option 1: Aspects of the Geography of the EU

1) Few centres select this option but of those that do this was by far the most popular question. It was expected that more would use the core-periphery model to structure their work than actually did but most managed to exemplify the commentary well choosing southern Italy or northern Sweden as case studies. More effective answers challenged the concept of isolation and looked at 'remote' geographical areas that were developing due to tourism, resources or EU initiatives such as Greece or the Irish republic.

2) This was not a popular question and few demonstrated secure knowledge of the EU's Common Fisheries Policy. Most candidates understood the concepts of transnational resources and the annoying mobility of fish but then only vague discussion of 'ruin to all' was offered. Many did consider conservation of a semi-renewable resource but then didn't link it back to whether this helped or hindered the 'ruin for all'.

3) This was not a popular question within this unpopular option. It did require a lot of knowledge of type, volume, direction of trade and the concepts of visible and invisible trade balances. Most simplified it by looking at the MEDC versus LEDC trade balance and seeing it as exploitation of the latter by the EU. More sophisticated answers distinguished other MEDC trading partners such as the USA or quoted LEDCs that gained from EU trade such as former French or British colonies.

Option 2: Managing Urban Environments

4) This was a very popular question but many saw it as write all you know about pollution. Higher level responses looked at MEDC versus LEDC urban threats and identified some general themes e.g.

"Unplanned *settlements are by far the biggest threat to the physical environment"*

Very few candidates picked up the issue of scale and it was left open as to whether this referred to size of urban area or scale of threat. Some good synoptic reference to acid rain and global warming was offered. Nearly all candidates offered a range of urban threats – usually air, water and solid waste pollution but often this was poorly exemplified or the candidate wandered off to explain the effects of relief on smog in Los Angeles. Too many candidates failed to spell out the cause-effect link between threat and impact on the physical environment. This was a clear opportunity for synoptic linkage. Many quoted the 'environmental footprint' of London but then failed to link this to the impact on the physical environment. Some candidates erroneously implied that LEDC cities pose the biggest global threat as MEDC cities are now benign, highly managed and sustainable entities. Higher level responses did give examples where urban areas were actively trying to reduce their impact but in some cases this was false optimism such as the role of road pricing policy in central London.

5) This was the next most popular question in this option and whilst nearly all candidates accurately understood the concept of social exclusion few could convincingly link this in a cause-effect to specific locations in named urban areas. Too much was not based in reality and gave generalizations e.g.

"People living in these poor conditions may suffer from social exclusion from people living outside the area. For example children at school may avoid them as they come from a 'bad' area."

The question was open to two equally valid interpretations i.e. social exclusion is caused by location or the characteristics of social exclusion are influenced by location. Nearly all candidates interpreted the first way but their answers lacked a range of locations beyond inner city and outer fringe housing estates. Models could have been used as a useful structural framework but those that referred to Burgess or Hoyt couldn't link these models to explaining areas of social exclusion. Many weaker candidates have the idea that inner zones of terraced housing grew up around heavy industry located in the CBD. Many candidates did recognize the role of other factors such as poverty, poor education, prejudice etc and the role of Governments in reducing social exclusion but also many candidates advanced simplistic stereotypes of inner city estates.

6) This was a question which was answered extremely well by those candidates that knew detailed and located schemes but who then went on to point out that social and economic problems of LEDC cities are too numerous and too big to be solved purely by self help schemes e.g.

"A sustainable transport was developed where public transport carries 75% of commuters and this couldn't have been achieved through self help schemes." (referring to Curitiba in Brazil)

Weaker candidates saw this as the 'shanty town question' and failed to focus their answers tightly to the demands of the question. Some candidates did make the valid point that the very creation of shanty towns are an expression of self help. Others suggested that self-help may solve social problems but not the underlying economic problems. Overall this question produced some thoughtful responses in terms of evaluation of the extent.

Option 3: Managing Rural Environments

7) This is not a popular option but within it this was the most popular question. The question contains a lot of key terms including 'modern' (a wide definition of this was allowed but most chose agri-businesses) 'efficient' (few picked up this quality) 'habitat-rich' and 'biodiverse' (largely ignored yet here was an opportunity for clear synoptic connection) and 'countryside' (which most saw as rural areas but some did include national parks etc).

All candidates knew the impact of modern farming on the countryside and weaker ones did not go beyond the harmful impact of modern big scale farming on the environment. Higher level responses did focus on co-existence suggesting how farming and nature could exist side by side with areas 'set-a-side' or 'conserved' for nature chiefly via Government policies. Others see organic farming as the solution.

8) This proved a challenging question as few grasped the concept of 'hierarchy of rural service centres' let alone 'sustainable' and so most looked at the decline of rural services and the resulting impact on rural communities. Exemplification was thin and few used maps or models to develop their discussions by showing rural hierarchies. Few went outside England but candidates should be reminded that 'e.g. Barnston' is of little help in locating the example. Higher quality answers drew some effective comparisons between upland areas and lowland areas where rural areas have been 'invaded' by commuters and second home owners.

9) This was not a popular question and some candidates saw this as the 'national parks question' and so used it to justify the creation of such parks. At times it was difficult to know if they were answering this question or Q7! Most saw the combination of farming and recreation as the most likely whilst some higher level responses saw alternatives such as non-food crops or even housing as the most likely future. Exemplification was thin or

referred to individual farms turning over to 'growing caravans' or becoming 'off-road venues.' Few saw the two activities as compatible.

Option 4: Hazardous Environments

10) This was immensely popular and responses ranged from those weaker candidates who saw this as why impacts of hazards vary (or how to manage hazard events) to those that showed a detailed and perceptive knowledge of why, for example, it is easier to predict a Hurricane (starts in a known origin within a known timeframe/season and can be tracked overtime using satellites) than an earthquake (gives little warning of when or exactly where along a fault it will occur). All too often candidates failed to explain statements e.g.

"Prediction of atmospheric hazards is usually most effective." – but why ?

Some candidates pointed out that factors, other than the inherent nature of the hazard, influence the ability of an area to predict an event e.g.

"However a country's ability to predict a hazard can be affected by its wealth and level of technology as shown by the recent Asian Tsunami."

Exemplification was very effective in this question with a lot of evidence of synoptic material but candidates should be reminded that dates are important as some hazards repeat but with different results. Some became over fixed on a single hazard example. For example one entire centre wrote largely about avalanche prediction. Surprisingly few looked at flooding and droughts but some did distinguish between predicting primary and secondary hazards.

11) This was the next most popular question in this option but few really got to grips with the types of mass movement (synoptic link) and the physical factors such as slope angle, material, vegetation cover/type, drainage, erosion and weathering etc. Human causes were well known but exemplification was very repetitive with lots of Aberfan and Vaiont Dam disasters quoted with limited understanding of the exact role of human and physical factors in the particular chain of events. It was the higher quality answers that saw that the two sets of causes were inextricably linked. Also more perceptive candidates pointed out that human factors can also reduce mass movement via a number of management strategies.

12) This was surprisingly unpopular question despite its very straight forward requirements. Knowledge of examples of hurricanes was usually good but again candidates had problems over dates and all distinguished primary and secondary hazards. These are open to varying interpretation and can have multiple causes e.g. flooding. Some very perceptive candidates pointed out that some secondary hazards persisted long after the event and could be better termed Tertiary such as the long term damage to the economy of islands such as St Lucia following the destruction of its cash crop of bananas. Some useful evaluation was offered e.g.

"*Secondary hazards of a hurricane in the LEDC will tend to be greater, persist for longer and cause more deaths than secondary hazards in a MEDC"* (The candidate then went on to explain why.)

Indeed nearly all candidates picked up this contrast between LEDCs and MEDCs linking it to differences in financial resources, communications, and/or population densities. This was a question in which only a very few candidates did not attempt some form of evaluation.

2685: Personal investigative Study

General Comments

Examiners felt that the general standard of work presented was comparable to previous years. Studies clearly organised around the assessment criteria and forming a logical progression, where the data collected is clearly derived from the aims, presented and analysed in the context of those aims, leading to logical conclusions, scored highly. Similarly, those studies clearly grounded in sound geographical theory or concepts, related to specific places, also performed well.

There remains a number of practical matters that schools and candidates are still not always addressing. A few centres failed to include the appropriate cover sheet and some did not include the attendance register. A small number of centres submit their studies in an inappropriate form. Studies should be bound or tied together in some fashion, but they should not be presented in hard folders and should not be placed in plastic file pockets. On an individual basis, candidates should be encouraged to number the pages of their studies and to give reference numbers to their presentation (e.g. Figure 1, Map 3). This helps examiners to see more clearly how presentation and analysis relate to each other and, therefore, to give the candidate the appropriate mark. Although presentation and analysis are identified as two separate components in the mark criteria, candidates should be encouraged to regard them as complementary. Analysis should be referring to the material presented to answer the questions/hypotheses posed. This is much more difficult if there is a massive presentation section, followed by a separate analytical section, several pages removed. On a similar point, candidates should not put presentation that is central to the study into appendices. Nor should candidates include in the body of the study raw data in the form of all the questionnaires, sheets of data tables, etc. This is the sort of material that would be appropriate in appendices, although **one** example of a completed questionnaire would suffice.

An issue highlighted by many examiners was the use of shared data by candidates, whether this was collected as part of a Field Centre visit or as part of school-based fieldwork. There was a strong feeling from examiners that this approach can prevent candidates from scoring as highly as they might through using a more individual approach. Studies based on shared fieldwork data often struggle to reach the higher levels under the Data Collection section, because candidates do not explain sampling procedures clearly and tend not to show appreciation of issues of accuracy and reliability. One examiner remarked in this context that "many reports [based on group data] show a lack of understanding of the data collection....the reasons for the survey site selection and how the data relate to the initial question or hypothesis." A further problem tends to be that some of these studies tail off in the analysis and conclusions, because candidates do not clearly understand how what they have done relates to their initial aims. Situations where a whole centre collect and share data are not really acceptable in an assessment component that is entitled a **Personal** Investigative Study. Candidates find it extremely difficult, in such cases, to show any element of the personal approach. While there may be good practical and safety reasons for candidates to share in the process of data collection, candidates must make it clear what has been their personal contribution to the process and what has been provided by other candidates; the latter can be legitimately referred to as secondary data.

Most centres had guided their candidates to produce studies that meet the word length requirement, but there were a significant number of studies that were over length, a transgression sometimes compounded by the candidate declaring a clearly false word count on the cover sheet. In many cases, candidates do not benefit from writing too much, because they repeat themselves, while some penalise themselves by tackling too large a study, so that elements of it are unfeasible, which means it cannot gain L5 in Formulation. Some candidates attempt to overcome the problem of word count by including substantive material in tables. If

this is clearly central to a section of the study, it is included as part of the word count. For example, a number of centres used tables to describe how data were collected. While this is a valid means of presenting this information, the words used in the table should be regarded as part of the word count. The revised edition of the specification will include provision to ensure that candidates who do meet the length requirements are rewarded positively.

It has to be stressed, however, that many candidates produced high quality work, showing an individual element, a good understanding of the underlying geography applied to a particular place. One examiner remarked that "there are candidates who produce studies which are not only clearly individual and beautifully presented but which analyse often complex topics in a way which demonstrates their high level of understanding, and yet still remain within the word limit." This was by no means an isolated comment.

Comments on individual questions

In the case of the Personal Investigative Study there are no individual questions to be considered. However, the assessment criteria provide appropriate headings under which to discuss candidates' performance.

Formulating a question or hypothesis capable of being researched and understanding the limitations imposed on geographical enquiry by the resources, including data available. Designing realistic strategies including risk assessment.

There are three principal elements to this section: identifying an appropriate geographical question; basing such a question on some geographical theory/concepts; planning. The best studies continue to be based on clearly defined aims/questions based on some theoretical knowledge. A limited number of sub-hypotheses or questions tend to produce more focussed studies than open-ended questions at the beginning, or a study based on a large number of hypotheses/questions. A number of studies felt the need to state their aims more than once: first as questions, then as hypotheses; and finally as null hypotheses. This duplication is unnecessary. A significant number of candidates use the term "hypothesis" incorrectly. This should be something that can be tested, such as a difference between or a relationship. One examiner correctly points out that hypotheses "that have a 'due to' or 'because of clause tacked on" are not testable. Null hypotheses are unnecessary in the formulation section; these should only be used in the context of statistical testing. That said, the vast majority of studies were appropriate geographically and at a suitable scale. Some try to cover too many different variables or are too open ended, while some identify a very simple idea that does not give the scope in the rest of the study to gain higher levels of marks. Studies based upon comparison often provide a basis for interesting analysis, but there needs to be a geographical justification for such comparison. Thus, a comparison of microclimates between different land uses is clearly appropriate as there is theoretical justification for such differences. As one examiner pointed out, however, “a comparison of the microclimate in two areas over a hundred miles apart at two completely different dates [makes] any comparison invalid." Candidates should also be careful of undertaking studies that consider the "impact of X on Y". These are extremely difficult to complete successfully, because impact implies not just change but cause and effect. A 2500 word study does not provide the scope to consider such cause and effect in any significant way. Candidates would be better advised to establish whether any change has occurred, and then simply to suggest possible reasons for any changes observed.

The inclusion of some geographical background is essential to give the study a wider context and to provide some basis for significant analysis at a later stage. While recognised geographical theories and concepts provide the safest means of providing this background,

studies based on geographical issues can be equally successful. Any geographical background needs to be related specifically to the overall aim and the questions/hypotheses established. A number of studies simply put in theory, including photocopied diagrams, but make no attempt to explain how the theory relates to the aims. This is especially true of CBD studies, where Burgess is mentioned, with the usual diagrams, but no mention of how Burgess is relevant to what is being studied. In many cases, Burgess has little or no relevance to a detailed study of a CBD.

In an attempt to tick the boxes on the Assessment Criteria, a significant number of candidates include material under "Formulation" that later is repeated in the Methodology. This seems to be because the candidate wants to demonstrate clearly the planning involved. The same material is then presented in the Data Collection section in the past tense. This duplication is unnecessary. If candidates clearly show how the data collected relate to the aims/questions/hypotheses, planning is indicated. Risk assessment is generally dealt with sensibly, with many candidates using a tabular method of identifying potential risks and how these are minimised. This is an effective way of dealing with this aspect of planning.

Carrying out programmes of data collection using selected sampling strategies.

Many studies achieved an appropriate balance between primary and secondary data. The important word here is appropriate. For many studies, especially those involved with physical geography, primary data are more significant that secondary. Candidates still need to be aware, however, of the fact that they are using secondary data: this can come in the form of base maps, theoretical ideas, etc, but candidates should be referencing these clearly and accurately. There is much more scope for appropriate secondary data in human studies, and a number of studies do not make sufficient use of such secondary data. Data from the 2001 Census is widely available as is historical data from Goad maps, directories, etc. Many candidates made use of such data, but glossed over the sources in a couple of sentences. For example, in the use of Census data, it would be helpful for candidates to state exactly what the source was and what information was extracted from this source and at what scale.

The best studies clearly considered sampling frameworks and appreciated their significance. Weaker efforts mentioned sampling methods, but did not say very much about why they were necessary or important. The best candidates identified and explained clearly their choice of sites for data collection and included maps showing these sites. Weaker studies referred vaguely to random or systematic sampling, without indicating why it was appropriate or how it had been applied.

Sample size is an important element. Many candidates collected a vast amount of data. In some cases this was counter-productive because candidates were swamped by the volume of data they had. In a significant minority of cases, however, the volume of data collected was very limited. Ten questionnaires are not sufficient to gain any meaningful information. Two hours primary data collection is also not capable of producing sufficient data to allow a candidate to produce significant presentation, analysis and conclusions.

If there is a general weakness in this section it is over the issue of accuracy and reliability. The best studies in physical geography take repeated readings and use the averages of these readings to achieve representative results. A significant number of candidates do take several readings, but do not appreciate that averaging these readings is the key to reliability. Each set of readings is examined, often producing difficulties of interpretation, rather than the readings being combined to produce an average. One of the best studies of changes in river hydrology downstream, examined a limited number of stretches of different stream orders, but took several readings along the identified stretches and then used the averages in the analytical section. The same principle could be applied to human studies where candidates take readings of pedestrian flows at different times/days.

Representing data using the most appropriate methods

Appropriateness is the most significant element in this assessment area, and most studies do select the appropriate techniques. However, several points are worth mentioning in this context. Pie charts are an obvious technique, but a number of studies do select them in inappropriate circumstances: pie charts which have more than 5 or 6 subdivisions become unsuitable because it is virtually impossible to distinguish the relative importance of different components. Candidates would be better advised to choose a different method or to combine categories to make the graphs more meaningful.

While the availability of packages to produce graphs in a variety of styles and forms has undoubtedly improved many aspects of presentation, some candidates do not use this facility to the best advantage. The use of more than one technique to represent the same information is unnecessary; candidates should be encouraged to select the most appropriate technique. Candidates should also be encouraged to consider the scales of graphs, rather than relying on auto-scaling, which often does not present the data collected in the best way; this is especially important when graphs are intended for comparative purposes. Scales are not always comparable and candidates should be encouraged to place pie charts or bar charts of a comparative nature on the same page. This will not only help the examiner, but it should also help the candidate in interpretation.

The second significant aspect of representation is the quality of presentation. Most candidates do provide appropriate tides, keys and scales, but there are still a significant minority that omit some or all of these important elements.

That said, there were very many good to excellent studies, which avoided these pitfalls, producing relevant graphic and map material that was discussed in analysis and referred to in the conclusions. They also usually included some spatial element in the presentation, even if this was only locational maps, indicating where surveys were undertaken. A final and important feature of the best studies was the integration of the presentation with the analytical text, making understanding of what was being shown that much easier. Least satisfactory were those studies that put all the presentation together in one section — some even relegated such relevant material to appendices, rather than including them in the body of the study. As one examiner observed: "putting important presentation work into appendices at the back of the field work ... hinders the presentation and in a number of cases makes it difficult to evaluate."

A continuing positive trend noted by several examiners was the effective use of annotated photographs. One examiner wrote of being "particularly impressed with the number of annotated photographs which had been included", noting that it "gave a much better sense of place" to the studies. The best studies are selective in their use of photos and make practical use of them in their analytical section. The inclusion of pages of photos with no annotation and no reference in the text is not effective.

Finally, those candidates that integrated presentation with analysis through specific reference to the presentation scored significantly better than those that referred to presentation in a more general sense.

Analysing the date using appropriate techniques

Centres and candidates need to be aware that analysis does **not** need statistical testing. The first stage in analysis is the interpretation of the data presented in relation to the original aims/questions/hypotheses. Statistical tests are not an end in themselves. They should only

be used where they add additional evidence in support of or against the original aims. It is in this element of the study that null hypotheses should be introduced, if they are placed in the context of statistical testing. Candidates also need to understand that measures of central tendency (mean, median, mode) and dispersion (range, inter-quartile range and standard deviation) can be appropriate techniques. Where statistical tests are used, the best studies explain why they were used, show evidence of the calculations made and use the results to inform the analysis. Occasionally, tests are used but no reference is made to them at all in the textual analysis: this makes it very difficult to give much credit, because no interpretation of the results is involved.

Statistical tests are often used in inappropriate circumstances. A significant number of candidates do not demonstrate an understanding of the limitations of the tests. In relation to Spearman's Rank, many candidates use the test when there are too many tied ranks - this makes the test invalid. Others apply the test when there are too few samples. In general, it is difficult to draw any valid conclusions from this test if the sample size is less than 10. Chi-square is another misused test. This test is inapplicable if too many expected values are 0 or less than 1.

In general, candidates would be better advised to interpret the data presented and use statistical testing sparingly and only if they understand why they are using a test and its limitations.

As with previous components, there were many examples of excellent analysis. One examiner pertinently observed that the most successful studies "identified anomalies in their findings, which they attempted to explain." Successful studies used the data presented to answer the questions posed in the introduction effectively. The organisation of analysis under headings identified by the sub-questions or sub-hypotheses undoubtedly makes the analytical section much more effective.

Drawing conclusions and the critical evaluation of their significance and reliability

There is evidence that candidates seem to be improving their ability to tie things together and answer their original questions. While weaker scripts tend to assert conclusions, the majority actually use the data presented and analysed. Limitations still tend to be tackled through the "more is better" route, although the more discerning did appreciate the limitations of the actual methods employed or the sampling framework. A significant number of studies still do not give sufficient weight to this component. A summary of the conclusions in one line to the effect that the aims have been proved is not sufficient to gain much credit. Conclusions should be understandable on their own and should be firmly based upon the presentation and analysis.

While the breaking down of a study into subsidiary questions or hypotheses usually helps candidates to stay focused on relevant material through all stages of a study, such studies can sometimes falter a little at the final concluding stage. As one examiner succinctly put it: "Candidates that break down their question/hypothesis into a number of sub-hypotheses often concluded on each of these without producing an overall statement answering their initial question or hypothesis."

Candidates need to be encouraged to be self-critical — statements to the effect that everything went smoothly and there were no problems with the data should be avoided. The best studies identify limitations of the data and relate these to the conclusions drawn.

Concluding comment

It is clear that examiners generally feel that most candidates produce high quality work, based upon considerable effort both in the field and in the subsequent write-up. There remain, however, many ways by which candidates can improve their studies and these have been identified under the different components of the assessment criteria. It needs to be stressed, however, that this should be a **personal** study and that the large-scale use of group data is not an acceptable approach. Candidates can share in the data collection process, but they must be able to identify their individual contribution, not only to data collection, but also in the identification of a question.

2686 Investigative Skills

General Comments

This option continues to attract a wide range of centres. It was pleasing to see a general improvement across a range of questions and all examiners reported reading scripts that displayed convincing knowledge and understanding. Many candidates were well prepared and teachers should be congratulated upon this.

There are several points that need to be raised. The standard of the report varied dramatically. Some centres provide their candidates with excellent opportunities to pursue fieldwork, giving group tasks which allow differentiation and a degree of initiative. Very large centres, often having fifty plus candidates showed commendable skills in encouraging some individuality and offering a range of topics to study. Many centres have produced rather formulaic reports, often with the help of the FSC, which made marking very difficult as it was impossible to decide who had done what. Differentiation was achieved in Section A, where weaker candidates leant heavily on the Report, often copying sections into their answer. The stronger candidates used the Report as a resource and were able to synthesise information and apply it to the question set.

All examiners noted that candidates have taken to including enormous appendices with their Report, which increases the reading matter to totals well in excess of the word limit. These appendices were often not very discriminating in content and contained data surplus to requirements. They also noted that the administration needed from centres for the reports proved problematical with teachers' reports missing, declaration forms unsigned and the wrong front sheets attached to the scripts. This causes examiners problems and does not present the centre in a good light.

Comments on individual questions:

The Report, as previously mentioned, was an area of difficulty. Many candidates could have improved their performance by

(i) Defining the aims and objectives of the study and stating a clear hypothesis.
(ii) Clearly stating what information they collected and treating this as primary data. All other group data should be treating as secondary.
(iii) Limiting the data presented to that which would be useful for the hypothesis stated.
(iv) Including a full bibliography.
(v) Including secondary data from Tourist Offices, the Internet, School archives, so that student data could be tested for validity.

There should be a marked progression from the enquiry at AS and this was not always evident.

<u>Section A</u>

A1 - Some students presented a null hypothesis and reliability focused on the data collected and not on the analysis undertaken.

A2 – Sought to test the background reading and the ability to apply theoretical concepts to the questions. This produced variable responses by the more able candidates who often lacked focus and regurgitated all of their notes on the topic.

A3 – Many candidates did not appreciate what a compromise entailed and were unable to give alternative analytical methods because their Report was either teacher or FSC lead.

Section B

B1 – A surprising number of candidates failed to define the difference between systematic and stratified sampling. The use of the maps and other stimulus materials was a good discriminator, allowing the most able candidates to score highly. Part (c) stretched everyone with very few candidates able to assess the relative methods of sampling strategies.

B2 – Most candidates had a good knowledge of regression but there were several major discriminators. The caution element of Part (b) and the lack of points and curved regression line in Part (c) proved problematical to many candidates.

B3 – This question was well answered by many candidates. The Chi squared test discriminated well but this also highlighted a broader issue where a large proportion of candidates could do the mechanics of the various statistical tests but did not appear to understand why they were undertaking the test nor what the results implied.

Advanced Subsidiary (3832) &
Advanced (7832) GCE Geography A
June 2005 Assessment Session

Unit Threshold Marks

Unit		Maximum Mark	a	b	c	d	e	u
2680	Raw	100	67	59	52	45	38	0
	UMS	120	96	84	72	60	48	0
2681	Raw	75	52	47	42	37	32	0
	UMS	90	72	63	54	45	36	0
2682 01	Raw	60	39	35	31	27	24	0
2682 02	Raw	15	12	10	8	7	6	0
2682 Opt A	Raw	75	51	45	40	35	30	0
	UMS	90	72	63	54	45	36	0
2683	Raw	90	69	61	53	46	39	0
	UMS	90	72	63	54	45	36	0
2684	Raw	120	89	79	69	59	50	0
	UMS	120	96	84	72	60	48	0
2685	Raw	90	76	68	60	52	44	0
	UMS	90	72	63	54	45	36	0
2686	Raw	90	70	62	54	46	38	0
	UMS	90	72	63	54	45	36	0

Specification Aggregation Results

Overall threshold marks in UMS (i.e. after conversion of raw marks to uniform marks)

	Maximum Mark	A	B	C	D	E	U
3832	300	240	210	180	150	120	0
7832	600	480	420	360	300	240	0

The cumulative percentage of candidates awarded each grade was as follows:

	A	B	C	D	E	U	Total Number of Candidates
3832	26.11	44.16	62.67	78.29	89.55	100.00	5067
7832	30.79	60.80	83.80	95.09	99.16	100.00	4541

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