GCE AS

Geography

Summer 2009

Mark Schemes

Issued: October 2009

MARK SCHEMES (2009)

Foreword

Introduction

Mark Schemes are published to assist teachers and students in their preparation for examinations. Through the mark schemes teachers and students will be able to see what examiners are looking for in response to questions and exactly where the marks have been awarded. The publishing of the mark schemes may help to show that examiners are not concerned about finding out what a student does not know but rather with rewarding students for what they do know.

The Purpose of Mark Schemes

Examination papers are set and revised by teams of examiners and revisers appointed by the Council. The teams of examiners and revisers include experienced teachers who are familiar with the level and standards expected of 16- and 18-year-old students in schools and colleges. The job of the examiners is to set the questions and the mark schemes; and the job of the revisers is to review the questions and mark schemes commenting on a large range of issues about which they must be satisfied before the question papers and mark schemes are finalised.

The questions and the mark schemes are developed in association with each other so that the issues of differentiation and positive achievement can be addressed right from the start. Mark schemes therefore are regarded as a part of an integral process which begins with the setting of questions and ends with the marking of the examination.

The main purpose of the mark scheme is to provide a uniform basis for the marking process so that all the markers are following exactly the same instructions and making the same judgements in so far as this is possible. Before marking begins a standardising meeting is held where all the markers are briefed using the mark scheme and samples of the students' work in the form of scripts. Consideration is also given at this stage to any comments on the operational papers received from teachers and their organisations. During this meeting, and up to and including the end of the marking, there is provision for amendments to be made to the mark scheme. What is published represents this final form of the mark scheme.

It is important to recognise that in some cases there may well be other correct responses which are equally acceptable to those published: the mark scheme can only cover those responses which emerged in the examination. There may also be instances where certain judgements may have to be left to the experience of the examiner, for example, where there is no absolute correct response – all teachers will be familiar with making such judgements.

The Council hopes that the mark schemes will be viewed and used in a constructive way as a further support to the teaching and learning processes.

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Rewarding Learning

ADVANCED SUBSIDIARY (AS)
General Certificate of Education
2009

Geography

Assessment Unit AS 1

assessing

Module 1: Themes in Physical Geography

[ASG11]

FRIDAY 5 JUNE, MORNING

MARK SCHEME

Section A

Answer **all three** questions in this section

1 (a) (i) Suspended sediment consists of the finest particles (clay and silt) transported by the river. These particles are held up, "suspended" within the body of the water. [2]

(ii) Range is 42 374 tonnes/km/year [1]

(iii) The largest amounts of suspended sediment are from soil erosion and so can be linked to human factors such as farming practices or deforestation. The nature of the underlying rock could also be a contributory factor. Links to higher discharge and river velocity are acceptable. The candidate gives one valid reason to explain an increase or decrease in the suspended load. [2]

(b) (A waterfall forms when a river, after flowing over relatively hard rock, meets a band of softer rock.) The soft rock is undercut by hydraulic action and abrasion. The weight of the water and lack of support cause the waterfall to collapse and retreat upstream over time. Award marks for detail about relevant processes. [4]

(c) The amount of interception is directly linked to the density of vegetation cover. Where there is no vegetation cover, [ploughed land] there is no interception. As the density of the vegetation increases, so does the amount of interception up to a maximum of 40% [coniferous forest]. The candidate links the vegetation density to the rate of interception and quotes from the resources in their explanation. [3] 12

2 **(a)** **(i)** In an ecosystem **energy** is transferred through the trophic structure. [1]

(ii) The biomass is the total dry weight (in kilograms of living matter) at one point in time [1] in a given area (usually a square metre) [1]. Units are not required to achieve full marks. [2]

(iii) The transfer of energy through the ecosystem is not 100% efficient [1] as energy is lost at each stage through processes such as respiration, excretion etc. This means that fewer organisms can be supported at successive levels and their biomass will therefore also decrease. Second [1] for exemplification or statement about process. [2]

(b) **(i)** The diagram should show four characteristics (including processes) of a mollisol/chernozem. These might include depth, colour, pH, horizons etc. (4 × [1]) [4]

(ii) Mollisol/chernozems are naturally fertile as they are deep, rich in organic matter, retain moisture and have an ideal crumb structure with well-formed peds.
(3 × [1]) for 3 brief explanations; alternatively up to [3] for one reason well developed and explained. [3] 12

3 **(a)** **(i)** The resource shows an anticyclone. Allow high pressure system. [1]

(ii) Evidence might include, pressure increasing towards the centre (1032 mb.), widely spaced isobars, little cloud cover and light wind speeds shown at the 3 weather stations, etc.
([2] + [2]) [4]

(b) Wind speed is controlled by the pressure difference (gradient) between two areas. The greater the pressure gradient the higher the wind speed. [2]

(c) **(i)** Mean January temperatures decrease with distance from the equator. [1] Equatorial regions have temperatures of 25–30 °C while polar regions have temperatures of 5 °C (S. Pole) to –35 to –40 °C (N. Pole).
[1] for using figures. [2]

(ii) Factors might include, the influence of ocean currents especially in the Atlantic ocean, the impact of continentality in the centres of the continents, and the positions of the high pressure systems over the Arctic, causing the very low temperatures. Candidates should name and explain **one** factor. Localised factors not accepted as resource is global scale; relief not accepted as data is adjusted to sea level; seasonality not accepted as resource is for January. [3] 12

Section A **36**

Section B

Answer **any two** questions in this section

4 There are many factors affecting river discharge and the storm hydrograph. These include:

Basin size – In a small basin it is likely that rainfall will reach the main channel more rapidly, increasing discharge.

Basin shape – It is accepted that a circular basin is more likely to have a shorter lag time and a higher peak flow than an elongated basin.

Type of precipitation – Prolonged rainfall will cause an increase in discharge when the ground becomes saturated and infiltration is replaced by surface runoff. Intense rainfall, such as thunderstorms, will also increase discharge as infiltration rates are exceeded and surface runoff becomes rapid. Snowmelt, which releases water held in storage, will also increase discharge especially if the ground remains frozen and infiltration is not possible.

Rock type – Rocks which allow water to pass through them, whether through pores, such as some sandstones or chalk (porous), or along joints (pervious) as in some limestones, reduce surface runoff and delay water reaching the main river. In contrast impermeable rocks, such as granite or basalt result in water reaching the channel more rapidly, increasing discharge.

Soil type – This controls the speed of infiltration, the amount of soil moisture storage and the rate of throughflow. Sandy soils, with large pore spaces, allow rapid infiltration. Clay soils in contrast, have much smaller spore spaces which reduces infiltration and throughflow, encourages surface runoff which would increase discharge.

Land use – Since vegetation intercepts and stores moisture, discharge will be much greater in deforested areas than in areas where the surface is covered in vegetation. Type or density of vegetation would also be a factor. In farmed areas surface runoff will be greater at times when the land is bare, such as just after ploughing. This would also lead to greater discharge. Urbanisation also greatly increases the speed at which water reaches the river channel and so affects discharge.

Slope – The influence of slope is a very direct one. Under the influence of gravity the discharge will increase if slope/gradient increases and decrease if slope decreases.

Channel characteristics – This would include channel shape in cross-section and channel roughness. Channel shape could be described in terms of hydraulic radius, which influences the amount of energy lost due to friction and so the rate of discharge. Roughness of bed and banks also acts to increase friction and therefore reduce discharge.

The storm hydrograph is a device for showing how a river responds to a period of rainfall. It shows the discharge of the river, (usually in m/sec) at a given point, over a short period of time. As the water from the rainfall event begins to reach the river channel the discharge will be seen to rise on the hydrograph to a peak and then decrease again.

An important element of the hydrograph is the lag time, the time between the peak rainfall and the peak discharge, when flooding would be most likely. All of the factors already described would have an effect on the shape of the storm hydrograph.

Level 3 ([9]–[12])
The candidate produces a balanced answer which clearly describes four factors affecting river discharge and clearly relates them to their effects on the storm hydrograph. Case study references may be included but are not necessary to achieve full marks.

Level 2 ([5]–[8])
The candidate produces a less detailed or unbalanced answer which describes four factors in less detail or fails to link them clearly to their effects on the storm hydrograph. A detailed answer describing only three factors can achieve Level 2.

Level 1 ([1]–[4])
The candidate produces an answer which is very general or brief. The factors may not be well described or explained and the effects on the storm hydrograph may not be clear. The candidate may describe fewer than three factors. The quality of communication may also be poor. [12] 12

5 The details of the answer will depend on the case study chosen. Candidates should identify a particular succession at a local scale and describe how it has developed through a series of changes. Any type of succession, lithosere, psammosere, halosere, hydrosere, etc. is valid. Good candidates will establish background conditions of climate and topography. The answer should include references to plant species at different stages in the development and explanations of processes such as soil formation, stabilisation etc. as the succession develops. If no vegetation succession is specified, or spatial context given, then maximum Level 2.

Level 3 ([9]–[12])
The candidate identifies a specific vegetation succession, gives it a spatial context and explains how it has developed through a succession of changes. There is good reference to species present and processes involved at each stage.

Level 2 ([5]–[8])
A succession is identified but the explanation of its development lacks depth or clarity or processes are well explained but not linked to a specific succession.

Level 1 ([1]–[4])
The answer is very generalised with little reference to spatial context or the processes involved in the development of a plant succession. The quality of communication may also be poor. [12] 12

6 The answer requires candidates to use the case study material to describe the effects of a hurricane on people and property and to give examples of protective measures which were or could have been used to reduce loss of life or damage to property. Candidates must refer to a particular hurricane to achieve Level 3. Effects on people might include deaths, evacuation, relocation, disease, famine, etc. while the impact on property could include destruction of the infrastructure including buildings, communications etc. Protective measures might include forecasting and research into the atmospheric processes within a hurricane. Coastal protection measures, emergency/contingency measures, large scale evacuation of population etc.

Level 3 ([9]–[12])
The candidate produces a balanced answer which names a specific hurricane event and describes its effects on people and property and gives examples of protective measures used to reduce loss of life or damage to property.

Level 2 ([5]–[8])
The candidate produces a less detailed or unbalanced answer which fails to address all three requirements of the question. Reference to case study material is less effective or depth of knowledge is limited.

Level 1 ([1]–[4])
The candidate produces an answer which is generalised or inaccurate or there is limited reference to case study material. The quality of communication may also be poor. [12] 12

Section B **24**

Total **60**

Rewarding Learning

ADVANCED SUBSIDIARY (AS)
General Certificate of Education
2009

Geography

Assessment Unit AS 2

assessing

Module 2: Themes in Human Geography

[ASG21]

THURSDAY 11 JUNE, AFTERNOON

MARK SCHEME

Introductory Remarks

Note that the assessment objectives (AOs) for this specification are more extensive than those previous syllabus. There are now four AOs, and the style of questions and the requirements of the scheme have had to be modified somewhat to take account of them, particularly AO2 and AO3 with need for "critical understanding". It is worth reproducing the AOs here:

AO1 Show knowledge of the specified content;
AO2 Show critical understanding of the specified content;
AO3 Apply knowledge and critical understanding to unfamiliar contexts;
AO4 Select and use a variety of skills and techniques, including communicative skills, appropriate to geographical studies.

General Instructions for Markers

The main purpose of the mark scheme is to provide a uniform basis for the marking process so that all markers are following exactly the same instructions and making the same judgements so far as this is possible. Markers must apply the mark scheme in a consistent manner and to the standard agreed at the standardising meeting.

It is important to recognise that in some cases there may be other correct responses that are equally acceptable to those included in this mark scheme. There may be instances where certain judgements have to be left to the experience of the examiner, for example, where there is no absolute, correct answer.

Markers are advised that there is no correlation between length and quality of response. Candidates may provide a very concise answer that fully addresses the requirements of the question and is therefore worthy of full or almost full marks. Alternatively, a candidate may provide a very long answer which also addresses the requirements of the question and is equally worthy of full or almost full marks. It is important, therefore, not to be influenced by the length of the candidate's response but rather by the extent to which the requirements of the mark scheme have been met.

Some candidates may present answers in writing that are difficult to read. Markers should take the time to establish what points are being expressed before deciding on a mark allocation. However, candidates should present answers which are legible and markers should not spend a disproportionate amount of time trying to decipher writing that is illegible.

Levels of Response

For questions with an allocation of six or more marks three levels of response will be provided to help guide the marking process. General descriptions of the criteria governing levels of response mark schemes are set out on the next page. When deciding about the level of a response, a "best fit" approach should be taken. It will not be necessary for a response to meet the requirements of all the criteria within any given level for that level to be awarded. For example, a Level 3 response does not require all of the possible knowledge and understanding which might be realistically expected from an AS or AL candidate to be present in the answer.

Having decided what the level is, it is then important that a mark from within the range for that level, which accurately reflects the value of the candidate's answer, is awarded.

Knowledge and Understanding	Skills	Quality of Written Communicatio	el
The candidate will show a wide-ranging and accurate knowledge and a clear understanding of the concepts/ ideas relevant to the question. All or most of the knowledge and understanding that can be expected is given.	The candidate will display a high level of ability through insightful analysis and interpretation of the resource material with little or no gaps, errors or misapprehensions. All that is significant is extracted from the resource material.	The candidate will express complex subject matter using an appropriate form and style of writing. Material included in the answers will be relevant and clearly organised. It will involve the use of specialist vocabulary and be written legibly and with few, if any, errors in spelling, grammar and punctuation	
The candidate will display an adequate to good knowledge and understanding of many of the relevant concepts/ ideas. Much of the body of knowledge that can be reasonably expected is given.	The candidate will display evidence of the ability to analyse and interpret the resource material but gaps, errors and/or misapprehensions may be in evidence.	The candidate will express ideas using an appropriate form and style of writing. Material included will be relevant and organised but arguments may stray from the main point. Some specialist terms will be used and there may be occasional errors in spelling, grammar and punctuation. Legibility is satisfactory.	2
The candidate will display some accurate knowledge and understanding but alongside errors and significant gaps. The relevance of the information to the question may be tenuous.	The candidate will be able to show only limited ability to analyse and interpret the resource material and gaps, errors and/or misapprehensions will be clearly evidenced.	The candidate will have a form and style of writing which is not fluent. Only relatively simple ideas can be dealt with competently. Material included may have dubious relevance. There will be noticeable errors in spelling, grammar and punctuation. Writing may be illegible in places.	1

Section A

1 **(a)** Problems of collecting data are more pronounced in LEDCs but not restricted to those countries. Problems include: language problems, inaccurate mapping, misreporting age, religious problems, geographical problems (e.g. size of some countries) etc. [2]

(b) **(i)** Differences may include:

- By 2050 the percentage population aged 0–14 will have decreased [2]
- By 2050 the percentage population aged 65 and over will have increased [2]

Any two valid differences are acceptable. Percentage figures must be included for full marks. Candidates must make reference to the population structure not merely the shape of the pyramids. [4]

(ii) Japan will have a greater number of elderly people to support. They will need specific medical care services and facilities and more importantly pensions. They will also have fewer younger and fewer economically active people. This will mean less people working and paying taxes. So the government will have less income and more people needing pensions. [3]

(c) Overpopulation is when there are too many people for the resources to support; this will lower the standard of living. Underpopulation is when there are too few people to fully utilise the resources so again standard of living will be lower. Optimum population is when the population is in balance with the resources; this will produce the highest standard of living [3]. No mention of standard of living maximum [2]. [3] 12

2 **(a)** **(i)** Urbanisation [1]

(ii) Candidates can discuss urbanisation, suburbanisation or counter urbanisation. They must have detailed effects. The effects given will depend on the process discussed. Candidates who discuss the urban area will be limited to maximum [1]. [4]

(b) **(i)** Diagrams must be clearly labelled [2] and accurate [3]. [5]

(ii) Any valid limitation acceptable. Most will probably discuss the fact that people may not go to their nearest town and many will travel to one further afield. [2] 12

3 **(a)** The main areas with a large percentage of Black African population are in the south east and they tend to have lower incomes. The main areas with a large percentage of Hispanic population are in the south west and tend to have higher income values. For example, California, Arizona and Texas have all 25% or more of their population as Hispanic and they all have 16.0–19.9 or more percent of their households on high incomes. However, the greatest percentages of Black (African American) are in Louisiana, Mississippi, Alabama and South Carolina (25% – 61.3%) but these areas have only 11.0% or less of households with high incomes. [4]

(b) Neo-colonialism is the indirect control of LEDCs by MEDCs after independence, when a country still exerts control over another country. [2]

(c) Any valid effect is allowed but positive examples include increased employment opportunities, increased GNPs, increased consumer goods. Negative examples include loss of culture, closure of factories in MEDCs, etc [3]. Candidates who have no reference to place are limited to [2] × 2. [6] 12

Section A **36**

Section B

Answer **any two** questions from this section

4 Candidates may discuss either a MEDC or LEDC. The question asks for changing structure over **space** so do not accept distribution or changing structure over time. They should be able to describe at least two specific areas in their country where the population structure is different and offer explanations for this pattern. Places need to be mentioned. They must have specific factual and detailed information on their chosen case study.

Level 3 ([9]–[12])
The candidate has an appropriate case study with detailed place information. They are able to fully describe the variations in population structure and offer a range of reasons for the pattern identified.

Level 2 ([5]–[8])
Still a good answer but the depth of knowledge may be less than above. Variations in population structure may be described but place and figures may be limited. The explanation may also be weaker.

Level 1 ([1]–[4])
A poor answer lacking any case study details. Terminology and understanding is weak. Those discussing population distribution or changes over time are limited to this level. [12] 12

5 Candidates can discuss any two models of urban structure but most will use Burgess and Hoyt. The question is asking the candidates to either agree or disagree that models are useful tools in investigating urban land use models so an *opinion* should be stated. Students who simply outline two models have not fully addressed the question and should be limited to Level 2.

Level 3 ([9]–[12])
A good detailed answer outlining two models with a clear understanding of their usefulness/or not in investigating urban land use patterns. Terminology is good and geographical knowledge is high.

Level 2 ([5]–[8])
A less detailed answer. Perhaps one model is significantly weaker than the other. Purely descriptive answers are limited to this level.

Level 1 ([1]–[4])
A poor answer with a lack of geographical understanding or knowledge. Candidates who only discuss one model – completely omitting the other, are limited to this level. [12] 12

6 Candidates can write about either an MEDC or an LEDC. The description of the contrasts should include both economic and social contrasts. The explanation should be fully explored and should be relevant to the example cited.

Level 3 ([9]–[12])
Contrasts in the level of development will be described effectively and accurately using precise numerical and place information. The explanation of the variations will be specific and detailed, physical and human factors will be discussed. Quality of written communication is of a high standard.

Level 2 ([5]–[8])
The description is limited to one or two differences and the explanation is less comprehensive. The explanation lacks details related specifically to the case study.

Level 1 ([1]–[4])
Answers are limited by inclusion of irrelevant or incorrect material. There will be some description and explanation but it will be very incomplete. Purely descriptive answers would also be included here. Quality of written communication is limited. [12]

	12
Section B	**24**
Total	**60**

Rewarding Learning

ADVANCED SUBSIDIARY (AS)
General Certificate of Education
2009

Geography

Assessment Unit AS 3

assessing

Module 3: Techniques in Geography

[ASG31]

FRIDAY 5 JUNE, MORNING

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The candidate will display an adequate to good knowledge and understanding of many of the relevant concepts/ ideas. Much of the body of knowledge that can be reasonably expected is given.	The candidate will display evidence of the ability to analyse and interpret the resource material but gaps, errors and/or misapprehensions may be in evidence.	The candidate will express ideas using an appropriate form and style of writing. Material included will be relevant and organised but arguments may stray from the main point. Some specialist terms will be used and there may be occasional errors in spelling, grammar and punctuation. Legibility is satisfactory.	2
The candidate will display some accurate knowledge and understanding but alongside errors and significant gaps. The relevance of the information to the question may be tenuous.	The candidate will be able to show only limited ability to analyse and interpret the resource material and gaps, errors and/or misapprehensions will be clearly evidenced.	The candidate will have a form and style of writing which is not fluent. Only relatively simple ideas can be dealt with competently. Material included may have dubious relevance. There will be noticeable errors in spelling, grammar and punctuation. Writing may be illegible in places.	1

Part A

Total marks available [10]

1 Table of Data

Up to [3] for presenting a table which:

- has been computer-generated and contains data of a sufficient quality to meet the aim of the investigation.
- Displays proper conventions such as a title, columns labelled with units of measurement specified, etc.
- includes data appropriate for graphing and for statistical analysis. [3] 3

2 Summary Report

Level 3 ([6]–[7])

A summary report with a precise aim and sections set out clearly for planning and data collection. There should be a well-structured description of pre-fieldwork planning and methods of data collection (these should relate to the stated aim as well as the tabulated data). Quality of written communication is of a high standard. Deduct up to [2] for reports which exceed the word limit.

Level 2 ([3]–[5])

The summary report may be rather brief and may fail to address both planning and data collection sections depth. Alternatively the report may be adequate in length but may lack structure and may be less coherent. The candidate's ability to communicate may be reasonable in standard. Deduct up to [2] for reports which exceed the word limit.

Level 1 ([1]–[2])

A summary report which may be brief and provides little relevant detail on planning and data collection methods. It may be partially completed or exhibit a lack of understanding. Alternatively the report may be of sufficient length but contain little relevant material. Quality of written communication is limited. Deduct [1] for abuse of word limit. [7] 7

Part A Total **10**

Part B

1 (a) Factors

- **Aim and Hypotheses:** the aim provides a focus and outlines the purpose of the investigation and is the first step in fieldwork planning. A broad general aim may require specific hypotheses which act as specific strands for scientific empirical testing. They direct the course of the investigation and allow for manageable data collection. Reference must be made to the specific aim/hypotheses.
- **Sampling Method:** It is important to develop sampling when planning data collection if it is "unnecessary", "impossible" or "impractical" to study the total population. It involves the selection of a representative subset using a random, systematic or stratified strategy. Reference must be made to the sampling method, and size, employed in the individual fieldwork.
- **Risk Assessment:** A risk assessment is essential to ensure safety in the field during primary data collection. This is important to identify potential risk(s) and consider appropriate risk minimisation strategies to avoid hazard. Reference must be made to the actual risk assessment survey conducted prior to fieldwork.
- **Pilot Testing:** This is essential to ensure accuracy in data collection and identify possible amendments, or modifications, to the planned fieldwork. It generally involves a trial of various aspects of the investigation in advance of the actual fieldwork. It may involve the trial of a questionnaire or a practice using the fieldwork equipment. Reference must be made to the actual type of pilot testing conducted.
- **Selection of Study Site(s):** Candidates need to discuss the importance of their chosen site in relation to the purpose of their investigation. This may relate to its physical or human features, its relative safety for data collection, etc. Accept discussion of sample sites.
- **Collection of Relevant Secondary Sources:** The collection of published data in statistical, written or mapped form, may be important at varying stages throughout the investigation process – planning, data collection, interpretation or the summative conclusion stage. Candidates must make reference to the specific sources used in their individual fieldwork.

Award [3] if the candidate thoroughly explains the importance of the selected factor in the investigation, with explicit links to the individual fieldwork.
Award [1]–[2] if the importance of the factor is more simplistically explained with limited or no linkage to the individual fieldwork.
2 × [3] for each valid factor. [6]

(b) (i) The mark breakdown is as follows:

Title [1] – must be specific and accurate

Conventions [2] – for labelled axes
– for provision of a key (if necessary)
– for appropriate scaling of the graph

Accuracy [3] – for the accurate and precise plotting of values from the table

Method [1] – for the selection of an appropriate graphical technique (in relation to the aim and data tabulated)

NB Line graphs require continuous data on the x-axis

T – [1]
C – [2]
A – [3]
M – [1]

[7]

(ii) Description

Award [2] for thorough graph description which includes the accurate quotation of values.
Award [1] for a more general analysis with the quotation of values omitted.

Explanation

Award [3]–[4] for valid reasoning which incorporates relevant geographical concepts and terminology.
Award [1]–[2] for valid reasoning which is more simplistic and lacks explanatory depth/detail. There may be limited/no use of specialist terminology. [6]

(c) Award [3] for an accurate explanation of the appropriateness of the chosen statistical technique for the analysis of the fieldwork data.

Spearman's Rank Correlation

This is appropriate to objectively test the degree of association between two sets of variables. The **strength** and **type** of relationship can be determined.

Measures of Central Tendency and Dispersion

The mean, median and mode can be used to summarise the data set whereas the range provides an indication of the spread, or dispersion, of the values. Each measure needs to be discussed separately.

Nearest Neighbour Analysis

This will be appropriate if the aim of the study involves the exploration of pattern and this statistic depicts if the pattern exhibits clustering, regularity or random dispersion with an acceptable degree of reliability or confidence.

Award [1]–[2] for a more simplistic explanation. Answers may be incomplete, less well expressed or demonstrate a more limited understanding of how the selected process is appropriate for the aim of the fieldwork.
Maximum [2] if the answer is theoretical with no obvious link to fieldwork or variables. [3]

(d) Evaluation is an essential latter stage in the investigation process which generally involves critical reflection of the fieldwork (methods, results or conclusions). It involves an interpretation of strengths and weaknesses.
Award [3] if the candidate demonstrates a sound awareness of the purpose of evaluation with specific reference to the individual fieldwork study.
Award [1]–[2] for a more general answer which exhibits some understanding of the evaluation process. There may be limited/no reference to individual fieldwork. [3] 25

2 **(a)** **(i)** 12, 144
[1] each [2]

(ii) Award [3] for good accurate **statistical** interpretation of significance using significance charts. With degrees of freedom = 18, the calculated value of –0.76 exceeds the critical value of –0.6 at the 99% (and –0.75 at the 99.9%) significance level. Therefore there is a significantly **negative** or **inverse** relationship between altitude of the land and temperature.
Award up to [3] for a valid **geographical** explanation of the statistical outcome. In general, temperatures decrease with height at the normal or environmental lapse rate.
At low altitudes the air is considerably more dense, as it contains dust and water vapour which trap or absorb heat. At higher altitudes less heat can be absorbed as the air is less dense and thus its heat retention capacity is lower.
Award [1]–[2] for a more simplistic explanation or one which is incomplete and fails to provide reasoning for both low and high altitudes. [6]

(iii) The most obvious factor is latitude.
- Closer to the equator, incoming radiation is concentrated as the sun is high in the sky and less atmosphere reduces energy losses.
- In higher latitudes incoming radiation is more dispersed as the angle of the sun is lower in the sky and the depth of the atmosphere is greater increasing radiation losses.

Candidates may also introduce explanatory factors such as distance from the sea (continentality) or the albedo effect which produces greater loss of energy in the higher latitudes.

Award [3] for a valid factor, accurately explained with resource use evident.
Award [1]–[2] for a more simplistic explanation of a valid factor. There may be no resource use evident. [3]

(b) Representation requires accuracy and explicit labelling. It is acceptable to explain symbols using a key.
- Course of the River Swale [2]
- Two named tributaries [1] × 2
- Ox-bow lake [1]
- The A684 main road [1]
- One named village [1] [7]

(c)	**(i)**	3	[1]	
	(ii)	1. Lagos	[1]	
		2. The projected rate of urbanisation shows great contrast between LEDC cities such as Lagos and MEDC cities such as Tokyo. Urban population grows as a result of migration (especially rural to urban in LEDCs) and natural increase (when the birth rate exceeds the death rate). Award [3] if there is a clear understanding of the MEDC/LEDC contrast in the projected rate of urbanisation with reference to contrasting patterns in both migration and natural increase as explanatory factors. Award [1] or [2] for more simplistic explanation which is incomplete and fails to provide reasoning for both explanatory factors.	[3]	
	(iii)	North America	[1]	
	(iv)	Asia	[1]	25
			Part B	**50**
			Total	**60**