



*Rewarding Learning*

**ADVANCED SUBSIDIARY (AS)  
General Certificate of Education  
2019**

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## **Geography**

**Assessment Unit AS 3**

*assessing*

**Fieldwork Skills and Techniques in Geography**

**[SGG31]**

**WEDNESDAY 29 MAY, MORNING**

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**MARK  
SCHEME**

## General Marking Instructions

### **Introduction**

The main purpose of the mark scheme is to ensure that examinations are marked accurately, consistently and fairly. The mark scheme provides examiners with an indication of the nature and range of candidates' responses likely to be worthy of credit. It also sets out the criteria which they should apply in allocating marks to candidates' responses.

### **Assessment objectives**

Below are the assessment objectives for GCE Geography.

Candidates should be able to:

- AO1:** Demonstrate knowledge and understanding of places, environments, concepts, processes, interactions and change at a variety of scales.
- AO2:** Apply knowledge and understanding in different contexts to analyse, interpret and evaluate key concepts, information and issues.
- AO3:** Use a variety of relevant methods, and techniques to:
- investigate geographical questions and issues;
  - analyse, interpret and evaluate data and resources; and
  - construct arguments and draw conclusions.

### **Quality of candidates' responses**

In marking the examination papers, examiners should be looking for a quality of response reflecting the level of maturity which may reasonably be expected of a 17- or 18-year-old which is the age at which the majority of candidates sit their GCE examinations.

### **Flexibility in marking**

Mark schemes are not intended to be totally prescriptive. No mark scheme can cover all the responses which candidates may produce. In the event of unanticipated answers, examiners are expected to use their professional judgement to assess the validity of answers. If an answer is particularly problematic, then examiners should seek the guidance of the Supervising Examiner.

### **Positive marking**

Examiners are encouraged to be positive in their marking, giving appropriate credit for what candidates know, understand and can do rather than penalising candidates for errors or omissions. Examiners should make use of the whole of the available mark range for any particular question and be prepared to award full marks for a response which is as good as might reasonably be expected of a 17- or 18-year-old GCE candidate.

### **Awarding zero marks**

Marks should only be awarded for valid responses and no marks should be awarded for an answer which is completely incorrect or inappropriate.

### **Marking calculations**

In marking answers involving calculations, examiners should apply the 'own figure rule' so that candidates are not penalised more than once for a computational error. To avoid a candidate being penalised, marks can be awarded where correct conclusions or inferences are made from their incorrect calculations.

### **Types of mark schemes**

Mark schemes for tasks or questions which require candidates to respond in extended written form are marked on the basis of levels of response which take account of the quality of written communication.

Other questions which require only short answers are marked on a point for point basis with marks awarded for each valid piece of information provided.

**Levels of response**

In deciding which level of response to award, examiners should look for the 'best fit' bearing in mind that weakness in one area may be compensated for by strength in another. In deciding which mark within a particular level to award to any response, examiners are expected to use their professional judgement.

The following guidance is provided to assist examiners.

- **Threshold performance:** Response which just merits inclusion in the level and should be awarded a mark at or near the bottom of the range.
- **Intermediate performance:** Response which clearly merits inclusion in the level and should be awarded a mark at or near the middle of the range.
- **High performance:** Response which fully satisfies the level description and should be awarded a mark at or near the top of the range.

**Quality of written communication**

Quality of written communication is taken into account in assessing candidates' responses to all tasks and questions that require them to respond in extended written form. These tasks and questions are marked on the basis of levels of response. The description for each level of response includes reference to the quality of written communication.

For conciseness, quality of written communication is distinguished within levels of response as follows:

Level 1: Quality of written communication is basic.

Level 2: Quality of written communication is good.

Level 3: Quality of written communication is excellent.

In interpreting these level descriptions, examiners should refer to the more detailed guidance provided below:

**Level 1 (Basic):** The candidate makes only a limited selection and use of an appropriate form and style of writing. The organisation of material may lack clarity and coherence. There is little use of specialist vocabulary. Presentation, spelling, punctuation and grammar may be such that intended meaning is not clear.

**Level 2 (Good):** The candidate makes a reasonable selection and use of an appropriate form and style of writing. Relevant material is organised with some clarity and coherence. There is some use of appropriate specialist vocabulary. Presentation, spelling, punctuation and grammar are sufficiently competent to make meaning clear.

**Level 3 (Excellent):** The candidate successfully selects and uses the most appropriate form and style of writing. Relevant material is organised with a high degree of clarity and coherence. There is widespread and accurate use of appropriate specialist vocabulary. Presentation, spelling, punctuation and grammar are of a sufficiently high standard to make meaning clear.

## General Descriptions for Marking Criteria

Knowledge and Understanding	Skills	Quality of Written Communication	Level
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.	Excellent quality of written communication. 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, punctuation and grammar.	3
The candidate will display an accurate to good knowledge and understanding of many of the relevant concepts/ideas. Much of the body of knowledge that can be expected is given.	The candidate will display evidence of the ability to analyse and interpret the resource material but gaps, errors or misapprehensions may be in evidence.	Good quality of written communication. 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, punctuation and grammar. 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 or misapprehensions may be clearly evidenced.	Basic quality of written communication. 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, punctuation and grammar. Writing may be illegible in places.	1

**1 (a) How the location was selected**

This may have been completed through pre-site visits, research or secondary sources, discussion, mapwork, prior teacher knowledge, etc. Award [1] for a basic response. Award [2] for a detailed response with clear and conspicuous references to the candidate's own fieldwork investigation.

**Explanation why the location was suitable**

The selection of a suitable study location is essential if the aim of the study is to be explored reliably or meaningfully. Award [1] for a basic response. Award [2] for a detailed response with clear and conspicuous references to the candidate's own fieldwork.

(2 × [2]) [4]

- (b) (i) Award [2] if the distinction between primary and secondary data is clarified. Primary data is collected via first-hand experience, whereas secondary data is extracted from a published source. Award [1] for a single valid definition. [2]

- (ii) The fieldwork method selected must relate to a primary source and must be evidenced in the table submitted. The answer requires a detailed description of the actual procedure conducted in the field/laboratory, as well as an evaluation of the method. Description without evaluation, maximum [4]. Candidates who discuss a soil characteristic but fail to include laboratory analysis, Level 1

**Level 3 ([6]–[7])**

The answer includes a detailed and accurate methodology with explicit references to actual equipment, if relevant, and techniques employed in the field/laboratory. A detailed evaluation of the method, to include strengths and/or limitations, is provided in the context of the candidate's own fieldwork investigation. Quality of written communication is excellent.

**Level 2 ([3]–[5])**

The methodology may be restricted in detail or there may be few convincing references to the candidate's own fieldwork investigation. While an evaluation of the method is included, it may be basic in nature. Quality of written communication is good.

**Level 1 ([1]–[2])**

Discussion of the methodology may be flawed. Answers which focus on a relevant sampling technique will be limited to this level. Quality of written communication may be poor. [7]

- (c) (i) The method of statistical analysis selected will depend on the fieldwork undertaken, but it must be relevant to the aim/hypothesis of the investigation. Therefore, cross-referencing is essential with the submitted report.

Maximum [4] if the selected statistical technique is inappropriate to the aim/hypothesis of the study.

**Measures of Central Tendency/Dispersion**

Calculation of mean [2]

Calculation of median [2]

Identification of mode [1]

Calculation of range [2]

Award [1] for each if the technique is inappropriate.

AVAILABLE MARKS

**Spearman's Rank Correlation**

- Accuracy of calculation [5]:  
For Spearman's Rank  
Rank (x) = [1]  
Rank (y) = [1]  
Column (d) = [1]  
Column (d<sup>2</sup>) including accurate  $\Sigma d^2$  = [1]  
Equation = [1]
- Statistical Interpretation [2]  
Interpretation of  $r_s$  – full marks available for wrong  $r_s$  only if it is between -1 and 1.  
  
Significance recognised with level, e.g. 95% [1] or non-significance [1]  
Positive/negative trend or statement to identify relationship type [1]

Award maximum [4] for an accurate calculation if an error in ranking results in an incorrect  $r_s$  value.

Award maximum [3] if Spearman's Rank is performed with less than 7 ranked pairs.

If the nearest neighbour analysis is attempted, contact the supervising examiner.

[7]

- (ii) Geographical reasoning is required to support the statistical outcome and the discussion should integrate relevant theoretical concepts or models, as well as specialist terminology. The geographical reasoning provided will depend on the specific aim/hypothesis, the topic or theme investigated and the statistical outcome attained. If statistics are incomplete/not attempted from 1(c)(i), maximum L2 (if variables can be identified from answer). Summaries of statistical significance should not be credited.

**Level 3 ([6]–[7])**

The answer displays sound geographical reasoning with the effective integration of relevant theoretical concepts and terminology. The explanation provided is relevant to the aim of the study as well as the statistical outcome. Quality of written communication is excellent.

**Level 2 ([3]–[5])**

A less detailed geographical reasoning is presented with only tenuous integration of theoretical concepts. The inclusion of specialist terminology may be less well developed or more limited. Quality of written communication is good.

**Level 1 ([1]–[2])**

Explanation may be more simplistic or less complete. Specialist terminology may be very limited or neglected. Answers which only describe the aim/hypothesis will be at this level. Quality of written communication may be poor.

[7]

- (d) Answers will vary according to the field of study. Do not credit answers which refer to a different study.

**Modification/improvement**

Award [2] for an answer which outlines a specific modification/improvement in the context of the candidate's own fieldwork investigation.

AVAILABLE  
MARKS

Award [1] for an answer which proposes a modification/improvement which may be more general in nature.

AVAILABLE  
MARKS

### Reliability of Conclusion

Award [1] for an answer which logically explains why the proposed amendment could increase the reliability of the conclusion.

[3]

30

2 (a) (i)  $R_n = 2 \times 0.1 \sqrt{84/5.3}$  [1]  
 $= 0.2 \sqrt{15.85}$  [1]  
 $= 0.2 \times 3.98$  [1]  
 $= 0.796$  (Accept 0.79–0.81) [1]

This shows a clustered distribution. [1]

The hypothesis should be rejected. [1]

[6]

(ii) Answers solely based on area will not be accepted.

As the name suggests, Mathare Valley slum is located in a river valley [1]. The Nearest Neighbour may have produced an unreliable statistical outcome because it cannot account for a linear distribution, which is often found exhibited along river valleys [2].

[3]

(b) (i) Award [1] for each accurately measured arrow width which begins in the correct source region:

- Latin America and Caribbean – 1 mm [1]
- Middle East – 11 mm [1]
- North America – 8 mm [1]
- Asia - Pacific – 6 mm [1]

Award [1] if at least three of the constructed arrows reach Africa.

[5]

(ii) Expect a statement and elaboration,

e.g. Flow lines are a visual representation of the volume and direction of movement, making geographical analysis more effective. [2]

Accept valid alternatives.

[2]

(c) (i) **Explanation of Stratified Sampling**

Stratified sampling is used when subsets or subgroups exist in the population. [1] It ensures that each subgroup is proportionally represented in the derived sample. [1]

### Calculations

Candidates are required to select **two** healthcare regions and calculate the sample size for each, based on a total sample size of 10 000 people. Possible answers include:

- 6420 people from Capital Region
- 370 people from Eastern Region
- 1100 people from Northern Region
- 680 people from Southern Peninsula
- 750 people from Southern Region
- 210 people from Westfjords
- 470 people from Western Region

Award [1] for each accurate calculation.

(2 × [1])

[4]

(ii) Random sampling does not account for subsets within a population. [1]  
 In this study, random sampling could result in one or more of the  
 healthcare districts shown being unrepresented [1] under-represented  
 [1] or over-represented [1] by the sample. [3]  
 Accept **any** three.

(iii) 1. **Mean** – 76.5% [1]  
**Mode** – 82.3% [1] [2]

2. The values were ranked from smallest to largest. [1] The median  
 was the mid-point value in the data set. [1] [2]

3. In this data set the mode is an extreme value [1] and, therefore,  
 provides a poor representation of the centre of the data set.  
 The median, by contrast, is a more preferable representation of  
 the distribution because the data contains values at the  
 extremes [1]. There needs to be a connection to reliability [1] [3]

**Total**

AVAILABLE  
 MARKS

30

**60**