

GCE

Geography

Unit **F764**: Geographical Skills

Advanced GCE

Mark Scheme for June 2017

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by examiners. It does not indicate the details of the discussions which took place at an examiners' meeting before marking commenced.

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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Annotations used in the detailed Mark Scheme

Annotation	Meaning of annotation
	Blank Page – this annotation must be used on all blank pages within an answer booklet (structured or unstructured) and on each page of an additional object where there is no candidate response.
	Omission mark. Further development needed, missing point or link between points.
	Level one.
	Level two.
	Level three.
	Unclear, inaccurate, dubious validity.
	Irrelevant, a significant amount of material that does not answer the question
Red highlight	Identified factor
	Highlighting an issue eg irrelevant paragraph. Use in conjunction with another stamp eg  or 
	Point has been seen and noted.

Examiners **must** include annotations on each response in Section A questions.

In Section B, each page of writing **must** have some annotation.

Question			Answer/Indicative Content	Marks	Guidance	
					Content	Levels of response
1	(a)	(i)	<p>Fig. 1 is a sketch map drawn by a student investigating infiltration rates on different rock types. It shows the planned sample points.</p> <p>Assess the effectiveness of this map in showing the location of the investigation.</p> <p>Location – accept place and/or within this location.</p> <p>Positives include:</p> <ul style="list-style-type: none"> • Clear indication of rock types • Some place location • Does indicate drainage • Gives a quick impression of location and why those sites • Use of labels <p>Negatives include:</p> <ul style="list-style-type: none"> • No scale or distances shown • No north • Lack of title • No colour • Lack of annotations • No idea of relief of area • Location of area not well shown 	5	<p>For the top level candidates should recognise that they need to comment on both strengths and weaknesses in its effectiveness but these may not be balanced in coverage.</p> <p>This level will probably take a one sided view of its effectiveness.</p>	<p>Level 2 (4–5 marks) Candidates assess in detail with both positives and negatives with clear reference to Fig. 1.</p> <p>Level 1 (1–3 marks) Candidates offer a partial or inappropriate assessment of effectiveness with limited, if any, reference made to Fig. 1.</p> <p>0 marks – no creditworthy response</p>

Question		Answer/Indicative Content	Marks	Guidance	
				Content	Levels of response
	(ii)	<p>Explain the advantages of using a photograph to locate this investigation compared to using a sketch map.</p> <p>Advantages include:</p> <ul style="list-style-type: none"> • Shows the location at the time of the investigation • Indicates other factors e.g. veg. • Shows human aspects e.g. farming types • Shows weather conditions • Shows relief <p>The key element of differentiation is the degree to which these are advantages compared with what the sketch map shows. No credit for disadvantages of sketch maps.</p>	10	<p>Either a wide range of advantages or two or three points in depth. L3 distinguished from L2 on attempt at comparison</p> <p>Max 7 if no reference at all to this investigation.</p> <p>Generic comparison may not reach top of level.</p> <p>No comparison – list of photo advantages</p>	<p>Level 3 (8–10 marks) Candidates offer a detailed range of advantages with clear linkage to this investigation. Clear cause-effect between advantage and use of photograph rather than sketch map. Answer is well structured with accurate grammar and spelling. Good use of appropriate geographical terminology.</p> <p>Level 2 (5–7 marks) Candidates offer at least two of the advantages with some linkage to this investigation. Less clear on comparative aspect. Answer has sound structure but may have some errors in grammar and spelling. Some use of appropriate geographical terminology.</p> <p>Level 1 (1–4 marks) Candidates offer few valid advantages with little linkage to this investigation. Little, if any, comparison between photograph and sketch map. Answer has little structure and has some errors in grammar and spelling. Little use of geographical terminology.</p> <p>0 marks – no creditworthy response</p>

Question		Answer/Indicative Content	Marks	Guidance	
				Content	Levels of response
	(b)	<p>Evaluate the use of isopleth (isoline) maps to show data patterns.</p> <p>Advantages include:</p> <ul style="list-style-type: none"> Clearly shows patterns and trends over an area Creates a pattern from individual points Can be detailed depending on the interval Can use colours/shades to stress lows and highs <p>Disadvantages include:</p> <ul style="list-style-type: none"> Interval value is critical – may hide detail if big Interpolation is used which is a dubious technique Exact shape of lines is often guesswork Takes time 	5	<p>For the top level candidates should recognise that they need to comment on both strengths and weaknesses but these may not be balanced in coverage.</p> <p>This level will probably take a one sided view of its effectiveness.</p>	<p>Level 2 (4–5 marks) Candidates give detailed evaluation of the effectiveness of such a technique in showing patterns of data.</p> <p>Level 1 (1–3 marks) Candidates give vague or limited comments on the effectiveness of such a technique in showing patterns of data.</p> <p>0 marks – no creditworthy response</p>
2	(a)	<p>Fig. 2 shows a Spearman’s Rank calculation used in a beach investigation to analyse two sets of data.</p> <p>Use the data given to interpret the results of the analysis.</p> <p>The correlation is significant. With a S_r of 0.68 and 8 degrees of freedom the correlation is almost 95% (5% chance</p>	5	<p>At this level strength and direction of correlation with figures are expected together with what this means i.e. a negative correlation between distance and pebble size.</p> <p>At this level a basic comment on a negative result with little detail may</p>	<p>Level 2 (4–5 marks) Candidates clearly identify the strength and direction of the correlation. Clear reference made to the data in Fig. 2.</p> <p>Level 1 (1–3 marks) Candidates outline limited aspects of the results with limited reference</p>

Question			Answer/Indicative Content	Marks	Guidance	
					Content	Levels of response
			<p>that it came about by accident).</p> <p>It is negative so with distance east along the beach pebble size decreases.</p>		<p>be expected. Little understanding of degree of significance.</p>	<p>made to the data in Fig. 2.</p> <p>0 marks – no creditworthy response</p>

	(b)	<p>Evaluate the use of statistical techniques in the data analysis of investigations.</p> <p>Statistical techniques: give objective results, indicate exact level/strength/direction of data patterns, show anomalies, allow further analysis/comparison, can be done on a computer so quick/easy.</p> <p>But they do take time, are often complex (leading to errors), may be too exact e.g. an 80% correlation is quite strong but would be rejected. Statistical results still need to be interpreted. Also many investigators are put off by maths.</p> <p>Statistical analysis can be used to:</p> <ul style="list-style-type: none"> • Describe data e.g. show frequency and skew • Test for differences e.g. Mann-Whitney U • Test for association or correlation e.g. Spearman’s • Identify types of pattern e.g. nearest neighbour • Measuring interactions e.g. gravity model 	10	<p>This is a question that does not require reference to specific techniques but this may indicate a higher level response. A clear idea of their use in data analysis at this level. Detailed evaluation is grounded in what they can analyse.</p> <p>Probably some evaluation but not well balanced and limited linkage to analysis of data.</p> <p>Probably a one sided evaluation or more likely a description of statistical technique(s).</p>	<p>Level 3 (8–10 marks) Candidates evaluate in detail the use of statistical techniques in the analysis of data with a clear appreciation of their strengths and weaknesses. Answer is well structured with accurate grammar and spelling. Good use of appropriate geographical terminology.</p> <p>Level 2 (5–7 marks) Candidates offer some evaluation of the use of statistical techniques in the analysis of data with a limited appreciation of their strengths and weaknesses, probably in an unbalanced way. Answer has sound structure but may have some errors in grammar and spelling. Some use of appropriate geographical terminology.</p> <p>Level 1 (1–4 marks) Candidates describe limited aspects of the use of statistical techniques with limited, if any, evaluation of their use. Answer has little structure and has some errors in grammar and spelling. Little use of appropriate geographical terminology.</p> <p>0 marks – no creditworthy response</p>
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	(c)	<p>Outline how data collected in an investigation can be made more reliable.</p> <p>Candidates tend to confuse reliability (the extent to which a sample reflects the whole population) with accuracy. Accept use of reliability in terms of ‘can it produce the same results if repeated’.</p> <p>Ways could include:</p> <ul style="list-style-type: none"> • Use of pilot surveys • Repeating measurements at different times/places • Taking more measurements • Care over size, type and method of sampling • Better equipment • Looking at secondary data for the same type of investigation 	5	<p>Detail should be how the ‘way’ makes the data collected more reliable.</p> <p>One well developed (such as with an example) way can reach top L1.</p>	<p>Level 2 (4–5 marks) Two or more appropriate ways in detail and well linked to data collection strategies.</p> <p>Level 1 (1–3 marks) Candidates offer limited or inappropriate ways with little detail. Not well linked to data collection.</p> <p>0 marks – no creditworthy response</p>
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3	(a)	<p>Fig. 3 is a graph used to present data collected in an investigation into urban traffic congestion.</p> <p>Assess the effectiveness of using this graphical technique to present traffic data.</p> <p>The crucial point is that line graphs should not be used for interval data such as this – line graphs imply continuous data.</p> <p>Advantages could include:</p> <ul style="list-style-type: none"> • Easy to see changes over time – very visual • Clear labeling • Has clear title, location and time <p>Disadvantages could include:</p> <ul style="list-style-type: none"> • Not continuous data • Ignores some forms of traffic e.g. lorries • Not spatial • May hide anomalies 	5	<p>An unbalanced evaluation can still get into L2 but there should be both sides of its effectiveness.</p> <p>A description of the technique is likely to be max 2.</p>	<p>Level 2 (4–5 marks) Candidates give detailed evaluation of the effectiveness of such a technique in presenting the data. Clear reference to Fig. 3.</p> <p>Level 1 (1–3 marks) Candidates give vague or limited comments on the effectiveness of such a technique in presenting the data. Limited reference to Fig. 2.</p> <p>0 marks – no creditworthy response</p>
	(b)	<p>What factors should be considered when selecting a data collection technique?</p> <p>Factors could include:</p> <ul style="list-style-type: none"> • Type/nature of the investigation • Type of data e.g. spatial • Amount of data needed • Timing of data collection needed • Equipment available 	10	<p>L3 probably distinguished from L2 on range and depth of factors + some notion of their impact on the selection process.</p>	<p>Level 3 (8–10 marks) Candidates clearly explain in detail a range of factors that should be considered when selecting a data collection technique. Answer is well structured with accurate grammar and spelling. Good use of appropriate geographical terminology.</p>

		<ul style="list-style-type: none"> • Time available • Sampling • Resources available • Personnel available • Health and safety • The nature of the location <p>There is no requirement to go into details on the techniques but this may help demonstrate specific factors.</p>		<p>A more limited range probably limited in explanation with limited link to selection process.</p> <p>Purely a description of data collection techniques probably a L1 response.</p>	<p>Level 2 (5–7 marks) Candidates offer some explanation of factors that should be considered when selecting a data collection technique although they are likely to be unbalanced at this level. Answer has sound structure but may have some errors in grammar and spelling. Some use of appropriate geographical terminology.</p> <p>Level 1 (1–4 marks) Much may be descriptive with little, if any, focus on factors. Much will be superficial. Answer has little structure and has some errors in grammar and spelling. Little use of appropriate geographical terminology.</p> <p>0 marks – no creditworthy response</p>
	(c)	<p>Evaluate the role of secondary data in an investigation.</p> <p>Secondary data has a number of definitions but most should see it as someone else’s data.</p> <p>This is about its role (its use) rather than an evaluation of secondary data per se.</p> <p>Roles could include:</p> <ul style="list-style-type: none"> • To increase the sample/data set size • As a comparator of results over 	5	<p>Evaluation is of the role of the data but may acknowledge both pros and cons of its role but these may be unbalanced.</p> <p>A list of uses with no evaluation or one role well developed.</p>	<p>Level 2 (4–5 marks) Candidates evaluate in detail the use of secondary data in an investigation. Clear understanding of its role is demonstrated.</p> <p>Level 1 (1–3 marks) Candidates give a limited or superficial evaluation. Answers are largely descriptive.</p> <p>0 marks – no creditworthy response</p>

		<p>place and time</p> <ul style="list-style-type: none"> • To help judge risks • Locating the investigation • Providing context data • Creating a model to compare the findings to • Instructions to help operate equipment or method • Providing an analytical tool 			
4		<p>‘A pilot study is vital to ensure the success of a geographical investigation.’ How far do you agree that this statement was true for your investigation?</p> <p>Candidates may not have used a pilot study in which case they need to explain why it was not vital.</p> <p>Pilot studies can help by:</p> <ul style="list-style-type: none"> • Testing methodology – equipment, questionnaires etc • Establishing sampling method • Ensuring the investigation is possible in that location, in that time • Checking the practical issues of an investigation, e.g. group size, toilet provision, access • Carrying out a risk assessment • Collecting context data • Seeing if chosen title is ‘doable’ 	20	<p>L3 distinguished from L2 on depth of evaluation of their success, detailed reference to their investigation and clear cause/effect..</p> <p>Some evaluation, some reference to their investigation. Limited cause/effect attempt.</p>	<p>Level 3 (16–20 marks) Candidates evaluate in detail the extent to which a pilot study was vital to the success of their investigation. Cause and effect are clear and realistic. Answer is well structured with accurate grammar and spelling. Good use of appropriate geographical terminology.</p> <p>Level 2 (10–15 marks) Candidates evaluate the extent to which a pilot study was vital to the success of their investigation. Some cause and effect are attempted. Answer has sound structure but may have some errors in grammar and spelling. Some use of appropriate geographical terminology.</p> <p>Level 1 (1–9 marks)</p>

		<p>In some cases, pilot studies result in a changed investigation or focus.</p> <p>Candidates are expected to evaluate how vital it was compared to other factors when judging their contribution to the overall success (or lack of it).</p>		<p>Limited or no evaluation, little reference to their investigation. No cause/effect.</p>	<p>Candidates offer limited, if any, evaluation of the extent to which a pilot study was vital to the success of their investigation. No real cause and effect and much is descriptive. Answer has little structure and has some errors in grammar and spelling. Little use of geographical terminology.</p> <p>No titled investigation stated max L1.</p> <p>0 marks – no creditworthy response</p>
5		<p>To what extent did the conclusions of your investigation answer the original question or hypothesis? Explain your answer.</p> <p>Candidates need to state the extent and then suggest reasons why their conclusions did or didn't answer their chosen question or hypothesis.</p> <p>Explanation could consider the roles of:</p> <ul style="list-style-type: none"> • The nature of the chosen question/hypothesis • Locational factors • Initial planning issues e.g. access • Time and timing factors • Methodology issues • Personnel issues • Data recording & processing issues • Analytical issues • Accuracy and reliability of the data. 	20	<p>L3 distinguished from L2 on depth of evaluation, detailed reference to their investigation and clear explanation.</p> <p>Some evaluation, some reference to their investigation. Limited explanation.</p>	<p>Level 3 (16–20 marks) Candidates evaluate in detail the extent their conclusions answered their original question/hypothesis. Detailed explanation offered for the extent. Cause and effect are clear and realistic. Answer is well structured with accurate grammar and spelling. Good use of appropriate geographical terminology.</p> <p>Level 2 (10–15 marks) Candidates evaluate the extent their conclusions answered their original question/hypothesis. Explanation offered for the extent. Some limited cause and effect. Answer has sound structure but may have some errors in grammar and spelling. Some use of appropriate geographical terminology.</p>

			Key is why/how did these factors produce conclusions that did or didn't answer the question/hypothesis.	Limited or no evaluation, little reference to their investigation. No explanation.	<p>Level 1 (1–9 marks) Candidates offer limited evaluation of the extent their conclusions answered their original question/hypothesis. Limited explanation offered for the extent. No real cause and effect and much is descriptive. Answer has little structure and has some errors in grammar and spelling. Little use of geographical terminology.</p> <p>No titled investigation stated max L1.</p> <p>0 marks – no creditworthy response</p>
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