

F764

Mark Scheme

January 2010

## F764 Geographical Skills

Question			Expected Answers	Mks	Rationale
<b>Section A</b>					
1	(a)	Study Fig. 1, which presents data collected in an investigation of a microclimate.			
	(i)	Suggest <u>two</u> advantages of using this technique for showing such data.	<p><b>Indicative content:</b> Accept isopleths, isolines or isotherms. Advantages could include: ability to interpolate (guess or project gaps in the data), indicates gradients (trend surfaces) of values, visual impression etc. Higher level candidates will clearly link the technique to showing spatial data.</p> <p><b>Level 2:</b> Candidates suggest either two detailed advantages of using isolines or one detailed and one more limited advantage. Clear reference made to isotherm map. <b>[4-5 marks]</b></p> <p><b>Level 1:</b> Candidates suggest two limited or one detailed advantage(s) of using isolines. Limited, if any, reference made to isotherm map. <b>[0-3 marks]</b></p>	5	Reference to map or 'such data' for max 5.

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		<p>(ii) Describe and justify <u>one</u> alternative technique which could be used to present spatial data.</p>	<p><b>Indicative content:</b> Other techniques could include choropleth, located proportional symbols such as bar charts etc. but could also include other types of spatial data so could include various types of maps, flow lines, trip lines etc. Lower level answers will probably spend excessive time describing the method and how to draw it. Credit effective attempts at illustrating the end product of the technique.</p> <p>The crucial thrust is the justification. This should focus on how effective the method is at showing what types of spatial data or over what type/size of area. It could cover visual impact, ease of accuracy, ease of drawing, range of data that can be shown etc. Equally it can be justified by showing its advantages over other techniques including isolines.</p> <p><b>Level 3:</b> Candidates offer a detailed description and justification, covering a wide range of aspects, with a valid technique well linked to its ability to portray spatial data. <b>[8-10 marks]</b></p> <p><b>Level 2:</b> Candidates offer an unbalanced description/justification – probably the latter less detailed, covering a range of aspects, with a valid technique linked to its ability to portray spatial data. <b>[5-7 marks]</b></p> <p><b>Level 1:</b> Candidates offer a limited, if any, description/justification, covering few of the aspects, poorly linked to its ability to portray spatial data.</p> <p>If either description or justification clearly missing then max Level 1. <b>[0-4 marks]</b></p>	<p>10</p>	<p>Allow other spatial tech e.g. dot maps &amp; appropriate use of photos.</p> <p>Need clear 'justification' to reach L3.</p> <p>Unbalanced or one sided justification.</p> <p>No attempt at justification.</p>
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	(b)	<p><b>Outline <u>two</u> potential uses of geographic information systems (GIS) in geographical investigations.</b></p>	<p><b>Indicative content:</b> GIS has a number of potential roles in geographical investigations:</p> <ul style="list-style-type: none"> <li>• collecting data e.g. data logging to an exact co-ordinate</li> <li>• accessing secondary data e.g. census returns, remote sensing images</li> <li>• recording data e.g. tied to an exact location</li> <li>• presenting data e.g. map overlays (layering)</li> <li>• analysing data e.g. ask questions of data</li> </ul> <p><b>Level 2:</b> Candidates give a clear and detailed outline of two potential uses with clear relevance to geographical investigation stages and/or activities. Some exemplification can be expected at this level. <b>[4-5 marks]</b></p> <p><b>Level 1:</b> Candidates give a limited outline of two potential uses with limited, if any, relevance to geographical investigation stages and/or activities. If only one use then max Level 1. <b>[0-3 marks]</b></p>	<b>5</b>	<p>Also credit use of GPS to locate investigations. Cannot reach max 5, unless some ref. to spatial aspect.</p> <p>Credit use of packages such as:-.AEGIS; Arcview Memory Map; Stamp.</p> <p>The correct use of the GIS specific terminology such as raster and vector would indicate a strong Level 2 answer. Some development expected beyond basic statement.</p>
<b>Total</b>				<b>20</b>	

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Question		Expected Answers	Mks	Rationale
2	(a)	Study Fig. 2, which shows the result of a Spearman's Rank correlation test ( $r_s$ ) between two variables and part of the critical values table for $r_s$ .		
	(i)	<p>With the aid of Fig. 2, interpret the result of the test.</p> <p><b>Indicative content:</b>            The result means:            A positive correlation – both increase together            A strong relationship – they are likely to be related            A significant relationship – between 95% &amp; 99% (i.e. null hypothesis likely to be rejected)</p> <p>Two points interpreted in detail will suffice. Candidates should make clear reference to the critical values table.</p> <p><b>Level 2:</b> Candidates clearly and accurately interpret Fig 2. Clear reference made to Fig. 2 especially the critical values table. <b>[4-5 marks]</b></p> <p><b>Level 1:</b> Candidates give a limited or inaccurate interpretation of Fig. 2 with little, if any, linkage to critical values table. <b>[0-3 marks]</b></p>	5	

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		<p>(ii) Evaluate the usefulness of the Spearman's Rank correlation test in the analysis of geographical data.</p>	<p><b>Indicative content:</b>  <b>This is less about the Spearman's Rank correlation test as it is about an evaluation of the usefulness of such methods in the analysis of geographical data.</b>  Usefulness could cover a variety of aspects:</p> <ul style="list-style-type: none"> <li>• Ability to confirm the strength and direction of a relationship</li> <li>• It provides a statement of the level of confidence in the relationship</li> <li>• It is particularly useful when a scatter graph appears ambiguous</li> </ul> <p>Evaluation could also cover some of the issues involved in their use such as:</p> <ul style="list-style-type: none"> <li>• Form of the data distribution (is it normal?)</li> <li>• Ease of calculation</li> <li>• Only indicates that they are associated not why</li> <li>• Could be the result of coincidence</li> <li>• Crucial role of the null hypothesis</li> <li>• Spearman can be used for parametric or non-parametric data.</li> </ul> <p>There is no need to write out the formula or do a calculation.</p> <p><b>Level 3:</b> Candidates clearly evaluate in detail a wide range of uses and limitations of Spearman's Rank correlation. There is clear linkage to analysing geographical data. <b>[8-10 marks]</b></p> <p><b>Level 2:</b> Candidates evaluate a range of the uses and limitations of Spearman's Rank correlation. There may be some linkage to analysing</p>	<p>10</p>	<p>Full evaluation with examples, for full marks.</p> <p>Unbalanced or one sided evaluation.</p>
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			geographical data. <b>[5-7 marks]</b>		
			<b>Level 1:</b> Much may be descriptive of Spearman's Rank correlation. Candidates evaluate a limited range, if any, of uses and/or limitations of Spearman's Rank correlation. There will be little, if any, linkage to analysing geographical data. <b>[0-4 marks]</b>		Descriptive.
	(b)	<b>How can sample size affect the reliability of data collected in a geographical investigation?</b>	<b>Indicative content:</b> This is a recurrent theme – <b>reliability</b> . The meaning of this term is crucial here. This is not specifically related to correlations but many candidates will probably take this approach. Most will focus on samples being too small. Sample size may: <ul style="list-style-type: none"> <li>• Be too small to be statistically reliable so can't do correlation tests etc.</li> <li>• Make it easy to miss an aspect</li> <li>• Exaggerate the role of anomalies</li> <li>• Distort patterns, trends etc.</li> </ul> <b>Level 2:</b> Candidates give a range of points, or have developed one point well, about sample size clearly linked to their impact on the reliability of data collected. <b>[4-5 marks]</b> <b>Level 1:</b> Candidates give a limited or superficial outline of one or more points about sample size with limited, if any, linkage to their impact on the reliability of data collected. <b>[0-3 marks]</b>	5	
			<b>Total</b>	20	

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Question		Expected Answers	Mks	Rationale
3	(a) Study Fig. 3, a photograph of part of the area used for a geographical investigation. Justify <u>two</u> pieces of information you would require to make the photograph a useful resource in a report	<p><b>Indicative content:</b> Two pieces of information could include:</p> <p>a) Information about the photograph such as:</p> <ul style="list-style-type: none"> <li>• time of day/week</li> <li>• date</li> <li>• direction</li> </ul> <p>b) Information about the area shown such as:</p> <ul style="list-style-type: none"> <li>• the pedestrianised area</li> <li>• shop types</li> <li>• upper floor usage</li> <li>• type/number of pedestrians</li> </ul> <p>Low level responses will typically say 'shops' whilst higher may suggest the type of shop e.g. vacant estate agent</p> <p>It is the justification that is crucial and should clearly relate to how it provides helpful/useful information for a geographical (which can be taken to include a wide range of research) investigation.</p> <p><b>Level 2:</b> Candidates suggest two appropriate and detailed pieces of information well justified in terms of their use (in any stage of an investigation). Clear reference to Fig. 3. <b>[4-5 marks]</b></p> <p><b>Level 1:</b> Candidates suggest two appropriate but superficial pieces of information with little attempt to justify their use. Little, if any, reference to Fig. 3. <b>[0-3 marks]</b></p>	5	<p>Key is the link to why the information makes this photo useful as a resource.</p> <p>Broadly generic answers.</p>

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	<p><b>(b) Evaluate the use of secondary data in geographical investigations.</b></p>	<p><b>Indicative content:</b> The question is about secondary data in general but candidates may focus purely on photographs. Uses of secondary data include:</p> <ul style="list-style-type: none"> <li>• comparison with your primary data over time or space</li> <li>• it may be more reliable as larger data collection</li> <li>• it adds other aspects to your primary data, tells you something else about the area</li> </ul> <p>Evaluation is the crucial differential: Some may point out the limitation of secondary data/photographs such as:</p> <ul style="list-style-type: none"> <li>• their source or origin, who has compiled them and why</li> <li>• it may be dated</li> <li>• it may not be strictly comparable to your primary data etc.</li> </ul> <p>Many, probably weaker candidates, will just see the advantages of such data.</p> <p><b>Level 3:</b> Candidates clearly evaluate in detail a range of appropriate uses of secondary data or the use of a range of types of secondary data in geographical investigations. Some attempt at exemplification can be expected at this level. <b>[8-10 marks]</b></p> <p><b>Level 2:</b> Candidates evaluate a limited range of appropriate uses of secondary data or the use of a range of types of secondary data in geographical investigations. Limited attempt at exemplification can be expected at this level. <b>[5-7 marks]</b></p>	<p><b>10</b></p>	<p>'Secondary' data is open to a wide range of interpretation.</p> <p>Full evaluation with examples, for full marks.</p> <p>Unbalanced or one sided evaluation.</p>
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			<p><b>Level 1:</b> Candidates offer little, if any, evaluation of the uses of secondary data in geographical investigations. Much will be vague or descriptive of types of data. <b>[0-4 marks]</b></p>		Descriptive of the types of secondary data.
	(c)	<p><b>Outline the value of carrying out a 'pilot' study for a geographical investigation.</b></p>	<p><b>Indicative content:</b> Pilot studies are carried out for a number of reasons including:</p> <ul style="list-style-type: none"> <li>• To test the effectiveness of equipment, questionnaires etc. enabling their fine tuning to what is needed</li> <li>• To identify potential hazards, problems, bottlenecks etc.</li> <li>• To pre-test the data collection strategy e.g. type of sampling</li> <li>• To see if it can be done in that time and at that location</li> </ul> <p>The value might include saving time/effort, increasing reliability/accuracy of data collection, avoiding accidents, identifying the unexpected snags/limitations or risks.</p> <p><b>Level 2:</b> Clear focus on at least two of the potential roles of pilot surveys, or one development in detail. There is some assessment of their value. Probable use of examples to illustrate points. <b>[4-5 marks]</b></p> <p><b>Level 1:</b> Limited, if any, attempt at evaluation of the use of pilot studies with simplistic statements. Limited depth and little use of examples. <b>[0-3 marks]</b></p>	5	
			<b>Total</b>	20	

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Question	Expected Answers	Mks	Rationale
<b>Section B</b>			
4	<p><b>Discuss the extent to which the strategies for conducting your chosen investigation related to the geographical ideas, theories or concepts on which it was based. State the title of the Investigation.</b></p>	<p><b>Indicative content:</b> This requires an evaluation of the extent to which strategies (hypotheses selection, planning – timing, location etc., data collection methodology etc.) used related to some underlying geographical i.e. spatial aspect. Be tolerant – some will refer to specific models e.g. Burgess, others concepts such as distance decay, succession etc.</p> <p>Candidates should evaluate how and why it related. This is very much a cause effect evaluation i.e. why did that geographical idea etc. result in that approach. It would be difficult to accept a negative approach as this stage is the starting point not the end conclusion.</p> <p>If no titled investigation stated then max level 1. If little connection between their title and the evaluation (i.e. largely generic) then max low level 2. Credit detailed evidence of an individual investigation.</p> <p><b>Level 3:</b> Candidates clearly evaluate in detail the extent to which the strategies for their named investigation are based on one or more geographical concepts, models or ideas. Cause and effect are clear and realistic. Answer is well structured with effective use of grammar and accurate spelling. Geographical terminology is used accurately. <b>[16-20 marks]</b></p> <p><b>Level 2:</b> Candidates evaluate the extent to which the strategies for their named investigation are based on one or more geographical concepts, models or</p>	<p><b>20</b></p> <p>If more than one investigation, then only credit the most effective.</p> <p>Allow broad interpretation of geographical ideas – should be some spatial or locational element.</p> <p>They are not required to discuss validity of methods nor their findings.</p> <p>Candidates who refer to the way that their strategies may not closely follow a theory in places should be credited. Caution: May imply or quote the title in the body of the text.</p> <p>Cause effect is the linkage of strategies to the geographical concepts, models etc.</p> <p>Level 2 needs clear ref. to models/concepts etc.</p>

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	<p>ideas. Some cause and effect are attempted. Answer may have some structure with some inaccurate spelling but has appropriate use of geographical terminology. <b>[10-15 marks]</b></p> <p><b>Level 1:</b> Candidates offer limited, if any, evaluation of the extent to which their strategies used in their named investigation are based on geographical concepts, models or ideas. No real cause and effect and much is descriptive. Communication is basic with little structure and inaccurate spelling/use of geographical terminology. <b>[0-9 marks]</b></p>		<p>Description of methods or strategies or answers that ignore strategies but look at geographical concepts etc.</p> <p>Generic or little evidence of their investigation.</p>
	<b>Total</b>	<b>20</b>	

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Question	Expected Answers	Mks	Rationale	
5	<p><b>Evaluate the methods you used to collect the data for a geographical investigation. State the title of the investigation.</b></p>	<p><b>Indicative content:</b> Collection methods could include sampling strategy, use of equipment, design of questionnaire, organisation (timing, location, allocation of tasks), primary v secondary etc. The challenge is the evaluation in terms of their effectiveness (either as collecting strategies in themselves or their usefulness in later stages such as recording or analysis). Weaker responses will be largely descriptive. Evaluation could include its effectiveness at using equipment/ questionnaires, collecting accurate or appropriate data, or more practical aspects such as doing it in the time available etc. Many will see this as an evaluation of their sampling methodology but others will take a wider view. Be wary of candidates who repeat essentially the same method e.g. multiple questionnaires or who see lots of faults. If no titled investigation stated then max level 1. If little connection between their title and the evaluation (i.e. largely generic) then max low level 2. Credit detailed evidence of an individual investigation.</p> <p><b>Level 3:</b> Candidates describe and clearly evaluate in detail their data collection method(s) with clear linkage to their named investigation. Reference to a wide range of factors and their interaction and/or connection is expected in the evaluation at this level. Answer is well structured with effective use of grammar and accurate spelling. Geographical terminology is used accurately. <b>[16-20 marks]</b></p> <p><b>Level 2:</b> Candidates describe and evaluate their data collection method(s) with linkage to their named</p>	20	<p>The key to this is to <b>evaluate</b> the methods. This is not an evaluation of the whole investigation.</p> <p>Caution: May imply or quote the title in the body of the text.</p> <p>Clear evaluation – not just the problems, with some explanation of its relative effectiveness.</p> <p>Long list of equipment with some recognition of its limitations.</p>

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	<p>investigation. Some reference to the way factors interconnect. Answer may have some structure with some inaccurate spelling but has appropriate use of geographical terminology. <b>[10-15 marks]</b></p> <p><b>Level 1:</b> Candidates offer largely description with little, if any, evaluation of their data collection method(s). Little linkage to their named investigation. Communication is basic with little structure and inaccurate spelling/use of geographical terminology. <b>[0-9 marks]</b></p>		<p>Description of what they did. Generic or little evidence of their methods/investigation.</p>
	<b>Total</b>	<b>20</b>	