

# Mark Scheme (Results)

## Summer 2008

GCE

GCE Geography A (6463/02)

Question Number	Indicative content		Mark
1(a)(i)	<p><b>Describe the relief, stream pattern and land use of the two drainage basins.</b></p> <p>Relief:           steep V shaped valleys  Incised valleys  watershed 600 - 800m  valley bottom - 200m  some rocky outcrops  narrow valley floors which widen downstream / SE</p> <p>Stream pattern:    trending NW - SE  2 broadly parallel streams  meandering streams (allow comments about channel)  small tributary valleys flow directly into main stream</p> <p>Land use:       mainly grazing land and managed forestry  Reservoir/water supply  Settlement</p>		(6)
Level	Mark	Descriptor	
Level 3	6 - 5 marks	Uses relevant geographical terminology to give accurate description with details/data from map. Addresses all 3 elements.	
Level 2	4 - 3 marks	Outline comments with some detail. Lacks effective terminology. May not describe all 3 elements	
Level 1	2 - 1 mark	General description. Limited detail from map.	

Question Number	Answer	Mark
1(a)(ii)	<p><b>Suggest reasons why this study area was chosen to compare the two streams</b></p> <p>Sufficient characteristics in common so that other changing variables could be effectively analysed.  e.g similar altitude, same geology, similar rainfall, differences in land use, manageable in terms of time, accessibility, logistics of groups work.  Streams have different characteristics  3 ideas listed = 3 marks  Credit a sense of validity / reasoning</p>	(3)

Question Number	Answer	Mark				
1(a)(iii)	<p>Use the OS map to calculate the gradient between sites 1 and 2 on Grwyne Fawr Show working.</p> <table border="1" style="margin-left: 20px;"> <tr> <td>Grwyne Fechan: gradient between sites A and B</td> <td>1 : 12.5</td> </tr> <tr> <td>Grwyne Fawr: gradient between sites 1 and 2</td> <td>1 : 20</td> </tr> </table> <p>1 km between the sites. Change of 500m in altitude. (2 marks)</p> <p>1 mark for working 1 mark for correct answer</p>	Grwyne Fechan: gradient between sites A and B	1 : 12.5	Grwyne Fawr: gradient between sites 1 and 2	1 : 20	(2)
Grwyne Fechan: gradient between sites A and B	1 : 12.5					
Grwyne Fawr: gradient between sites 1 and 2	1 : 20					

Question Number	Answer	Mark
1(a)(iv)	<p>State which river has the steeper gradient at these locations?</p> <p>Grwyne Fechan</p>	(1)

Question Number	Answer	Mark
1(a)(v)	<p>The students attempted to sample the sites at regular intervals down both streams. What is the name of this sampling method?</p> <p>Systematic sampling.</p>	(1)

Question Number	Answer	Mark
1(a)(vi)	<p>What factors may have led the students to modify their actual site selection.</p> <p>1 mark for each factor    accessibility, safety Specific factors such as: woodland, steep slopes and reservoir, confluence. Do not credit "insufficient" time etc</p>	(2)

Question Number	Answer	Mark
1(b)(i)	<p>Using the results for Grwyne Fawr (Figure 2 in the Resource Booklet), calculate values for cells X and Y.</p> <p>X (discharge at Site 4)                      <span style="border: 1px solid black; padding: 2px;">0.07 or 0.08</span></p> <p>Y (hydraulic radius at Site 9)              <span style="border: 1px solid black; padding: 2px;">0.13</span></p>	(2)

Question Number	Answer	Mark
1(b)(ii)	Use the data from b) i) to complete the scatter graphs Figures 3b and 3c  1 mark for each accurate plot. Accept 0.06 - 0.09 for discharge 0.12 - 0.14 for hydraulic radius	(2)

Question Number	Indicative content	Mark
1(b)(iii)	Describe the relationships suggested for each of the 3 variables ( Figure 3 a, b and c).  Relationships : 3a - very little relationship evident between velocity and distance downstream. Range of velocities evident eg at sites 5 and 8. No clear pattern. 3b - some evidence that discharge increases downstream but only in lower reaches, from site 6 downstream. But possible anomaly at site 7. 3c - very little change downstream. Some extreme values. E.g. sites 7 and 8  NB Comments on strength of relationships as shown in Figure 5 should be credited but are not expected. Any comments on strength of relationships must be speculative. No evidence provided thus far in the question. Do not credit explanation.	(4)

Level	Mark	Descriptor
Level 2	4 - 3	Explicit and thorough description of all relationships. May recognise anomalies of relationships.
Level 1	1 - 2	Uses some detail but lacks accuracy about anomalies about relationships.

Question Number	Indicative content	
1(c)	<p>With reference to the OS map, Figures 1 and 4 in the Resource Booklet, suggest reasons for the differences in the pattern of the suspended load between the Grwyne Fawr and the Grwyne Fechan.</p> <ul style="list-style-type: none"> <li>• Similar concentrations of suspended sediment load in upper reaches - similar land use of grassland - thick vegetation and root network to hold small sediment particles in the soil.</li> <li>• Much lower levels suspended load on Grwyne Fawr than on Grwyne Fechan from about 5 kms downstream along much of river until 12 kms ( sites 9 and 10) - more woodland in the Grwyne Fawr catchment. Tree roots may bind soil to reduce movement into river. Large increase in suspended load when Grwyne Fawr emerges from forested areas.</li> <li>• Impact of reservoir on Grwyne Fawr - clear water erosion below the dam and rapid increase in suspended load</li> <li>• Lower discharges in Grwyne Fawr through the woodland area therefore less ability to carry load.</li> <li>• Higher velocities on Grwyne Fechan therefore more suspended load.</li> <li>• Significant increase in suspended load on Grwyne Fawr as stream flows through lower reaches where there is less woodland and wider flood plain.</li> </ul>	(5)

Level	Mark	Descriptor
Level 3	5 - 4	Some valid reasoning eg for changes downstream. Good comparison. Map evidence.
Level 2	3 - 2	Some description of both rivers. Some limited reasoning.
Level 1	1	Discusses one stream only. Simple description.

Question Number	Answer	Mark
1(d)(i)	<p>With reference to Figure 5 below:</p> <p>Identify which of the relationships tested has the weakest correlation</p> <p>velocity v distance or hydraulic radius v velocity</p>	(1)

Question Number	Answer	Mark
1(d)(ii)	<p>With reference to Figure 5 below:</p> <p>How many of the relationships tested are statistically significant at 95% and above?</p> <p>4</p>	(1)

Question Number	Answer	Mark
1(d)(iii)	<p>With reference to Figure 5 below:</p> <p>What is meant by the term 'statistically significant at the 95% level'?</p> <p>1 mark for the idea of 'chance' 1 mark for understanding of 5%</p>	(2)

Question Number	Indicative content	
1(e)	<p>Comment on the view that the Grwyne Fechan conforms more closely to the model shown in Figure 6 in the Resource Booklet than the Grwyne Fawr?</p> <p>Should comment on discharge, channel width, water depth, water velocity, slope angle gradient, hydraulic radius</p> <ul style="list-style-type: none"> <li>• Grwyne Fechan - strong statistical relationships . High level of reliability / significance</li> <li>• Grwyne Fawr - statistical relationships not strong or reliable. HR v d suggest some relationship but this is not conclusive.</li> <li>• Discharge - appears to increase downstream in both rivers though there are more anomalies on Grwyne Fawr as the river flows through woodland eg sites 5 &amp; 7. Anomaly on Grwyne Fechan at Site D.</li> <li>• Channel width - both rivers strongly conform to model with exception of site F on Grwyne Fechan</li> <li>• Water depth - on Grwyne Fawr there are irregular increases and decreases in depth. No downstream pattern shown. On Grwyne Fechan the pattern is stronger with decline in depth only at Site F.</li> <li>• Gradient - both rivers follow similar pattern of declining gradient. Grwyne Fawr is steeper in upper reaches than Grwyne Fechan.</li> <li>• Conclusion - Grwyne Fechan conforms more closely to the model than Grwyne Fawr, possibly because of different land use / more woodland in that catchment.</li> </ul>	(8)

Level	Mark	Descriptor
Level 3	7 - 8	Uses evidence in support of comments on 'more closely' - correct and justified conclusion. Thorough range of evidence, from the resources. Refers to at least 3 characteristics.
Level 2	4 - 6	Recognises some differences in extent to which streams conform to model. Some evidence included from some resources. Only 1 or 2 characteristics referenced
Level 1	1 - 3	General comment - Grwyne Fechan broadly fit the pattern but Grwyne Fawr less so. Limited evidence from resources.

(Total 40 marks)

You are reminded that in your answers in Section B you should include evidence from your own personal fieldwork investigations. Where appropriate you will be credited for specific reference to your fieldwork locations, the techniques used and the results you obtained.

You must answer this question using your fieldwork experience on a HUMAN GEOGRAPHY topic.

Question Number	Answer	Mark
2(a)(i)	Outline the aim(s) of your enquiry  2 marks - Must be clear, specific and appropriate for AS / A2 1 mark - Vague but appropriate aim	(2)

Question Number	Answer	Mark
2(a)(ii)	Describe TWO of your methods of primary data collection.  2 marks for each type of DC 1 mark for outline + 1 mark for detail	(4)

Question Number	Answer	Mark
2(a)(iii)	Suggest how secondary data might have helped your enquiry.  1 mark - type of data 1 mark - relevance to enquiry	(2)

Question Number	Indicative content		Mark
2(b)	Justify the statistical and graphical techniques used to analyse your data.		(6)
Level	Mark	Descriptor	
Level 3	6 - 5	Explicit reasoning / justification with clear focus on data and technique. Must comment on both statistical and graphical.	
Level 2	4 - 3	Describes in more detail and links to specific data. Justification limited to 'Quick / easy / clear' and linked to data. Maximum level if only one element is included.	
Level 1	2 - 1	General description of methods. Justification missing or not linked to relevant technique.	

Question Number	Indicative content		Mark
2(c)	Describe the relationships shown by your analysis.		(3)
Level	Mark	Descriptor	
Level 2	3-2	Detailed summary of relationships. For full marks considers strength of relationships analysed.	
Level 1	1	Simplistic summary of results. May not comment on 'relationships'	

Question Number	Indicative content	
2(d)	Evaluate the reliability of your conclusions. (3)	
Level	Mark	Descriptor
Level 2	3-2	Detailed comment on reliability with evidence in support. Has a range of ideas which could affect conclusions.
Level 1	1	Simplistic understanding. Offers only one idea e.g. insufficient data, 'one-off fieldwork'.

(Total 20 marks)