



**2009 Geography**

**Advanced Higher**

**Finalised Marking Instructions**

© Scottish Qualifications Authority 2009

The information in this publication may be reproduced to support SQA qualifications only on a non-commercial basis. If it is to be used for any other purposes written permission must be obtained from the Question Paper Operations Team, Dalkeith.

Where the publication includes materials from sources other than SQA (secondary copyright), this material should only be reproduced for the purposes of examination or assessment. If it needs to be reproduced for any other purpose it is the centre's responsibility to obtain the necessary copyright clearance. SQA's Question Paper Operations Team at Dalkeith may be able to direct you to the secondary sources.

These Marking Instructions have been prepared by Examination Teams for use by SQA Appointed Markers when marking External Course Assessments. This publication must not be reproduced for commercial or trade purposes.

## **Geography 2009**

### **Advanced Higher**

#### **Section A**

In both map interpretation questions answers **MUST** make extensive and detailed use of the OS map. Correct Grid References, actual heights, description of slopes and aspect are required in a series of examples. The use of the atlas should be explicit and useful in setting the area in its broader context and in helping with Geological timescale. Candidates are also expected to have a background knowledge of planning and environmental assessment to add depth in the decision making question. Answers which fail to **INTERPRET** the map with clear map evidence should be penalised. These questions are worth 30 marks which are generally awarded holistically in line with the overall AH descriptions of expected standards but it is necessary to earn the marks in each part by using the time to its fullest.

## Question 1

- (a) Split marks 2 and 2.

1 x each for reasonable choice and 1 for accuracy. In part (i) there is no requirement to make it a square but the area should be approx 1km<sup>2</sup>. In (ii) no mark for accuracy unless it is!

The most likely choices will be in the meander bends of the Wye where there is very little settlement in any case eg near 5634 or 5537 (although it has a lot of electricity transmission lines).

The Visitor Centre choice should have an existing access road close by and **must** be drawn to scale.

**4 marks**

- (b) Mark holistically and look for development in answers. Fragmented, list-like answers are not likely to pass. 'Joined up thinking' backed up with actual map evidence is essential for high marks.

Actual heights and grid references should permeate the answer. (If candidates have taken the advice to read both questions before choosing, there are also clues in question 2 which they could use!). Candidates should indicate that they understand that the flood plain is not perfectly level.

So for area round 5634 south of Hightrees...existing land in meander bend is below 50 metres shown by location of 50m contour and by spot heights of 46 and 44m at GRs...; could be allowed to flood; drainage ditches removed/not cleared; may realise that flooding could vary during any year but that a basic marsh and pond environment would be encouraged; little settlement because of existing danger of flooding; Hightrees and its access road could be left...; Visitor Centre could be on west side to allow better aspect for viewing for more of the day when sun will be to south; could make use of dismantled railway as it may be on slightly higher land and will have hard standing for initial access and parking; access road from Hereford via Holme Lacey is not large but numbers of visitors are also not likely to be very large on any single day; easy access for rangers living in Hereford; short distances for construction people and vehicles from Hereford.

Some mention of existing footpaths and their relationship to the new development would enhance the answer when accurately linked. Reference to the information in the text box will also help development of the answer.

A link to current farming practices, indicated by field size and shape, and their role in the management of intermittently flooded pasture could add to the quality and depth of answers.

Use of atlas to show access from areas and possible sources of visitors.

**12 marks**

- (c) The question asks for discussion so lists are not acceptable.  
There are two main parts here...the city based tourism in Hereford and the rural areas with their variety of scenery and opportunities for tourists. Both of these can benefit from an additional resource and this can be brought out by candidates.

Rural tourism on the map shows many opportunities for walking in woodland, on marked footpaths and on long distance footpaths. Many people who are attracted to these pursuits will also have a keen interest in birds.

Urban tourists may look for 'something different' in the countryside especially as this development means they do not have to walk far from their cars!!

It is fair to give some credit for answers which think that such a development may not contribute very much to what is already on offer; it may be perceived as a specialist pastime but with leaflets advertising 'taster' experiences being available in tourist information centres and accommodation, which can be identified from the map, some marks can be accrued in this way.

Credit should be given for use of atlas, eg noting proximity of motorway network and proximity to major urban cities.

**8 marks**

- (d) 1 mark for the sites numbered on the tracing and the remaining 5 marks for the explanation. There are several areas of woodland and access land. These could provide the contrast. In addition there are changes in height which may offer additional clues to differing habitat.  
Open farmland with hedges could also be cited and identified. Again good examples with correct GRs are essential.

**6 marks**

**6 marks for explanations.**

## Question 2

- (a) A template will be provided to allow marking to be as easy as possible. **4 marks**
- (b) A wide range of land uses fall into the at risk category. Sewage works, industrial estate, villages, farm houses and farmland, orchards, communications eg road, rail, long distance footpaths and bridges, electricity transmission lines, caravan/camp site if we assume location is actually below 50m, gardens again marginal but acceptable...so there are plenty to choose from. To get all the marks there needs to be a minimum of 6 with their correct GRs. Candidates must give six different land use examples, or six examples which may include the same land use, but has a different context in explanation. **6 marks**
- (c) Answers will depend on choice but explanations of impact should relate to each specific example and not be 'lumped' together or merely broad generalised statements. Good use of the map is essential and this should be demonstrated in GRs, use of correct physical features. Examples might include sewage works; obvious health issue with overflowing sewage getting into the river system; the fact that the tanks are open, shown by the lack of colour on the tanks, means that this is very likely. Impact on river quality/drinking water/pollution of farmland and fishing as well as downstream settlements...industrial estate; both the buildings themselves and their access routes could be compromised; may be producing hazardous products? Orchards and farmlands; some will depend on time of year of flood; some will depend on nature of crops being grown eg pasture arable/fruit crops; flood water damage to roads, washing out rail lines, destroying bridges may all result in long detours and impact local business. Should give actual examples (specific, not generic) and link to atlas for longer distance impact. Villages and farmhouses could be cut off; essential services to help pump out may be targeted first to urban areas...bottom of the heap! Local pubs/tourist facilities and the effect on tourist revenue; impact on building insurance...if they can get any! **20 marks**

## Section B

### Question 3

(a) 1 x for correct statement of the Null hypothesis. **1 mark**

(b) 2 x 1 for correct completion of the table (see separate item, page 7) and 2 for the correct working out/calculation of Rs.

$$\begin{aligned} \text{when Rs} &= 1 - \frac{6 \times 38}{14(196-1)} \\ &= 1 - \frac{228}{2730} \\ &= 1 - 0.08 \\ &= +0.92 \quad (+0.9164) \text{ to 4 dp} \end{aligned}$$

**4 marks**

(c) 1 x for correct statement of result. **1 mark**

(d) A range of possible comments are acceptable.

- Non parametric measures of correlation.
- Useful for identifying relationships between two sets of variables.
- Quick and relatively easy to calculate compared to Pearson's.
- Provides further analysis via scattergraph and best fit lines.
- Indicates the direction and trend of the comparative variables in the data set, but not the precise magnification.
- Not necessary to have 10 or more samples in data net but helps, especially for reliability purposes.
- A good measure if unsure that the population in the data set used is normally distributed and if measured on the ordinal scale.
- Ranking is inherently inaccurate as it ignores and takes no account of the magnitude of the difference in the values.
- This lack of refinement can make the correlation stronger or weaker than it actually is.
- Pearson's would be a more refined and sophisticated measure.

**5 marks**

(e) 9 marks for referencing the statistics given in the table along with use of the atlas to help with discussion.

- General trend is that as extraction continues so does salinity.
- General increase in population and tourist numbers will increase potable water usage and therefore lead to increased rates and overall salinity.
- Note impact this may have on water availability to hotels including swimming pools, domestic supply and use (water restrictions), other commercial and industrial purposes and agriculture.
- Candidates should note the relationship, trends and impact between variations in overall agricultural land-use, yield of crops, extent of irrigated land and source of irrigated water for agricultural land.

**9 marks**

### CALCULATION FOR SUPPLEMENTARY ITEM E

**Table Water pumped from Mean Sea Level Aquifer in millions of m<sup>3</sup> and Salinity of water (parts per million).**

Year	Pumped water Millions m <sup>3</sup>	Water salinity (parts per million)	RANK Pumped water	RANK Water salinity	Difference d	Difference d <sup>2</sup>
1980	19.05	635	14	9	5	25
1982	21.30	587	13	13	0	0
1984	27.47	602	9	11	-2	4
1986	22.90	416	12	14	-2	4
1988	25.16	589	11	12	-1	1
1990	26.80	620	10	10	0	0
1992	27.94	647	8	7	1	1
1994	28.71	638	7	8	-1	1
1996	30.11	692	5	4	1	1
1998	29.80	674	6	6	0	0
2000	31.28	696	3	3	0	0
2002	30.81	687	4	5	-1	1
2004	31.67	701	2	2	0	0
2006	32.43	719	1	1	0	0
						Σ = 38

$$R_s = 1 - \frac{6 \times \sum d^2}{n(n^2 - 1)}$$

$$R_s = 1 - \frac{6 \times 38}{14(196 - 1)}$$

$$R_s = 1 - \frac{228}{2730}$$

$$R_s = 1 - 0.08$$

$$r = + 0.92$$

#### Question 4

(a) (i) Advantages

- Able to find out about people's opinions and behaviour that you can't get from another source.
- Up to date information.

Disadvantages

- People don't like answering questions asked by strangers.
- Some groups of people may not want to answer questions so results may be biased eg mothers with small children.
- Sometimes data can be unreliable if people being questioned do not tell the truth.

(ii) Any reasonable answers accepted, eg transport survey, residential survey, environmental perception survey. Answer must describe the use of questionnaires in the study – simply listing not acceptable. **6 marks**

(b) (i) Must know how each question relates to the aims of the study. Need to know why each question is being asked and be careful not to omit anything as you cannot go back and ask for clarification.

A short questionnaire with tick boxes is better, as people are less likely to mind answering.

Don't ask question where a certain answer is expected, eg do you come here because of price or that it is easier to get to?

If you want to do a statistical analysis, you must ask questions in such a form that the results can be expressed as numbers.

Don't include questions about information that you can get from other sources. Don't include too many open questions, as these types of questions make it difficult to obtain information for analysis.

Road test the questionnaire as this will highlight any questions which are difficult, poorly worded or difficult to understand.

Think about how the questionnaire is going to be delivered – door to door, posted or face to face. Sampling should be stratified to ensure that all population groups are represented.

(ii) **Improving the questionnaire**

Introduce why you are doing the questionnaire as people are more likely to help if they know why the study is being carried out.

Some questions are too personal – no need to know the person's name. Instead of asking their age, have grouping which you can make a judgement and tick.

Too many open questions would not give a good data base. Introduce some closed questions, eg How do you travel here: car, bus, walk, train? **8 marks**

(c) Statistical methods could include a chi square test. Pie charts and bar graphs could be used. A sphere of influence could be drawn with the information on where they could come from. Maximum 4 marks for non-statistical techniques. **6 marks**

**Possible responses to Section C Scenario Question**

**Question 5**

- (a) Do noise levels decrease from the CBD to the edge of town?  
OR  
Do noise levels vary significantly from the CBD to the edge of town?  
The question does not specify that a Null Hypothesis be stated, but this is acceptable. **1 mark**

- (b) (i) Using a decibel meter/noise level meter, noise levels were noted and recorded at regular intervals from CBD to Periphery.

A 180 degrees sweep was taken at each point and a highest noise level recorded.

Placed in an appropriate safe position on the pavement the average noise level/highest noise level was recorded.

- (ii) Pedestrian count; traffic count; building height; distance between buildings, land use patterns (at least two pieces of information are required).

- Information may vary but may include a traffic count at various locations along the transect.
- The number of vehicles (all types) travelling in one direction (or both directions) can be counted.
- Five minute counts at both peak and non-peak times.
- Repeated week days and week-ends, also seasonal and time of year/not that survey is on Saturday.

AS ABOVE FOR PEDESTRIAN COUNTS

For building intensity: measure the length of building before a gap appears (1).

Then measure the gap (1).

Continue along the transect using a regular sampling plan (1).

**5 marks**

- (c) For location 1 answers may include high traffic volumes – road noise; engine/exhaust noise; pedestrian noise.  
For location 2 noise from industrial commercial premises; noise from heavy goods traffic.  
For location 3 the wide variations in volume may include higher decibels from children playing in the street or parks; lawnmower engines, strimmers et al.  
Lower decibels in quiet commuter streets.  
Neighbourhood pockets of elderly residents; and residents involved in other recreational activities elsewhere, eg golf, tennis, badminton, squash, fishing etc. **4 marks**

[END OF MARKING INSTRUCTIONS]