2013 Geography

Advanced Higher

Finalised Marking Instructions

Part One: General Marking Principles for Geography Advanced Higher

This information is provided to help you understand the general principles you must apply when marking candidate responses to questions in this Paper. These principles must be read in conjunction with the specific Marking Instructions for each question.

(a) Marks for each candidate response must always be assigned in line with these general marking principles and the specific Marking Instructions for the relevant question. If a specific candidate response does not seem to be covered by either the principles or detailed Marking Instructions, and you are uncertain how to assess it, you must seek guidance from your Team Leader/Principal Assessor.

(b) Marking should always be positive ie, marks should be awarded for what is correct and not deducted for errors or omissions.

GENERAL MARKING ADVICE: Geography Advanced Higher

The marking schemes are written to assist in determining the "minimal acceptable answer" rather than listing every possible correct and incorrect answer. The following notes are offered to support Markers in making judgements on candidates' evidence, and apply to marking both end of unit assessments and course assessments.

Part Two: Marking Instructions for each Question

Section A

Question			Expected Answer/s	Max Mark	Additional Guidance
1.			***Map Interpretation*** ***Supplementary Item A*, Ordnance Survey Map, Extract No 2007/EXP214 1:25000 (Explorer Series), Llanidloes, Mid Wales, is the basis for answers to questions in this Section.** **For whichever question you choose in this Section (ie 1. or 2.) you are expected to make <u>extensive and detailed use</u> of your atlas and, in particular, the map extract.** **You are strongly advised to read the whole of both question 1 and question 2 before you make your choice.** ***The Cambrian Mountains Initiative** is a wide-ranging project that aims to help promote rural enterprise, protect the environment and add value to products and services in Mid Wales—seeking to build a prosperous economic future for the communities of the region based around their inter-relationship with the special Cambrian Mountains landscape.* **Various themes to encourage tourism, to use fresh, local produce and to become a low carbon community are being encouraged in the area of the map extract as part of the Cambrian Mountains Initiative (CMI).** **A site 200 × 300 metres is being sought to develop a hotel with adjacent timeshare holiday homes on a gentle slope.** **The project will aim to** • **encourage sustainable tourism in the area** • **make use of local produce in the hotel's dining room** • **make use of environmental and energy saving methods to reduce the carbon footprint of the buildings.**		

Question			Expected Answer/s	Max Mark	Additional Guidance
			Cont… In both map interpretation questions answers MUST make extensive and detailed use of the OS map extract. 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. 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 evidence, should be penalised. The questions are worth 30 marks which are generally awarded holistically in line with the overall marking AH descriptions of expected standards. It is necessary to EARN marks in each part by using the time to its fullest.		
1	**a**		**Identify one suitable location for the development and draw it to scale on the tracing overlay (*Supplementary Item B*).** There is no correct answer but two marks should be allocated for accurate drawing to scale of the chosen site and two for appropriateness of choice of site. A gentle slope is required (there are very few flat sites here!). Accessible sites are possible on the south side of the reservoir or either side of the River Severn or Afon Clywedog.	**4**	

Question			Expected Answer/s	Max Mark	Additional Guidance
1	b		**Discuss in depth and with detailed map evidence from the whole OS map extract the reasons for your choice of location.** Question asks for discussion in depth so lists are not acceptable. Look for development of each reason with back up from the map. Expect grid references and reference to height/slope but mark holistically. Road links/accessibility to other urban areas of UK to bring tourists for hotel and to use timeshare homes should reflect use of atlas. Consideration during construction phase… access for construction traffic. Possible use of local timber and/or local stone for building…evidence of disused quarries…could be reopened to provide stone which blends with local landscape. Use of aspect to allow for renewable energy sources. Could use wind power… hilly areas and wind; may get atlas help with this. Could use solar panels if south facing; may get atlas help/may note higher rainfall here, so more clouds so need for more than one type of renewable energy. Could use micro hydro if near a stream. Consider ground source heat pump since starting building on a new site and not adapting an old one. Access to local farms for fresh produce; could suggest Llanidloes is a market town… hills for lamb, valleys for cattle, locally caught fish and vegetables… could suggest poly tunnels in valleys too. Built to take advantage of views eg south or west facing dining room to enhance evening dining. Building may use slope to blend into rather than standing out from a natural landscape. Remoteness may also be a reason to allow access to walking areas depending on the choice of site. Environmental issues may be discussed which reflect likely impact on the surrounding area.	**12**	

Question			Expected Answer/s	Max Mark	Additional Guidance
1	c		**Describe, with appropriate map evidence from the whole map extract, a range of possible visits and activities visitors to the hotel and holiday homes could undertake.** Reservoir provides obvious examples – fishing, sailing plus viewpoints and picnic places. Many walks marked including long distance Glyndwr's and Severn Ways…variety for different age groups and abilities. Hill walking in the higher hills and access to those beyond the map extract in CMI area. Nice set of interconnecting walks 91-93 and 89-93. Cycling shown in the woodland…could suggest other off road uses often found in woodland areas. Town of Llanidloes would provide museum, tourist information, pubs, shops, leisure centre for wet weather days (although hotel in the development would probably provide some leisure features to keep guests on site on wet days and to spend their money there rather than in Llanidloes!) Llanidloes has an interesting street pattern so could have old interesting buildings… Variety of scenery and interesting physical features eg waterfall 8686. Some antiquities eg earthworks, Roman Road route, Motte and Baileys… Bird watching in variety of habitats eg water birds at reservoir, woodland birds. Could be story boards/educational aspects providing information about reservoir, forestry, disused quarries…	**14**	

Question			Expected Answer/s	Max Mark	Additional Guidance
2			***Supplementary Item A*, the Llanidloes and Newtown map extract must be used in detail when answering this question.** ***Supplementary Item A* (Llanidloes and Newtown map extract) shows a variety of areas of woodlands.**		
2	**a**		**Describe the distribution of different types and sizes of woodland on the whole map extract.** The description must be based on map evidence and supported by exemplification. Sketch maps or diagrams if relevant should be given credit. There is a wide range of woodland types shown on the extract. To the west is a very extensive block of coniferous woodland (Hafren Forest). Though not rectilinear its edges are often straight. There are a few unplanted areas within and extending into the main forest area (eg 864892 – Cymbiga; 850865 – Rhyd-y-benwch). The forest extends over hill tops, sides and valleys. To the east there are areas of both coniferous and deciduous woodland, mainly quite small patches of a range of shapes but quite often elongated. There is more extensive coniferous woodland around Llanidloes. However, this is much less extensive than the forest area in the west part of the map extract.	**6**	
2	**b**		**Explain the forest pattern of woodland distribution identified in (a)** The main factors are the availability of hill land for the extensive western plantings. These are "Forestry Commission type" plantings as indicated by the type of tree and linear boundaries. In the east there are small woodlands which may be for amenity (around farms or in small blocks for cover for game birds for recreational shooting). Some of the more linear patches may be to stabilise slopes and soil. In the east some of the blocks in open countryside will have been planted for shelter for farm animals or crops. Presently all types of woodland are used extensively for outdoor recreation. There is abundant evidence of this. Give credit for this even if most of the answer focuses on recreation. However to gain full credit some mention of other factors must be made.	**14**	

Question			Expected Answer/s	Max Mark	Additional Guidance
2	**c**		**A national conservation agency wishes to establish a new area of oak wood of size that is defined by an area of approximately 500m by 500m. The woodland will provide habitats for small birds and mammals. Select a suitable location for this wood, draw it to scale on *Supplementary Item B*, and annotate in detail the site to show why it has been chosen.** The size of the plot should be drawn approximately (2 marks). There is a great deal of scope within the map extract for this plot. As the question mentions "habitats" a good choice will have more than one type of physical environment. Give 4 marks for the choice of area and 4 marks for annotation. Accept any reasonable choice; good areas for the plot include along the northern shores of Llyn Clywedog, along the Severn and in the Valley of the Afon Trannon. The area is quite small so only a limited range of terrain can be covered. Proximity to water is likely to extend the range of bird and mammal habitats.	**10** **(30)**	

Section B

Question			Expected Answer/s	Max Mark	Additional Guidance
3			**For whichever question you choose in this Section (ie 3. or 4.) you are encouraged to make use of your atlas.** **You are strongly advised to read the whole of both question 3 and question 4 before you make your choice.** **Study the information given in *Supplementary Item C below*. A Spearman Rank Correlation has been applied to the data in *Supplementary Item C below*.**		

Country	**Electricity consumed per person (kWh)**	**GDP per capita $US**	**Rank Electricity consumption**	**Rank GDP**	**Difference d**	**Difference d^2**
Australia	10,300	34,240	13	14	−1	1
Brazil	2136	9682	9	11	−2	4
Cameroon	251	2014	5	5	0	0
Canada	15,406	39,950	14	17	2	4
China	2142	6679	10	9	1	1
Eritrea	46	546	1	1	0	0
Finland	15,754	33,339	15	13	3	9
France	7075	30,598	12	12	0	0
Ghana	264	1370	6	3	3	9
Iceland	50,083	37,783	18	16	2	4
India	535	2622	7	6	1	1
Mongolia	1110	3307	8	8	0	0
Nepal	81	1182	**2**	**2**	**0**	**0**
Norway	24,005	49,221	**16**	**18**	**−2**	**4**
Senegal	149	1714	**4**	**4**	**0**	**0**
Sudan	91	2728	**3**	**7**	**−4**	**16**
Ukraine	2921	6716	**11**	**10**	**1**	**1**
United Arab Emirates	26,135	34,981	**17**	**15**	**2**	**4**
						Σ=58

3	**a**		**State the null hypothesis** There is no relationship between Electricity Consumption and GDP	**1**	
3	**b**		**Complete the table on *Supplementary Item C* and calculate the Spearman Rank Correlation Coefficient (r) for the data sets for:**		

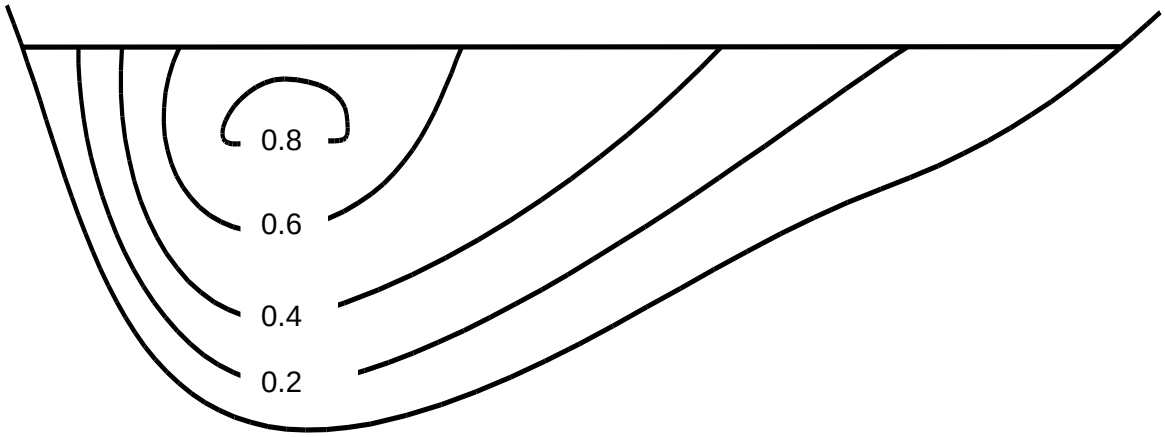
Question			Expected Answer/s	Max Mark	Additional Guidance
3	**b**	**i**	**electricity consumed per person in kilowatt-hours (kWh);** n=18 (table above)	**4**	
3	**b**	**ii**	**Gross Domestic Product (GDP) per capita in US Dollars** $\Sigma d^2 = 58$ $1 - \frac{6 \times 58}{18(324-1)}$ $1 - \frac{348}{5814}$ = 1 – 0·06 = 0·94 (correct to 2 decimal places)		
3	**c**		**State the results in terms of the null hypothesis** 1 - 0.06 = **0.94** very close to 1 therefore strong positive correlation and we can reject the null hypothesis and accept the alternative hypothesis.	**1**	
3	**d**		**Discuss the value of using this technique for measuring the correlation between the two variables in the data set.** Relatively quick and easy calculation, ordinal data (other data can be ranked easily), it requires a sample of not less than 7 observations can make meaningless correlations, only tests linear relationships.	**4**	

Question			Expected Answer/s	Max Mark	Additional Guidance
3	e		**With reference to the "r" result and *Supplementary Item C*, discuss possible reasons for the results.** The higher the electricity consumption, the higher the GDP and vice versa. This suggests that wealthier countries have wealthier populations and are able to afford electrical items, and pay for electrical supply. Developing countries tend to be less urbanised and consume less energy as a result. Many developing countries rely on wood, charcoal and manure for heating and therefore not represented in the electricity consumption statistics. For some countries the high energy consumption may relate to climate eg Iceland – heating costs in cold winters. However, other countries with a similar climate (Canada, Finland and Norway) do not consume as much energy as Iceland. This could be due to varying green energy policies or different population numbers. The UAE is a warmer climate yet is the 2nd highest consumer of electricity. This could be due to high demand for air conditioning and its focus on development and tourism which will cause high consumption of energy. France has a relatively low energy consumption compared to other similar countries (ranked 7th) and its GDP, although also ranked 7th is relatively close to the other countries. France has a warmer climate than 4 of the countries and so may consume less for domestic heating purposes.	**10** **(20)**	

Question			Expected Answer/s	Max Mark	Additional Guidance
4			**You are advised to use your atlas in this question.** **Study all the material provided on *Supplementary Item D* which relates to the population of the United States of America excluding Alaska and Hawaii.** **The map "Population Distribution of the United States of America 2010" is a dot map**		
4	a		**Describe and explain the population distribution of the United States of America as shown on the dot map.** This question requires candidates to make use of their atlases to answer it well. Reference should be made to both areas which are densely populated and less densely populated and candidates should quote both state names and use the key to describe the population distribution. Use of the atlas will give candidates explanations for the pattern shown eg low densities in mountain or desert areas, higher densities where development of ports brought jobs and so people.	**10**	
4	b		**Explain the advantages and disadvantages of using a dot map for showing this information.** Dot maps give a geographical density distribution pattern. The dots are marked where the population is likely to be found, unlike in a choropleth map which presents an average figure over a whole state. For greater accuracy more background information would be required to draw an accurate dot map eg physical features like mountains would be avoided in placing the dot.	**5**	

Question			Expected Answer/s	Max Mark	Additional Guidance
4	c		**The choropleth map on *Supplementary Item D* shows the average population change per state of the United States of America from 2000 to 2005. Discuss the advantages and disadvantages of using a chorpoleth map to show this information.** The categories provide clear visual comparison. Choropleths show the average population change so can be used to compare states. Caution should be taken when reading the values in each state as the average values do not take into account other factors which may influence where the population would be found and therefore any change that may take place. The completed map hides any variation within each state. The boundaries of the states, also, gives artificial divisions between the colours, in reality the change will be more gradual. Candidates can use their atlas to show how mountainous or desert areas which may not have a high population and therefore not a significant population change.	**5** **(20)**	

Section C

Question			Expected Answer/s	Max Mark	Additional Guidance
5			**A group of students were asked to investigate how water velocity varies across a river. They were asked to produce an isovel diagram similar to the one below.**		
			Isovel diagram of a meander  **Measurements are in metres per second**		
5	a		**State a null hypothesis for the study.** Accept any reasonable null hypothesis.	**1**	
5	b		**Describe in detail two methods used to collect the data required to construct an isovel diagram** The methods chosen must refer to this question. **Measurement of speed at different levels is essential** to answer this question. Candidates need to accurately describe using a flowmeter to get measurements at various depths. The second method could be **description** of how to measure width and/or depth. NB there are NO marks for justifying the use of a particular method. **The marks are for describing the processes involved in doing the measurement**. No more than 4 marks for any one technique. For example, cross-section, width and depth to be taken as one technique = **up to** 3 + 1 for surface velocity, but no sub surface velocity measurements.	**6**	

Question			Expected Answer/s	Max Mark	Additional Guidance
5	c		**Identify and justify a suitable statistical technique to analyse the relationships between the data collected.** The isovel diagram provided is a graphical method of showing relationship. This part looks for a statistical technique... to look for potential casual relationships between velocity and depth Spearman's could be used but Pearson's would be more accurate. Standard deviation if looking for significance of differences in velocity between inner and outer banks of the meander bend.	**3** **(10)**	

[END OF MARKING INSTRUCTIONS]