2010 Geography

Advanced Higher

Finalised Marking Instructions

Geography 2010

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. 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 marking AH descriptions of expected standards but it is necessary to earn the marks in each part by using the time limit to the fullest.

Question 1

(a) There is no correct location but sensible choice will depend on the alternative energies which the candidate will have chosen to showcase eg wind energy will have to have access to wind, so at a reasonable height and not totally enclosed in one of the disused china clay pits.

Allocate 2/2 for choice of site and accuracy of size **4 marks**

(b) Question asks for 6 physical factors only. There should be detailed annotations to explain the importance of each of the 6 factors worthy of 2 marks each.
Physical factors (must be physical factors) may depend on the alternative energy included in the Eco-Centre. Biogas energy supplies are in the area in the form of animals (farms) and biodegradable waste from surrounding towns. A site chosen close to the coast could incorporate tidal power, as difference in tidal heights is shown. Solar power would have to be in a location with good insolation so aspect would need to be considered. Wind power requires a site with uninterrupted wind supply.

Other physical factors may include a flatter part of the site for the building of the visitor centre and the environmentally responsible houses. Flattish land with good drainage would also be required for the area of organic farming.

Use of a disused china clay pit could be used as an environmental way of redeveloping a site. **12 marks**

(c) In this answer, human and economic factors should be brought into the answer. Other physical factors not mentioned in part (b) may also be included. Candidates are expected to produce well developed answers and not just a list of things that may influence location of an Eco-Centre. Quality reasoning backed up with accurate map reading, interpretation and good grid referencing should be the norm.
There is already a potential supply of visitors who are travelling to the area to visit the Eden Project. If the site is located close to the Eden project then this can be emphasised.
People will be coming from the local area and from other areas of the UK, so accessibility of the site is important. The Education Centre would benefit the local schools etc as well as those further afield. An appreciation of the effects such a development would have on the economy not just in the obvious increase in jobs and the knock-on money which would be injected into the economy, but also the fact that such a Centre would put the area 'on the map' because of its unique approach to the use of sustainable energy and resources. Closeness to towns would also be beneficial for selling items grown in the Eco-Centre as part of the organic farming programme. **14marks**

Question 2

(a) There are plenty of examples to choose from. The reason for asking for three is to avoid long lists and to get candidates to focus on the annotations. Examples may include: headland, beach, wave-cut platform/flat rocks, cliffs, bays/inlets, ria! 12 marks are allocated; normally 4 × 3 but repetition should not be given credit twice. A section of coast may be chosen and used to illustrate interconnecting examples. This is fine but, again, avoid giving credit for the same thing more than once. Mark out of 3 if no diagram. **12 marks**

(b) There is a huge range of examples which could be chosen. To score well candidates must do what the question says and must relate the physical features to the uses. They can widen their choice beyond the area given in part (a), and should, to maximise marks. Industry; where flat land is available round a harbour site eg the range of china clay works and storage in 0752; [Charleston docks may be ignored but they are a well-known film/TV location;] flatter coastal plains offer routes for road and rail whereas steeper areas are avoided by most main roads and railways; the sheltered Fowey ria affords anchorage for smaller yachts; evidence of defensive sites on cliffs eg St Catherine's Castle in 1150 and Gribbon Tower on the headland as well as coastguard and lifeboat stations; a range of physical sites can be linked to settlements of different sizes eg Fowey, Polruan, Polkerris and even Lostwithiel could be included since the tidal limit is there. The steep cliffs at Ropehaven have an example of a nature reserve. The tourist industry's response to the area is directly linked to the physical geography; the variety of scenery of cliffs, bays and beaches along the South West Coast Path; the Par sands with the low lying area inland for camp and caravan sites; the golf courses; Fowey with its steeply sloping site, sheltered harbour and the numerous tourists related activities linked to the ria. Look for variety, good GRs and actual map reading. Ignore lists.

Link to the coast must be demonstrated. **18 marks**

Section B

Question 3

(a) There is no relationship between Gross National Income per person and Infant Mortality Rates. **1 mark**

(b)

IMR	GNI/PP	O	E	(O – E)	$(O-E)^2$	$\frac{(O-E)^2}{E}$
0 – 65	<1500	5	13.1	-8.1	65.61	5.01
0 – 65	1501 – 3000	15	14.48	0.52	0.27	0.02
0 – 65	3001 – 4500	20	12.41	7.59	57.61	4.64
66 – 130	<1500	24	18.34	5.66	32.04	1.75
66 – 130	1501 – 3000	21	20.28	0.72	0.52	0.03
66 – 130	3001 – 4500	11	17.38	-6.38	40.70	2.34
131 – 185	<1500	9	6.55	2.45	6.00	0.92
131 – 185	1501 – 3000	6	7.24	-1.24	1.54	0.21
131 – 185	3001 – 4500	5	6.21	-1.21	1.46	0.24
	Grand Total	116			Σ=	15.16

$$^{-}X^2 = 15.16$$

$$\text{degrees of freedom} = (n-1)(n-1)$$

$$= (3-1)(3-1)$$

$$= 4$$

The table value at 0.05 significance level = 9.49

The calculated value being larger than the table value we, therefore, must reject the null hypothesis and accept the alternative hypothesis that there is a clear and significant indication that the pattern of infant mortality rates has been influenced by the level of gross national income per person.

We can be 95% sure that the results were not due to chance.

6 marks

(c) The test is useful in measuring the differences between what is observed and expected. It is useful when the expected distribution of the data is not known. Useful when data can be grouped into classes. The x^2 value can be compared with significant tables to confirm whether any deviation from random in the observed data is merely a chance effect or does posses statistical significance.

Limitations
Data must be in the form of frequencies.
Data must have precise numerical values and organised into categories or groups.
The expected frequency in any one cell must be greater than 5.

Minimum of 20 observations. **3 marks**

(d) Examples can come from a wide variety of ELDSs.
References may include reasons for high IMR linked to low GNI – lack of government funds due to our low tax returns/income to provide health care (especially for neo-natal clinics) in East Timor, Ethiopia etc significant rural population with poor access to health care provision due to isolation and distance, lack of service utilities especially in rural areas, regular interruptions of utility supplies in ELDC cities eg New Delhi, government corruption siphoning off aid (funds) whereas when GNI is higher, IMR is lower. Reasons may include proper distribution of aid funding, better redistribution of tax directed towards health care. Good use of primary health care strategies (with a named example). Improvements in electricity supplies. With improved funding, use of generators in local hospitals to help improve/generate energy supplies. Any other relevant point. **10 marks**

Question 4

(a) This question requires candidates to make use of the key and their atlases to answer it well by quoting %s and state names. The highest % Hispanic populations are in the SW states, Texas to California, each with 20% + Florida, Colorado, New Jersey and New York from the next group with Utah and Illinois & c all above 10%. The 5–9.9% are states to the north of the main concentrations of the south and west and in several of the States along the Eastern seaboard. The lowest concentrations are in the central states from eg Louisiana in the south to North Dakota in the north. The New England states also have low %s. Explanations could include: nearness of SW to Mexico border and to Puerto Rico (Florida) for ease of access; availability of jobs in the cities in the New York area and in the sunshine tourist states; lack of suitable types of jobs in central US. **5 marks**

(b) Choropleths show relative density of population distribution so can be used to compare states. The colours or shading used also provide a clear visual comparison. The boundaries of the states give artificial divisions between shades/% used eg a map using census areas within states would give an accurate picture. Values chosen for the various shades on the map are very significant and may be misleading eg in this case 20% includes new Mexico with 43.95 and Florida just misses the cut by 0.2%. Colour/shading gives unity where unity does not exist and candidates should use their atlases to point this out eg the mountainous nature of some states… they hide a lot of internal variation. **5 marks**

(c) Dot maps give a more geographical density distribution pattern. They also give a more 'quantifiable feel' to the data. The dots are mapped where the Hispanics are more likely to be living. Using the information on Supplementary Item F candidates should see that the majority of Hispanics live in urban areas so spreading them evenly over an entire state is less than accurate. Further information on the location of Hispanics in smaller unit areas would be needed to make such a map as accurate as possible. This eliminates the geographic inaccuracies which the choropleth map presents by having the same % population of Hispanics in say rural/desert/mountain areas of Arizona as in Phoenix.

More background/detailed information is required to produce a good dot map than a choropleth map as well as an understanding of the physical geography of the area. **4 marks**

(d) There is a vast 'gold mine' of opportunity for use of the data! The table is arranged with total state population first. This should help candidates pick out the total numbers of Hispanics in certain states and also as a proportion of the total population. The range of calculations arrived at by candidates will depend on examples chosen either as individual states or by comparing states. They may choose to compare states of similar total populations or with similar Hispanic populations and then compare the resultant % Hispanic population. This can lead on to possible effects this may have on the state(s) in question eg language, custom, birth rate & c. The use of the % change 2000 – 2005 allows consideration of data where a smaller % change in a state with a larger population compares with a smaller % change but in a smaller population. The overall US figures are also useful for comparison. The fact File and pyramids on *Supplementary Item* F mean that candidates can discuss the knock on effects of the numbers of Hispanics now and in the future with large numbers of Hispanics in or approaching child bearing years compared to non-Hispanic whites and their likely family size. Provision of housing, schools, jobs & c could also be mentioned. **6 marks**

(20)

Question 5

(a) Any reasonable hypothesis.
Is the middle section of the slope drier, with thinner less acidic soil?
Do lower slopes accumulate greater amounts of water, organic and mineral matter?
Does soil depth, temperature, Soil Moisture Content vary down slope?
Does slope angle influence soil depth down slope? **1 mark**

(b) Discuss how a range of instruments could be used to collect data: an auger; soil corer; white card/paper; soil thermometer; pH paper, distilled water and on barium sulphate; plastic bags.
The auger screwed down to the top of the helix (if possible) and soil sample removed and placed on white card/paper to create a profile. Dig a small soil pit on used exposed cuttings to create a profile.
State the sampling plan used eg regular, linear, frequency.
Further soil analysis requires samples placed in sealed bags and properly labelled. **5 marks**

(c) Mention of oven baking to reveal Soil Moisture Content.
Burning off organic matter using a Bunsen.
pH analysed using test tube, distilled water, pH paper (barium sulphate).
Examine for texture (wetting and rolling palm)
Pearsons applied to confirm relationship between increasing height and soil depth/temperature/Soil Moisture Content. Graphically display moisture down slope. Use colour chart to display variations in pH/soil type.

Results – likelihood that exposed upland site has limited soil depth/development, lower pH, cold, gley tendencies. At base of slope possibly waterlogged – again gley. Adjacent to base (more sheltered), deeper, warmer soil, similar to brown earth. On steepest slopes – well drained, but thin soils etc.

Material that is relevant to Section (c) that is included in the response to (b) should be given credit. **4 marks**

(10)

[END OF MARKING INSTRUCTIONS]