

# **Geography Specification B (Avery Hill)**

General Certificate of Secondary Education **1987/04**

Paper 4 (Higher Tier)

## **Mark Scheme for June 2010**

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Any enquiries about publications should be addressed to:

OCR Publications  
PO Box 5050  
Annesley  
NOTTINGHAM  
NG15 0DL

Telephone: 0870 770 6622  
Facsimile: 01223 552610

This paper examines an ecosystem in Portugal and the present and possible future uses of that ecosystem.

	<b>Marks</b>
<b>Part A</b> This part investigates the geography of an area of Portugal and present uses of the cork oak forest ecosystem in that area.	<b>23</b>
<b>Part B</b> This section explores features of the cork oak forest ecosystem and the pressures it is under.	<b>15</b>
<b>Part C</b> This part asks you to decide how the area of cork oak should be developed in future.	<b>22</b>
	<b>Total mark <u>60</u></b>

Question		Expected Answers	Mks	Rationale
<b>Part A</b> This part investigates the geography of an area of Portugal and present uses of the cork oak forest ecosystem in that area.				
<b>(a)</b>	Study Map 1 on page 2 of the separate resource booklet. It shows the European and African distribution of the cork oak ecosystem and the region of Alentejo.			
	<b>(i)</b> <b>Describe</b> the distribution of the cork oak ecosystem.	Concentrated in southern Portugal (1) in southern Italy (1) in southern Europe (1), Alentejo/Sardinia/Sicily/Corsica (1), in North Africa (1) on western Italian coast (1) on North African coast (1) Mostly on Mediterranean coastline (1) Around lat 40°N (1) and between 10° W and 20°E (1).	<b>[2]</b>	Two valid descriptions. 1 + 1  Must be specified part/region of a country e.g. Algerian coast, SE France, Sicily. No lists of countries. Beware “to the SW of Italy” as opposed to “in the SW of Italy”, and also don’t accept “to top of, left of, below, near, next to, above” etc
	<b>(ii)</b> <b>Describe</b> the location of the Portuguese region of Alentejo.	In Southern Portugal (1), 20-200km from Lisbon (1) NE/E/SE from Lisbon (1), bordering Spain (1), on the Portuguese Atlantic /SW coast (1), located 35-40° N and 5-10° W (1)	<b>[2]</b>	Two valid descriptions for location within Iberian context. 1 + 1  Don’t accept “in Portugal”, or “to the south of Portugal”, or “south of Lisbon”. Accept correct distance from Lisbon without direction. Any other specific reference point has to be within 1000km of Alentejo with distance and direction provided. Also don’t accept “left of, below, next to, near, above” type language.

<b>(b)</b>	Study Graph 1 on page 3 of the separate resource booklet. It shows the climate of Evora, a settlement in the Alentejo region.				
	<b>(i)</b>	<b>Describe</b> the climate of the Alentejo region.	<p>The peak temperature is in July/August (1) at 30° (1)</p> <p>Lowest temperature in Dec/Jan(1) at 13/14° (1)</p> <p>Temperature range is 16/17° (1) small temp range (1)</p> <p>Months of July, August are driest (1)</p> <p>Jan, Feb, Oct, Nov, Dec are wettest months (1)</p> <p>total rainfall of 600-650mm (1)</p> <p>Wettest month is January (1) with 85-90mm rainfall (1)</p> <p>Driest month is August (1) with less than 7mm rainfall(1)</p> <p>Hotter drier summers or cooler wetter winters (1)</p> <p>Dry and warm/hot climate (1)</p>	<b>[4]</b>	<p>Four valid descriptions. Max of three per factor (temperature or rainfall). 1 + 1 + 1 + 1</p> <p>No credit for unexceptional data, and no extra mark for opposites e.g. “as temp increases rain decreases, and as rain increases, temp decreases”. Don’t accept “at beginning/end of year” type statements – need to be qualified.</p>
	<b>(ii)</b>	What difficulties would this climate cause for people trying to farm in it?	<p>Dry so crops won’t grow (1) so will need irrigation (1)</p> <p>hot so water evaporates before it infiltrates (1) so crops die (1)</p> <p>very dry summer / drought will stop crops growing (1)</p> <p>reducing yields (1)</p> <p>hot dry climate reduces plant growth (1) so farm animals struggle to find food (1)</p>	<b>[2]</b>	<p>Credit explanation and consequence, not factor that causes difficulty 1 + 1 or (1 + 1)</p> <p>Needs to relate to climate.</p> <p>Only credit “flooding” responses that are related to rainfall events that may be expected in this type of climate e.g. flash flooding from summer storms.</p>
<b>(c)</b>	<b>(i)</b>	Complete the graph with the following data.	One for accurate completion.	<b>[1]</b>	Point accurate, line present
	<b>(ii)</b>	Describe the trend in sales of corks for bottles.	<p>It has reduced (1) from 21/21.5-14 billion (1) by 7-7.5 billion corks (1) gradually decreases (1) further trend description (1).</p> <p>Reduces by 1.4-1.5 billion per year (1) 28-30% reduction</p>	<b>[2]</b>	Only credit full trend
	<b>(iii)</b>	How might this trend affect different groups of people?	<p>Cork growers (1) lose money (1) and their jobs (1).</p> <p>Wine producers/bottlers (1) have to find alternatives (1)</p> <p>Businesses in cork growing areas (1) have fewer customers (1) negative multiplier (1)</p> <p>Government (1) loses money from less exports (1) so can’t develop the country further</p>	<b>[4]</b>	<p>Must give named valid groups.</p> <p>Max 2 for just naming valid groups, Max 3 for explanation.</p> <p>(1 + 1)+(1 + 1) or (1 + 1 + 1 + 1) or (1 + 1 + 1)+1</p> <p>Don’t credit: repetition and unqualified responses e.g. “affect SoL/QoL”.</p>

Question			Expected Answers	Mks	Rationale
(d)	(i)	What percentage of Portugal's income comes from corks for bottles?	Credit answer 66-67%	[1]	
	(ii)	What are the disadvantages for Portugal of relying so much on one crop?	<p>A poor harvest/yield (1) leads to unemployment (1)</p> <p>means lots of people poorer (1) country gets into debt (1)</p> <p>has to borrow money (1) gets less in taxes (1)</p> <p>Lots of money depends(1) on undependable (weather) (1)</p> <p>Difficult to add value on primary crops (1)</p> <p>Vulnerable to insect attack (1) reduces crop production (1)</p> <p>negative multiplier for Portugal explained (1)</p> <p>May be undercut / competition on price by developing country (1)</p> <p>Young people might not want to be in farming (1) so revenue fades (1)</p> <p>Demand falls (1)</p>	[3]	<p>Credit up to three valid points 1 + 1 + 1 or (1 + 1 + 1) or (1 + 1)+1</p> <p>Focus is on problems of monoculture dependency specific to Portugal.</p> <p>Candidates may give advantages of not having monoculture – credit.</p> <p>Don't credit:</p> <ul style="list-style-type: none"> <li>- repetition of explanations such as "less money/business",</li> <li>- unqualified responses such as "standard of living/quality of life/ economy suffers"</li> </ul>
	(iii)	Suggest how cork stoppers might be more sustainable than metal and plastic tops	<p>Cork biodegrades (1) <i>or</i> metal doesn't biodegrade (1)</p> <p>Cork grows back/renewable (1) <i>or</i> metal not renewable (1)</p> <p>Trees store carbon when growing (1)</p> <p>Traditional industry maintained (1)</p> <p>Cork farmers still have a job/work (1)</p> <p>Cork groves support a greater biodiversity than eucalyptus (1)</p> <p>Plastic uses energy in manufacture (1)</p> <p>Plastic uses oil (1) which is running out (1)</p> <p>Metal has to be mined (1) which causes noise/air pollution(1)</p>	[2]	<p>Credit two valid simple statements or one elaborated statement but not opposites</p> <p>1 + 1 or (1 + 1)</p> <p>Doesn't need to contrast cork to metal/plastic to access marks.</p> <p>NB: Metal and plastic considered to be as re-cycleable as cork, so not more sustainable in this respect.</p> <p>Pollution has to be qualified.</p>
			<b>Total</b>	<b>[23]</b>	

Question			Expected Answers	Mks	Rationale
<b>Part B</b> This section explores features of the cork oak forest and the pressures it is under.					
(a)		What is meant by the term 'ecosystem'?	An ecosystem is a natural unit consisting of <u>all living</u> things in an area together with all of the <u>non-living</u> physical factors of the environment.	[1]	One mark for clear definition that includes living <i>and</i> non-living things.
(b)	(i)	Using the food web above, <b>identify one food chain</b> within the ecosystem.	One for each valid example of producer, primary consumer, secondary consumer. Ensure accuracy from diagram. Make sure energy flows up the chain from producer to consumers.	[3]	1 + 1 + 1  Don't accept fungus as a producer. Max 1 if producer is wrong but primary and secondary consumer correct.
	(ii)	What would happen to other species if there were <b>fewer</b> Iberian lynx?	The population of mice (1) and deer (1) would increase, so eagle population might rise (1) so population of toads might fall (1) More mice (1) means fewer insects(1) and less fungus (1) More Roe deer (1) means less grasses and herbs (1) and less heathers (1) Species preyed on would increase (1)	[3]	Credit max two simple statements, needs one consequence/explanation for full marks. (1 + 1) + 1 or (1 + 1 + 1)  Looking to credit population change of named living things. Don't credit e.g. "live longer" type responses.
(c)	(i)	What might cause biodiversity to be <b>reduced</b> in the cork oak forest ecosystem?	Human intervention e.g. deforestation/hunting (1) increased pollution (1) ecosystem imbalance e.g. through hunters killing deer (1) Introduced species (1) like the grey squirrel (1) destroying certain types of plant (1) Climate change (1) forest fire (1) disease (1) loss of habitat (1)	[2]	Credit simple statements or one elaborated statement. Don't credit impact – must be causal. 1 + 1 or (1 + 1)  Beware crediting repetition from Bbii above if not placed in context here – needs to be on macro not microscale.
	(ii)	What would be the effects on the natural environment of <b>reducing</b> the biodiversity of an area?	Less disease resistance (1) so greater chance of wiping out species (1) ecosystem more fragile/less robust e.g. less food available (1) Area less attractive (1) Might lose key species that mean others cannot survive (1) One species may dominate (1) and have to be controlled (1)	[2]	Need to show understanding of consequence / impact on natural environment. 1+1 or (1+1)  Beware crediting repetition from Bbii above if not placed in context here – needs to be on macro not microscale.

(d)	Explain two ways the cork oak is adapted to the climate.	<p>Waxy leaves stop evaporation (1) so plants need less water in dry conditions (1)</p> <p>Thick bark stops water loss (1) so tree survives dry summers (1).</p> <p>Unpleasant tasting bark to protect from predators/stops animals eating it (1) so tree retains moisture in dry summer (1).</p> <p>Grows slowly to survive dry summers (1)</p> <p>Deciduous so survives cooler winters (1)</p> <p>Deep and extensive root system so tree can get water in dry periods (1) and survive drought (1)</p> <p>Able to store water in dry summers (1)</p>	[4]	<p>No credit for lift (i.e. credit explanation not description). Max 2 simple statements if no elaboration</p> <p>(1 + 1)+(1 + 1) or (1 + 1 + 1)+1</p> <p>Adaptation explained + Feature related to the climate.</p> <p>Beware crediting water store as elaboration to root system per se – needs to be qualified to the climate.</p>
		<b>Total</b>	<b>[15]</b>	



Question	Expected Answers	Mks	Rationale
<b>Part C</b> This part asks you to decide how the area of cork oak should be developed in the future.			
<b>(a)</b> What is meant by the term 'sustainable management'?	Management that meets the needs of today without harming the needs of the future.	<b>[1]</b>	One mark for clear definition that includes the future and the present, which can be implied.
<b>(b)</b> Is eucalyptus a more or less sustainable crop than cork oak?	Eucalyptus is more sustainable because grows more quickly (1) so more money can be earned (1) so people better off (1) Eucalyptus is less sustainable because it stores less CO <sub>2</sub> (1) so climate change happens (1) so habitat destroyed (1) Cork oak is more sustainable because it has less fire risk (1) and less soil erosion (1) so ecosystem damaged less (1) so more animals survive (1). Cork is more sustainable as it has little risk of fire/soil erosion whereas eucalyptus has a great risk of fire/soil erosion (1) Cork oak unsustainable because only cork made from it (1) and cork is falling in popularity (1)	<b>[4]</b>	Credit "more/less + why" statement (1) with elaboration/explanation up to 2 marks. 3 max "more/less + why" statements without any elaboration. Must use comparative language.  (1 + 1)+(1 + 1) or (1 + 1 + 1 + 1) or (1 + 1 + 1)+1  Don't credit opposites. Don't credit material lifted from resource if not placed in comparative context.
<b>(c)</b> For a named group of people, <b>suggest and explain</b> either the advantages or disadvantages tourism brings them.	Advantage to farmers is that would make money /bring jobs (1). This means they could invest in their business further (1) or pay for their children's education (1).  Disadvantage is that tourists place strain on resident's water supply (1) and bring noise pollution (1). On other hand they spend money in local restaurants (1)  Local residents may/may not access qualified benefits from tourism (1)	<b>[3]</b>	Must name a group  Credit simple statement that includes a named group with qualified advantage/disadvantage.  Has to be valid in Alentejo context.  Elaboration marks can be either advantage/disadvantage or both. 1+(1+1)  Responses that choose tourists as named group must have specific reference to features of the Alentejo

Question	Expected Answers	Mks	Rationale
<p><b>(d)</b> Write a report to the Portuguese Government on how to secure a sustainable future for the Alentejo by choosing one of the following projects.</p> <ol style="list-style-type: none"> <li>1. promote eucalyptus growing for paper instead of cork oak;</li> <li>2. give grants to cork farmers in order to stay in business and to promote the use of cork;</li> <li>3. promote tourism in the Alentejo.</li> </ol> <p>Use the FACTFILE, other information from the resource booklet and ideas of your own to <b>complete the matrix</b> on page 11 to help you organise your ideas. Some of the matrix has been completed for you.</p> <p>Use the information on the completed matrix on page 11 to help you write a report for the government of Portugal. You may also use information from other parts of the paper, from your studies and ideas of your own.</p> <p>You should <b>explore all of the options</b> in your report and refer to both <b>advantages</b> and <b>disadvantages</b> of each scheme on the people, environment and sustainability of the Alentejo region.</p>	<p>This section is marked using a levels of response mark scheme.</p> <p>We are rewarding candidates for the quality of their answers as opposed to merely crediting the number of responses they make. There is no correct choice. Marks are awarded for the statements made in relation to the choice made.</p> <p>Beware data copy / regurgitation from the resource.</p> <p>Candidates can't access higher levels unless they have considered / compared more than one zone</p> <p>Candidate responses in the letter and matrix should be marked together. As the degree of integration for a level three response is beyond what it is possible to demonstrate within the confines of the matrix it can only be given scores within levels one and two. Sustainability can be implied as well being explicit.</p> <p>Levels marking should be applied working upwards from the lowest to the highest level. The mark scheme comprises a number of hurdles that must be jumped in order to access marks within a level.</p>		

Question		Expected Answers	Mks	Rationale
		<p><b>Level 1:</b> The candidate presents a response that is mainly descriptive with some elaboration. It contains some reference to the area and some reference to either advantages or disadvantages of the development choice(s). Information is communicated through relatively brief statements. <b>(1-4)</b></p> <p><b>Level 2:</b> The candidate presents a report where the evidence used is pertinent to the area. A choice of development with justification may be made. Some explanation is evident. The needs of the Alentejo and its population are considered with brief reference to both sustainability and ecosystem management. Communication will be in the form of prose, with regular use of geographical terms. Spelling, punctuation and grammar will show some accuracy. <b>(5-8)</b></p> <p><b>Level 3:</b> Justification of their choice is presented and clearly explained. The needs of the Alentejo and its population are considered with reference to both sustainability and ecosystem management. Communication will be in the form of elaborated prose, with appropriate use of geographical terms. Spelling, punctuation and grammar will be generally accurate. <b>(9-11)</b></p> <p><b>Level 4:</b> The candidate presents a report that deals with a range of viewpoints, both positive and negative, in detail. They are clearly linked to the issues concerned with ecosystem management. The issues will be at a range of scales and address both sustainability and the problems of ecosystem management. An overall view of the situation is discussed. At least some reference must be made to why it is better than other options, leading to a clear justification of their choice. Reasoning is sophisticated. Geographical terms are used throughout and spelling, punctuation and grammar show considerable accuracy. <b>(12-14)</b></p>		

Question		Expected Answers	Mks	Rationale
		<p><b>Marking Procedures</b></p> <p>Look at the matrix and apply a levels mark (L1, L2, etc) in the text wherever you judge a statement at that level has been written.</p> <p>First mark the report by indicating in the text where a contribution to a particular level has been made. Use the comment box to justify your decision.</p> <p>Write a statement at the bottom of the matrix to indicate the overall level attained, e.g. low/middle/high Level 1 or 2.</p> <p>Candidates are unable to exceed level 2 in the matrix alone.</p> <p>As you are marking the report, indicate when a level is achieved.</p> <p>When both matrix and letter has been marked, apply a final mark that reflects the position of the candidate within the highest level attained for geographical content, irrespective of whether that is in the matrix or letter. Write this as a level on the right side of the sheet adjacent to the bracketed mark eg L4</p> <p>Remember that you should apply no ticks when marking this section.</p>		
		<b>Total</b>	<b>[22]</b>	

**OCR (Oxford Cambridge and RSA Examinations)**  
**1 Hills Road**  
**Cambridge**  
**CB1 2EU**

**OCR Customer Contact Centre**

**14 – 19 Qualifications (General)**

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**OCR (Oxford Cambridge and RSA Examinations)**  
**Head office**  
**Telephone: 01223 552552**  
**Facsimile: 01223 552553**

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