

# **Geography Specification A**

General Certificate of Secondary Education **A671/02**

Extreme Environments (Higher Tier)

## **Mark Scheme for June 2010**

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All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the Report on the Examination.

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Question		Expected Answer	Mark	Additional Guidance
1	(a)	<b>Study Fig. 1.</b> <b>Describe the location of the Mojave Desert.</b>	[3]	3 @ 1 mark  NB <b>The following answers = 0</b> northern hemisphere near the Equator  <b>The following answers need to be qualified for credit.</b> close to/near coast close to/near Mexico within 250 k of coast/border America on Tropic of Cancer
	(b)	<b>Study Fig. 2.</b>		
	(i)	<b>State the annual range of temperature in the Mojave Desert.</b>	[1]	1 mark
	(ii)	<b>Suggest how and explain why temperatures in the day are likely to differ from temperatures at night in the Mojave Desert in July.</b>	[2]	2 @ 1 mark One mark on how and one on why.  NB 1. For 'how' a comparison is needed either directly or by implication (e.g. temperature drops at night) 2. No mark for colder/hotter unless it is clear which refers to day/night. 3. Statistics are acceptable as an alternative to hotter/colder. 4. The why mark can be awarded even if students do not get the 'how' mark. 5. 'High diurnal temperature range' is insufficient for credit as candidate needs to identify day/night...warmer/colder idea.

Question			Expected Answer	Mark	Additional Guidance
	(c)	Explain why the climate in a desert is hot and dry.	<p><b>Levels marking</b></p> <p><b>0 marks</b> Response does not address the question.</p> <p><b>Level 1 (1 – 2 marks)</b> Demonstrates limited knowledge and understanding of the issue. One or more ideas given with little or no development. Reasons why deserts are hot and/or dry are described in basic terms. (e.g. Distance from oceans, wind blows overland, no clouds, overhead sun, high pressure, rain shadow, not much evaporation, cold current offshore). Written work contains mistakes in spelling, grammar and punctuation, which sometimes hinders communication.</p> <p><b>Level 2 (3 – 4 marks)</b> Demonstrates sound knowledge and understanding of the issue. One or two ideas given with development. Reasons why deserts are hot <b>and/or</b> dry are described clearly. (e.g. long way from oceans so all precipitation falls before air mass reaches desert, wind blows overland so no source of moisture, no clouds so sun’s heat is not prevented from reaching earth, overhead sun so rays are powerful, high pressure so descending dry air, rain shadow so rain has fallen on distant mountains etc). Written work is legible and spelling, grammar and punctuation are mostly accurate. Meaning is communicated clearly.</p>	[6]	<p><b>Level 1</b> 1 mark for 1 x L1 (simple statement) 2 marks for 2 or more L1 (simple statements)</p> <p><b>Level 2</b> 3 marks for 1 x L2 (developed statement) 4 marks for 2 x L2 (developed statements)</p>

Question			Expected Answer	Mark	Additional Guidance
			<b>Level 3 (5 – 6 marks)</b> Demonstrates thorough knowledge and understanding of the issue. At least three ideas given with development. Reasons why deserts are hot <b>and</b> dry are described clearly. Written work is legible and spelling, grammar and punctuation are accurate. Meaning is communicated very clearly.		<b>Level 3</b> 5 marks for 3 x L2 (developed statements) 6 marks for an answer which goes beyond 3 x L2 statements (e.g. by giving a broader answer and adding more than 3 L2 statements or by adding place specific materials, or using geographical terminology, etc)  NB <b>The following responses are not to be credited even at L1:</b> it is near the Equator/Tropics there is no rain/water global warming it is close to the sun there is no vegetation
			<b>Total</b>	<b>[12]</b>	

Question			Expected Answers	Mark	Additional Guidance
2	(a)	Study Photographs A and B in the separate Insert which were taken in hot desert areas.			
		(i) Using <u>only</u> evidence in the photographs, describe <u>two</u> features of the vegetation shown.	<p>Features <b>should be evident from photographic evidence</b>. Ideas such as:</p> <ul style="list-style-type: none"> <li>• scattered/sparse/some areas without vegetation/not a lot of (large) plants</li> <li>• shrubs/bushes</li> <li>• cacti</li> <li>• low/short plants</li> <li>• plants with narrow leaves/spikes/spines/thorns</li> <li>• thick/waxy/leathery/shiny skin</li> <li>• fleshy stems, etc</li> </ul>	[2]	<p>2 @ 1 mark</p> <p>NB  <b>The following answers = 0</b>  green/brown/grey  grass  long roots  survives with no water  only grows when it rains  dead  trees  no leaves  no plants/vegetation  xerophytic</p> <p><b>The following answers need to be qualified for credit.</b>  small  tough  leaves</p>

Question				Expected Answers	Mark	Additional Guidance
		(ii)	Explain how the natural vegetation of hot deserts can survive the hot, dry climate.	<p>Ideas such as:</p> <ul style="list-style-type: none"> <li>Seeds/plants remain dormant during long dry spells</li> <li>narrow/spiky leaves reduce rates of evapotranspiration/ because of high temperatures</li> <li>long roots/wide spreading roots search for water</li> <li>Some plants/cacti store water in order to survive long periods of drought,</li> <li>White upper surfaces to reflect heat etc.</li> </ul>	[3]	<p>3 @ 1 mark or 2 + 1 (development)</p> <p>NB <b>The following answers = 0</b> spines to protect from predators</p> <p><b>The following answers need to be qualified for credit.</b> Any descriptive point e.g. it has spines xerophytic</p>

Question	Expected Answers	Mark	Additional Guidance
(b) Using Photographs C, D and E and your own knowledge of named deserts which you have studied, describe the activities carried out by different groups of people in hot deserts. To what extent is it challenging for people to carry out these activities in hot deserts?	<b>Levels marking</b>  <b>0 marks</b> Response does not address the question.  <b>Level 1 (1 – 3 marks)</b> Demonstrates limited knowledge and understanding of the issue. One or more uses of deserts and/or challenges given with little or no development. Uses/challenges are identified/described in basic terms. (eg tourism, drilling/mining for oil/minerals, grazing herds of animals, lack of drinking water; excessive heat; isolation; difficult to produce food). Written work contains mistakes in spelling, grammar and punctuation, which sometimes hinders communication.  <b>Level 2 (4 – 6 marks)</b> Demonstrates sound knowledge and understanding of the issue. One to three uses of deserts <b>and/or</b> challenges given with development. Uses/challenges are described clearly. (eg for tourists to drive 4x4 vehicles across the dunes, extraction of oil to provide fuels/for export market, nomadic herding of camels/goats for subsistence purposes, lack of drinking water leads to dehydration; excessive heat makes working difficult; isolation due to lack of roads; difficult to produce food as there is not enough good pasture for animals). Written work is legible and spelling, grammar and punctuation are mostly accurate. Meaning is communicated clearly.	[8]	<b>Level 1</b> 1 mark for 1 x L1 (simple statement) 2 marks for 2 or more L1 (simple statements) 3 marks for 3 or more L1 (simple statements)  <b>Level 2</b> 4 marks for 1 x L2 (developed statement) 5 marks for 2 x L2 (developed statements) 6 marks for 3 x L2 (developed statements)



Question			Expected Answers	Mark	Additional Guidance
			<b>Level 3 (7 – 8 marks)</b> Demonstrates thorough and comprehensive knowledge and understanding of the issue. A combination of developed statements including uses <b>and</b> challenges of desert environments is required. Uses/challenges are described clearly and for full marks 'to what extent' needs to be addressed. Written work is legible and spelling, grammar and punctuation are accurate. Meaning is communicated very clearly.		<b>Level 3</b> 7 marks for 4 x L2 (developed statements) 8 marks for an answer which goes beyond 4 x L2 statements (e.g. by giving a broader answer and adding more than 4 L2 statements or by adding place specific materials, or using geographical terminology or addressing the 'to what extent' well etc)  <b>NB Level 3 answers need to address describe and challenge aspects.</b>
			<b>Total</b>	<b>[13]</b>	

Question		Expected Answers		Mark	Additional Guidance
3	(a)	Circle the extreme environment which you have studied.			
		(i) Name an area where this extreme environment can be found.	1 mark for example of polar or mountain environment	[1]	1 mark  NB 1. The area named should match the type of environment circled. 2. An example at any scale is acceptable, however <b>no credit for South or North Pole.</b>
		(ii) Describe different ways in which your chosen environment can be considered to be extreme.	<p>Ideas could relate to issues such as climate, landscape and accessibility such as:</p> <p>Climate: low temperatures/cold below zero or actual figures, large amount of snow winds wet/dry/high/low rainfall as appropriate 24 hour light/dark Thin air/less oxygen</p> <p>Landscape: steep slopes/cliffs thin soils/bare rock ice/snow covered glaciers avalanche volcano/earthquake</p> <p>Location: isolated no/poor communications links/or examples distance from populated area etc</p>	[4]	<p>4 @ 1</p> <p>NB 1. The points made in this answer need to relate to the area chosen. (eg 24 hour light/dark would be inappropriate if Himalayas chosen)</p> <p><b>2. The following answers = 0</b> lack of services lack of jobs few resources</p> <p><b>3. The following answers need to be qualified for credit.</b> dangerous extreme temperature high altitude little/no vegetation natural disasters</p>

Question		Expected Answers	Mark	Additional Guidance
	(b)	<p><b>Name <u>one</u> physical feature which occurs in your chosen extreme environment. Describe this feature and explain how physical processes created it. You may draw a labelled diagram.</b></p>		
		<p>One mark (reserved) for name of landform/physical feature</p> <p>(eg mountain peak, corrie, arête, scree, ridge, nunatak, glacier, fold mountain, volcano etc)</p> <p>Three additional marks for description/explanation which could be written text or labelling of diagram. Reserve 1 mark for each of description/explanation</p> <p>Steeply sloping mountain peak, hollow in the mountain side, narrow/knife edged ridge, rocky ridge/mountain/peak not covered with ice or snow within/at the edge of an ice field or glacier, slow-moving river of ice formed from compacted layers of snow etc</p>	<b>[5]</b>	<p>5 @ 1 or development</p> <p>Examples given are not exhaustive – be prepared to credit any example of landform which is found in the type of extreme environment chosen by candidate</p> <p>Mountain = 0</p> <p>NB</p> <p>1. The name of the feature/landform can be written anywhere – it does not have to be on the top line.</p> <p>2. Do not double credit written text and labelling of diagram.</p> <p>Examples given are just for illustration – clearly the description needs to link with the feature chosen.</p>
		<b>Total</b>	<b>[10]</b>	

Question				Expected Answers	Mark	Additional Guidance
4	(a)	<b>Study Fig. 3.</b>				
		(i)	<b>Briefly describe how the average temperatures at the earth's surface have changed between 1860 and 2010. Support your answer with dates and figures.</b>	<p>Ideas such as:</p> <p>(overall) increase in temperatures From 13.4 to 14.5°C/by 1.1°C</p> <p>Fluctuations/temperatures go down some years e.g. decrease in 1875.</p>	<b>[3]</b>	<p>3 @ 1 mark</p> <p>NB As question asks for change both numbers are required for mark to be awarded (or the 1.1°C change figure)</p>

Question		Expected Answers		Mark	Additional Guidance
	(ii)	<p><b>Suggest and explain the likely impacts of the predicted changes in average temperatures on the natural environment of the polar or mountain area you have studied.</b></p>	<p><b>Levels marking</b></p> <p><b>0 marks</b> Response does not address the question.</p> <p><b>Level 1 (1 – 2 marks)</b> Demonstrates limited knowledge and understanding of the issue. One or more impacts given with little or no development. Impacts are described in basic terms. (e.g. ice melts, creatures are killed, habitats are destroyed etc). Written work contains mistakes in spelling, grammar and punctuation, which sometimes hinders communication.</p> <p><b>Level 2 (3 – 4 marks)</b> Demonstrates sound knowledge and understanding of the issue. One or two impacts given with development/explanation. (e.g. local sea levels rise as ice caps melt, wildlife is threatened with extinction as their habitats are destroyed when the ice melts, etc). Written work is legible and spelling, grammar and punctuation are mostly accurate. Meaning is communicated clearly.</p>	<b>[6]</b>	<p><b>Level 1</b> 1 mark for 1 x L1 (simple statement) 2 marks for 2 or more L1 (simple statements)</p> <p><b>Level 2</b> 3 marks for 1 x L2 (developed statement) 4 marks for 2 x L2 (developed statements)</p>

Question				Expected Answers	Mark	Additional Guidance
				<p><b>Level 3 (5 – 6 marks)</b>            Demonstrates thorough knowledge and understanding of the issue. At least three impacts given with sound explanation.            Written work is legible and spelling, grammar and punctuation are accurate. Meaning is communicated very clearly.</p>		<p><b>Level 3</b>            5 marks for 3 x L2 (developed statements)            6 marks for an answer which goes beyond 3 x L2 statements (e.g. by adding place specific materials, or material from own knowledge, or using geographical terminology etc)</p> <p>NB</p> <ol style="list-style-type: none"> <li>1. This answer needs to focus on the natural environment <b>not</b> people.</li> <li>2. It should focus on impacts in the polar or mountain area studied, not global effects.</li> <li>3. Any specific details to which candidate refers need to link with area chosen for credit. (eg a candidate may write about the loss of habitat of polar bears in Antarctica which is clearly inaccurate as polar bears do not live in Antarctica – this statement would have been given L2 if the candidate had chosen the Arctic in 3ai but if used with Antarctica this would only be given L1 for the generic idea of loss of wildlife habitats)</li> <li>4. The following responses are not to be credited even at L1:              mountains/poles are warmer              pollution (needs to be qualified)</li> </ol>

Question	Expected Answers	Mark	Additional Guidance
(b) Climate change is one change which may affect extreme environments. Describe <u>one other</u> change which might occur in the polar or mountain area which you have studied. Explain how this change is likely to affect the people and/or the environment.	<b>Levels marking</b>  <b>0 marks</b> No evidence submitted or response does not address the question.  <b>Level 1 (1 – 2 marks)</b> Demonstrates limited knowledge and understanding of the issue. A change is described. One or more impacts given with little or no development. Impacts are described in basic terms. (e.g. a skiing resort is built in the mountains, cruises visit polar regions, etc). Written work contains mistakes in spelling, grammar and punctuation, which sometimes hinders communication.  <b>Level 2 (3 – 4 marks)</b> Demonstrates sound knowledge and understanding of the issue. Change described along with one or more impacts described clearly with development. (e.g. a skiing resort is built in the mountains and natural vegetation is chopped down, cruises visit polar regions and the seas are polluted, etc). Written work is legible and spelling, grammar and punctuation are mostly accurate. Meaning is communicated clearly.	[6]	<b>Level 1</b> 1 mark for 1 x L1 (simple statement) 2 marks for 2 or more L1 (simple statements)  <b>Level 2</b> 3 marks for 1 x L2 (developed statement) 4 marks for 2 x L2 (developed statements)

Question			Expected Answers	Mark	Additional Guidance
			<p><b>Level 3 (5 – 6 marks)</b>            Demonstrates thorough knowledge and understanding of the issue.            Change described along with three or more impacts given with development. Impacts are described clearly.            (e.g. a skiing resort is built in the mountains and natural vegetation is chopped down so destroying habitats, cruises visit polar regions and the seas are polluted by fuel oils from the engines, etc).            Written work is legible and spelling, grammar and punctuation are accurate. Meaning is communicated very clearly.</p>		<p><b>Level 3</b>            5 marks for 3 x L2 (developed statements)            6 marks for an answer which goes beyond 3 x L2 statements (e.g. by adding place specific materials, or material from own knowledge, or using geographical terminology etc)</p> <p>NB            1. The change must not relate to climate.            2. Without an indication of what the change is, it will be difficult to award marks for effects.</p>
			<b>Total</b>	<b>[15]</b>	



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