

GCE

## Geography

Advanced Subsidiary GCE

Unit F761: Managing Physical Environments

# Mark Scheme for January 2012

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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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#### Annotations used in the detailed Mark Scheme

Annotation	Meaning					
<b>₩</b>	Correct point (only to be used in the Standardisation sample and on point-marked questions).					
<b>A</b>	Omission mark. Further development needed, missing point or link between points.					
- 11	Level one – to be used on the final, 9 mark part of Section A questions only.					
<b>12</b>	Level two – to be used on the final, 9 mark part of Section A questions only.					
<b>15</b>	Level three – to be used on the final, 9 mark part of Section A questions only.					
2	Unclear, inaccurate, dubious validity.					
IRRI	Irrelevant, a significant amount of material that does not answer the question.					
NET.	No example(s) used or provided.					
R	Rubric Error (place at start of Question not being counted).					
<b>}</b>	Highlighting an issue eg irrelevant paragraph. Use in conjunction with another stamp eg or					
BEEN	Point has been seen and noted.					

Q	uesti	on	Answer	Marks	Guidance		
					Content	Levels of Response	
1	(a)		Sediment size decreases with distance downstream/negative relationship. The rate of change is variable. There are anomalies.	4	Data must be used for max marks.	Level 2 [3-4 marks]: Identifies overall change, provides evidence, and recognises variation/anomaly.	
						Level 1 [0-2 marks]: Quotes figures from various distances downstream OR overview of change stated.	
	(b)		Traction, saltation, suspension, solution, flotation are all acceptable.	6	Only two are required. An outline is required, so full detail of the process(es) should not be expected. Credit should be given for each process identified; Max two marks for identification only.  Diagrams may be used; credit labels/annotations.	Level 2 [5-6 marks]: Identifies two processes and provides outlines.  Level 1 [0-4 marks]: Identifies valid process(s). Outline(s) may not be provided.  One outlined well may reach the top of this level.	
	(c)		Ways include planning policies, land-use zoning, international agreements and limiting activities to different times. Flood management strategies/policies also acceptable, if related to conflict; perhaps through impact of activity upstream on those downstream.	6	For Level 2 the answer must be clearly related to the resolution of conflicts.  Conflicts may exist between different users of the river itself.	Level 2 [5-6 marks]: Identifies two ways and explains how they can resolve conflicts.  Level 1 [0-4 marks]: Identifies valid way(s). Way(s) may be described but not fully explained with little/no reference to resolving conflicts.  One explained well may reach the top of Level 1.	

Question	Answer	Marks	Gui	idance
			Content	Levels of Response
(d)	Human activities may include urbanisation, industrialisation, deforestation, increasingly intense agricultural activities, river modification. These changes may result in greater/more rapid surface run-off into channels leading to them exceeding their bankfull capacity.  Building on floodplains putting	9	For Level 3 answers should include specific reference to interception, surface run-off and/or other drainage basin processes.	Level 3 [8-9 marks]: Uses well chosen example(s) to explain the impact of at least two human activities. Cause-effect links are stated and clearly explained. Answer is well structured with accurate grammar and spelling. Good use of appropriate geographical terminology.
	people/property at risk.		In Level 2, unlikely to be specific about processes. Generic references to more water in the channel.	Level 2 [5-7 marks]: Clearly identified example(s) provided to explain the impact of at least one human activity. Cause-effect links are stated but not clearly explained. Answer has sound structure but may have some errors in grammar and spelling. Some use of appropriate geographical terminology.
			In Level 1, no references to why flood risk is increased.	Level 1 [0-4 marks]: Limited/no example. Descriptive observations of human activities. There may be little or no reference to cause-effect links. Answer has little structure and has some errors in grammar and spelling. Little use of appropriate geographical terminology.
			Do not credit dam construction simply flooding valley upstream. Must be linked to increased risk.	If no located example(s) then top of Level 1 Max.  Max 2 for list of human activities.

Q	uesti	on	Answer	Marks	Guidance		
					Content	Levels of Response	
2	(a)		Negative relationship, reasonable strength, but with some variations, bunching and anomalies.	4	Data, including high/low energy, must be used for max marks.	Level 2 [3-4 marks]: Identifies general relationship, provides evidence, and recognises variations/bunching/strength/anomaly.  Level 1 [0-2 marks]: Quotes data from various sample points OR relationship stated.	
	(b)		Traction, saltation, suspension, solution, floatation are all acceptable.	6	An outline is required, so full detail of the process(es) should not be expected.  Credit should be given for each process identified; Max two marks for identification only.  Diagrams may be used; credit labels/annotations.  May refer to onshore (waves supplying sediment), longshore (swash and backwash) and offshore (rip current) movements.	Level 2 [5-6 marks]: Identifies two processes and provides outlines.  Level 1 [0-4 marks]: Identifies valid process(s). Outline(s) may not be provided.  One outlined well may reach the top of this level.	
	(c)		Ways include planning policies, land-use zoning, and limiting activities to different times.  Coastal protection strategies/policies are acceptable if related to conflicts e.g. impact of one human activity on another further along the coastline, or disputes over different approaches to management, or conflict between man and nature.	6	For Level 2 the answer must be clearly related to the resolution of conflicts.	Level 2 [5-6 marks]: Identifies two ways and explains how they can resolve conflicts.  Level 1 [0-4 marks]: Identifies valid way(s). Way(s) may be described but not fully explained with little/no reference to resolving conflicts.  One explained well may reach the top of Level 1.	

Question	Answer	Marks	Guidance		
			Content	Levels of Response	
(d)	Processes may be sub-aerial as well as marine.  Effects may include cliff retreat, flooding, beach steepening, and sediment transfer.  Protection may include hard-engineering (sea walls, groynes, revetments, rip rap, gabions, off-shore reefs) and soft-engineering (beach nourishment, cliff regrading, planting vegetation, ecomatting) as well as managed retreat.  Erosion by different mechanisms e.g. hydraulic action/pounding is acceptable.  How managed retreat provides protection must be explicit.	9	For Level 3, the explanation should relate to the impact of the protection method on wave energy i.e. reflection, absorption, early breaking.  In Level 2, references to energy reduction needed, or uncertain explanation with confusion between absorption/reflection, for example.	Level 3 [8-9 marks]: Uses well chosen example(s) to explain how method(s) of protection impact upon two different processes or two effects of one process. Cause-effect links are stated and clearly explained. Answer is well structured with accurate grammar and spelling. Good use of appropriate geographical terminology.  Level 2 [5-7 marks]: Clearly identified example(s) provided to explain the impact on at least one effect or process. Cause-effect links are stated but not clearly explained. Answer has sound structure but may have some errors in grammar and spelling. Some use of appropriate geographical terminology.	
			In Level 1, description of protection methods with no references to energy reduction.	Level 1 [0-4 marks]: Limited/no example. Descriptive observations of protection methods. There may be little or no reference to cause-effect links. Answer has little structure and has some errors in grammar and spelling. Little use of appropriate geographical terminology.  If no located example(s) then top of Level 1 Max.  Max 2 for list of protection methods.	

	uesti	on	Answer	Marks	Guidance		
_	uesti	011	Allowei	IVIAI NS	Content Levels of Response		
3	(a)	(i)	Flat valley floor → agriculture / transportation / settlement/industry Steep relief/high mountain scenery → tourism/hiking Snow-capped mountains → tourism/winter sports Ribbon lake → water supply/recreation Cirque lake/hanging valley → H.E.P	4	Must be appropriate to the environment.	Level 2 [3-4 marks]: Two opportunities clearly described, or one clearly described and one stated.  Level 1 [0-2 marks]: One opportunity described or one/two opportunities stated.	
		(ii)	Creation of employment, increased revenues, increased spending in the local economy, multiplier effect and improved services/infrastructure. Revenues can be used in environmental schemes to attract more visitors.	6	Specific jobs, multiplier effect understood. Two different ways required.  Generic jobs, money spent.  If not linked to the activities described in (a)(i), max top Level 1.	Level 2 [5-6 marks]: Two ways well explained and clearly linked to economic development.  Level 1 [0-4 marks]: Two ways partially explained with weak or incomplete links to economic development.  One explained well may reach the top of Level 1.	
	(b)		Factors include temperature regime, available moisture, acidity of rainfall, rock type, aspect, vegetation, human activity.	6	Level 2 answers likely to link to specific process mechanisms or rates.  No credit for erosion. Processes should be appropriate to cold environments.	Level 2 [5-6 marks]: Identifies two factors and outlines how they influence weathering.  Level 1 [0-4 marks]: Identifies valid factor(s). Factor(s) may be described but not fully outlines with little/no reference to generic weathering OR description of process(es) with no reference to factor(s).  One outlined well may reach the top of Level 1.	

Question	Answer	Marks	Guidance		
			Content	Levels of Response	
(c)	Damage may be caused by extreme natural events (climatic, mass movement) and/or human activity (extraction of resources, settlement construction, timber-logging, development of transport links, tourism activities).	9	For Level 3 expect references to food chain contamination, biodiversity loss as detail of damage i.e. 'why' explained.	Level 3 [8-9 marks]: Uses well chosen example to explain the damage caused. Cause-effect links are stated and clearly explained. Answer is well structured with accurate grammar and spelling. Good use of appropriate geographical terminology.	
			In Level 2, references to damage may be stated but not fully explained i.e. 'why' stated.	Level 2 [5-7 marks]: Clearly identified example provided to explain the damage caused. Cause-effect links are stated but not clearly explained. Answer has sound structure but may have some errors in grammar and spelling. Some use of appropriate geographical terminology.	
			In Level 1, expect mainly description of activities i.e. 'how' only.	Level 1 [0-4 marks]: Limited/no example. Descriptive observations of causes or damage. There may be little or no reference to cause-effect links. Answer has little structure and has some errors in grammar and spelling. Little use of appropriate geographical terminology.	
			Emphasis must be on the ecosystem, not the environment in general so beware answers relating to thawing of permafrost.	If no located example(s) then top of Level 1 Max.	
				Max 2 for list of causes or damage.	

Q	uesti	on	Answer	Marks	Gui	idance
					Content	Levels of Response
4	(a)	(i)	Canyon/other attractive scenery → tourism Playa → salt/mineral extraction River → irrigation (farming) water supply/settlement Oasis → irrigation (farming)/water supply/settlement Strong wind → wind power Weather/landscape → film industry Sediment → extraction for building/farming Flat plain → settlement Sunlight → solar energy Lake → water sports/tourism	4	Must be appropriate to the environment.	Level 2 [3-4 marks]: Two opportunities clearly described, or one clearly described and one stated.  Level 1 [0-2 marks]: One opportunity described or one/two opportunities stated.
		(ii)	Creation of employment, increased revenues, increased spending in the local economy, multiplier effect, and improved services/infrastructure. Revenues can be used in environmental schemes to attract more visitors.	6	Specific jobs, multiplier effect understood. Two different ways required.  Generic jobs, money spent.  If not linked to the activities described in (a)(i), max top Level 1.	Level 2 [5-6 marks]: Two ways well explained and clearly linked to economic development.  Level 1 [0-4 marks]: Two ways partially explained with weak or incomplete links to economic development.  One explained well may reach the top of Level 1.

Question	Answer	Marks	Guidance		
			Content	Levels of Response	
(b)	Factors include temperature regime, available moisture, acidity of rainfall, rock type, aspect, vegetation, human activity.	6	Level 2 answers likely to link to specific process mechanisms or rates.	Level 2 [5-6 marks]: Identifies two factors and outlines how they influence weathering.	
				Level 1 [0-4 marks]: Identifies valid factor(s). Factor(s) may be described but not fully outlined with little/no reference to weathering OR description of process(es) with no reference to factor(s).	
			No credit for erosion. Processes should be appropriate to hot arid/semi-arid environments.	One explained well may reach the top of Level 1.	

Qı	uestic	on Answer	Marks	Guidance		
				Content	Levels of Response	
	(c)	Damage may be caused by extreme natural events (climatic, flash floods, mass movement) and/or human activity (extraction of resources, overgrazing, overcultivation, over-irrigation, development of transport links, tourism activities, film industry).	9	For Level 3 expect references to food chain contamination, biodiversity loss as detail of damage i.e. 'why' explained.	Level 3 [8-9 marks]: Uses well chosen example to explain the damage caused. Cause-effect links are stated and clearly explained. Answer is well structured with accurate grammar and spelling. Good use of appropriate geographical terminology.	
				In Level 2, references to damage may be stated but not fully explained i.e. 'why' stated.	Level 2 [5-7 marks]: Clearly identified example provided to explain the damage caused. Cause-effect links are stated but not clearly explained. Answer has sound structure but may have some errors in grammar and spelling. Some use of appropriate geographical terminology.	
				In Level 1, expect mainly description of activities i.e. 'how' only.	Level 1 [0-4 marks]: Limited/no example. Descriptive observations of causes or damage. There may be little or no reference to cause-effect links. Answer has little structure and has some errors in grammar and spelling. Little use of appropriate geographical terminology.	
				Emphasis must be on the ecosystem, not the environment in general so beware answers relating to damage to pyramids.	If no located example(s) then top of Level 1 Max.  Max 2 for list of causes or damage.	

Question	Answer	Marks	Guidance		
			Content	Levels of Response	
5	River basins can be a multi-use resource due to the range of opportunities that exist for a number of human activities. These include:  Industrial development Agriculture/forestry Transportation Residential development Energy development Water supply Recreation and leisure Conservation.  These exist due to the presence of factors such as: Flat land Fertile soil Presence of water Attractive scenery Access to the sea Rare habitats Government/private finance.	25		<del>_</del>	

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Question Answer		Answer Marks		Guidance		
			Content	Levels of Response		
			Emphasis on being a resource; the socio-economic and/or environmental benefit. May refer to potential for conflicts, summary of why there is such a variety, interaction of factors. Evidence from the whole basin, not just the river itself also may discriminate, as might noting different range in uses in different examples.	AO2 Analysis and application Level 3 [5 marks]: Clear analysis and application of knowledge of different uses.  Level 2 [3-4 marks]: Some analysis and application of knowledge of different uses.  Level 1 [0-2 marks]: Limited analysis and application of knowledge of different uses.  AO3 Skills and communication Level 3 [6-7 marks]: Answer is well structured with accurate grammar and spelling. Good use of appropriate geographical terminology. Clear conclusion(s) are drawn.  Level 2 [4-5 marks]: Answer has sound structure but may have some errors in grammar and spelling. Some use of appropriate geographical terminology. Conclusion(s) are attempted.  Level 1 [0-3 marks]: Answer has little structure and has some errors in grammar and spelling. Little use of appropriate geographical terminology. No conclusion(s) are attempted.		

Question	Answer	Marks	Guidance		
			Content	Levels of Response	
6	Coastal areas provide resource opportunities for a number of different human activities.	25	Examine = describe, explain and comment on.	AO1 Knowledge and understanding	
	Resources include: Flat land Presence of water Fish Sand/gravel/minerals Safe/deep harbours Tidal/wave/wind energy Attractive scenery Access to other countries/areas Rare habitats Government/private finance.  These resources are valuable as they can be used for: Industrial development Transportation Residential development Energy development Water supply Recreation and leisure Conservation.			Level 3 [11-13 marks]: Detailed knowledge and understanding of resources in at least two locations, both economic and environmental resources may be considered. Cause-effect links are clearly explained and there is effective use of detailed exemplification.  Level 2 [7-10 marks]: Some knowledge and understanding of resources in at least one coastal area. Cause-effect links are stated but not clearly explained and there is appropriate use of exemplification.  Level 1 [0-6 marks]: Limited knowledge and understanding of at least one resource. Cause-effect links are limited or absent. There is limited exemplification.  If no located example then top of Level 1 Max.	

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Question	Answer	Marks	Guidance	
			Content	Levels of Response
			Emphasis on being a resource; the socio-economic and/or environmental benefit. May refer to potential for conflicts, summary of why there is such a variety, interaction of factors. Noting differences along or between coastlines may also discriminate.	AO2 Analysis and application Level 3 [5 marks]: Clear analysis and application of knowledge of different resources.  Level 2 [3-4 marks]: Some analysis and application of knowledge of different resources.  Level 1 [0-2 marks]: Limited analysis and application of knowledge of different resources.  AO3 Skills and communication Level 3 [6-7 marks]: Answer is well structured with accurate grammar and spelling. Good use of appropriate geographical terminology. Clear conclusion(s) are drawn.  Level 2 [4-5 marks]: Answer has sound structure but may have some errors in grammar and spelling. Some use of appropriate geographical terminology. Conclusion(s) are attempted.  Level 1 [0-3 marks]: Answer has little structure and has some errors in grammar and spelling. Little use of appropriate geographical terminology. No conclusion(s) are attempted.

Question	Question Answer		Guidance		
			Content	Levels of Response	
7	Relevant landforms include those formed by ice erosion, such as arête, pyramidal peak, cirque, truncated spur, hanging valley as well as landforms of water erosion, such as tunnel valleys.  The question requires description, indicating the appearance of the landforms, in terms of shape, size and position, as well as explanation by virtue of the processes involved. Clear process-landform linkages will be a key discriminator.	25	Specification only includes a small range so do not expect a wide variety of landforms.  Weathering and mass movement may be relevant if it is part of the erosional formation.  Focus is on explanation so do not expect very detailed description, although evidence is expected.	AO1 Knowledge and understanding Level 3 [11-13 marks]: Detailed knowledge and understanding of at least two appropriate landforms. Cause-effect links are clearly explained and there is effective use of detailed exemplification with processes explicitly linked to landforms. Process mechanisms such as abrasion and plucking should be explicit. Good use is made of located examples.  Level 2 [7-10 marks]: Some knowledge and understanding of at least two landforms or more detailed knowledge and understanding of one. Cause-effect links are stated but not clearly explained and there is use of exemplification with some linkages made between processes and landforms, perhaps via generic erosion references.  Level 1 [0-6 marks]: Limited knowledge and understanding of at least one landform. Cause-effect links are limited or absent. There is limited exemplification.  If no located example then top of Level 1 Max.	

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Question	Question Answer		Guidance		
			Content	Levels of Response	
Question	Answer	Marks			

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Question	Question Answer Marks Guidance		Guidance
			Content Levels of Response
			Content  Levels of Response  AO3 Skills and communication Level 3 [6-7 marks]: Answer is well structured with accurate grammar and spelling. Good use of appropriate geographical terminology. Clear conclusion(s) are drawn.  Level 2 [4-5 marks]: Answer has sound structure but may have some errors in grammar and spelling. Some use of appropriate geographical terminology. Conclusion(s) are attempted.  Level 1 [0-3 marks]: Answer has little structure and has some errors in grammar and spelling. Little use of
			appropriate geographical terminology. No conclusion(s) are attempted.

Question	Question Answer		Guidance		
			Content	Levels of Response	
8	Relevant landforms include those formed by water erosion, such as canyon, wadi and pediment as well as landforms of wind erosion, such as sculptured rock, ventifacts, deflation hollows and desert pavement.  The question requires description, indicating the appearance of the landforms, in terms of shape, size and position, as well as explanation by virtue of the processes involved. Clear process-landform linkages will be a key discriminator.	25	Specification only includes a small range so do not expect a wide variety of landforms.  Weathering may be relevant if it is part of the erosional formation.  Focus is on explanation so do not expect very detailed description, although evidence is expected.	AO1 Knowledge and understanding Level 3 [11-13 marks]: Detailed knowledge and understanding of at least two appropriate landforms. Cause-effect links are clearly explained and there is effective use of detailed exemplification with processes explicitly linked to landforms. Process mechanisms such as abrasion and hydraulic action should be explicit. Good use is made of located examples.  Level 2 [7-10 marks]: Some knowledge and understanding of at least landforms or more detailed knowledge and understanding of one. Cause-effect links are stated but not clearly explained and there is use of exemplification with some linkages made between processes and landforms, perhaps via generic erosion references.  Level 1 [0-6 marks]: Limited knowledge and understanding of at least one landform. Cause-effect links are limited or absent. There is limited exemplification.  If no located example then top of Level 1 Max.	

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Question	Question Answer		Guidance		
			Content	Levels of Response	
Question	Answer	Marks			

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Question Answer Mai		Marks	Gu	uidance	
			Content	Levels of Response	
				AO3 Skills and communication Level 3 [6-7 marks]: Answer is well structured with accurate grammar and spelling. Good use of appropriate geographical terminology. Clear conclusion(s) are drawn.	
				Level 2 [4-5 marks]: Answer has sound structure but may have some errors in grammar and spelling. Som use of appropriate geographical terminology. Conclusion(s) are attempted.	
				Level 1 [0-3 marks]: Answer has litter structure and has some errors in grammar and spelling. Little use of appropriate geographical terminolog No conclusion(s) are attempted.	

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