

# Mark Scheme (Results)

## Summer 2008

GCE

GCE Geography A (6461/01)

Question Number	Answer	Mark
1(a)(i)	South American.	(1)

Question Number	Answer	Mark
1(a)(ii)	Constructive/Divergent	(1)

Question Number	Answer	Mark
1(a)(iii)	East. Accept east wards , to the east, towards south American plate	(1)

Question Number	Indicative content
1(a) (iv)	Convection currents in the mantle/asthenosphere. Generated by heat (radio-active decay) in the core. Moving magma exerts frictional drag (push/pull) on plates. 1 mark for each (3)

Question Number	Indicative content	
1(a) (v)	Could be fossils, jig-saw fit, geology, climatology, age of sea floor basalts etc (3)	
Level	Mark	Descriptor
	0	No rewardable material
Level 1	1	States the evidence
Level 2	2-3	Explains the evidence in relation to movement

Question Number	Answer	Mark
1(b)(i)	A location where magma rises to the surface (a plume) (1), usually away from plate margins (1). Magma is rising due to extreme heating (1). Any 2x1	(2)

Question Number	Indicative content
1(b) (ii)	Hotspot fixed (1 mark) Crust moves over hot spot (1 mark) Therefore chain of islands created (1 mark) Allow 1 for explanation of shield volcano growing on ocean floor to create island. (3)

Question Number		Indicative content
1(c)		Benefits include: geothermal energy, tourism, minerals, building materials etc. Links to economy should be made via employment, spending, multiplier effect etc. Evidence may be provided from located examples, although this is not a requirement. (6)
Level	Mark	Descriptor
	0	No rewardable material
Level 1	1-2	Basic description of benefits without any valid explanation. Links to economy implied.
Level 2	3-4	Clear description and some simple explanation of a reasonable range of benefits. Some economic links established.
Level 3	5-6	Clear description and accurate explanation of a range benefits with explicit and clear links to economy.

(Total 20 marks)

Question Number	Answer	Mark
2(a)(i)	The breakdown of rock by the elements of the weather acting "in situ" producing smaller fragments of the same material. 1 mark for idea or breakdown rather than decay 1 mark for weather/lack of movement	(2)

Question Number	Answer	Mark
2(a)(ii)	Credit any valid PHYSICAL process e.g. freeze-thaw, salt crystallisation, pressure release etc (1) Depends on the process but if freeze thaw, for example then.... Water enters cracks/joints (1), freezes when temperatures fall below zero (1), expands and exerts pressure on the rock causing fragments to break off(1). Repetition of process (1) Any 3 of the above.	(4)

Question Number	Answer	Mark
2(a)(iii)	Wire netting/mesh or steel pins/expansion bolts. (Any 1)  Netting holds loose fragments in place on the cliff/pins prevent rock from breaking up (1) and this reduces risk of loose rocks falling on people below (on the beach) (1)	(3)

Question Number	Answer	Mark
2(b)	Focus must be on chemical. 1. Chemical composition is key. Calcium carbonate in limestone, for example, is vulnerable to carbonation, feldspar in granite affected by hydrolysis. 1 mark for principle, 1/2 mark for development/detail 2. High temperatures speed up most chemical reactions, acting as a catalyst. Vant Hoff's Law applies (10°C increase in temperature = double the rate of reaction). Exception is carbonation, as cold water dissolves carbon dioxide more readily. 1 mark for principle, 1/2 marks for development/detail	(5)

Question Number		Indicative content
2(c)		<p>Description and explanation required.            Characteristics include height, steepness of sides, width of base, structure etc.            Key to explanation will be type of lava erupted and its movement. Nature of eruptions may also be relevant.            Located example should be named with evidence provided via dimensions, date of eruptions etc.</p> <p style="text-align: right;">(6)</p>
Level	Mark	Descriptor
	0	No rewardable material
Level 1	1-2	Basic description of characteristic(s) without any valid explanation. No/inappropriate example stated.
Level 2	3-4	Clear description and some simple explanation of valid characteristics. Appropriate example named but may not be used.
Level 3	5-6	Clear description and accurate explanation of a reasonable range of characteristics with explicit links to example.

(Total 20 marks)

Question Number	Answer	Mark
3(a)(i)	Material (particles/stones/pieces of rock etc) (1) carried by/being transported by a river (1)	(2)

Question Number	Answer	Mark
3(a)(ii)	Small/fine particles held up in the flow/body of the water. River has enough energy to overcome the pull of gravity acting on the particle. 1 mark only for the nature of the movement. Must explain for max.	(2)

Question Number	Answer	Mark
3(a)(iii)	Solution, floatation, saltation (allow jumping or bouncing) or traction (allow rolling). Any one.	(1)

Question Number	Answer	Mark
3(a)(iv)	Steady section, rapid rise to peak, uneven return. Must have sediment data for max.	(3)

Question Number	Answer	Mark
3(b)	From place to place = Differences in soil type (sandy/clayey etc), intensity of input, type of input, gradient etc. From time to time = Variations in input intensity, antecedent conditions, height of water table etc Must relate to rate for max. Must answer both parts for max. Allow up to 4 for place to place - time to time. Max 6	(6)

Question Number	Indicative content	
3(c)	Discharge generally increases downstream, but not necessarily in a regular pattern. Located example may have anomalies. Reasons likely of focus on shape, size and roughness of channel. Human activity may also be relevant. Located detail could be data or names of places along the course etc.	
	(6)	
Level	Mark	Descriptor
	0	No rewardable material
Level 1	1-2	Basic description of downstream changes without any valid explanation. Location may not be stated or appropriate.
Level 2	3-4	Clear description and some simple explanation of downstream changes with location stated, but not used.
Level 3	5-6	Clear description and accurate explanation of downstream changes with convincing locational detail.

(Total 20 marks)

Question Number	Answer	Mark
4(a)(i)	Change in river discharge over time (1) in response to a single precipitation/storm input (1).	(2)

Question Number	Answer	Mark
4(a)(ii)	Steep rising limb, short lag time, high peak, slightly less steep falling limb. Any 3x1. Must have data for max. If no reference to shape, limit to 1.	(3)

Question Number	Answer	Mark
4(a)(iii)	1. Steep relief (1) so rapid surface run-off/little time to infiltrate (1). 2. Impermeable/non-porous rock (1) so lots of surface run-off/little percolation occurs (1) 3. High intensity/high rainfall input (1) exceeding infiltration rate of soil/causing saturation of ground/soil etc (1)	(6)

Question Number	Answer	Mark
4(b)	Processes include corrasion/abrasion, attrition, solution/corrosion, cavitation, hydraulic action etc. Must have correct name and outline in each case. 3x1 If 3 correct names but incorrect outlines - 1 mark.	(3)

Question Number	Indicative content	
4(c)	Description = flat, adjacent to river/susceptible to flooding, often lower course, may have levees alongside river channel, made up of alluvium/silt which results in increased fertility. Explanation = combination of lateral erosion (during meander migration) and deposition during flood events, sequential deposition across flood plain. (6)	
Level	Mark	Descriptor
	0	No rewardable material
Level 1	1-2	Basic description of flood plain characteristic(s) without any valid explanation.
Level 2	3-4	Clear description and some simple explanation of flood plain characteristics. Aware of processes, but perhaps only one type.
Level 3	5-6	Clear description and accurate explanation of a reasonable range of flood plain characteristics. Provides detail of both sets of processes involved.

(Total 20 marks)

Question Number	Answer	Mark
5(a)(i)	A drowned/submerged (1) (former) glacial valley (1)	(2)

Question Number	Answer	Mark
5(a)(ii)	Narrow (1), deep (1), presence of sediment (1), overall shape (allow U or V)(1), steep sided (1). Any 3x1 but must use data for max.	(3)

Question Number	Answer	Mark
5(a)(iii)	Erosion of an existing river valley by a glacier Eustatic rise in sea level, perhaps due to global warming and melting of ice caps/glaciers. Isostatic fall in land level, perhaps due to weight of ice sheets or tectonic downwarping. Mark on depth of explanation but must have two ideas for max.	(4)

Question Number	Answer	Mark
5(b)(i)	Swash>backwash, low levels of energy, low wave height, low angle of break, not very steep, long wavelength, surging waves, net gain of material etc. Any 3x1.	(3)

Question Number	Answer	Mark
5(b)(ii)	Add material (1), increase overall gradient (1), makes upper part of beach higher (1) etc. Any 2x1.	(2)

Question Number	Indicative content	
5(c)	Formation = alternating bands of weak and resistant rock giving uneven rates of erosion and retreat. Development = bays become sheltered and so erosion rate decreases, headlands eroded due to refraction and so coastline eventually becomes straightened. Role of post-glacial sea level rise may also be relevant.	
	(6)	
Level	Mark	Descriptor
	0	No rewardable material
Level 1	1-2	Basic explanation of formation without valid references to subsequent modification.
Level 2	3-4	Valid explanation of formation. Subsequent modification may be mentioned, but not explained in terms of processes.
Level 3	5-6	Accurate explanation of formation and explicit reference to subsequent development. Able to explain why processes vary.

(Total 20 marks)

Question Number	Answer	Mark
6(a)(i)	Halosere	(1)

Question Number	Answer	Mark
6(a)(ii)	High % near MLWM and low/none further away (1), some anomalies e.g. 1/2,8,20/21 (1), use of data (1). 3x1.	(3)

Question Number	Answer	Mark
6(a)(iii)	Likely to include salt tolerance by salt-secreting glands, long roots for stability, survives submergence as copes without oxygen for several hours. Any 2 valid ways. 1 mark for adaptation, 1 for reference to how it helps survival in each case. 2x2.	(4)

Question Number	Indicative content
6(b)	Impacts include submergence, increased rates of erosion etc. Human uses include settlement, agriculture, tourism, ports etc. Located examples may be provided as evidence, although this is not required. Answers should explicitly link to human uses. If death and destruction with development and range, max 5. A balanced account with development for 6.

Level	Mark	Descriptor
	0	No rewardable material
Level 1	1-2	Basic description of impacts without any valid explanation. Links not established.
Level 2	3-4	Clear description and some simple explanation of impacts. Range of human uses may be limited. Links may be implicit.
Level 3	5-6	Clear description and accurate explanation of impact. Explicit links to a range of specific human activities.

Question Number	Answer	Mark
6(c)(i)	Hydraulic action, pounding, abrasion/corrasion, corrosion, attrition etc. Must have correct name and appropriate outline. (Any 2x1). 1 mark for two correct names only.	(2)

Question Number	Indicative content	
6(c)(ii)	Human factors include construction of groynes, sea walls etc, beach nourishment. May also refer to port/harbour development, off-shore dredging etc. (Accept any valid factor with development) Most cause a reduction in rate e.g. sea walls; some an increase e.g. off-shore dredging. Need at least 2 factors and linked to rates for max.	
	(4)	
Level	Mark	Descriptor
	0	No rewardable material
Level 1	1-2	Aware of human factors. Links to rates stated.
Level 2	3-4	Developed answer with clear understanding of influences. Links to rates explained.

(Total 20 marks)