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Mark Scheme (Results)

Summer 2015

Pearson Edexcel GCSE in Geography A (5GA2H/01)

Unit 2: The Natural Environment

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Summer 2015
Publications Code UG041622*

General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

Placing a mark within a level mark band

- The instructions below tell you how to reward responses within a level. Follow these unless there is an instruction given within a level. However, where a level has specific guidance about how to place an answer within a level, **always** follow that guidance.

- **2 mark bands**
  Start with the presumption that the mark will be the higher of the two.
  An answer which is poorly supported gets the lower mark.

- **3 mark bands**
  Start with a presumption that the mark will be the middle of the three.
  An answer which is poorly supported gets the lower mark.
  An answer which is well supported gets the higher mark.

- **4 mark bands**
  Start with a presumption that the mark will be the upper middle mark of the four.
  An answer which is poorly supported gets a lower mark.
  An answer which is well supported and shows depth or breadth of coverage gets the higher mark.

- Mark schemes will indicate within the table where, and which strands of QWC, are being assessed. The strands are as follows:

  i) ensure that text is legible and that spelling, punctuation and grammar are accurate so that meaning is clear

  ii) select and use a form and style of writing appropriate to purpose and to complex subject matter

  iii) organise information clearly and coherently, using specialist vocabulary when appropriate.

Spelling, Punctuation and Grammar Marking Guidance

- The spelling, punctuation and grammar assessment criteria are common to GCSE English Literature, GCSE History, GCSE Geography and GCSE Religious Studies.

- All candidates, whichever subject they are being assessed on, must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.

- Spelling, punctuation and grammar marking criteria should be applied positively. Candidates must be rewarded for what they have demonstrated rather than penalised for errors.

- Examiners should mark according to the marking criteria. All marks on the marking criteria should be used appropriately.

- All the marks on the marking criteria are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the marking criteria.

- Examiners should be prepared to award zero marks if the candidate's response is not worthy of credit according to the marking criteria.

- When examiners are in doubt regarding the application of the marking criteria to a candidate's response, the team leader must be consulted.

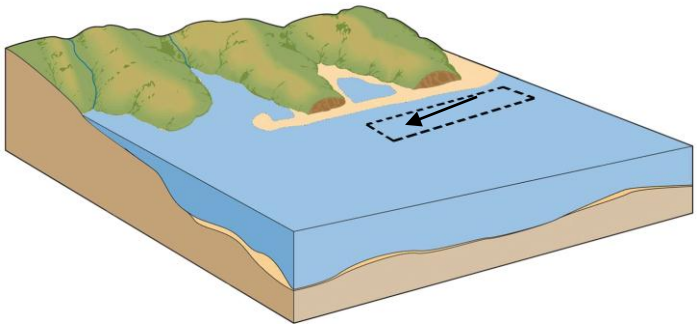
- Crossed out work should be marked unless the candidate has replaced it with an alternative response.

- Handwriting may make it difficult to see if spelling, punctuation and grammar are correct. Examiners must make every effort to assess spelling, punctuation and grammar fairly and if they genuinely cannot make an assessment, the team leader must be consulted.

- Specialist terms do not always require the use of complex terminology but the vocabulary used should appropriate to the subject and the question.

- Work by candidates with an amanuensis, scribe or typed script should be assessed for spelling, punctuation and grammar.

- Examiners are advised to consider the marking criteria in the following way:
  - How well does the response communicate the meaning?
  - What range of specialist terms is used?
  - How accurate is the spelling, punctuation and grammar?

Question Number	Answer	Mark
1(a) (i)	1 mark for the direction of LSD. **Allow arrow outside of the box and zig-zag pattern in the correct direction.** 	**1**

Question Number	Answer	Mark
1(a) (ii)	spit	**1**

Question Number	Answer	Mark
1(b)	Bars form due to longshore drift often at bays or inlets (1). The spit extends across the bay until it reaches the other side (1). Sediment is moved by the action of swash and backwash (1). If a spit extends from one side of the bay to the other it will form a bar (1). A lagoon can form behind the bar once the bar covers the bay (1) **List of words with no description max 1. Must describe the link of sediment across the bay to get maximum marks.** Credit relevant points on any diagrams provided but diagram not necessary for full marks.	**3** **1+1+1** **OR** **(1+1) +1**

Question Number	Answer	Reject	Mark
1(c)	Maximum 3 marks for answers which do not use comparative language. Constructive waves have a greater swash than backwash whereas destructive waves have a greater backwash than swash (1). Destructive waves are higher energy waves in comparison to constructive waves which are low energy (1). Destructive waves remove sediment from the beach whereas constructive waves build beaches (1) Destructive waves break more frequently than constructive waves (1) for example destructive waves break 13-15 time per minute whereas constructive 5-9 times per minute (1). Destructive waves are higher (than 1m) whereas constructive are (below 1m) (1). Constructive waves have a greater wavelength than destructive waves (1). Storm vs calm conditions (1) Credit relevant points on the diagram, however **do not** double credit the diagram and the text. If just two diagrams with labels then max 2.	**Fetch** **LSD**	**4** **1+1+ 1+1** **OR** **(1+1)+ (1+1)**

Question Number	Indicative content
1d	Geology can influence the formation of coastal landforms: • Rock type • Orientation of the rock • Strength of rock – composition e.g. jointing Common landforms affected by geology: • Headlands and Bays – hard rock leads to the formation of headlands as they are eroded at a slower rate, as they are more resistant. Whereas the bays are formed of a relatively softer material therefore they erode at a faster rate. • Cliffs – if bedding planes in the cliff slope seaward the cliffs will be more susceptible than if they slope landward. • Caves and Arches – cracks and joints in the cliff face are exploited and become larger due to erosion. As result they widen to form caves. If two caves join, they will form arches. • Concordant and discordant coastlines – if cliffs are concordant the rate of erosion will be lower and this will lead to a lateral cliff formation, whereas discordant coastlines will lead to the formation of headlands and bays. • Stacks and stumps – erosion of the joints or weaknesses at the base of the stacks leading to the collapse. **Max 3 if partial explanation is evident but no reference to landforms.** **Max 3 if reference to only one landform.** Credit other sensible suggestions.

Level	Mark	Descriptor
0	0	No acceptable response
1	1-2	A very basic description of the impact of geology in the formation of coastal landforms. Very basic use of geographical terminology – communication not always clear.
2	3-4	An attempt or partial explanation of how geology impacts the formation of coastal landforms. For top of level must link to more than one landform. Must have partial explanations which link to one or more landforms. Some use of geographical terminology and communication is mostly clear.
3	5-6	One full explanation of how geology impacts on the formation of one coastal landform. For top of band expect good explanation on at least two landforms. Focus should be explicitly on the impact of geology. Clear use of geographical terminology and well communicated.

Question Number	Answer	Mark
2(a) (i)	**One mark for link to geology and flooding (1)** **one mark for developed description (1)** The chalk has less flooding/ the clay has more flooding (1), due to its permeability (1). There are more rivers on the clays and gravel (1) and more chance of flooding as a result (1) **No mirror credit for 2.**	**2** **1+1** **OR** **(1+1)**

Question Number	Answer	Reject	Mark
2(a) (ii)	Flooding has the following impacts on the human environment: • Alding Bourne Rife will flood the town of Barnham (1) and also the eastern part of Bognor Regis (1) • Flooding from Pagham and A.B Rife will block A259 (1). This could lead to disruption with communication/infrastructure (1). • The extent of flooding in Chichester could cover 1km (1) • The A285 and A27 will suffer disruption (1) but not to the extent of the A259 (1) **Accept reference to farming.** **Max 2 without map evidence – map evidence includes road names, place names, direction or scale.** **No credit for map evidence alone.**	Environment impacts	**3** **1+1+1** **OR** **(1+1)+1**

Question Number	Answer	Reject	Mark
2(b)	The reasons below are common in both the upper and middle stages of the river. Credit can only be given for reference to one stage. The channel is shallower than what would be expected downstream (1) this can be seen as rocks are visible through the flow (1) There is evidence of larger boulders (1) – which we could be less likely to find downstream (1) as these have not yet been eroded (1) (by attrition (1)). Large sediment bar (1) – suggested evidence of both erosion and deposition (1) – river does not have enough energy to carry away the sediment (1) (suggested variable seasonal discharge (1)). The river has started meandering (1) – evidence of a steeper river cliff and slip off slope (1). Rapids – as the water passes larger boulders (1) – less common in the lower course. River is set in steep sided valley (1) which suggests further upstream as the rock may be harder (1) or not yet eroded (1) or higher altitude nearer the source (1). Credit appropriate references to width or gradient. **Maximum of 2 marks for descriptions.** **Max 2 if candidate states wrong stage but identifies correct associated features.**	**River landform formation**	**4** **(1+1)+ (1+1)** **OR** **(1+1+1) +1**

Question Number	Indicative content	
***2c QWC**	Effects of flooding reduced through planning and education: Planning • Building away from floodplains • Preparing the local populations with hazard maps and information packs • Installing defences to overcome known danger points. • Evacuation procedure in place if flood escalates Education • Improved understanding in the local population to help them now what to do in a flood • Develop understanding through leafleting and internet by organisations such as DEFRA • Learn about flooding in school education Credit other sensible suggestions. **Do not double credit education if part of planning.**	
Level	Mark	Descriptor
Level 0	0	No acceptable response
Level 1	1-2	A very basic description of how flooding is reduced by either planning or education. At the top of the level both planning and education are described. There may be no reference to examples. Very basic use of geographical terminology – communication not always clear.
Level 2	3-4	An attempt or partial explanation of how either planning or education can reduce the effects of flooding. For top of the level there should be a partial explanation of both planning and education or partial explanations of either. There should be a link to examples for the top of the level. Some use of geographical terminology and communication is mostly clear.
Level 3	5-6	Full explanation of how either planning or education can reduce the impacts of flooding, along with a partial explanation of the other factor (planning/education). For top of band expect good explanation of both planning and education. There should be clear evidence of examples for top of level. Clear use of geographical terminology and well communicated.

Question Number	Answer	Mark
3(a) (i)	Descriptions of fault lines: • Most run in a northwest to south east direction (1) • More in the northwest than the southeast (1) • Parallel to each other (1) • Cluster found within the caldera (1) • None found in the east of the caldera (1) • There are none near Bloody mountain (1) • They are distributed along highway 395 (1) • Linear (1) or in a line (1) • Close to each other (1) or clustered (1) • Most are in contact with the caldera except one (1)	**3** **1+1+1**

Question Number	Answer	Reject	Mark
3(b)	One measure method (1) and some development (1) **Allow credit for equipment and/ or quantifying the scale** Eg. • Seismometers (1) help pick up seismic waves which can montitor the size of the earthquake(1) • Richter scale (1) can be used to assess the size/ or amount of energy (1) • Mercalli scale (1) used to assess the damage/ intensity caused by the earthquake (1) • Mobile devices e.g. smartphones have "shake" apps built in (1) which helps inform the amount of movement and location (1) • Using social media to see peoples response to the event, e.g. using Twitter (1) and can help with locations (geo-located) (1) • Use of laser technology (1) to measure movement/ or size of earthquake (1)	Help predict earthquakes Mention of only scale 1-10 with context	**2** **(1+1)**

Question Number	Answer	Mark
3(c)	Effects of earthquake/volcanic eruption: • Death and injury • Damage to buildings and infrastructure • Spread of disease • Increase in psychological disorders • Disruption to family life Max 2 without explanation Max 2 without specific case study detail or generic descriptions. Credit any relevant effect. e.g. The eruption of Montserrat led to the deaths of 23 people between 1995 and 1997 (1) as people went back to their land thinking it was safe (1). It led to the forced evacuation of the southern part of the island (1), which meant that up to 7000 people left the Caribbean (1).	**4** **(1+1)+ (1+1)** **OR** **(1+1+1) +1**

Question Number	Indicative content
3*(d)	Volcanoes on convergent plate boundaries include – composite, caldera, acid dome, island arcs Relevant concepts include: Convergence of two plates oceanic/continental or oceanic/oceanic Convection causing the convergence Subduction of denser plate Melting of subducting plate Low density melt rising through crust Pressurisation of melt Explosive eruption of evolved magma (andesitic or rhyolitic) and pyroclastic material Typical sequence to include; Convergence of plates, subduction, melting, magma rising, pressurised eruption, and reference to evidence of volcanism or volcano forming on surface at a convergent plate boundary e.g explosive events. *Example – plates move together due to convection currents in the mantle. The denser oceanic plate is subducts underneath continental. As it subducts it heats and therefore melts. Melted magma rises due to low density. As it rises through the continental crust it is under pressure, resulting in an explosive eruption. Or the cooling and solidifying of magma or ash on the surface to form a volcano.* **Do not credit references to hotspots or divergence** **Max Level 1 for a correct idea but in the wrong context.**

Level	Mark	Descriptor
0	0	No acceptable response
1	1-2	A very basic description of how volcanoes are formed on convergent plate boundaries. Very basic use of geographical terminology – communication not always clear.
2	3-4	An attempt or partial explanation of the formation of volcanoes on convergent plate boundaries. For top of the level there should be a series of partial explanations. Candidate may not explain the link between plate boundary and volcanoes. Sequence may not be complete and reference to eruption not clear. Some use of geographical terminology and communication is mostly clear.
3	5-6	A series of explanations of how volcanoes are formed at convergent plate boundaries. Full sequence of formation should be given to access Level 3. For top of band there should be a series of full explanations linked to how volcanoes form at this boundary. Clear use of geographical terminology and well communicated.

Question Number	Answer	Mark
4(a)	Recycling is where material is collected and remade in a new item (1) Reuse is where the same item is used again (1) **Allow the word reuse when in the context of an example.** **Allow to full marks even if the difference is not clear.**	**2** **1+1**

Question Number	Answer	Mark
4(b)	Candidate must develop a point (outline) to gain maximum marks. **Max 2 without development.** The cartoon suggests a consumer society/materialistic view. (1) Encouraging people to buy new electronics. (1) while providing a bin to recycle last month's electronic items. (1) People can afford to replace rather than fix. (1) Other relevant points relating to cartoon	**3** **(1+1)** **+1** **OR** **(1+1+1)**

Question Number	Answer	Mark
4(c) (i)	**Each point must be comparative to gain credit.** Cinema produces the least amount of waste in a 6 hour period/ Fast food produces the most waste in a 6 hour period. (1). Fast food waste is 5kgs more than a mainline train station in a 6 hour period (1). Mainline stations produce 40kgs more than theme parks per 6 hour period (1). **Candidates can get credit for manipulating the data. – eg 130kg difference between highest and lowest.**	**2** **1+1**

Question Number	Answer	Reject	Mark
4(c) (ii)	Max 2 for descriptions. HICs export waste because they may not have the facility to manage it in their own country (1). This may because the waste is toxic (1). They may export the waste because they do not wish to landfill the waste, or incinerate the waste (1). It may be cheaper to export waste to another country (1). **Generic ideas – eg not enough space, produce too much waste – max 1.**	Recycling	**3 (1+1) +1**

Question Number	Answer	Mark
4(d)	Domestic energy wastage: • Single glazed windows (1) means heat is lost more rapidly so more energy is required to keep the house warm (1) • Lack of loft insulation (1) means heat is lost more rapidly so more energy is required to keep the house warm (1) • Leaving lights/electrical items on/on standby (1) so power is still running to the device (1) Industrial energy wastage: • Machines left running throughout the day (1)even when they may not be being used (1) • Lights Left on overnight (1) as people forget to switch them off (1). • Faulty machines (1) use energy inefficiently (1) • Unnecessary journeys (distribution) (1) which can add "miles" to food (1) Accept all relevant answers **Maximum 2 marks for description. 1 mark for household, 1 mark industry. Don't credit 2 marks for 2 descriptive points on either industry or household.** **Maximum 3 if only one factor explained (industry or households) through double development.**	**4 (1+1)+ (1+1)**

Question Number	Indicative content
***4 (e) QWC i-ii-iii**	Question is about renewable energy – all reference to non-renewable energy measures are not worth credit. Answers should focus on how the development of the resource impact people. The focus can be any renewable energy source to include HEP, solar, tidal, wind, wave or geothermal. Impacts can be positive and negative Impacts on environment will depend on the type, however, general examples include: • Reduced CO_2 emissions • Disruption to local ecosystems • Intrusion on the local environment • Reduced need to extract fossil fuels Local scale impact will focus on place specific issues. Global scale will more than likely focus on global climate. To reach the top of Level 3 there should be a clear attempt by the candidate to 'examine' or assess the impact of the renewable energy source – this may be in the format of a summary conclusion or evaluative comments. **Max 4 marks if candidate only discusses local or global responses.**

Level	Mark	Descriptor
0	0	No acceptable response
1	1–2	An attempt to describe the impact of a renewable energy source on the environment. Case study material may be described, but is not always relevant to the answer (may not be located). Tends to be basic use of geographical terminology.
2	3–4	One attempted or partial explanation of how a renewable energy source may have impacts on either the local or global environment. For top of level expect a partial explanation on how renewable energy source has an impact on both local and global environments. Or partial explanations on either local or global. Exemplification may be used, especially in the top of this band. Generally clearly communicated but with mixed use of geographical terminology.

3	5–6	Clear explanation of how a renewable energy source has impacts on either the local or global environment (with supporting partial explanations). For top of level there should be a clear explanation of how a renewable energy source has impacts on both the local and global environment. The candidate has also shown clear evidence of attempting to 'examine' in their concluding comments. Located example should be detailed. Well communicated with good use of geographical terminology.
SPaG Level 0	0	Errors severely hinder the meaning of the response or candidate does not spell, punctuate or use the rules of grammar within the context of the demands of the question.
SPaG Level 1	1	*Threshold performance* Candidate spells, punctuates and uses the rules of grammar with reasonable accuracy in the context of the demands of the question. Any errors do not hinder meaning in the response. Where required, they use a limited range of specialist terms appropriately.
SPaG Level 2	2-3	*Intermediate performance* Candidate spells, punctuates and uses the rules of grammar with considerable accuracy and general control of meaning in the context of the demands of the question. Where required, they use a good range of specialist terms with facility.
SpaG Level 3	4	*High performance* Candidate spells, punctuates and uses the rules of grammar with consistent accuracy and effective control of meaning in the context of the demands of the question. Where required, they use a wide range of specialist terms adeptly and with precision.

Question Number	Answer	Mark
5(a)	Water-borne disease are those contracted by people from polluted water sources (1) or from animals in the vicinity of the water source (1). Water pollution is the by-product of negative human activity on the water quality of the water course (1). e.g. Water-borne disease are contracted from polluted water sources (1) water pollution is a by-product of negative human activity on the water quality (1) **Allow to full marks even if the difference is not clear.**	**2** **(1+1)**

Question Number	Answer	Mark
5(b)	**Candidates can achieve credit through description of the look and purpose. However purpose must be linked to water supply.** A dam (accept reservoir)/Hoover dam is shown in Photograph D (1) It is built across a step sided canyon (valley) (1) The dam is very tall (1) (over 30m) concrete (1) Water is stored behind the dam in a reservoir (1) Water can be regulated from the reservoir to prevent drought (1) This helps dry areas regulate water in periods of drought (1) Rivers and rainwater flow into the dam (1) and water is slowly released (1) and can be used for drinking or other uses (1)	**3** **(1+1) +1**

Question Number	Answer	Mark
5(c) (i)	**Each point must be comparative to gain credit.** India has the highest annual fresh water use/ Russia has the least annual freshwater use (1) India uses over 350 km^3/yr more water than the USA (1) India uses more compared to China (1) **Candidates can get credit for manipulating the data. – eg 479 km^3/yr difference between highest and lowest.**	**2** **1+1**

Question Number	Answer	Mark
5(c) (ii)	Credit reference to: High seasonal temperature range Areas of high or low relief Changes in seasonal demand linked to rainfall variability Supply vs cost E.G. High temperatures in summer periods (1) lead to higher amounts of evaporation (1). This can lead to low levels in reservoirs (1) which means that supply is lower (1). This may result in water transfer from areas with greater supply. (1). Accept other relevant ideas	**3** **(1+1)** **+1** **OR** **(1+1+1)**

Question Number	Answer	Mark
5(d)	Water can be managed both domestically and industrially; Domestically Use of water meters Hose pipe bans Use of water hippos Industry Water recycling Water conservancy measures Drip irrigation **Maximum 2 marks for description. 1 mark for household, 1 mark industry. Don't credit 2 marks for 2 descriptive points on either household or industry. Maximum 3 if only one factor explained (industry or households) through double development.** e.g. Water meters are used to give people an indication of how much water is used (1). This encourages people to use less water (1), or on which use to cut down on (1). Recycled water can be used in factories for use in cooling machines (1) which leads to less water being extracted from local rivers.	**4**

Question Number	Indicative content
***5 (e) QWC i-ii-iii**	This question requires the candidate to focus on appropriate technology – i.e. small scale approaches, which have a community focus and are sustainable. They include: Boreholes Tube wells Gravity fed systems Small scale dams Water conservation methods Water recycling systems Candidates are required to apply the success of these methods to place examples they have studied. To reach the top of Level 3 there should be a clear attempt by the candidate to 'examine' or assess the impact of the renewable energy source – this may be in the format of a summary conclusion or evaluative comments.

Level	**Mark**	**Descriptor**
0	0	No acceptable response
1	1–2	A description of how appropriate technology is used for water supply in LICs. Examples may be included, but are of limited relevance to the answer. Very basic use of geographical terminology – communication not always clear.
2	3–4	One attempted or partial explanation of how appropriate technology is used as water supply in LICs. For top of level expect a range of partial explanations (perhaps of different types of appropriate technology). Exemplification may be used, especially in the top of this band. Generally clearly communicated but with mixed use of geographical terminology.
3	5–6	Clear explanation of how appropriate technology is used for water supply. For top of level there should be a range of clear explanations. The candidate has also shown clear evidence of attempting to 'examine' in their concluding comments. Located examples should be detailed. Well communicated with good use of geographical terminology.
SPaG Level 0	0	Errors severely hinder the meaning of the response or candidate does not spell, punctuate or use the rules of grammar within the context of the demands of the question.

SPaG Level 1	1	*Threshold performance* Candidate spells, punctuates and uses the rules of grammar with reasonable accuracy in the context of the demands of the question. Any errors do not hinder meaning in the response. Where required, they use a limited range of specialist terms appropriately.
SPaG Level 2	2-3	*Intermediate performance* Candidate spells, punctuates and uses the rules of grammar with considerable accuracy and general control of meaning in the context of the demands of the question. Where required, they use a good range of specialist terms with facility.
SpaG Level 3	4	*High performance* Candidate spells, punctuates and uses the rules of grammar with consistent accuracy and effective control of meaning in the context of the demands of the question. Where required, they use a wide range of specialist terms adeptly and with precision.

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