

Mark Scheme (Results)

Summer 2016

Pearson Edexcel GCSE Geography A
Paper 2: The Natural Environment
(5GA2F/01)

Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications are awarded by Pearson, the UK's largest awarding body. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications websites at <http://qualifications.pearson.com> or www.btec.co.uk. Alternatively, you can get in touch with us using the details on our contact us page at <http://qualifications.pearson.com/contactus>

Pearson: helping people progress, everywhere

Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your students at: www.pearson.com/uk

Summer 2016

Publications Code 5GA1H_01_1606_MS

All the material in this publication is copyright

© Pearson Education Ltd 2016

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)	Figure 1a shows changes in the position of the coastline over a 45-year period. By 2012 the boat dock had been destroyed by the sea. By 2017 Newtok will lose its water source . It is likely that these coastal changes may cause more people to move away from this area.	(4)

Question Number	Answer	Mark
1(a) (ii)	C – 200 -250m	(1)

Question Number	Answer	Mark
1(a) (iii)	C – A rise in sea level	(1)

Question Number	Answer	Mark
1(b)	B – There will be more erosion	(1)

Question Number	Answer	Mark
1(c)	<p>Weathering: Weathering is the breakdown of material (1) in situ/in one place (1). Examples: chemical/physical or biological, freeze thaw/root action/exfoliation (1). It can occur as the cliffs freeze and thaw (1) causing the material to expand and contract (1).</p> <p>Mass movement: The collapse of material (1) due to gravity (1), which leads to loss of the cliff (1). Soil creep (1) is the slow movement of material downslope (1) due to gravity (1) Slumping (1) is the rapid collapse of material (1) due to water lubrication (1)</p> <p>Candidate must outline both weathering and mass movement for maximum.</p> <p>Allow up to 3 marks for one process.</p> <p>Reserve 1 mark for a named process without development. For example weathering: (allow physical, chemical and biological) freeze-thaw, exfoliation, root action or for mass movement slumping, mudslide, soil creep or landslides.</p>	<p>(4)</p> <p>(1+1) + (1+1) (1+1+1) +(1+1)</p>

Question Number	Answer	Mark
1(d)	<p>Forecasting to include:</p> <ul style="list-style-type: none"> • predictive work carried out by organisations such as Met. Office • weather reports • work/action carried out by agencies in advance of the event • Allow reference to planning and prediction in the context of forecasting. <p>Met Office (1) monitor the world's land surfaces, atmosphere and oceans (1) using satellite technology (1). This enables them to produce weather reports which predict the weather conditions (1). Different agencies use these reports to warn populations along the coastline (1). Therefore, allows people to evacuate (1) which could reduce death/injury (1). For example, accurate forecasting enables the Thames Barrier to be raised to prevent London being flooded (1), when the tide is high (1).</p> <p>LICs may rely on forecasting from agencies in HICs (1). However, these agencies may work with local organisations (1). In Bangladesh the Bangladesh Water Development Board provides forecasting information (1) to help manage disasters (1). This could help reduce damage to infrastructure (1).</p> <p>Credit 1 mark for a named organisation.</p> <p>Maximum 2 marks for a simple list of forecasting measures.</p> <p>Maximum 3 if no located examples included.</p> <p>Located examples in the context of forecasting can be at national, regional or local scale. Therefore if the candidate makes reference to organisations e.g. Met Office – this can be used as a valid example for the UK without explicit reference to it. Accept also reference to examples at a local scale.</p>	<p>(4)</p> <p>(1+1+1) +1</p> <p>(1+1) +</p> <p>(1+1)</p> <p>(1+1) +</p> <p>1+1</p>

Question Number	Answer	Mark
2(a) (i)	B - Confluence	(1)

Question Number	Answer	Mark
2(a) (ii)	C - The boundary of the drainage basin	(1)

Question Number	Answer	Mark
2(b) (i)	A - Gorge	(1)

Question Number	Answer	Mark
2(b)(ii)	<p>An important process in the formation of waterfalls is vertical erosion.</p> <p>The main type of erosion in the plunge pool is hydraulic action.</p> <p>This erosion is caused by the force of the water hitting the rock.</p> <p>As the waterfall cuts back it leaves a steep sided valley.</p>	(4)

Question Number	Answer	Reject	Mark
2(c)	<p>The following are some of the suggested impacts – however accept any that is relevant to the map.</p> <p>Candidates must refer to the impact on people to get max two for that point.</p> <p>Max 3 if not used Figure 2b.</p> <p>People’s homes and possessions will become damaged (1).</p> <p>Flooding at Heathrow airport (1) will lead to closure of the runway (1) which means that flights could become delayed or cancelled (1).</p> <p>Severe flooding on the M4 (1) may lead to closure (1) leading to traffic delays (1).</p> <p>Most housing in flooded areas with flood damage (1) which could lead to some evacuations (1).</p>	Reference to impacts on land	<p>(4)</p> <p>(1+1)+ (1+1)</p>

Question Number	Answer	Mark
2(d)	<p>Relevant hard engineering includes methods: Embankments/flood walls Channelisation Dams Dredging Wing dykes</p> <p>Advantages include: Increased channel capacity Erosion resistant surface Regulating or containing discharge To increase sedimentation More effective Stronger Durable</p> <p>Allow reference to the action of the method and the subsequent benefit of this. For example, houses are put on stilts (1) which means that flood water passes beneath them (1).</p> <p>Example: A 450m flood embankment was built in Weedon (Northamptonshire) (1). It was an extra 6.8m (1) high therefore increasing channel capacity (1), thereby reducing the future impacts of flooding (1). Despite their cost, a dam is highly effective at controlling the river (1). This is because they are able to regulate the flow of the channel (1)</p> <p>Maximum 3 without explanation. Maximum 3 marks if only one point Allow to 4 marks if one good explanation and one supporting point described/stated. No need for named river for max.</p>	<p>(4)</p> <p>(1+1) + (1+1)</p> <p>or</p> <p>(1+1) + 1+1</p>

Question Number	Answer	Mark
3(a) (i)	A - Mercalli	(1)

Question Number	Answer	Mark
3(a) (ii)	B - A build-up of pressure leading to the crust breaking	(1)

Question Number	Answer	Mark
3(a)(iii)	D - On convergent plate boundaries	(1)

Question Number	Answer	Mark
3(b)	The date of the earliest eruption was 1585 . Active volcanoes are found in the Cumbre Vieja zone. The most recent eruption was at the Teneguia volcano and it caused the death of one man. The 1949 eruption created a lava lake.	(4)

Question Number	Answer	Reject	Mark
3(c)	<p>Economic reasons to include:</p> <p>Governments can afford to install aseismic designs. (1) People can afford to make the necessary adaptations to their homes (1) to limit earthquake damage (1). People have excellent/well-paid jobs in seismic areas (1) (e.g. Silicon Valley (1)). People cannot afford to move away (1) in poorer or rural areas (1).</p> <p>People who work for large companies like Apple in California (1) are highly skilled and earn high wages (1). Therefore despite the fact that there are earthquakes they will stay (1) as the benefits outweigh the costs (1). Governments in HICs such as Japan are able to retrofit buildings (1) so that they are earthquake protected (1) as they have the financial means to do so (1).</p> <p>Tourism associated with famous fault lines for example in San Francisco – is acceptable.</p> <p>Maximum 3 without located examples.</p>	<p>Volcanic reasons</p> <p>References to cheap housing.</p>	<p>(4)</p> <p>(1+1+1)) +1</p> <p>(1+1)+ (1+1)</p> <p>(1+1)+ 1+1</p>

Question Number	Answer	Reject	Mark
3(d)	<p>Max 2 marks if only a labelled diagram (singular labelled words without development) Max 2 for a diagram with text not linked to diagram Or max 2 for just text. 1 mark for a diagram only.</p> <p>An annotation is text linked to a diagram (or steps in diagrams) which develops a point (i.e. outlines or explains)</p> <p>Sequence: Magma plume Breaking through crust Build up over time/series of eruptions Plate movement = led to dormancy/extinction/no longer active</p> <p>Examples of credit: A plume of magma rises in the mantle (1) This pushes the crust up/domes the crust (1) and cracks it (1) Magma seeps through the gaps and erupts onto the surface (1) Over time/series of eruptions the volcano builds up (1) As the plate moves the supply to the volcano is cut (1) and the volcano becomes dormant/extinct (1)</p> <p>Do not double credit the diagram and the text.</p>	References to convergent or divergent plate boundaries	(4)

Question Number	Answer	Mark
4(a) (i)	County	Energy...
	Kerry	160+
	Limerick	81-160
		(2)

Question Number	Answer	Mark
4(a) (ii)	C - Rotating turbines	(1)

Question Number	Answer	Mark
4(a) (iii)	D - Most of the highest values are in the south west	(1)

Question Number	Answer	Mark
4(a)(iv)	Give 1 mark for the reason and 1 mark for the development of the reason.	(2)
	<p>Most likely reason: Strong (prevailing) wind from south west (or north west)/most consistent flow of wind in the south west (1) therefore ability to generate a much higher amount of energy (1). They may be located on higher ground (1), so that there are higher wind speeds to generate electricity. Do not have the money to afford turbines (1). There are better alternatives (1) Obstacles from built up areas (1) Have installed more turbines (1)</p> <p>Allow reference to temporal variation e.g. one day lots of wind (1) so more energy (1).</p>	1+1

Question Number	Answer	Mark
4 (b)(i)	Stage 3 = E Stage 8= B	(2)

Question Number	Answer	Mark
4(b)(ii)	<p>1 mark for the advantage and one mark for the development.</p> <p>Allow one mark for the advantage of recycling in the context of what it is e.g. use over and over.</p> <p>Lower rates of resource extraction (1) which leads to the preservation of raw materials (1)/leads to less damage to ecosystems (1). It is cheaper to make products with recycled material than extracted resources (1) by reducing production and transportation costs (1)/it reduces landfill costs (1). Recycling is a growth sector in the economy (1) therefore more jobs are created/generates an increasing revenue for business (1).</p> <p>Accept any valid response.</p>	(2) 1+1

Question Number	Answer	Mark
4(c)	<p>Question is about waste disposal by a HIC (High Income Country). All answers about LICs will score zero.</p> <p>Max 2 without specific reference to waste disposal in that country.</p> <p>Allow reference to UK bin sorting as a specific reference to waste disposal within a country, e.g. green waste collected in brown bins and recycling in blue boxes (allow for regional variation).</p> <p>Waste disposal methods include:</p> <ul style="list-style-type: none"> • recycling (on a national scale) • incineration • landfill • exporting waste. <p>Example – Germany</p> <p>Use of the Green dot scheme (1) to encourage businesses to recycle waste material (1). Germany export their toxic waste to Albania (1) as they do not have the facility to manage it (1). Germany have used old mines to store excess landfill (1). These are impermeable so that decomposed waste does not leak (1). Germany uses over 68 incinerators to burn its waste (1).</p>	(4) (1+1) +1+1 1+1+ 1+1

Question Number	Indicative content	
*4 (d) QWC i-ii-iii	<p>Reasons for variation in carbon footprint</p> <p>Higher carbon footprints in more developed countries: Greater use of electrical appliances Increased car ownership Greater number of flights for holidays High rates of water use (large amounts of energy used in cleaning process) Food miles Use of raw materials High rates of energy use – heating Waste disposal</p> <p>Credit recognition of variations between types of countries.</p>	
Level	Mark	Descriptor
Level 0	0	No acceptable response
Level 1	1–2	One or two ideas partially related to carbon footprint or issues related to factors associated with carbon footprint. Examples likely absent. Very basic use of geographical terminology – communication not always clear.
Level 2	3–4	A description related to variations in carbon footprint between countries. For top of the level there should be a series of descriptions related to carbon footprint variations. Examples may be included, but are of limited relevance to the answer. Basic use of geographical terminology – communication not always clear.
Level 3	5–6	One partially explained reason for variation in carbon footprint between countries at different stages of development. For top of level expect a range of partially explained points, or one well developed point. Exemplification must be used to access the top of this band. Generally clearly communicated but with mixed 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	<i>Threshold performance</i> 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	<i>Intermediate performance</i> 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	<i>High performance</i> 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) (i)	Year	Water leaked...	(2)
	1998	3550	
	2003	3650 (allow 3641-3659)	
	2008	3290 (allow 3281-3299)	
	2010	3400	

Question Number	Answer	Mark
5(a) (ii)	D- The amount of water leaked decreased between 2003 and 2009	(1)

Question Number	Answer	Mark
5(a) (iii)	A- Broken main water pipes	(1)

Question Number	Answer	Mark
5(b)	<p>One mark for the reason and one mark for the development.</p> <p>Reduced supply (1) therefore there's a need for measures to be introduced to restrict use (1). Drought (1) can lead to people desperate for water and having to travel to gain access (1). Population imbalance (1) Seasonal variation (1)</p> <p>Allow credit for an answer which makes reference to water supply problems in the context of use.</p>	(2) 1+1

Question Number	Answer	Mark
5(c) (i)	<p>Supply/Use 2 = D</p> <p>Supply/Use 7 = H</p>	(2)

Question Number	Answer	Mark
5(c) (ii)	<p>One mark for method of management and one for development of how it manages.</p> <p>Allow reference to: Water meters Dual-flush toilets Dams/reservoirs Hose-pipe bans Allow any form of management which is plausible.</p> <p>Water meters (1) help monitor water use (1) so that people can track what they use and restrict their own use (1). Hosepipe ban (1) reduce water consumption for unnecessary uses therefore enabling use for major domestic uses. Hippo/short-flush toilets (1) so that less water is used in a flush (1).</p>	(2) 1+1

Question Number	Answer	Mark
5(d)	<p>Max 3 marks without specific location/examples of methods.</p> <p>Max 3 for one method.</p> <p>Methods to obtain water on a local scale:</p> <ul style="list-style-type: none"> • dams • rivers • groundwater • appropriate technology methods <p>Allow 2 for a list of (correct) methods.</p> <p>Water can be sourced from rivers (1) by extraction directly from the channel (1). People in LICs, for example rural Bangladesh, may walk to rivers and take it directly with buckets (1).</p> <p>Water in a river can be dammed (1) and then stored in a reservoir (1). This water can be used for domestic use (1). This can be on a small scale by local people (1).</p> <p>Groundwater is stored in aquifers (1). These are then tapped with pipes (1) and water is extracted (1) and used for municipal uses (1). An example is Southern water (1), which gets its water from the chalk aquifers (1) and supplies homes in Surrey (1).</p>	<p>(4) (1+1)+(1+1)</p>

Question Number	Indicative content	
*5 (e) QWC i-ii-iii	<p>HICs are facing an increasing demand for water.</p> <ul style="list-style-type: none"> -showering society -golf courses -washing machines/dishwashers, etc. -domestic use in general (washing cars/gardens) -leisure uses -high water use in industry 	
Level	Mark	Descriptor
Level 0	0	No acceptable response
Level 1	1–2	<p>One or two ideas about demand or use. Examples likely absent.</p> <p>Very basic use of geographical terminology – communication not always clear.</p>
Level 2	3–4	<p>One or two ideas describing why HICs are facing an increasing demand for water. Examples may be included, but are of limited relevance to the answer.</p> <p>Basic use of geographical terminology – communication not always clear.</p>
Level 3	5–6	<p>One partially explained way in which HICs face an increased demand for water. For top of level expect a range of partially explained points, or one well developed point.</p> <p>Exemplification must be used, especially in the top of this band. Generally clearly communicated but with mixed use of geographical terminology.</p>
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	<p><i>Threshold performance</i></p> <p>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.</p>
SPaG Level 2	2-3	<p><i>Intermediate performance</i></p> <p>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.</p>

SPaG Level 3	4	<i>High performance</i> 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.
-----------------	---	--