



Mark Scheme (Results)

Summer 2021

Pearson Edexcel International GCSE
In Geography (4GE1)

Paper 1: Physical geography

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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.

Question number	Answer	Mark
1(a)(i)	AO1 (1 mark) C (Lake) (1) The answer cannot be A, B or D as these are all flows in the hydrological cycle and not stores.	(1)

Question number	Answer	Mark
1(a)(ii)	AO1 (1 mark) B (Plants take up water from the soil and release it into the atmosphere as water vapour). (1) The answer cannot be A (precipitation), C (throughflow) or D (condensation).	(1)

Question number	Answer	Mark
1(b)(i)	AO1 (1 mark) Award 1 mark for any of the following. • Sediment size (1). • River velocity/speed (1). • Gradient (1). • Confluences (1). • Idea of blockage or barrier (Natural) (1). • Climatic factor period of low rainfall (1). Accept any other appropriate response.	(1)

Question number	Answer	Mark
1(b)(ii)	AO1 (1 mark)/AO2 (1 mark) Award 1 mark (AO1) for identification of correct process and a further mark for explanation of the reason (AO2) up to a maximum of two marks. • Material carried by the river rubs the side/floor of river (1) creating a wider/deeper channel (1). • Sandpaper action (1) widens and deepens the channel (1).	

	Undercutting of a river cliff (1) by rocks rubbing against the bank (1). Accept any other appropriate response.	(2)
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Question number	Answer	Mark
1(c)	AO2 (2 marks)/AO3 (2 marks) Award 1 mark (AO3) for identification of any reason from Fig 1a and a further mark for explanation of the reason (AO2) up to a maximum of two marks each. - Short/Shorter lag time in urban areas (1) because of concrete paths (1). - Short/Shorter lag time in urban areas (1) due to steeper slopes (1). - Difference in rising limb (1) due to rock type or land shape (1) - Long/Longer lag time in rural area (1) because vegetation intercepts rainfall (1). - Long/Longer lag time in rural area (1) due to water taking time to infiltrate through rocks (1). Candidates could reference rainfall amount/intensity/deforestation/urbanisation but they need to talk about shape to access the marks. Accept any other appropriate response.	(4)

Question number	Answer	Mark
1(d)	AO2 (3 marks) Award 1 mark for the identification of a way in which agriculture can affect water quality and 2 marks for further explanation up to a maximum of 3 marks. Candidates could identify: • Fertilisers/pesticides (1) could seep into the ground (1) and contaminate ground water (1). • Liquid from farm slurry (1) could enter the river (1) causing eutrophication (1). • Deforestation (1) could increase run off (1) carrying more soil and silt into rivers (1). • Cattle waste/cattle in river (1) directly into the river (1) contaminating the water (1). Accept any other appropriate response.	(3)

Question number	Answer	Mark
1(e)	AO3 (1 mark) Award 1 mark for the following: • Meander (1).	(1)

Question number	Answer	Mark
1(f)	AO1 (1 mark) AO2 (3 marks) Award 1 mark for initial point (AO1), and 3 further marks (AO2) for the extension of this point up to maximum of 4 marks. Waterfalls flows over hard rock with softer rock below it (1) and the soft rock is more easily eroded (1). Over time this continues to create an overhang (1) which eventually collapses (1). Annotated diagrams are acceptable but must explain the process and ensure there is no double reward. Accept any other appropriate response.	(4)

Question number	Answer indicative content
1(g)	AO3 (4 marks) AO4 (4 marks) Marking instructions Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the level-based mark scheme below. Indicative content guidance The indicative content below is not prescriptive, and candidates are not required to include all of it. Other relevant material not suggested below must also be credited. This question is about identifying and analysing factors that affect flood risk. There are a range of human and physical factors that can affect flood risk. AO3 • Physical factors that affect flood risk include density of river network, level of rainfall, gradient of the river, existing saturation of the soil from previous flood events. • Seasonality/time of year will have a bearing on flood risk in different parts of the country. • Human factors that affect flood risk include population distribution and density, land use and flood management strategies. • While physical factors can present an increased risk of flood, this is often exacerbated by human activity for example urban areas have more impermeable surfaces such as roads and pavements, reducing infiltration, increasing surface run-off and increasing the risk of flash floods. Physical factors affecting flood risk AO4 • Figure 1c shows there is reduced risk of flood on the east of the USA. • Figure 1c shows there is reduced risk of flood in the areas of high elevation such as the Rocky Mountains. • Figure 1c shows the risk of flood is highest in areas of dense river networks. • Figure 1c shows how some cities are located in areas of major flood risk e.g. New Orleans or St Louis. • Figure 1c indicates there are other physical factors such as snowmelt which may affect the level of flood risk.

- Figure 1c gives a number of points that relate to flood risks that could be referenced.

Candidates may use compass bearings and scale to indicate patterns.

Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–3	- Attempts to apply understanding to deconstruct information but understanding and connections are flawed. An unbalanced or incomplete argument that provides limited synthesis of understanding. Judgements that are supported by limited evidence. (AO3) - Uses some geographical skills to obtain information with limited relevance and accuracy, which supports few aspects of the argument. (AO4)
Level 2	4–6	- Applies understanding to deconstruct information and provide some logical connections between concepts. An imbalanced argument that synthesises mostly relevant understanding, but not entirely coherently, leading to judgements that are supported by evidence occasionally. (AO3) - Uses geographical skills to obtain accurate information that supports some aspects of the argument. (AO4)
Level 3	7–8	- Applies understanding to deconstruct information and provide logical connections between concepts throughout. A balanced, well-developed argument that synthesises relevant understanding coherently, leading to judgements that are supported by evidence throughout. (AO3) - Uses geographical skills to obtain accurate information that supports all aspects of the argument. (AO4)

Question number	Answer	Mark
2(a)	AO1 (1 mark) A (Where the rocks are broken down by physical factors in the environment) (1). The answer cannot be B (biological weathering), C (not a process), and D (chemical weathering).	(1)

Question number	Answer	Mark
2(b)(i)	AO1 (1 mark) B (Climate) (1) The answer cannot be A, C or D as these are all biotic features.	(1)

Question number	Answer	Mark
2(b)(ii)	AO1 (1 mark) Award 1 mark for any of the following. • Calcium carbonate (1) • High levels of biodiversity (1) • Made of living organisms (1) • Home for lots of small fish (1) • Ideas around presence of tourism (1). • Idea of damage to Coral/ reef under threat idea (1). Accept any other appropriate response.	(1)

Question number	Answer	Mark
2(b)(iii)	AO1 (1 mark)/AO2 (1 mark) Award 1 mark (AO1) for initial point and a further mark for explanation of the factor (AO2) up to a maximum of two marks. • Temperature of the water (1) (tropical) coral needs optimum temperature of 25°C (1). • Temperature of the water (1) coral needs a minimum of 18°C degrees for growth (1). • Water depth (1) as coral needs less than 25m to survive (1). • Water depth (1) affects light penetration from sunlight (1). • Salinity (1) as corals are marine life and can only survive in saltwater (1). Accept any other appropriate response.	(2)

Question number	Answer	Mark
2(c)	AO2 (2 marks)/AO3 (2 marks) Award 1 mark (AO3) for identification of any factor from Fig 2a and a further mark for explanation of the reason (AO2) up to a maximum of two marks each. • Hydraulic action (1) where the force of the waves hit the cliffs forcing air into cracks (1). • Abrasion (1) where waves pick up stones which hit the cliff (1). • Corrosion/solution (1) where sea water dissolves rocks (1). • Arch is widened by the waves and then the roof collapses (1) stack formed as a result (1). • Stack attacked by wave action (1) worn down over time to form stump (1).	

	Accept any other appropriate response.	(4)
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Question number	Answer	Mark
2(d)	AO2 (3 marks) Award 1 mark for the identification of a way in which industry can threaten coastal ecosystems and 2 marks for further explanation up to a maximum of 3 marks. Candidates could identify: • Dumping of industrial waste in the sea can cause water pollution (1) which can affect the biodiversity (1) and disrupt food chains (1). • The need to protect industry against coastal erosion (1) means that hard engineering strategies might be used (1) which can damage the natural habitat (1). • Building ports/infrastructure (1) can result in destruction of coastal environments (1) resulting in the loss of biodiversity (1). • Land reclamation for coastal development (1) can result in the destruction of coastal ecosystems (1) resulting in loss of biodiversity (1). • Tourist industry results in tourist scaring wildlife (1) which may have a negative impact on the coastal ecosystem (1).	

	Accept any other appropriate response.	(3)
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Question number	Answer	Mark
2(e)	A03 (1 mark) Award 1 mark for the following: Wave-cut platform (1)	(1)

Question number	Answer	Mark
2(f)	AO1 (1 mark) AO2 (3 marks) Award 1 mark for initial point (AO1), and 3 further marks (AO2) for the extension of this point up to maximum of 4 marks. Candidates may approach answering the question in different ways credit can be given for 2 developed. 1+1+1+1 Or 1+1 and 1+1 • Prevention strategies such as flood defences built along to coastline (1) help to reduce the severity of flooding (1). Alternative strategies such as building emergency centres for people to shelter (1) reduce the amount of people who might be killed (1) • Prevention strategies such as restricting where buildings can be built/ building design (1) reduces the amount, of buildings that may be damaged in a flood event (1). This reduces the potential economic impact of a flood (1) and damaging less livelihoods (1). • Early warning systems (1) give messages through the coastguard/Environment agency (1) will help people prepare for the flood event/evacuate if necessary, to shelter spaces (1) preventing potential loss of life (1). Accept any other appropriate response.	(4)

Question number	Answer indicative content
2(g)	AO3 (4 marks) AO4 (4 marks) Marking instructions Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the level-based mark scheme below. Indicative content guidance The indicative content below is not prescriptive, and candidates are not required to include all of it. Other relevant material not suggested below must also be credited. The question is about analysing the different coastal management strategies used on the coastline and how different groups of people have different priorities. AO3 • The coastline is used by many different groups of people who can have conflicting views. • Residents and local businesses are likely to favour protecting the coastline where there are economic assets at stake. • There is a need to manage the different needs of the coastline. Where there are assets that need protecting implementing hard engineering strategies can be important. • Where there is important wildlife species or habitats, it is important to let nature proceed without intervention (soft engineering) to avoid disruption to natural processes, such as salt marsh formation. • There will be a difference of opinion between local residents and people who are visiting the area. Visitors are less likely to appreciate the value of hard engineering techniques in ensuring coastal erosion is minimised. Local people are likely to have positive view of hard engineering as it helps protect homes and businesses. AO4 • Fig 2c shows how there are different coastal management strategies in place along the Dorset coastline.

- Figure 2c demonstrates how urban areas e.g. Bournemouth need hard engineering strategies to protect the buildings that are located there.
- Figure 2c shows how some areas of land have been allowed to retreat to allow natural processes to take over, creating a salt marsh.
- Figure 2c demonstrates a range of conflicting views on the protection of the coastline based on the views of different groups of people.
- Figure 2c shows a National nature reserve which will be focus for conservationists.

Candidates may use compass bearings and scale to support their response.

Question number	Answer	
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1-3	- Attempts to apply understanding to deconstruct information but understanding and connections are flawed. An unbalanced or incomplete argument that provides limited synthesis of understanding. Judgements that are supported by limited evidence. (AO3) - Uses some geographical skills to obtain information with limited relevance and accuracy, which supports few aspects of the argument. (AO4)
Level 2	4-6	- Applies understanding to deconstruct information and provide some logical connections between concepts. An imbalanced argument that synthesises mostly relevant understanding, but not entirely coherently, leading to judgements that are supported by evidence occasionally. (AO3) - Uses geographical skills to obtain accurate information that supports some aspects of the argument. (AO4)
Level 3	7-8	- Applies understanding to deconstruct information and provide logical connections between concepts throughout. A balanced, well-developed argument that synthesises relevant understanding coherently, leading to judgements that are supported by evidence throughout. (AO3) - Uses geographical skills to obtain accurate information that supports all aspects of the argument. (AO4)

Question number	Answer	Mark
3(a)	AO1 (1 mark) D (Seismograph) (1) The answer cannot be A (measure for river speed), B (measures water vapour in the air), C (used to measure size of an earthquake).	(1)

Question number	Answer	Mark
3(b)(i)	AO1 (1 mark) C (Saffir-Simpson scale) (1) The answer cannot be A, B or D as these are incorrect.	(1)

Question number	Answer	Mark
3(b)(ii)	AO1 (1 mark) Award 1 mark for any of the following. • Warm air (1). • Moist air (1). • Warm sea (1). • Circular motion of air (1). • Around the equator/between the tropics (1). Accept any other appropriate response.	(1)

Question number	Answer	Mark
3(b)(iii)	AO1 (1 mark)/AO2 (1 mark) Award 1 mark (AO1) for identification of correct impact and a further mark for explanation (AO2) up to a maximum of two marks. • Destruction of buildings/infrastructure (1) caused by high winds (1). • Flooding (1) caused by associated heavy rain (1).	

	- Storm surge (1) loss of life (1). - Trees blown down/destruction of habitats (1) causing damage or loss of life (1) Accept any other appropriate response.	(2)
Question number	Answer	Mark
3(c)	AO2 (2 marks)/AO3 (2 marks) Award 1 mark (AO3) for identification of any reason from Fig 3a and a further mark for explanation of the reason (AO2) up to a maximum of two marks each. - Proximity to a plate boundary (1) increases likelihood of experiencing a hazard (1). - Megacities have high population densities (1) and therefore more people who may be impacted by a tectonic hazard event (1). - Some countries such as China have megacities located on plate boundaries (1) which means higher populations are at risk (1). Accept any other appropriate response.	(4)

Question number	Answer	Mark
3(d)	AO2 (3 marks) Award 1 mark for the identification of a strategy which could reduce risk from the impacts of an earthquake event and 2 marks for further explanation up to a maximum of 3 marks. Candidates could identify: • Early warning systems (1) to allow people evacuate (1) which could reduce deaths (1). • Building earthquake resistant buildings/example of approach (counter weight / Concrete exoskeleton) (1) to reduce damage from ground shaking (1) which should result in less injuries (1). • Practicing earthquake drills (1) so people know how to correctly respond to an earthquake event (1) which should reduce the risk of injury (1). Accept any other appropriate response.	(3)
Question number	Answer	Mark
3(e)	AO3 (1 mark) Award 1 mark for the following: • Conservative / transform (1)	(1)

Question number	Answer	Mark
3(f)	AO1 (1 mark) AO2 (3 marks) Award 1 mark for initial point (AO1), and 3 further marks (AO2) for the extension of this point up to maximum of 4 marks. 1+1 and 1+1 or 1+1+1+1 - On a destructive plate margin two plates push together until one is subducted (1). As the plate is pushed down the rock melts (1) and builds up pressure under the earths surface (1). Lava is ejected and cools to form a layer of a volcano (1). - On a destructive plate margin one plate is subducted under the other (1) which means that molten magma is released (1) and rises to surface (1). - However at a constructive plate margin plates moves apart (1) and magma rises up to fill the gap (1) and erupts at surface as a volcano (1). Candidates may also focus on volcano formation at constructive plate margins or hot spots. Annotated diagrams are acceptable but must explain the process and ensure there is no double reward. Accept any other appropriate response.	(4)

Question number	Answer indicative content
3(g)	AO3 (4 marks) AO4 (4 marks) Marking instructions Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the level-based mark scheme below. Indicative content guidance The indicative content below is not prescriptive, and candidates are not required to include all of it. Other relevant material not suggested below must also be credited. This question is about analysing the difference between the short- and long-term impacts of the earthquake event. AO3 • There are a range of short- and long-term impacts of earthquakes which can vary due to the size and intensity of the earthquake as well as the location. • Short-term impacts which occur as a result of ground shaking are often very destructive causing buildings to collapse for example, transport and communication links being disrupted, with the results including injury and death. • Long-term impacts which occur as a result of the damage made by the earthquake event can have a large impact on society as they have the potential to put a large strain on society. For example, when large numbers of people lose their homes, or water supplies are contaminated. • The level of impact can be influenced by the level of development of the country and its ability to respond to short term impact and as a result the longer-term response to the hazardous event. • The level of intervention from outside agencies/national government will have a direct influence on the ability to reduce the impacts of the hazardous event. • The location and accessibility can also affect the ability to reduce impacts in both the long and short-term.

AO4

- Fig 3c shows a map of perceived shaking in the Haiti 2010 earthquake. It shows how there was a large area of perceived extreme shaking in Port-au-Prince.
- Figure 3c suggests shows that the short-term impacts affected a large amount of people (220,000 people killed/ 300,000 injured).
- Figure 3c indicates how there were serious longer-term impacts which will have also affected a large amount of the population, particularly given the Figure shows that large percentages of some cities were destroyed.
- Figure 3c indicates how some of these impacts could include the shortage of aid supplies and outbreaks of cholera.
- Figure 3c shows the high magnitude of the earthquake.
- Figure 3c suggests a high level of disruption to infrastructure.

Candidates may use compass bearings and scale to support their response.

Question number	Answer	
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1-3	- Attempts to apply understanding to deconstruct information but understanding and connections are flawed. An unbalanced or incomplete argument that provides limited synthesis of understanding. Judgements that are supported by limited evidence. (AO3) - Uses some geographical skills to obtain information with limited relevance and accuracy, which supports few aspects of the argument. (AO4)
Level 2	4-6	- Applies understanding to deconstruct information and provide some logical connections between concepts. An imbalanced argument that synthesises mostly relevant understanding, but not entirely coherently, leading to judgements that are supported by evidence occasionally. (AO3) - Uses geographical skills to obtain accurate information that supports some aspects of the argument. (AO4)
Level 3	7-8	- Applies understanding to deconstruct information and provide logical connections between concepts throughout. A balanced, well-developed argument that synthesises relevant understanding coherently, leading to judgements that are supported by evidence throughout. (AO3) - Uses geographical skills to obtain accurate information that supports all aspects of the argument. (AO4)

Question number	Answer	Mark
4(a)(i)	AO3 (1 mark) B Collecting data every 100m along a river. The answer cannot be A (random sampling), C and D (does now state how sampled).	(1)

Question number	Answer	Mark
4(a)(ii)	AO3 (1 mark) Award 1 mark for a suitable piece of equipment. • Measuring tape (1) • Rope / weighted chain (1) Accept any other appropriate response.	(1)

Question number	Answer	Mark
4(a)(iii)	AO3 (2 marks) Award 1 mark for identification of a suitable risk and a further mark for description of why this was important. For example: • Slipping on rocks (1) as it could lead to injury. (1)	

	• Getting lost (1) as this could lead to being separated from group. (1) • Falling in the river (1) as this could lead to damaged equipment. (1) • Entering river with open cuts (1) could lead to Weils disease. (1) • Variable weather conditions (1) leading to exposure/heat stroke/hypothermia (1). • Velocity/depth of river (1) causing people to lose their footing (1). • Accessibility to sampling site/river bank (1) difficulty getting to site (1) This point could be developed in a number of ways. Accept any other appropriate response.	(2)
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Question number	Answer indicative content
4(b)	AO3 (4 marks) AO4 (4 marks) Marking instructions Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the level-based mark scheme below. Indicative content guidance The indicative content below is not prescriptive and candidates are not required to include all of it. Other relevant material not suggested below must also be credited. This question is about candidates making a judgement of the data collection methods that have been used and the conclusions made. Candidates may note the strengths or weaknesses of the fieldwork presented in Figures 4a and b. Responses could include: • Comments on the design regarding sampling method used.(Random sampling used which could lead to anomalies)

	• Comments on the number of data collection sites, relevance of data collected, and the conclusions drawn. (Only 2 sites used) • Comments could address if the student had met their aim.(Conclusions are vague) • Comments on the how the conclusions could have been supported by data. • Comments on how anomalies could have affected the results and therefore the conclusion. (Only 2 sites used.) • Comments on other data that could have been collected. • There is no method or detail around the measurement of river velocity so how reliable are the techniques. For level 2 responses candidates will need to link the evaluation to both data collection methods and conclusions. For level 3 responses there should be a greater depth of evaluation recognising the impacts of the design and the data collection methods on the conclusions made. There is no method or detail around the measurement of river velocity so how reliable are the techniques. Candidates working at this level must provide an evidenced judgment. Candidates may refer to data presentation methods to link the data collection and conclusions this should be credited.	
Question number	Answer	
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1-3	• Attempts to apply understanding to deconstruct information but understanding and connections are flawed. An unbalanced or incomplete argument that provides limited synthesis of understanding. Judgements that are supported by limited evidence. (AO3)

		Uses some geographical skills to obtain information with limited relevance and accuracy, which supports few aspects of the argument. (AO4)
Level 2	4–6	- Applies understanding to deconstruct information and provide some logical connections between concepts. An imbalanced argument that synthesises mostly relevant understanding, but not entirely coherently, leading to judgements that are supported by evidence occasionally. (AO3) - Uses geographical skills to obtain accurate information that supports some aspects of the argument. (AO4)
Level 3	7–8	- Applies understanding to deconstruct information and provide logical connections between concepts throughout. A balanced, well-developed argument that synthesises relevant understanding coherently, leading to judgements that are supported by evidence throughout. (AO3) - Uses geographical skills to obtain accurate information that supports all aspects of the argument. (AO4)

Question number	Answer	Mark
5(a)(i)	AO3 (1 mark) B Collecting data every 100m along a coastline. The answer cannot be A (random sampling), C and D (doesn't state how sampled).	(1)

Question number	Answer	Mark
5(a)(ii)	AO3 (1 mark) Award 1 mark for a suitable piece of equipment. • Clinometer (1) • Ranging pole (1) • Tape measure (1) • Meter ruler (1) Accept any other appropriate response.	(1)

Question number	Answer	Mark
5(a)(iii)	AO3 (2 marks) Award 1 mark for identification of a suitable risk and a further mark for description of why this was important. For example: • Slipping on rocks (1) as it could lead to injury (1). • Getting lost (1) as this could lead to being separated from group (1). • Falling in the sea (1) as this could lead to damaged equipment (1). • Entering sea with open cuts (1) leading to infection. (1). • Lack of awareness of tides (1) leading to being cut off from the beach (1). • Danger from falling rocks (1) leading to injuries (1). • Variable weather conditions (1) leading to exposure/heat stroke/hypothermia (1). • Accessibility to sampling site (1) difficulty getting to site (1) This point could be developed in a number of ways. • Large waves (1) knocking people down (1). • Awareness of members of the public (1) safeguarding (1).	

	Accept any other appropriate response.	(2)
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Question number	Answer indicative content
5(b)	AO3 (4 marks) AO4 (4 marks) Marking instructions Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the level-based mark scheme below. Indicative content guidance The indicative content below is not prescriptive, and candidates are not required to include all of it. Other relevant material not suggested below must also be credited. This question is about candidates making a judgement of the data collection methods that have been used and the conclusions made. Candidates may note the strengths or weaknesses of the fieldwork presented in Figures 5a and b. Responses could include: • Comments on the design regarding sampling method used. (Random sampling used which could lead to anomalies) • Comments on the number of data collection sites, relevance of data collected, and the conclusions drawn. • Comments could address if the student has met their aim. (Vague comments in conclusions) • Comments on the how the conclusions could have been supported by data. (Conclusions are vague) • Comments on how anomalies could have affected the results and therefore the conclusion. (Don't know how data was collected)

	- Comments on other data that could have been collected. (Only 2 sites/size of data set) - There is no method or detail around the measurement of river velocity so how reliable are the techniques. For level 2 responses candidates will need to link the evaluation to both data collection methods and conclusions. For level 3 responses there should be a greater depth of evaluation recognising the impacts of the design and the data collection methods on the conclusions made. Candidates may refer to data presentation methods to link the data collection and conclusions this should be credited. Candidates working at this level must provide an evidenced judgment.	
Question number	Answer	
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1-3	- Attempts to apply understanding to deconstruct information but understanding and connections are flawed. An unbalanced or incomplete argument that provides limited synthesis of understanding. Judgements that are supported by limited evidence. (AO3) - Uses some geographical skills to obtain information with limited relevance and accuracy, which supports few aspects of the argument. (AO4)
Level 2	4-6	- Applies understanding to deconstruct information and provide some logical connections between concepts. An imbalanced argument that synthesises mostly relevant understanding, but not entirely coherently, leading to judgements that are supported by evidence occasionally. (AO3) - Uses geographical skills to obtain accurate information that supports some aspects of the argument. (AO4)

Level 3	7-8	- Applies understanding to deconstruct information and provide logical connections between concepts throughout. A balanced, well-developed argument that synthesises relevant understanding coherently, leading to judgements that are supported by evidence throughout. (AO3) - Uses geographical skills to obtain accurate information that supports all aspects of the argument. (AO4)
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Question number	Answer	Mark
6(a)(i)	AO3 (1 mark) B Collecting rainfall data every 1km away from the town centre. The answer cannot be A (random sampling), C and D (Doesn't state how sampled).	(1)

Question number	Answer	Mark
6(a)(ii)	A03 (1 mark) Award 1 mark for a suitable piece of equipment. • Rain gauge (1) • Container with measurements on the side (1) Accept any other appropriate response.	(1)

Question number	Answer	Mark
6(a)(iii)	A03 (2 marks) Award 1 mark for identification of a suitable risk and a further mark for description of why this was important. For example: • Slipping in wet areas (1) as it could lead to damaged equipment. (1) • Getting lost (1) as this could lead to being separated from group. (1) • Busy roads (1) as this could lead to injury (1). • Poor weather conditions (1) resulting in flying debris (1). • Variable weather conditions (1) leading to exposure/heat stroke (1). Accept any other reasonable response.	(2)

Question number	Answer indicative content
6(b)	AO3 (4 marks) AO4 (4 marks) Marking instructions Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the level-based mark scheme below. Indicative content guidance The indicative content below is not prescriptive, and candidates are not required to include all of it. Other relevant material not suggested below must also be credited. This question is about candidates making a judgement of the data collection methods that have been used and the conclusions made. Candidates may note the strengths or weaknesses of the fieldwork presented in Figures 6a and b. Responses could include: • Comments on the design regarding sampling method used. (Random sampling used which could lead to anomalies) • Comments on the number of data collection sites, relevance of data collected, and the conclusions drawn. (Only two sites) • Comments on the how the conclusions could have been supported by data. • Comments could address if the student has met their aim. (Conclusions are vague) • Comments on how anomalies could have affected the results and therefore the conclusion. • Comments on other data that could have been collected. (Only two sites) • There is no method or detail around the measurement of river velocity so how reliable are the techniques. For level 2 responses candidates will need to link the evaluation to both data collection methods and conclusions. For level 3 responses there should be a greater depth of evaluation recognising the impacts of the design and the data collection methods on the conclusions made.

	Candidates may refer to data presentation methods to link the data collection and conclusions this should be credited. Candidates working at this level must provide an evidenced judgment.	
Question number	Answer	
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–3	- Attempts to apply understanding to deconstruct information but understanding and connections are flawed. An unbalanced or incomplete argument that provides limited synthesis of understanding. Judgements that are supported by limited evidence. (AO3) - Uses some geographical skills to obtain information with limited relevance and accuracy, which supports few aspects of the argument. (AO4)
Level 2	4–6	- Applies understanding to deconstruct information and provide some logical connections between concepts. An imbalanced argument that synthesises mostly relevant understanding, but not entirely coherently, leading to judgements that are supported by evidence occasionally. (AO3) - Uses geographical skills to obtain accurate information that supports some aspects of the argument. (AO4)
Level 3	7–8	- Applies understanding to deconstruct information and provide logical connections between concepts throughout. A balanced, well-developed argument that synthesises relevant understanding coherently, leading to judgements that are supported by evidence throughout. (AO3) - Uses geographical skills to obtain accurate information that supports all aspects of the argument. (AO4)

