Mark Scheme (Results)

Summer 2024

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.

Marking guidance for levels-based mark schemes

How to award marks
The indicative content provides examples of how students will meet each skill assessed in the question. The levels descriptors and indicative content reflect the relative weighting of each skill within each mark band.

Finding the right level
The first stage is to decide which level the answer should be placed in. To do this, use a 'best-fit' approach, deciding which level most closely describes the quality of the answer. Answers can display characteristics from more than one level, and where this happens, markers must use the guidance below and their professional judgement to decide which level is most appropriate.

Placing a mark within a level
After a level has been decided on, the next stage is to decide on the mark within the level. The instructions below tell you how to reward responses within a level. However, where a level has specific guidance about how to place an answer within a level, always follow that guidance. Statements relating to the treatment of students who do not fully meet the requirements of the question are also shown in the indicative content section of each levels-based mark scheme. These statements should be considered alongside the levels descriptors.

Markers should be prepared to use the full range of marks available in a level and not restrict marks to the middle. Markers should start at the middle of the level (or the upper-middle mark if there is an even number of marks) and then move the mark up or down to find the best mark. To do this, they should take into account how far the answer meets the requirements of the level:

- if it meets the requirements fully, markers should be prepared to award full marks within the level. The top mark in the level is used for answers that are as good as can realistically be expected within that level
- if it only barely meets the requirements of the level, markers should consider awarding marks at the bottom of the level. The bottom mark in the level is used for answers that are the weakest that can be expected within that level
- the middle marks of the level are used for answers that have a reasonable match to the descriptor. This might represent a balance between some characteristics of the level that are fully met and others that are only barely met.

Question number	Answer	Mark
1(a)	AO1 (1 mark) D (water changing from a liquid to a gas) The answer cannot be A (precipitation), B (transpiration), C (condensation).	(1)

Question number	Answer	Mark
1(b)(i)	AO1 (1 mark) C (where the river starts) The answer cannot be A (tributary), B (mouth), D (confluence)	(1)

Question number	Answer	Mark
1(b)(ii)	AO1 (1 mark) Award one mark for any of the following: • Urbanisation / building houses (1) • Deforestation / cutting down trees (1) • Change in land use (1) • Conversion to farmland (1) • Poorly maintained / lack of defences/management (1) • Climate change (1) • Glacial / ice cap melting (1) • Dams breaking / constructing dams (1) **No credit for just stating 'dams'.** Accept any other appropriate response	(1)

Question number	Answer	Mark
1(b)(iii)	AO2 (2 marks) Award 1 mark for initial explanation and a further mark for explanation up to a maximum of two marks. Particles bounce (1) when another particle hits it transferring energy (1). Pebbles bounce along the riverbed (1) when there is an increase in river velocity (1). After rainfall episodes discharge increases (1) allowing particles to be bounced along the riverbed (1). No credit for just stating saltation is a type of transport.	(2)

	Accept any other appropriate response	

Question number	Answer	Mark
1(c)	AO2 (2 marks)/AO3 (2 marks) Award 1 mark (AO3) for the identification of relevant piece of evidence that this is an upland area from the resource and a further mark for explanation (AO2) up to a maximum of two marks each. • The contour lines are close together (1) because the land is steep (1). • The numbers on the contour lines are high (1) with lots being over 500 m (1). • In square 70 27 the contour lines are close together (1) showing land is steep (1). • The source of a river are in upland areas (1) the Little Millstone Sike source is in square 75 27 (1). • There is a waterfall in square 70 28 (1) which is an upper course landform (1). • All the rivers are very narrow (1) which is an upper course characteristic (1). • There are lots of river sources (1) because there is higher rainfall in areas of high land (1). Accept any other appropriate response	(4)

Question number	Answer	Mark
1(d)	AO3 (1 mark) Award one mark for the following: • Peak / highest / maximum discharge (1) Response must state discharge for credit. No credit for just stating 'peak', 'highest', 'maximum'	(1)

Question number	Answer	Mark
1(e)	AO1 (2 marks)/AO2 (2 marks) Award 1 mark (AO1) for the identification of a cause of water pollution and a further mark for explanation (AO2) up to a maximum of two marks each. • Clothes factories (1) use dye which is often released into rivers without being cleaned (1). • Industrial waste (1) releases toxic chemicals into the water (1). • Many farms (1) use pesticides which washes off during heavy rain directly into rivers (1). • After periods of heavy rainfall sewage (1) can often be released into rivers without being treated (1). • Deforestation leaves large areas of soil bare (1) during heavy rainfall sediment is washed into rivers (1). • Acid rain (1) caused by sulphur emissions (1). Accept any other appropriate response. Do not double credit the same source of pollution e.g., fuel leaks from car and fuel leak from boats given as two different causes would only gain 1 mark for cause and 1 mark for further explanation.	(4)

Question number	Answer	Mark
1(f)	AO2 (3 marks) Award 1 mark for the initial explanation and 2 marks for further explanation up to a maximum of 3 marks. • Dams could make a river regime more consistent throughout the year (1) as water is held during wetter months (1) and released downstream during drier months (1). • Dams can reduce discharge (1) as the reservoir is being filled (1) but could return to its normal flow conditions downstream once filling is complete (1). • Dams can balance out the impact of dry and wet seasons (1) by releasing water during summer months increasing flow (1) and reducing flow in winter months by storing water in the reservoir (1). Do not accept reference to changes in water quality. Accept any other appropriate response	(3)

Question number	Answer	Mark
1(g)	AO3 (4 mark)/AO4 (4 mark) 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 reasons for water shortages around the world in contrasting countries. Candidates will need to interpret the map to recognise the areas of water shortage and make justification for the causes of these. AO3 • Water shortage is the lack of access to available fresh water. • Water surplus is when water supply exceeds demand. • Population density is an important factor when determining level of water shortage as highly populated areas are often areas with lower precipitation levels. • Amount of precipitation is the most significant factor as this cannot be controlled or altered by people. • Areas of higher rainfall are often upland where it is difficult to build. • Temperature has an influence on both amount of precipitation and evaporation as very hot areas often have little rainfall due to high pressure. • People have a responsibility to use water carefully to manage the supplies they receive by using water saving irrigation and avoiding wasting water for things like golf courses and fountains. • The biggest challenge for Egypt is the amount of precipitation they receive. • The biggest challenge for SW USA is a combination of precipitation and sunshine hours. • The biggest challenge for India is their population density. AO4 • Figure 1c shows that Africa is the continent with the largest area of water shortage. • Figure 1c shows SW USA has high rates of water shortage. • Figure 1c shows India has considerable levels of water shortage. • Figure 1c shows that India has the highest population density of the three countries. • Figure 1c shows that Australia has high water	(8)

	shortage. • Figure 1c shows that the Middle East has high water shortages. • Figure 1c shows that Egypt has the lowest precipitation of the three countries. Figure 1c shows that Egypt has the highest average annual sunshine hours.	

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) D (temperature) The answer cannot be A, B or C as all biotic factors.	(1)

Question number	Answer	Mark
2(b)(i)	AO1 (1 mark) C (movement of water down the beach) The answer cannot be A (wavelength), B (cause of wave), D (swash).	(1)

Question number	Answer	Mark
2(b)(ii)	AO1 (1 mark) Award one mark for any of the following: • Long wavelength (1) • Short in height / shallow gradient (1) • Less frequent (1) • Gentle (1) • Deposition / low energy (1) • Strong(er) swash / weak(er) backwash (1) Accept any other appropriate response.	(1)

Question number	Answer	Mark
2(b)(iii)	AO2 (2 marks) Award 1 mark for identifying a type of mass movement and a further mark for further explanation up to a maximum of two marks. • Landslides / are large amounts of soil and rock (1) move down a slope due to gravity (1). • Rockfalls / when pieces of rock fall off a cliff face (1) often due to mechanical weathering (1). • Slumping occurs when saturated soil (1) flows down a curved surface (1). • Rotational slip (1) caused by erosion undercutting cliff (1). Accept any other appropriate response.	(2)

Question number	Answer	Mark
2(c)	AO2 (2 marks)/AO3 (2 marks) Award 1 mark (AO3) for the identification of a reason why hard engineering is suitable based on evidence from resources and a further mark for explanation (AO2) up to a maximum of two marks each. • There is a large urban area which has a high economic value (1) which would cost too much in compensation to not protect (1). • Claremont Pier suggests a tourist industry (1) this creates jobs for people living in the area (1). • In square 5594 there is a camping/caravan site (1) supporting the local economy (1). • There is a river mouth which is often used for trade (1) which needs to be kept clear to ensure boats can access (1). • A sea wall may be needed near Ness Point (1) to protect the buildings from flooding (1). • The beach is much narrower in 5594 (1) offering little coastal protection to the buildings without hard engineering (1). • There is a school in 5491 (1) which will negatively affect pupils education if erosion is allowed to take place (1). Accept any other appropriate response.	(4)

Question number	Answer	Mark
2(d)	AO2 (3 marks) Award 1 mark for the identification of a conflict and 2 marks for further explanation up to a maximum of 3 marks. • Tourists are often in conflict with bird watchers (1) as they make a lot of noise (1) which can interrupt breeding grounds for coastal birds (1). • Governments are often in conflict with local residents (1) over the best type of coastal management strategy (1) as some are very expensive (1). • Hotel owners are often in conflict with fishing industry (1) as they leave broken fishing equipment causing pollution (1) which reduces tourist numbers (1). • Some users want to conserve the habitat (1) to increase tourism (1) and others want to develop ports for economic gain (1). Accept any other appropriate response.	(3)

Question number	Answer	Mark
2(e)	AO3 (1 mark) Award one mark for the following: • Arch (1)	(1)

Question number	Answer	Mark
2(f)	AO1 (2 marks)/AO2 (2 marks) Award 1 mark (AO1) for the identification of a reason and a further mark for explanation (AO2) up to a maximum of two marks each. • Coasts with a low sediment supply (1) do not carry enough sediment to build up beaches (1). • Coastlines with deep water often have less deposition (1) as there is less friction with seabed (1). • Coastlines with mainly constructive waves increase deposition (1) because the swash is stronger than backwash (1). • Coastlines with sedimentary rocks often have high sediment supply (1) making depositional landforms more likely as waves have a high sediment load (1). • Sheltered areas of coastline / bays (1) often have constructive waves (1). Responses with reference to prevailing wind / longshore drift need to be linked to the depositional factor. Do not double credit direct mirrors. Accept any other appropriate response.	(4)

Question number	Answer	Mark
2(g)	AO3 (4 mark)/AO4 (4 mark) 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 different reasons why some areas of coastline are more at risk from coastal flooding. Candidates will need to be able to identify the areas at more risk and make judgements about why this is the case.	(8)

AO3

- Coastal flooding is when dry low-lying land is submerged by seawater.
- Storm surges are likely to rise as a result of increased numbers of severe storm events due to more energy being in the atmosphere due to climate change.
- Higher frequency of storm surges is likely to increase erosion rates which will make more areas vulnerable to coastal flooding.
- Sea levels are predicted to rise due to melting ice sheets caused by increases in global temperatures.
- Depositional landforms, such as spits and beaches, act as natural sea defences but can be destroyed by storms making areas more prone to flooding.
- Coastal environments, such as mangroves and coral reefs, act as offshore barriers to storms but are both threatened by climate change and people increasing flood risk further.
- Global population is still increasing which increases density of people living in coastal regions.
- Coastal areas are often important for trade which is why populations can be high.
- Asia is at greatest risk and this is significantly due to their population densities and tropical locations exposing them to more tropical storms.

AO4

- Figure 2c shows SE Asia is the area with the biggest population vulnerable to coastal flooding.
- Figure 2c shows the USA has a large proportion of its population living in urban coastal areas.
- Figure 2c shows China has experienced the biggest number of storm surges.
- Figure 2c shows China has the biggest number of people at risk of coastal flooding.
- Figure 2c shows the Philippines are an island nation exposing them to risk from multiple locations.
- Figure 2c shows Egypt has a high population at risk of coastal flooding.

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) A (conservative) Answer cannot be B (shield volcanoes), C (composite volcanoes), D (hotspot/shield volcanoes)	(1)

Question number	Answer	Mark
3(b)(i)	AO1 (1 mark) D (Saffir-Simpson Scale) Answer cannot be A (earthquakes), B (earthquakes), C (earthquakes).	(1)

Question number	Answer	Mark
3(b)(ii)	AO1 (1 mark) Award one mark for any of the following: • Eye (1) • Eye wall (1) • Spiralling / rotating clouds (1) • Banks of thunderstorms / heavy rainfall (1) • Strong winds (1) • Low pressure (1) Accept any other appropriate response.	(1)

Question number	Answer	Mark
3(b)(iii)	AO2 (2 marks) Award 1 mark for initial explanation and a further mark for development up to a maximum of two marks. • Tropical storms source of energy comes from warm ocean water (1) as this fuels high evaporation rates(1). • On land tropical storms lose their energy source (1) which means their energy dissipates shortly after landfall (1). • On land there is increased friction (1) which alters the flow of air (1). Accept any other appropriate response.	(2)

Question number	Answer	Mark
3(c)	AO1 (2 marks)/AO2 (2 marks) Award 1 mark (AO1) for identifying a preparation strategy and a further mark explanation (AO2) up to a maximum of two marks each. • Evacuation routes (1) are often clearly sign posted making people aware of where to go (1). • Many people have access to mobile phones (1) which makes it easy to warn everyone (1). • Earthquake resistant buildings (1) meaning buildings are less likely to collapse (1). • People are likely to have 'earthquake kits' (1) meaning they often have food and water supplies prepared (1). • People living near plate boundaries are more aware of risk (1) so have emergency supplies prepared (1). Accept any other appropriate response.	(4)

Question number	Answer	Mark
3(d)	AO2 (3 marks) Award 1 mark for the initial explanation and 2 marks for further explanation up to a maximum of 3 marks. • Places near steep slopes (1) are more vulnerable as there is greater risk of landslides / lahars (1) increasing damage (1). • Clayey soil (1) increases risk of liquefaction (1) which damages buildings (1). • Coastal areas (1) are more at risk from tsunamis / tropical cyclones (1) increasing frequency of hazardous events (1). • Time of year (1) can cause more death (1) if it's very hot or very cold when people are homeless (1). • Time of day (1) can increase injury/death (1) as at night people are in bed and less ready to escape (1). • Magnitude / size / strength (1) can increase risk as the winds / ground shaking are stronger (1) causing more damage to infrastructure (1). Accept any other appropriate response.	(3)

Question number	Answer	Mark
3(e)	AO3 (1 mark) Award one mark for the following: • Lava (flow) (1)	(1)

Question number	Answer	Mark
3(f)	AO2 (2 marks)/AO3 (2 marks) Award 1 mark (AO3) for the identification of a reason based on specific locational evidence from resource and a further mark for explanation (AO2) up to a maximum of two marks each. • Volcanoes are mainly found along the Pacific Plate boundary (1) because tectonic plate is being destroyed (1). • Some volcanoes are found in the middle of the Pacific Plate forming hotspots (1) because this area of crust is thin (1). • Some volcanoes are found away from the African Plate boundary (1) because plumes of hot magma rise through weak points on the Earth's crust (1). • Most volcanoes are found around the Pacific Ocean (1) because of destructive/convergent plate boundaries/margins (1). • There volcanoes found around Iceland (1) because they are formed at constructive/divergent plate boundaries/margins (1). • Volcanoes are found in Hawaii (1) as a magma plume sits beneath the Pacific Plate (1). **Do not credit 'close to plate boundary' without specific** locational reference to evidence shown on the resource. Accept any other appropriate response.	(4)

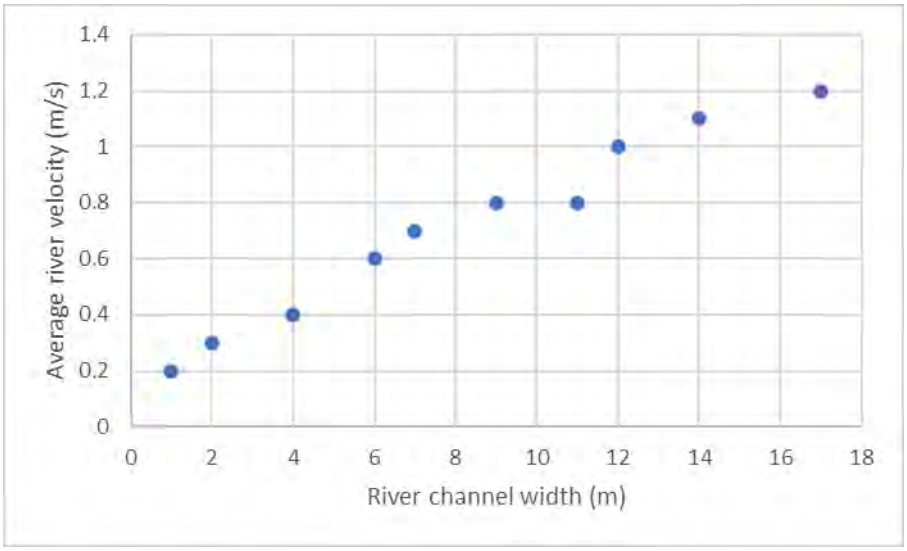
Question number	Answer	Mark
3(g)	AO3 (4 mark)/AO4 (4 mark) Marking instructions Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the level-based mark scheme below. Indicative content guidance The indicative content below is not prescriptive, and 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 significance of different types of impacts volcanic eruptions can have on the environment. Candidates will need to be able to identify the different types of impacts and consider the most severe impact for the environment. AO3 • Shorter term impacts often last for hours, days, weeks. • Longer term impacts often last for months, years, decades. • A range of volcanic hazards can cause damage to the environment. Lava flows, lahars, pyroclastic flows can destroy vegetation and pollute rivers, lakes and waterways. • Ash and gas can make the air dangerous to breathe leading to the death of animals. • Animals can also ingest ash that has landed on vegetation they eat and water they drink. • In large eruptions ash can cause a drop in temperature as it blocks out solar radiation. This also increases the amount of sulfate aerosols in the atmosphere which absorb solar radiation radiated from the Earth's surface increasing the cooling effect. • After the initial destruction the environment is able to rebalance, and the ash is a good fertiliser for the soil. AO4 • Figure 3c shows a large area of vegetation was lost directly around the Mount Mayon. • Figure 3c shows there is a large area of green on the south flank of the volcano. • Figure 3c shows 29 rivers were silted up with ash reducing the water quality. • Figure 3c shows animals are impacted as a result of polluted rivers/swamps. • Figure 3c shows ash covers everything for large areas after the eruption. • Figure 3c shows 7,100 hectares of agricultural land was destroyed. • Figure 3c shows the area highly prone to ashfall was over 7km in width. • Figure 3c shows the areas more highly prone to ashfall were to the west, south and north of the volcano.	(8)

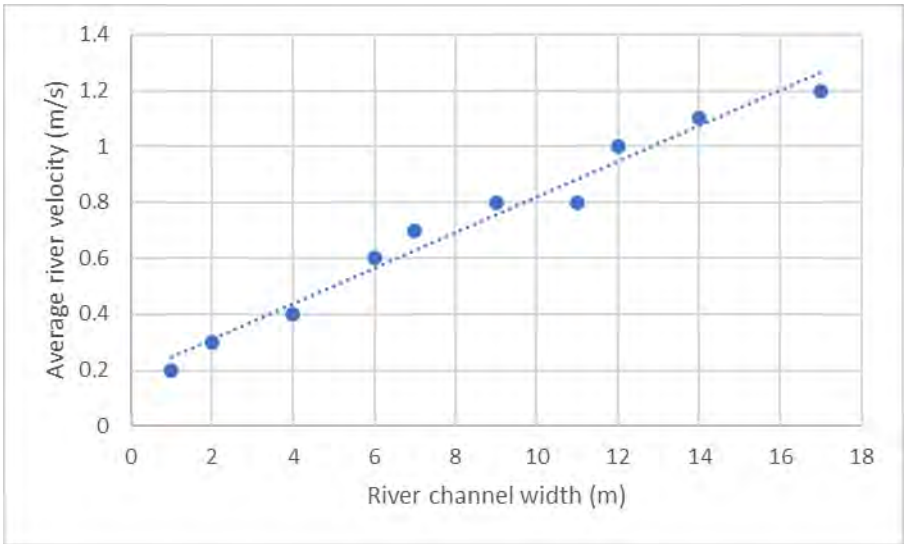
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–3	• Attempts to apply understanding to deconstruct information but understanding and connections are flawed. An unbalanced or incomplete argument that provides limited synthesis of understanding. Judgements that are supported by limited evidence. (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 (Clinometer) Cannot be A (sediment size), C (direction) or D (distribution).	(1)

Question number	Answer	Mark
4(a)(ii)	AO3 (1 mark) • Slipping (1) • Falling into water (1) • Coming into contact with dirty water (1) • Getting cold (1) • Getting lost (1) • Heavy rain / strong winds (1) • River too deep / fast moving (1) Accept any other acceptable response.	(1)

Question number	Answer	Mark
4(b)	AO4 (2 marks) Award 1 mark for correct method of working with correct figures and 1 mark for correct answer. 63-5 = 58cm	(2)

Question number	Answer	Mark
4(c)(i)	AO4 (2 marks) Award 1 mark for each correct plot.  	(2)

Question number	Answer	Mark
4(c)(ii)	AO4 (1 mark) Award 1 mark for correct line of best fit drawn. The line drawn needs to have at least 3 plots above the line of best fit and 3 plots below the line of best fit drawn for credit OR be drawn through at 3 data plots for credit.  No credit for curved line of best fit.	(1)

Question number	Answer	Mark
4(c)(iii)	AO3 (1 mark)/AO4 (1 mark) Award 1 mark (AO4) for initial point and a further mark for development (AO3) up to a maximum of two marks. • There is a positive correlation between width and velocity (1) because more lateral erosion occurs (1). • As velocity increases so does width (1) because there is less friction which increases erosion (1). • As one increases so does the other because there is more erosion (1) as the water has more energy (1). Accept any other acceptable response.	(2)

Question number	Answer	Mark
4(d)	AO3 (3 marks) Award 1 mark for initial point and a further mark for development up to a maximum of two marks. • Students may find it useful to collect data on sediment size (1) as a higher discharge is likely to increase erosion (1) to see if they get smaller downstream (1). • Students could collect data on sediment shape (1) as you would expect sediment to become more rounded (1) further downstream as it has been transported further (1). • Students could do a field sketch at each site (1) as it can be useful to have qualitative data collection (1) which will help them to remember the features of the river landscape (1). Accept any other acceptable response.	(3)

Question number	Answer	Mark
4(e)	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 evaluating the accuracy and reliability of the student's own data collection methods. The candidate needs to evaluate the strengths and weaknesses of several different data collection techniques they used in their enquiry and reach a judgement on how effective their data collection was overall. AO3 • Accuracy is about how correct or incorrect the data written down is. • Reliability is about how dependable the data collected is and often relates to having a big enough sample size to make a judgement. • Data collection techniques are the methods adopted when collecting data. • There are different sampling strategies which have a range of advantages and disadvantages that need to be considered to increase reliability. • Consideration of different equipment errors and the	(8)

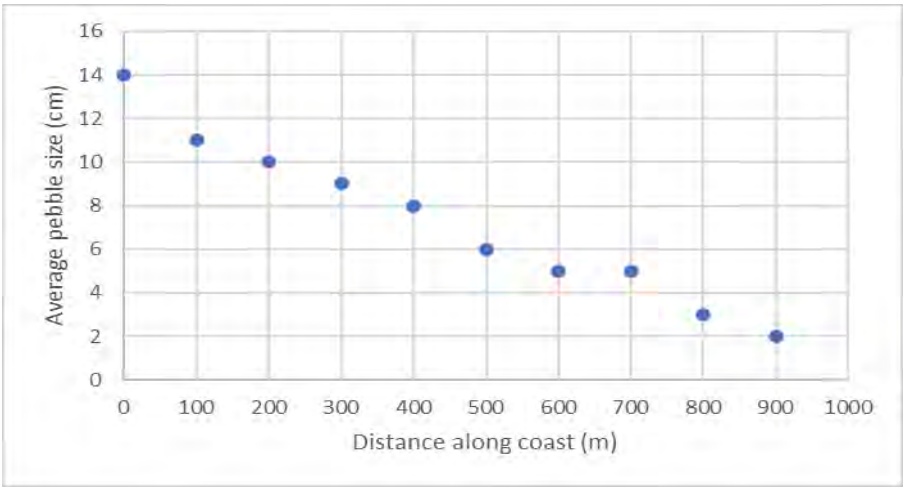
	impact these might have had on accuracy of data. • Consideration of the number of sites and samples taken and the impact these might have on reliability. • A judgement about which techniques were reliable and/or accurate. • A judgement about overall accuracy and reliability of data collection techniques. AO4 • Detail about the specific sampling strategies used of their own data collection techniques. • Detail about the site selection for enquiry. • Detail about the sample size for each set of data collected. • Detail about the equipment used for each technique. • Detail about rationale for taking more than one reading for a data type.	

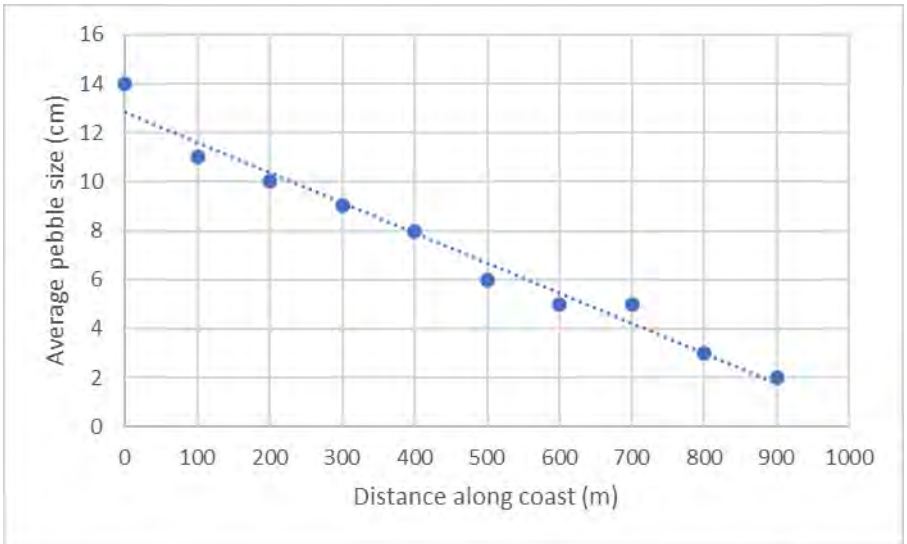
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–3	• Attempts to apply understanding to deconstruct information but understanding and connections are flawed. An unbalanced or incomplete argument that provides limited synthesis of understanding. Judgements that are supported by limited evidence. (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 (Clinometer) Cannot be A (shape), C (direction) or D (distribution).	(1)

Question number	Answer	Mark
5(a)(ii)	AO3 (1 mark) • Slipping (1) • Falling into water (1) • Coming into contact with dirty water (1) • Getting cold (1) • Getting lost (1) • Heavy rain / strong winds (1) • Sea too deep / waves too strong (1) • Tide coming in (1) No credit for just stating 'weather'. Accept any other acceptable response.	(1)

Question number	Answer	Mark
5(b)	AO4 (2 marks) Award 1 mark for correct method of working with correct figures and 1 mark for correct answer. 17-4 = 13cm	(2)

Question number	Answer	Mark
5(c)(i)	AO4 (2 marks) Award 1 mark for each correct plot.  	(2)

Question number	Answer	Mark
5(c)(ii)	AO4 (1 mark) Award 1 mark for correct line of best fit drawn. The line drawn needs to have at least 2 plots above the line of best fit and 3 plots below the line of best fit drawn OR be drawn through 4 data plots for credit.  No credit for curved line of best fit	(1)

Question number	Answer	Mark
5(c)(iii)	AO3 (1 mark)/AO4 (1 mark) Award 1 mark (AO4) for initial point and a further mark for development (AO3) up to a maximum of two marks. • There is a negative correlation between distance along the coast and pebble size (1) because the longer the pebbles have been in the water the smaller they get (1). • Pebble size decreases as you go along the coastline (1) because they have experienced more erosion (1). • As one increases the other decreases because there has been more erosion (1) as the pebbles have travelled in the water for longer (1). Accept any other acceptable response.	(2)

Question number	Answer	Mark
5(d)	AO3 (3 marks) Award 1 mark for initial point and a further mark for development up to a maximum of two marks. • Students may find it useful to collect data on beach gradient (1) as this is likely to influence sediment size (1) as smaller sediment will be close to the shoreline and larger sediment near the cliffs (1). • Students could collect data on sediment shape (1) as you would expect sediment to become more rounded (1) further along the coastline as it has been exposed to more erosion (1). • Students could do a field sketch at each site (1) as it can be useful to have qualitative data collection (1) which will help them to remember the features of the coastal landscape (1). Accept any other acceptable response.	(3)

Question number	Answer	Mark
5(e)	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 evaluating the accuracy and reliability of the student's own data collection methods. The candidate needs to evaluate the strengths and weaknesses of several different data collection techniques they used in their enquiry and reach a judgement on how effective their data collection was overall. AO3 • Accuracy is about how correct or incorrect the data written down is. • Reliability is about how dependable the data collected is and often relates to having a big enough sample size to make a judgement. • Data collection techniques are the methods adopted when collecting data. • There are different sampling strategies which have a range of advantages and disadvantages that need to be considered to increase reliability. • Consideration of different equipment errors and the	(8)

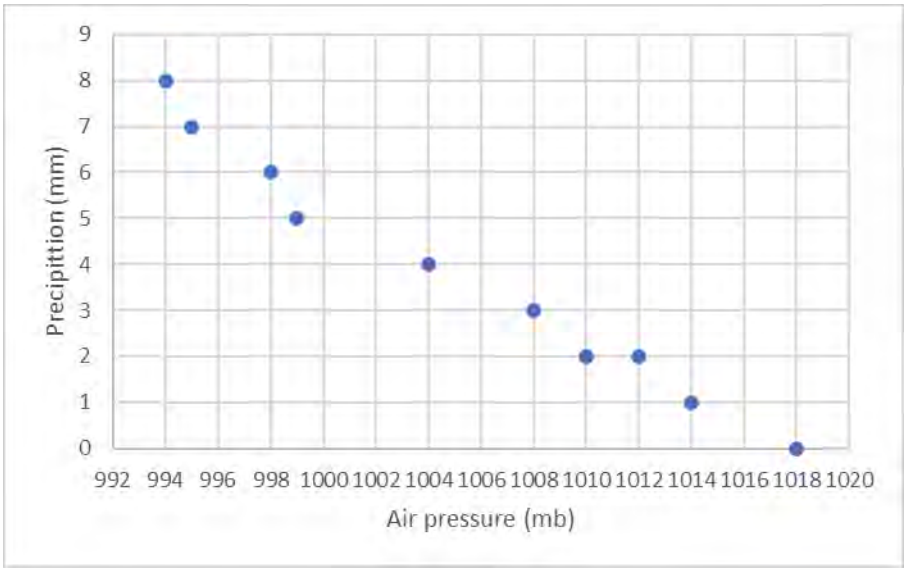
	impact these might have had on accuracy of data. • Consideration of the number of sites and samples taken and the impact these might have on reliability. • A judgement about which techniques were reliable and/or accurate. • A judgement about overall accuracy and reliability of data collection techniques. AO4 • Detail about the specific sampling strategies used of their own data collection techniques. • Detail about the site selection for enquiry. • Detail about the sample size for each set of data collected. • Detail about the equipment used for each technique. • Detail about rationale for taking more than one reading for a data type.	

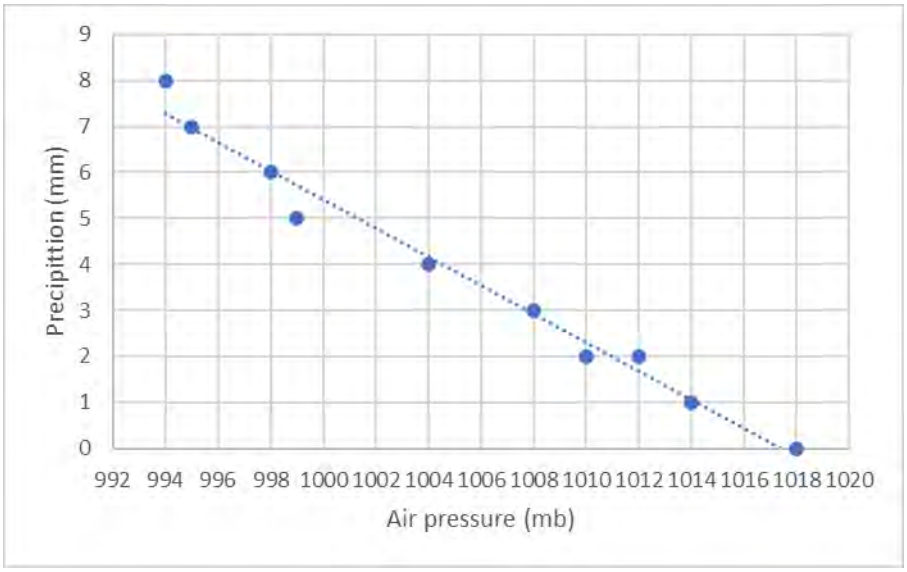
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–3	• Attempts to apply understanding to deconstruct information but understanding and connections are flawed. An unbalanced or incomplete argument that provides limited synthesis of understanding. Judgements that are supported by limited evidence. (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
6(a)(i)	AO3 (1 mark) A (barometer) Cannot be B (gradient), C (direction) or D (temperature).	(1)

Question number	Answer	Mark
6(a)(ii)	AO3 (1 mark) • High winds (1) • Heavy rainfall (1) • Strangers in urban areas (1) • Crossing roads in urban areas (1) • Getting lost (1) • Thunderstorms / lightning (1) • Tripping on uneven surfaces / pavements (1) • Slipping on wet ground (1) No credit for just stating 'weather'. Accept any other acceptable response.	(1)

Question number	Answer	Mark
6(b)	AO4 (2 marks) Award 1 mark for correct method of working with correct figures and 1 mark for correct answer. 24-12 = 12°C	(2)

Question number	Answer	Mark
6(c)(i)	AO4 (2 marks) Award 1 mark for each correct plot  	(2)

Question number	Answer	Mark
6(c) (ii)	AO4 (1 mark) Award 1 mark for correct line of best fit drawn. The line drawn needs to have at least 2 plots above the line of best fit and 2 plots below the line of best fit OR be drawn through 5 data plots for credit.  No credit for curved line of best fit.	(1)

Question number	Answer	Mark
6(c)(iii)	AO3 (1 mark)/AO4 (1 mark) Award 1 mark (AO4) for initial point and a further mark for development (AO3) up to a maximum of two marks. • There is a negative correlation between precipitation and air pressure (1) because there is evaporation in areas of low pressure (1). • As air pressure increases precipitation decreases (1) because there is more warm rising air at low air pressures (1). • As one increases the other decreases because there is more rain during low pressure (1) because more clouds form (1). Accept any other acceptable response.	(2)

Question number	Answer	Mark
6(d)	AO3 (3 marks) Award 1 mark for initial point and a further mark for development up to a maximum of two marks. • Students may find it useful to collect data on wind speed (1) as a lower air pressure is likely to increase wind speeds (1) as more air is rising (1). • Students could collect data on people's perception of risk (1) as this is based on personal perceptions (1) which can influence how people feel about a place (1). • Students could do a field sketch at each site (1) as it can be useful to have qualitative data collection (1) which will help them to remember the features of the hazardous environment (1). Accept any other acceptable response.	(3)

Question number	Answer	Mark
6(e)	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 evaluating the accuracy and reliability of the student's own data collection methods. The candidate needs to evaluate the strengths and weaknesses of several different data collection techniques they used in their enquiry and reach a judgement on how effective their data collection was overall. AO3 • Accuracy is about how correct or incorrect the data written down is. • Reliability is about how dependable the data collected is and often relates to having a big enough sample size to make a judgement. • Data collection techniques are the methods adopted when collecting data. • There are different sampling strategies which have a range of advantages and disadvantages that need to be considered to increase reliability. • Consideration of different equipment errors and the impact these might have had on accuracy of data.	(8)

	• Consideration of the number of sites and samples taken and the impact these might have on reliability. • A judgement about which techniques were reliable and/or accurate. • A judgement about overall accuracy and reliability of data collection techniques. AO4 • Detail about the specific sampling strategies used of their own data collection techniques. • Detail about the site selection for enquiry. • Detail about the sample size for each set of data collected. • Detail about the equipment used for each technique. • Detail about rationale for taking more than one reading for a data type.	

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