Mark Scheme (Results)

Summer 2024

Pearson Edexcel International GCSE
In Geography (4GE1)
Paper 1R: Physical Geography

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Summer 2024
Question Paper Log Number P74639A
Publications Code 4GE1_01R_ 2406_MS

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) A (any form of water that falls from the sky) The answer cannot be B (transpiration), C (condensation), D (evaporation).	(1)

Question number	Answer	Mark
1(b)(i)	AO1 (1 mark) B (particles carried in water wear away riverbed and banks The answer cannot be A (solution/corrosion), C (attrition), D (hydraulic action)	(1)

Question number	Answer	Mark
1(b)(ii)	AO1 (1 mark) Award one mark for any of the following: • heavy/more/increased rainfall (1) • antecedent/previous/prolonged rainfall (1) • snowmelt (1) • monsoon (1) • steep relief (1) • impermeable soil/geology (1) • glacial/ice cap melt (1) **No credit for deforestation or just stating 'impermeable surface'** Accept any other appropriate response.	(1)

Question number	Answer	Mark
1(b)(iii)	AO1 (1 mark)/AO2 (1 mark) Award 1 mark (AO1) for initial point and a further mark for explanation (AO2) up to a maximum of two marks. • Higher temperatures (during summer months) increase evaporation (1) which reduces discharge (1). • Lower temperatures (in winter months) can increase precipitation/rainfall (1) which increases river flow (1). • Freezing temperatures means snow does not melt (1) reducing discharge (1). Accept any other appropriate response.	(2)

Question number	Answer	Mark
1(c)	AO2 (2 mark)/AO3 (2 mark) Award 1 mark (AO3) for the identification of a difference in river channel and a further mark for explanation (AO2) up to a maximum of two marks each. • River channels at A are narrower than B/C (1) because the river has a lower velocity upstream (1). • River channels are shallower in the uplands than lowlands (1) because they have less energy to erode (1). • River channels get wider between upland and lowland areas (1) because discharge increases as tributaries join (1). • The channel at A is V-shaped but much flatter in lowlands (1) because lateral erosion is more dominant downstream (1). Accept any other appropriate response.	(4)

Question number	Answer	Mark
1(d)	AO3 (1 mark) Award one mark for the following: • Ox-bow Lake (1)	(1)

Question number	Answer	Mark
1(e)	AO2 (3 mark) Award 1 mark for the initial explanation and 2 marks for further explanation up to a maximum of 3 marks. • Deposition occurs when the river loses energy (1) at its mouth (1) as it comes into contact with waves (1). • Deposition occurs when the river enters shallow areas (1) as there is an increase in friction (with the riverbed) (1) means the river loses energy and drops sediment (1). • Deposition happens on the inner bends of meanders (1) because the water flows more slowly around this bend (1) meaning it does not have enough energy to carry sediment (1). • Deposition occurs when the volume of water decreases (1) during a drought (1) meaning there is not enough energy to carry sediment (1). • Deposition occurs during a flood (when water flows over floodplain) (1) there is increased friction with the ground (1) meaning the water does not have enough	(3)

	energy to carry (large/heavy) sediment (1). No credit for identifying the result of the deposition e.g., stating a slip-off slope is formed. Accept any other appropriate response.	

Question number	Answer	Mark
1(f)	AO1 (2 mark)/AO2 (2 mark) Award 1 mark (AO1) for the identification of a strategy and a further mark for explanation (AO2) up to a maximum of two marks each. • You can build a dam (1) which can control the flow of water (1). • Channel straightening (1) which helps the water to flow downstream more quickly (1). • Embankments (1) allow the river to hold more water before it floods (1). • River restoration (1) which allows for the establishment of floodplains (1). Accept any other appropriate response.	(4)

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 surpluses around the world in contrasting countries. Candidates will need to interpret the map to synthesise the reasons for water surplus and make justification for the causes of these. AO3 • Water surplus is when water supply exceeds demand. • Population density is an important factor when determining level of water surplus as sparsely populated areas are often areas with higher precipitation levels. • Amount of precipitation is the most significant factor as this cannot be controlled or altered by people.	(8)

	• Areas of higher rainfall are often upland where it is difficult to build. • Temperature has an influence on both the amount of precipitation and evaporation which is why latitude is a significant factor in areas of surplus. • 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 reason for the surplus in Brazil is the Amazon rainforest which causes very high levels of evapotranspiration. • The biggest reason for the surplus in Canada is the low population density which reduces demand for water. • The biggest reason for the surplus in Papua New Guinea is the high precipitation increasing supply. AO4 • Figure 1c shows large areas in the north of the world have water surpluses. • Figure 1c shows Papua New Guinea has the highest precipitation. • Figure 1c shows Brazil has the highest population density. • Figure 1c shows Canada has the lowest population density. • Figure 3c shows Papua New Guinea has the highest difference between precipitation and evaporation. • Figure 3c shows Canada has the smallest difference between precipitation and evaporation.	

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 (acids in water dissolve rock) The answer cannot be B (transportation), C (biological weathering), D (mechanical weathering).	(1)

Question number	Answer	Mark
2(b)(i)	AO1 (1 mark) B (slumping) The answer cannot be A, C and D are all examples of sediment transport.	(1)

Question number	Answer	Mark
2(b)(ii)	AO1 (1 mark) Award one mark for any of the following: • Short wavelength (1) • Tall in height / steeper gradient / big amplitude (1) • More frequent (1) • Powerful / strong (1) • Erosion / removes sediment (1) • Strong(er) backwash / Weak(er) swash (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 identify a type of erosion and a further mark for development (AO2) up to a maximum of two marks. • Hydraulic action / is when the sheer force of water (1) pushing air into cracks in the cliff making them bigger (1). • Sediment carried in the waves (1) are thrown at the cliff face (1). • Abrasion (1) causes pebbles to scrape down cliff face / wearing the rock away (1) • Attrition / is when sediment carried in the waves bump	(2)

	into each other (1) and knock pieces off to become rounder and smaller (1). • Solution/corrosion / is when weak acids in the seawater (1) dissolve soluble particles (1). Accept any other appropriate response.	

Question number	Answer	Mark
2(c)	AO1 (2 mark)/AO2 (2 mark) Award 1 mark (AO1) for the identification of a factor and a further mark for explanation (AO2) up to a maximum of two marks each. • Weaker wind (1) leads to more constructive waves (1). • A long fetch (can increase the rate of erosion) (1) because waves that have travelled further are more likely to be destructive (1). • Stronger wind (increases erosion) (1) as the wave have more energy / more destructive waves (1). • Hard/soft rock (rock type) (1) will erode more slowly/quickly than soft/hard rock (1). • The presence of a beach (can reduce erosion rates) (1) causes the wave energy to weaken/dissipate (as it travels up the beach) (1). • Destructive waves (1) have a stronger backwash (and so increase erosion) (1). Do not double credit direct mirrors. Accept any other appropriate response.	(4)

Question number	Answer	Mark
2(d)	AO2 (3 mark) Award 1 mark for stating a characteristic and 2 marks for further explanation up to a maximum of 3 marks. • Sand dunes occur where there is a wide beach (1) as this provides large quantities of sand (1) which are needed for net accumulation to occur (1). • A pioneer species / Marram grass (1) can survive the harsh conditions (1) creating better quality soil (1). • Sand dune ecosystems often show plant succession (1) as pioneer species survive the harsh conditions nearest the shore (1) helping to create more fertile soil (allowing more complex plants to grow) (1). • Sand dunes occur where there is a prevailing onshore wind (1) which is needed to blow sand from offshore bars (onto the shore) (1) as a source of sediment	(3)

	supply (1). • Xerophytes (1) survive arid conditions stabilising the sand (1) allowing better quality soil to develop (1). • Pioneer species / Marram grass (1) bind sand/soil together (1) which helps to stabilise the dune (1). • Sand dunes require an obstacle (1) to allow some sand to accumulate (1) which allows the sand dune to grow/stabilise (1). • Sand dunes run parallel to the coast (1) when there is a large supply of sand available (on an offshore bar) (1) and an onshore prevailing wind (1). Accept any other appropriate response.	

Question number	Answer	Mark
2(e)	AO2 (2 mark)/AO3 (2 mark) Award 1 mark (AO3) for the identification of a reason why soft engineering is suitable based on evidence from resource and a further mark for explanation (AO2) up to a maximum of two marks each. • There is a rural area which has a low economic value (1) which would cost more to protect than it is worth (1). • There is an area of saltmarsh which will be destroyed (1) if it is no longer covered by high tides. • There are not many buildings which mean little compensation needed (1) meaning local people will not oppose the strategy (1). • Lots of the buildings are farms (1) which have a lower economic value (1). • This area is a very natural environment and soft engineering works with natural processes (1) which is more sustainable. Accept any other appropriate response.	(4)

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

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 difference reasons why some areas of coastline are less at risk from coastal flooding. Candidates will need to be able to identify the areas at lower risk and make judgements about why this is the case. AO3 • Coastal flooding is when dry low-lying land is submerged by seawater. • Although severity of storm surges is likely to increase this is not going to impact every coastline. Coastlines outside tropical areas with short fetches are likely to have less increase in severe storm surges. • Sea levels are predicted to rise due to melting ice sheets caused by increases in global temperatures, but this is not equal for all coastlines as some are relatively high above sea level compared to other areas. • Coastlines with tall cliff faces made from resistant rock are less at risk of coastal flooding. • Coastal environments, such as mangroves and coral reefs, act as offshore barriers to storms which can reduce the risk of coastal flooding. • Some areas have slow growing populations which means the number of people at risk is not increasing. • Peru in South America is likely to be at little risk due to the Andes Mountain range. AO4 • Figure 2c shows Peru is the country with the smallest population at risk from coastal flooding based on the data. • Figure 2c shows Norway and Peru have the same predicted amount of sea level rise based on the data. • Figure 2c shows all countries in Europe (with a coastline) have small populations living in low-lying areas at risk of coastal flooding. • Figure 2c shows all (but 1) country in Africa with a coastline have small populations at risk of coastal flooding. • Figure 2c shows all countries in South America with a coastline have small populations living in low-lying areas at risk of coastal flooding.	(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
3(a)	AO1 (1 mark) D (strong winds) Answer cannot be A (earthquake), B (earthquake), C (earthquake)	(1)

Question number	Answer	Mark
3(b)(i)	AO1 (1 mark) B (hot plumes of magma break through crust away from plate boundaries) Answer cannot be A (super volcano), C (shield), D (composite).	(1)

Question number	Answer	Mark
3(b)(ii)	AO1 (1 mark) Award one mark for any of the following: • Volcanic Explosivity Index / VEI (1)	(1)

Question number	Answer	Mark
3(b)(iii)	AO1 (1 mark)/AO2 (1 mark) Award 1 mark (AO1) for initial point and a further mark for development (AO2) up to a maximum of two marks. • Volcanoes need a source of magma (1) which is not present as two plates move past each other (1). • Plates slide past each other (1) which means neither tectonic plate is destroyed (1). • Volcanoes occur where a tectonic plate is destroyed (1) which does not happen when two plates slide past each other (in opposite directions) (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 strategy/factor and a further mark explanation (AO2) up to a maximum of two marks each. • Emergency services (are well trained) (1) which means they rescue people (trapped) quickly (1). • Countries do not need to rely on international aid (1) to provide essential supplies (1). • The most common type of shelter (provided are buildings/arenas) (1) which provide good protection from the elements/weather (1). • Good communication (due to having mobile phones/radios) (1) can make it easier to co-ordinate the emergency response (1). Accept any other appropriate response.	(4)

Question number	Answer	Mark
3(d)	AO2 (3 mark) Award 1 mark for a factor and 2 marks for further explanation up to a maximum of 3 marks. • Some areas have high quality building infrastructure (1) which reduces the numbers of building collapse (1) which reduces risk of death/injury (1). • Cheaper to live (1) even though people are aware of the risk (1) they have no choice but to stay (1). • People may be aware of the risk but choose to live there anyway (1) as they are close to their family (1) which improves peoples mental health (1). • Being educated (1) means people are aware of the risk (1) which means people have earthquake kits prepared (1). • People may not be able to afford to move away (1) because unemployment rates are high (1) and they worry they will not find a job elsewhere (1). Accept any other appropriate response.	(3)

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

Question number	Answer	Mark
3(f)	AO2 (2 mark)/AO3 (2 mark) Award 1 mark (AO3) for the identification of a factor based on evidence from resource and a further mark for explanation (AO2) up to a maximum of two marks each. • Tropical cyclones are found near the equator (in areas of warm ocean water) (1) because this fuels high evaporation rates (1). • Tropical cyclones are found between the Tropics (1) as the water is 27°C (1). • There are no tropical cyclones directly at the equator (1) because there is no Coriolis force (1). • All tropical cyclones travel in the same direction (from east to west) (1) as a result of the trade winds (1). • All tropical cyclones begin in the middle of oceans (1) because this supplies their energy (1). • All tropical cyclones do not remain where they form (1) as they follow in the direction of prevailing wind/ocean currents (1). • Tropical cyclones are found in the Caribbean (1) as the water is 27°C (1). Do not credit direct mirrors. 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 tropical cyclones can have on the people. Candidates will need to be able to identify the different types of impacts and consider the most severe impact for people. AO3 • Shorter term impacts often last for hours, days, weeks. • Longer term impacts often last for months, years, decades.	(8)

	• A range of tropical storm hazards can have impacts on people. High winds, heavy rainfall, storm surges can cause death and injury. • High winds are responsible for most of the destruction of buildings as most houses are well built in the USA meaning flooding only causes damage to buildings. • Storm surges are the deadliest hazard from tropical storms as there is no escape for people who remain at ground level in an area hit by a tropical storm. • Economic losses have a significant impact on people as they may lose their job(s) and experience increases insurance premiums. • The shorter-term impacts are often considered more severe for people as there are high levels of emotional distress/shock at what has happened. • The economic costs are usually severe as the USA is a developed country and has advanced infrastructure. AO4 • Figure 3c shows 40% of businesses closed permanently after being affected by Hurricane Irma. • Figure 3c shows large numbers of people had to queue for essentials such as gas. • Figure 3c shows large areas were flooded as a result of Hurricane Irma. • Figure 3c shows roads were blocked by flooding. • Figure 3c shows people had to walk through flood water to escape. • Figure 3c shows buildings were destroyed by Hurricane Irma.	

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

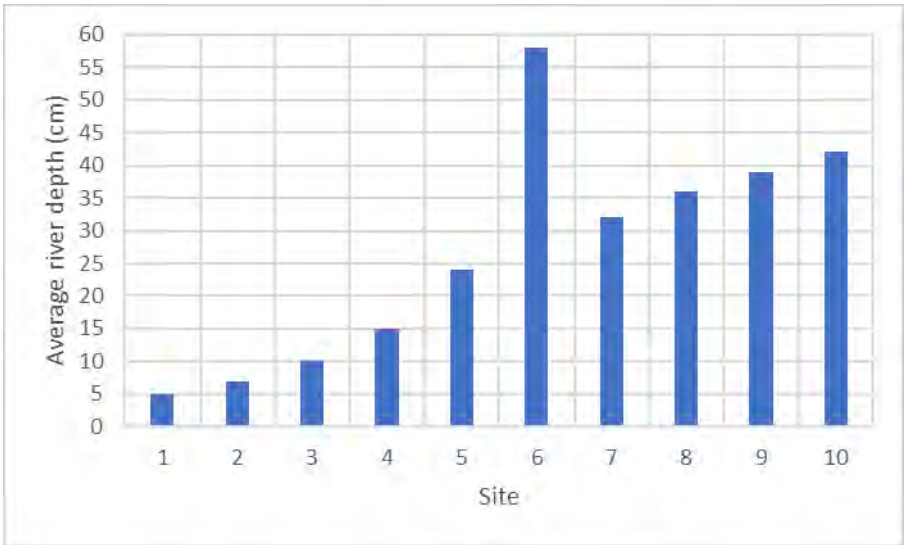
		understanding coherently, leading to judgements that are supported by evidence throughout. (AO3) • Uses geographical skills to obtain accurate information that supports all aspects of the argument. (AO4)

Question number	Answer	Mark
4(a)(i)	AO1 (1 mark) B (information collected by other people) Cannot be A, C or D (primary data)	(1)

Question number	Answer	Mark
4(a)(ii)	AO1 (1 mark) Award one mark for any of the following: • Field sketch (1) • Photograph (1) • Open question survey/questionnaire (1) • Interviews/focus groups (1) Accept any other acceptable response.	(1)

Question number	Answer	Mark
4(b)	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 risk of slipping (on rocks on the riverbed) (1) which can cause injury (1). • There is a risk of cutting hand (on rocks) (1) which can cause infection (1). • Standing in cold water (1) as it can lead to hypothermia (1). Accept any other acceptable response.	(2)

Question number	Answer	Mark
4(c)	AO4 (2 marks) Award 1 mark for correct method of working with correct figures and 1 mark for correct answer. 5 , 12 , 17 , 20 , 21 , 31 , 31 , 31 , 40 , 40 21+31 = 52 / 2 = 26 Answer = 26 cm	(2)

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

Question number	Answer	Mark
4(d) (ii)	AO4 (1 mark) Award one mark for any of the following: • (Site) 6 (1)	(1)

Question number	Answer	Mark
4(d)(iii)	AO4 (3 marks) Award 1 mark (AO4) for initial point and further marks for evidence (AO4) up to a maximum of three marks. • Human error (1) where the student has not held the meter ruler vertical (1) increasing the depth data (1). • The student may not have held the ruler perfectly vertical (1) this will have increased the number on the ruler (1) leading to the incorrect depth being recorded (1). • The student may have collected data from a river cliff (1) leading to higher erosion than normal (1) increasing the depth of data recorded (1). • The student may have collected data in an area of high littering forming a dam (1) this would have formed a pool of water behind the dam (1) increasing the depth of the water in the channel (1).	(3)

	• Uneven riverbed (due to rocks) (1) causes ruler to be placed in a hollow (1) which increases data recorded for depth (1). Accept any other acceptable response.	

Question number	Answer	Mark
4(e)	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 evaluating the reliability of the students own conclusions. The candidate needs to evaluate the strengths and weaknesses of several sets of data in order to determine the reliability and accuracy of their conclusion. This should include judgement on influence of anomalies and the extent to which data fits known theories or trends. AO3 • Accuracy is about how correct or incorrect the data written down is. • Reliability is about how dependable the data is and often relates to having a big enough sample size to reach a conclusion. • Conclusions can be determined by the extent to which the results fit a geographical theory. • Data collection techniques are very important in determining accuracy of conclusions. • There are different sampling strategies which have a range of advantages and disadvantages that need to be considered when reaching a conclusion. • Consideration of different equipment errors and the impact these might have had on accuracy of data. • Consideration of ways the accuracy of the conclusions could have been improved. • Conclusions should make a judgement about the presence of anomalies and whether they be included or excluded from the analysis. • A judgement about which techniques were reliable and/or accurate. • A judgement about overall accuracy of conclusion drawn. AO4 • Detail about overall conclusions drawn from own enquiry. • Detail about the specific sampling strategies used of	(8)

	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. • Detail about anomalies in own results.	

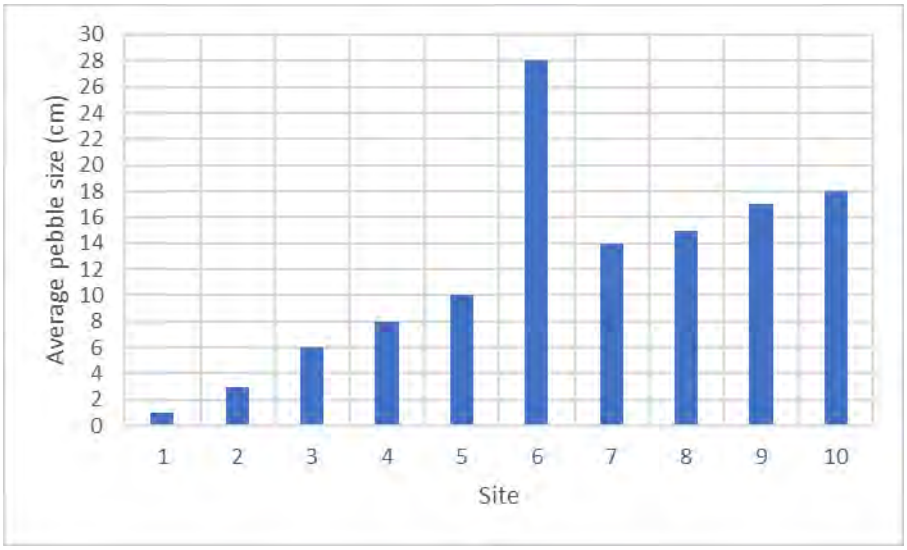
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–3	• Attempts to apply understanding to deconstruct information but understanding and connections are flawed. An unbalanced or incomplete argument that provides limited synthesis of understanding. Judgements that are supported by limited evidence. (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)	AO1 (1 mark) B (information collected by other people) Cannot be A, C or D (primary data)	(1)

Question number	Answer	Mark
5(a)(ii)	AO1 (1 mark) Award one mark for any of the following: • Field sketch (1) • Photograph (1) • Open question survey/questionnaire (1) • Interviews/focus groups (1) Accept any other acceptable response.	(1)

Question number	Answer	Mark
5(b)	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 risk of slipping (on rocks) (1) which can cause injury (1). • There is a risk cutting hand (on rocks) (1) which can cause infection (1). • Big / powerful / destructive waves (1) could cause you to be swept away / knocked over (1). • Rising tide (1) increases risk of being cutoff/stranded (1). Accept any other acceptable response.	(2)

Question number	Answer	Mark
5(c)	AO4 (2 marks) Award 1 mark for correct method of working with correct figures and 1 mark for correct answer. 2 , 2 , 3 , 4 , 8 , 12 , 15 , 15 , 15 , 20 8+12 = 20 / 2 = 10 Answer = 10°	(2)

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

Question number	Answer	Mark
5(d) (ii)	AO4 (1 mark) Award one mark for any of the following: • (Site) 6 (1)	(1)

Question number	Answer	Mark
5(d)(iii)	AO4 (3 marks) Award 1 mark (AO4) for initial point and further marks for evidence (AO4) up to a maximum of three marks. • The student may have been inconsistent with which pebble axis was measured (1) this could have meant it was not always the longest side measured (1) leading to incorrect data (1). • The student may not have been accurate when placing the 0 on the ruler against the pebble (1) this would have caused a bigger number to be recorded (1) in error (1). • The student may have chosen pebbles which were easiest to measure (1) this would have reduced the reliability of the sample (1) leading to inconsistent data being recorded (1). Accept any other acceptable response.	(3)

Question number	Answer	Mark
5(e)	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 evaluating the reliability of the students own conclusions. The candidate needs to evaluate the strengths and weaknesses of several sets of data in order to determine the reliability and accuracy of their conclusion. This should include judgement on influence of anomalies and the extent to which data fits known theories or trends. AO3 • Accuracy is about how correct or incorrect the data written down is. • Reliability is about how dependable the data is and often relates to having a big enough sample size to reach a conclusion. • Conclusions can determine the extent to which the results fit a theory. • Data collection techniques are very important in determining accuracy of conclusions. • There are different sampling strategies which have a range of advantages and disadvantages that need to be considered when reaching a conclusion. • Consideration of different equipment errors and the impact these might have had on accuracy of data. • Consideration of ways the accuracy of the conclusions could have been improved. • Conclusions should make a judgement about the presence of anomalies and whether they be included or excluded from the analysis. • A judgement about which techniques were reliable and/or accurate. • A judgement about overall accuracy of conclusion drawn. AO4 • Detail about overall conclusions drawn from own enquiry. • 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. • Detail about anomalies in own results.	(8)

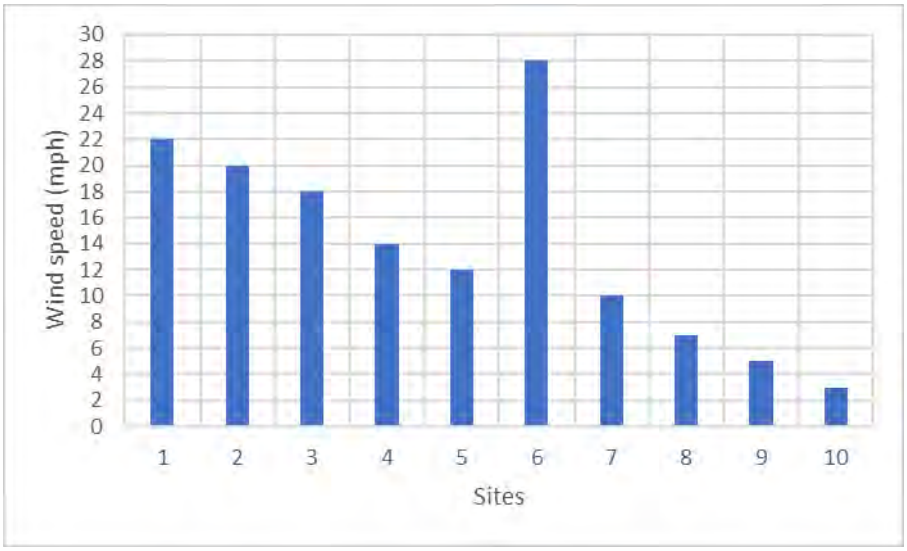
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–3	• Attempts to apply understanding to deconstruct information but understanding and connections are flawed. An unbalanced or incomplete argument that provides limited synthesis of understanding. Judgements that are supported by limited evidence. (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
6(a)(i)	AO1 (1 mark) B (information collected by other people) Cannot be A, C or D (primary data)	(1)

Question number	Answer	Mark
6(a)(ii)	AO1 (1 mark) Award one mark for any of the following: • Field sketch (1) • Photograph (1) • Open question survey/questionnaire (1) • Interviews/focus groups (1) Accept any other acceptable response.	(1)

Question number	Answer	Mark
6(b)	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 risk of flying debris (1) which can cause injury (1). • There is a risk of grit getting in eyes (1) which can cause irritation (1). • High winds (can make it difficult to hear) (1) which can increase risk of getting lost from group (1). • Crossing roads (1) as could be injured (by vehicle) (1). • Poor visibility (due to fog) (1) causing people to be separated from group / get lost (1). Accept any other acceptable response.	(2)

Question number	Answer	Mark
6(c)	AO4 (2 marks) Award 1 mark for correct method of working with correct figures and 1 mark for correct answer. 994 , 994 , 995 , 1000 , 1002 , 1004 , 1007 , 1008 , 1008 , 1008 1002 + 1004 = 2006 / 2 = 1003 Answer = 1003 mb	(2)

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

Question number	Answer	Mark
6(d) (ii)	AO4 (1 mark) Award one mark for any of the following: • (Site) 6 (1)	(1)

Question number	Answer	Mark
6(d) (iii)	AO4 (3 marks) Award 1 mark (AO4) for initial point and further marks for evidence (AO4) up to a maximum of three marks. • The student may have stood in a very exposed / open area (1) which was not consistent with other areas in the sample (1) leading to a much higher reading (1). • The student may not have held the anemometer correctly (1) this could have increased the movement of the cups (1) leading to a higher number being recorded (1). • A gust of wind from vehicle (1) could have been included in the recording (1) leading to an error in the data recorded (1). Accept any other acceptable response.	(3)

Question number	Answer	Mark
6(e)	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 evaluating the reliability of the students own conclusions. The candidate needs to evaluate the strengths and weaknesses of several sets of data in order to determine the reliability and accuracy of their conclusion. This should include judgement on influence of anomalies and the extent to which data fits known theories or trends. AO3 • Accuracy is about how correct or incorrect the data written down is. • Reliability is about how dependable the data is and often relates to having a big enough sample size to reach a conclusion. • Conclusions can determine the extent to which the results fit a theory. • Data collection techniques are very important in determining accuracy of conclusions. • There are different sampling strategies which have a range of advantages and disadvantages that need to be considered when reaching a conclusion. • Consideration of different equipment errors and the impact these might have had on accuracy of data. • Consideration of ways the accuracy of the conclusions could have been improved. • Conclusions should make a judgement about the presence of anomalies and whether they be included or excluded from the analysis. • A judgement about which techniques were reliable and/or accurate. • A judgement about overall accuracy of conclusion drawn. AO4 • Detail about overall conclusions drawn from own enquiry. • 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. • Detail about anomalies in own results.	(8)

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