GradeMax



Mark Scheme (Results)

June 2025

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

Question number	Answer	Mark
1(a)	**AO1 (1 mark)** **B** (groundwater) The answer cannot be A, C, D (all transfers)	**(1)**

Question number	Answer	Mark
1(b)(i)	**AO1 (1 mark)** **B** (the speed of the water flow) The answer cannot be A (cross profile), C (discharge), D (cross sectional area)	**(1)**

Question number	Answer	Mark
1(b)(ii)	**AO1 (1 mark)** Award one mark for any of the following: • Wide(er) (1) • Deep(er) (1) • Flat(er) (1) • Gentle/smooth slope/gradient (1) Accept any other appropriate response	**(1)**

Question number	Answer	Mark
1(c)	**AO2 (2 marks)** Award 1 mark for initial point and a further mark for explanation up to a maximum of two marks. • Large pebbles are heavy (1) and can only be rolled/dragged/pushed along the riverbed (1). • In the upper course sediment is large (1) meaning it cannot be picked up by the river as it is too heavy (1). • Traction is when material is rolled along (1) this is when the river's energy is too weak to lift the heavy sediment (1). • The upper course has little energy (1) which means	

	large material is rolled along when velocity is large enough (1). Accept any other appropriate response	**(2)**

Question number	Answer	Mark
1(d)	**AO2 (2 marks)/AO3 (2 marks)** Award 1 mark (AO3) for the identification of a reason for increasing demand shown in the resource and a further mark for explanation (AO2) up to a maximum of two marks each. • There has been an increase in water used for electricity (1) as more countries gain access to a centralised, piped system (1). • There has been an increase in water used for manufacturing (1) as some countries move from a primary to secondary dominant employment sector (1). • There has been a 1,000 km^3 increase in water used for electricity (1) as emerging countries develop create large-scale distribution networks/National Grid (1). • There has been an increase in water used for livestock (1) as emerging country populations demand a meat based diet (1). Accept any other appropriate response	**(4)**

Question number	Answer	Mark
1(e)	**AO3 (1 mark)** Award one mark for: • Interlocking spur (1)	**(1)**

Question number	Answer	Mark
1(f)	**AO1 (2 marks)/AO2 (2 marks)** Award 1 mark (AO1) for the identification of a climate/slope factor and a further mark for explanation (AO2) up to a maximum of two marks each. **Climate:** • High temperatures (lower discharge) (1) decreasing erosion (1). • Areas with higher precipitation (increases discharge) (1) increasing erosion (1). • Very cold areas will experience freeze thaw weathering (1) increasing size of cracks (in river valley sides) (1). • Periods of drought (lowers discharge) (1) increasing deposition (1). **Slope:** • Steep slopes (decreases lag time) (1) increasing erosion (1). • Gentle slopes (decrease river velocity) (1) increasing deposition (1). • Steep slopes (decreases lag time) (1) decreasing deposition (1). • Gentle slopes (decreases river velocity) (1) decreasing erosion (1). Accept any other appropriate response. **Credit river valley processes (i.e. mass movement and weathering) as river processes if linked to a climate and slope factor.**	**(4)**

Question number	Answer	Mark
1(g)	**AO2 (3 mark)** Award 1 mark for the initial cause and 2 marks for further explanation up to a maximum of 3 marks. • Releasing sewage (1) introduces large amounts of nutrients (1) reducing levels of oxygen (1). • Industry (1) releases heavy metals in the water (1) this is poisonous to wildlife/kill fish/reduce biodiversity (1). • Agricultural (1)(runoff from fields) increases nitrates in water (1) this causes increased algae growth (1).	

	• Oil leaks (1) block out sunlight (1) reducing water quality (1). Accept any other appropriate response	**(3)**

Question number	Answer	Mark
1(h)	**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 how effective the strategy has been at reducing the risk of flooding. Candidates should discuss the strengths and limitations and make some judgement regarding overall effectiveness of the strategy. **AO3** • A river regime is the annual variation in discharge of a river. • Hard engineering flood prevention strategies often involve building a concrete barrier to stop flooding. • Soft engineering flood prevention strategies often involve working with natural processes to reduce flooding. • Dams are hard engineering which control the flow of water stopping flooding during high precipitation periods. • Dams control the flow of water reducing impacts of drought during extended dry periods. • Dams alter the natural river regime affecting how the river processes operate. • Dams can reduce the severity of impacts caused by flooding. • Dams are very expensive and take years to build. **AO4** • Figure 1c shows a very big peak discharge in August to November before the Aswan Dam was built. • Figure 1c shows very low discharge January to July before the Aswan Dam was built. • Figure 1c shows a higher base flow between January to July after the Aswan Dam was built. • Figure 1c shows a reduced discharge during August to October after the Aswan Dam was built. • Figure 1c shows the River Nile was prone to flooding often before the Aswan Dam was completed. • Figure 1c shows Egypt experienced drought frequently	**(8)**

	before the Aswan Dam was built. • Figure 1c shows the Aswan dam reduced the number of people killed by floods after the dam was built.	

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 2

Question number	Answer	Mark
2(a)(i)	**AO1 (1 mark)** **D** (storm surge) The answer cannot be A (cause of river flooding), B (weather characteristic), C (weather characteristic).	**(1)**

Question number	Answer	Mark
2(a)(ii)	**AO1 (1 mark)** Award one mark for any of the following: • Coastal recession/retreat (1) • Erosion of cliff/increased erosion (1) • Destruction/loss of saltmarsh / mudflat / coral reef / mangroves / beaches / spits / bars (1) • (Creation of) fjords / rias / fjards (1) • Raised beaches (1) • Relic cliffs (1) • Dalmation coasts (1) Accept any other appropriate response. **No credit for stating causes for sea level rise e.g. melting ice sheets, climate change**	**(1)**

Question number	Answer	Mark
2(b)	**AO1 (1 mark)** **A** (a cliff surrounded by water on three sides) The answer cannot be B (wavecut platform), C (stack). D (bay)	**(1)**

Question number	Answer	Mark
2(c)	**AO2 (2 marks)** Award 1 mark for initial point and a further mark for development up to a maximum of two marks. • Beach replenishment/realignment (involved adding sediment) (1) to the beach to make it wider/steeper to absorb the power of the waves (1).	

	• Cliff regrading (involves the gradient of the cliff being altered) (1) so waves travel up the cliff and back again reducing scouring of base (1). • Ecosystem rehabilitation (involves planting to build up sand dune / saltmarsh / mangrove) (1) to stabilise and encourage deposition to slow erosion (1). • Managed retreat/realignment (involves allowing the coastline to erode in some areas) (1) to allow flooding which helps to protect other areas from flooding (1). Accept any other appropriate response.	**(2)**

Question number	Answer	Mark
2(d)	**AO2 (2 marks)/AO3 (2 marks)** Award 1 mark (AO3) for the identification of a type of hard engineering based on evidence from resource and a further mark for explanation (AO2) up to a maximum of two marks each. • There is a sea wall (1) which prevent access to the coast for some groups of people (1). • There are groynes all along the beach (1) which interfere with natural processes / longshore drift (1). • The hard engineering prevents the formation of sand dunes (1) reducing biodiversity of the coastline (1). • The hard engineering interferes with coastal processes (1) which work against nature (1). • The groynes prevent longshore drift (1) which will upset residents further along the coast (1). • Revetments (1) make the beach look ugly (1). Accept any other appropriate response. **No credit for rip rap/rock armour/gabions as no evidence from the resource.**	**(4)**

Question number	Answer	Mark
2(e)	**AO2 (3 marks)** Award 1 mark for the identification of an abiotic characteristic and 2 marks for further explanation up to a maximum of 3 marks. **Mangrove:** • Increased salinity (1) can increase the rate of leaf death in mangrove vegetation (1) leading to lack of photosynthesis (1).	

	• Increase in nutrients (to mangroves) (1) increases growth rates (1) making them more resistant to surviving in waterlogged soils (1). • (Mangroves survive best in) 50% freshwater and 50% saltwater (1) this means they have adapted to filter salt out of the roots (1) and have glands that excrete salt (1). **Coral reefs:** • Decreased salinity (1) causes the algae to die (1) leading to coral bleaching (1). • Temperature changes (1) as temperatures over 29°C kill the algae (zooxanthellae) (1) leading to coral bleaching (1). Accept any other appropriate response. Credit any type of coastal ecosystem e.g. beach, mudflat, saltmarsh, sand dune. **No credit for naming a coastal ecosystem** **No credit for pollution on its own too vague for credit**	**(3)**

Question number	Answer	Mark
2(f)	**AO3 (1 mark)** Award one mark for: • Nigeria (1)	**(1)**

Question number	Answer	Mark
2(g)	**AO1 (2 marks)/AO2 (2 marks)** Award 1 mark (AO1) for the identification of a threat and a further mark for explanation (AO2) up to a maximum of two marks each. • Diving/snorkelling tourists often break pieces of coral off (1) which causes damage and stress to coral (1). • Propeller's from (tourist) boats (1) can hit the coral and damage areas of reef (1). • Suncream washes off (when swimming) (1) the chemicals can cause coral bleaching (1). • Plastic/litter (can be dropped by tourists) (1) can suffocate the coral (1). • Plastic in the ocean (1) increases risk of disease to corals (1).	

	Accept any other appropriate response.	**(4)**

Question number	Answer	Mark
2(h)	**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 role physical processes have on the coastline and requires some judgement about which processes will be more influential. **AO3** • Sandy/flat coastlines are often low energy coastlines experiencing constructive (swell) waves. • Low energy coastlines often have less resistant geology. • Low energy coastlines often have depositional landforms. • Sandy coastlines often have lower relief. • Deposition is often dominant along soft rock coastlines. • Erosion is less influential in the creation of landforms. • Longshore drift is often influential along sandy coastlines. • Soft rock coastlines are prone to slumping and less prone to rock falls. **AO4** • Figure 2c shows this stretch of coastline is very low lying. • Figure 2c shows the coastline has a spit. • Figure 2c shows an area of sandy beach. • Figure 2c shows an area of saltmarsh. • Figure 2c shows the spit is very flat. • Figure 2c shows the average temperature is 13°C. • Figure 2c shows there is a short fetch of 6 km. • Figure 2c shows the dominant wave type is constructive.	
		(8)

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 3

Question number	Answer	Mark
3(a)	**AO1 (1 mark)** **C** (Richter scale) Answer cannot be A (wind), B (cloud cover), D (cyclone)	**(1)**

Question number	Answer	Mark
3(b)(i)	**AO1 (1 mark)** **B** (the point inside the earth's crust where the earthquake starts) Answer cannot be A (continental plate), C (epicentre), D (oceanic plate).	**(1)**

Question number	Answer	Mark
3(b)(ii)	**AO1 (1 mark)** Award one mark for any of the following: • Ground shaking (1) • Liquefaction (1) • Landslide (1) • Tsunami (1) • Flooding (1) Accept any other appropriate response.	**(1)**

Question number	Answer	Mark
3(b)(iii)	**AO2 (2 marks)** Award 1 mark for initial point and a further mark for development up to a maximum of two marks. • Trees can be uprooted (1) which can increase soil erosion (1). • Salt intrusion (from tsunamis) (1) can kill vegetation in flooded fields (1). • Freshwater (rivers) can be polluted by salt (1) killing freshwater organisms (1). • Caves may collapse (1) which unbalances the ecosystem (1).	

	• Tsunami waves can damage/destroy coral reef/mangroves (1) reducing biodiversity/destroys the habitat (1). Accept any other appropriate response.	**(2)**

Question number	Answer	Mark
3(c)	**AO2 (2 marks)/AO3 (2 marks)** Award 1 mark (AO3) for the identification of a reason based on evidence from resources and a further mark for explanation (AO2) up to a maximum of two marks each. • People are told to secure their furniture to the wall to prepare in advance (1) (for an earthquake) which will reduce injury/death (1). • Awareness of drop, cover, hold ensuring people know what to do (1) (when an earthquake) occurs reducing injury (1). • People are told to have emergency supplies means they are prepared if supplies are interrupted (1) reducing malnutrition/panic buying (1). • There is clear evidence of planning, having evacuation routes (1) which reduces the number of people exposed to risks (from earthquakes) (1). Accept any other appropriate response.	**(4)**

Question number	Answer	Mark
3(d)	**AO3 (1 mark)** Award one mark for the following: • Transform / conservative (1)	**(1)**

Question number	Answer	Mark
3(e)	**AO1 (2 marks)/AO2 (2 marks)** Award 1 mark (AO1) for the initial feature and a further mark for development (AO2) up to a maximum of two marks each. • Volcanoes at destructive plate boundaries are very tall (1) as the lava is very stickly and does not flow very far (1). • Some volcanoes are made up of layers of ash and lava (1) as eruptions are often explosive (1).	

	• Volcanoes at constructive plate boundaries erupt infrequently (1) as the vents are often blocked by cooled magma (1). • Some volcanoes erupt violently (1) because the magma is very viscous (1). Accept any other appropriate response, including mirrors of above suggestions.	**(4)**

Question number	Answer	Mark
3(f)	**AO2 (3 marks)** Award 1 mark for the initial explanation and 2 marks for further explanation up to a maximum of 3 marks. • The ash from previous eruptions (1) makes the soil fertile (1) increasing crop growth (1). • Volcanoes attract tourists (1) which generates jobs (for people living there) (1) which increases standard of living (1). • Geothermal energy can be harnessed/produced (1) which can provide cheaper energy (for locals) (1) reducing need for imports (1). • Minerals are contained in the lava which can be mined (1) which generates an income (1) which increases GDP/county's economy (1). • People are protected from flooding (1) as volcanic rocks absorb water (1) reducing surface runoff (into rivers) (1). • Poverty/not enough money/low income (1) due to low paying jobs (1) means there is no choice/can't more (1). Accept any other appropriate response. **No credit for stating advantages outweigh disadvantages**	**(3)**

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 influence of physical causes of vulnerability and make judgements regarding to which physical factor is most significant increasing risk. **AO3** • Vulnerability is the potential to be harmed. • Physical, social and economic factors can increase/decrease a locations level of vulnerability. • The wind strength of a tropical cyclone can increase a country's vulnerability. • Secondary hazards like landslides can increase vulnerability. • The height of the storm surge can influence a places vulnerability. • Physical vulnerability factors are not controlled by people. • People can adapt to reduce social and economic vulnerabilities to a greater extent. • The evidence suggests physical vulnerability factors are not always the greatest influence on severity of impacts. • Social impacts are often higher in developing / emerging countries. • Economic impacts are often higher in developed countries. **AO4** • Figure 3c shows the storm surge was worse for Japan. • Figure 3c shows the wind speed was higher for the Philippines. • Figure 3c shows the social impacts are mainly less severe in Japan. • Figure 3c shows that the economic impacts are greatest in Japan. • Figure 3c shows that Philippines had the more severe social impacts. • Figure 3c shows that Philippines had the smallest economic impacts.	
		(8)

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 4

Question number	Answer	Mark
4(a)	**AO4 (2 marks)** Award 1 mark for identifying a relevant risk and a further mark for development up to a maximum of two marks. • Slipping on wet/uneven ground (1) causing injury (1). • Water entering cuts (1) causing infection (1). • Getting lost (1) leading to distress/anxiety (1). • Getting wet and cold (1) causing hyperthermia (1). • Getting lost (1) so stayed in groups (1). • Slipping on rocks (1) so wore appropriate footwear/trainers/shoes with good grip (1). Accept any other acceptable response.	**(2)**

Question number	Answer	Mark
4(b)	**AO3 (2 marks) / AO4 (1 mark)** Award 1 mark for the initial data collection method and 2 marks for further explanation up to a maximum of 3 marks. • I measured gradient from upper to lower course (1) using a clinometer to measure the angle of slope (1) to see the difference downstream (1). • I measured the channel depth with a meter ruler (1) at three points along the width (1) to measure cross sections for each site (1). • I selected 10 pebbles at each site randomly (1) and measured their longest axis (1) to see size changes downstream (1). • I selected 10 pebbles at each site (1) and recorded their shape (1) to see shape changes downstream (1). • I took photographs (1) to create a visual record of the channel changes downstream (1) remember the features of the landscape at each site (1). Accept any other acceptable response.	**(3)**

Question number	Answer	Mark
4(c)	**AO3 (2 marks) / AO4 (2 marks)** Award 1 mark for the identification of a factor that increases accuracy and a further mark for explanation up to a	

	maximum of two marks each. • Used a protractor to draw the proportions on pie charts (1) to ensure the degrees equaled 360 (1). • Used a ruler to draw bars (1) to ensure each bar was the same width (1). • Used a consistent scale on the y axis (1) to ensure height/size was not distorted (1). • Ensured axis begun at zero (1) to avoid distorting the pattern on the graph (1). • Used a computer / Excel to plot data (1) to ensure points on the line graph were placed accurately (1).	**(4)**

Question number	Answer	Mark
4(d)	**AO3 (2 marks) / AO4 (1 mark)** Award 1 mark for the initial explanation and 2 marks for further explanation up to a maximum of 3 marks. • Not ensuring the measuring tape is pulled tight (1) results in the incorrect distance being measured (1) making it longer or shorter (1). • Dropping the cork into the water at a different time (1) to when the stopwatch is started (1) will result in the time recorded being incorrect (1). • Placing the ruler on a raised area of riverbed (1) can result in a smaller depth being recorded (1) which is not representative (1). • Not calibrating equipment (1) could mean it produces incorrect readings (1) which are not noticed (1). • There were no anomalies in my data (1) because I used calibrated equipment (1) ensuring accuracy of my data (1). • Starting the stopwatch late (1) due to human error (1) meant the first seconds (of the orange moving) were missed (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	**(8)**

	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 how well the secondary data supported the students' conclusion. The candidate needs to evaluate the strengths and weaknesses of the information shown in the secondary data source and make a judgement about the validity of the conclusion drawn. **AO3** • Topographical maps show relief of the landscape. • Secondary sources can be out of date making information less reliable. • Secondary sources will not show the exact sites the primary data is collected from. • Time of year can affect the environment making primary and secondary sources very different. • It is difficult to determine if secondary data was collected accurately. • Rivers flowing through urban areas may be managed using hard engineering which alters natural processes. • Erosion and deposition influence the features of meanders. • Climate can influence the rate of erosion and deposition. • The conclusion reached states very little change which is inaccurate making it less valid. **AO4** • Figure 4 shows that the three biggest meanders remain in a similar position. • Figure 4 shows that the land use along this stretch of river has not changed much. • Figure 4 shows an area of steep land to the north of the river. • Figure 4 shows an area of flat land to the south of the river. • Figure 4 shows an area of braided river (3 channels) which has disappeared. • Figure 4 shows the river channel route has changed most furthest west in the images.	

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 5

Question number	Answer	Mark
5(a)	**AO4 (2 marks)** Award 1 mark for identifying a relevant risk and a further mark for development up to a maximum of two marks. • Slipping on wet/uneven ground (1) causing injury (1). • Water entering cuts (1) causing infection (1). • Getting lost (1) leading to distress/anxiety (1). • Getting wet and cold (1) causing hyperthermia (1). • Getting lost (1) so stayed in groups (1). • Slipping on rocks (1) so wore appropriate footwear/trainers/shoes with good grip (1). Accept any other acceptable response.	**(2)**

Question number	Answer	Mark
5(b)	**AO3 (2 marks) / AO4 (1 mark)** Award 1 mark for the initial data collection method and 2 marks for further explanation up to a maximum of 3 marks. • I measured gradient from waterline to top of beach (1) using a clinometer to measure the angle of slope (1) on both sides of a groyne to see how groynes affect the shape of the beach (1). • I selected 10 pebbles at each site randomly (1) and measured their longest axis (1) to see how size of pebbles changes from one end of the beach to the other (to see the impact of longshore drift/attrition/erosion) (1). • I selected 10 pebbles at each site (1) and recorded their shape (1) to see the difference between managed and unmanaged beaches (1). • I took photographs (1) to create a visual record of the changes from one end of the beach to the other (1) to remember the features of the landscape (1). Accept any other acceptable response.	**(3)**

Question number	Answer	Mark
5(c)	**AO3 (2 marks) / AO4 (2 marks)** Award 1 mark for the identification of a factor that increases	

	accuracy and a further mark for explanation up to a maximum of two marks each. • Used a protractor to draw the proportions on pie charts (1) to ensure the degrees equaled 360 (1). • Used a ruler to draw bars (1) to ensure each bar was the same width (1). • Used a consistent scale on the y axis (1) to ensure height/size was not distorted (1). • Ensured axis begun at zero (1) to avoid distorting the pattern on the graph (1). • Used a computer / Excel to plot data (1) to ensure points on the line graph were placed accurately (1).	**(4)**

Question number	Answer	Mark
5(d)	**AO3 (2 marks) / AO4 (1 mark)** Award 1 mark for the initial explanation and 2 marks for further explanation up to a maximum of 3 marks. • Not ensuring the measuring tape is pulled tight (1) results in the incorrect distance being measured (1) making it longer or shorter (1). • Placing the zero on the ruler inaccurately (1) can result in a smaller pebble length being recorded (1) which is not representative (1). • Not calibrating equipment (1) could mean it produces incorrect readings (1) which are not noticed (1). • Not lining the clinometer up accurately (1) with the correct boundary on the ranging poles (1) resulting in incorrect angles being recorded (1). • There were no anomalies in my data (1) because I used calibrated equipment (1) ensuring accuracy of my data (1). • Starting the stopwatch late (1) due to human error (1) meant the first seconds (of the orange moving) were missed (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**	**(8)**

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 how well the secondary data supported the students' conclusion. The candidate needs to evaluate the strengths and weaknesses of the information shown in the secondary data source and make a judgement about the validity of the conclusion drawn.

AO3

- Geology maps show rock types of the landscape.
- Secondary sources can be out of date making information less reliable.
- Secondary sources will not show the exact sites the primary data is collected from.
- Time of year can affect the environment making primary and secondary sources very different.
- It is difficult to determine if secondary data was collected accurately.
- Hard rock coastlines are likely to show cliffs, headlands, arches.
- Soft rock coastlines are likely to show beaches, spits and lower lying coastlines.
- Depositional coastlines are likely to be managed using soft engineering.
- The conclusion reached states very little change but there is a clear dip in the middle of the beach making the conclusion less valid.
- There is no angle data making it hard to determine the validity of the conclusion.

AO4

- Figure 5 shows this coastline is located in an area of soft rock / unconsolidated sediments.
- Figure 5 shows a sandy beach environment.
- Figure 5 shows a comparison of the beach over a 3 year period.
- Figure 5 shows a small area is affected by erosion, areas either side look very similar.
- Figure 5 does not show angle data.
- Figure 5 shows less green vegetation in the 2010 image.
- Figure 5 shows the highlighted plant is much more exposed in the 2010 image.

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 6

Question number	Answer	Mark
6(a)	**AO4 (2 marks)** Award 1 mark for identifying a relevant risk and a further mark for development up to a maximum of two marks. • Getting hit by flying debris (1) causing injury (1). • Slipping on wet/uneven ground (1) causing injury (1). • Getting lost (1) leading to distress/anxiety (1). • Getting wet and cold (1) causing hyperthermia (1). • Getting lost (1) so stayed in groups (1). • Slipping on uneven ground (1) so wore appropriate footwear/trainers/shoes with good grip (1). Accept any other acceptable response.	**(2)**

Question number	Answer	Mark
6(b)	**AO3 (2 marks) / AO4 (1 mark)** Award 1 mark for the initial data collection method and 2 marks for further explanation up to a maximum of 3 marks. • I created a questionnaire with 10 closed questions (1) to determine local people's perception of risk (1) to be able to present results (1). • I used stratified sampling (1) for my questionnaire (1) to get a representative sample of people's opinions/views (1). • I recorded air pressure (1) using a barometer (1) to make links to compare how pressure affects temperature/wind speed/precipitation/cloud cover (1). • I measured wind speed (1) using an anemometer (1) to identify the impact of sheltered and exposed areas (on wind speeds) (1). Accept any other acceptable response.	**(3)**

Question number	Answer	Mark
6(c)	**AO3 (2 marks) / AO4 (2 marks)** Award 1 mark for the identification of a factor that increases accuracy and a further mark for explanation up to a maximum of two marks each. • Used a protractor to draw the proportions on pie	

	charts (1) to ensure the degrees equaled 360 (1). • Used a ruler to draw bars (1) to ensure each bar was the same width (1). • Used a consistent scale on the y axis (1) to ensure height/size was not distorted (1). • Ensured axis begun at zero (1) to avoid distorting the pattern on the graph (1). • Used a computer / Excel to plot data (1) to ensure points on the line graph were placed accurately (1).	**(4)**

Question number	Answer	Mark
6(d)	**AO3 (2 marks) / AO4 (1 mark)** Award 1 mark for the initial explanation and 2 marks for further explanation up to a maximum of 3 marks. • Not ensuring the liquid in the thermometer has time to settle (1) before taking the reading (1) meaning the wrong data is recorded (1). • Using the oktas scale to measure cloud cover uses estimates (1) different people would make different judgements (1) meaning variable results (1). • Using the Beaufort scale is judgement based (1) this means different people would make different decisions (1) which is unreliable (1). • Not calibrating equipment (1) could mean it produces incorrect readings (1) which are not noticed (1). • There were no anomalies in my data (1) because I used calibrated equipment (1) ensuring accuracy of my data (1). • Starting the stopwatch late (1) due to human error (1) meant we didn't record the average wind speed for the same amount of time (as at other sites/different times of the day) (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	**(8)**

material not suggested below must also be credited.

This question is about evaluating the how well the secondary data supported the students' conclusion. The candidate needs to evaluate the strengths and weaknesses of the information shown in the secondary data source and make a judgement about the validity of the conclusion drawn.

AO3

- Local live feed / risk maps show data spatially.
- Secondary sources can be out of date making information less reliable.
- Secondary sources will not show the exact sites the primary data is collected from.
- Time of year can affect the environment making primary and secondary sources very different.
- It is difficult to determine if secondary data was collected accurately.
- Weather is very seasonable making it difficult to make a definitive conclusion.
- Climate change is affecting weather events making it difficult to predict future weather events.
- Every extreme weather event is different meaning the conclusion may not be fully valid.
- The conclusion reached is less valid as northwest Florida receives more rain annually than Miami.

AO4

- Figure 6a shows southern Florida experiences heavy rain 3rd June.
- Figure 6 shows Miami is expected to receive 10 inches of precipitation in the June extreme weather event.
- Figure 6 shows the west coast of Florida receives similar amounts of precipitation each year.
- Figure 6 shows Miami does receive 60-64 inches of precipitation each year.
- Figure 6 shows Miami is an anomaly in the average annual precipitation map.

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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