Pearson Edexcel

Mark Scheme (Results)

Summer 2022

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

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General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

Question number	Answer	Mark
1(a)	**AO1 (1 mark)** D interlocking spurs (1) The answer cannot be A as these are usually found in the lower course, or B or C as these are usually found in the middle course.	**(1)**

Question number	Answer	Mark
1(b)(i)	**AO1 (1 mark)** A boundary of a drainage basin (1) The answer cannot be B (source), C (mouth) or D (confluence)	**(1)**

Question number	Answer	Mark
1(b)(ii)	**AO1 (1 mark)** Award 1 mark for any of the following. • Evaporation (1) • Transpiration (1) • Evapotranspiration (1) • Condensation (1) • Precipitation (1) • Overland flow / surface runoff (1) • Throughflow (1) • Groundwater flow (1) • Stream flow (1) / river flow (1) / river (1) Accept any other appropriate response.	**(1)**

Question number	Answer	Mark
1(c)	**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. • Minerals in the rock on the sides of the river are dissolved (1) as water flows past (1). • Soluble particles are dissolved in the water (1) due to weak acids in the water (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 an advantage and a disadvantage and a further mark for explanation (AO2) up to a maximum of two marks each. Advantages: • Flood walls can reduce the level of damage caused by floods (1) which can save lives (1). • Hard engineering strategies such as flood walls can be adapted once in place (1) for example increased height as flood events become more severe (1). Disadvantages: • Building a flood embankment can be very expensive (1) as it often involves large scale building programs (1). • Installing new flood embankments can affect ecosystems (1) for example through tree removal which could also remove habitats for wildlife (1). **No credit for just naming a strategy given in the resource e.g. 'Flood walls will be raised' or 'trees will be removed'.** Accept any other appropriate response.	**(4)**

Question number	Answer	Mark
1(e)	**AO2 (3 marks)** Award 1 mark for the initial explanation and 2 marks for further explanation up to a maximum of 3 marks. • Urban land use usually increases the amount of land covered by impermeable surfaces (1) which means increased run-off when it rains (1) which can lead to a river regime with higher chances of floods (1). • Urban land use can lead to deforestation (1) which reduces the amount of interception from vegetation (1) which means the regime can be more flashy (1). Accept any other appropriate response.	**(3)**

Question number	Answer	Mark
1(f)	**AO3 (1 mark)** Award 1 mark for the following: • Peak rainfall (1).	**(1)**

Question number	Answer	Mark
1(g)	**AO1 (1 mark) AO2 (3 marks)** Award 1 mark for initial point (AO1), and 3 further marks (AO2) for the extension of this point up to maximum of 4 marks. Candidates should identify the different stages in the formation of the landform. Credit annotated diagrams where provided, but do not double credit ideas if repeated in the written text. • Where there is an area of hard rock above soft rock, the soft rock is eroded by the flow of water (1). This erosion undercuts the hard rock (1) until there is an overhang as the softer rock is eroded more easily (1). Through erosion and hydraulic action a plunge pool is created which deepens the waterfall (1). • The force of the water erodes the soft rock (1) as it falls over the hard cap rock (1). The force of the water creates a plunge pool at the bottom (1). The hard rock is eroded back slowly (1). Accept any other appropriate response.	**(4)**

Question number	Indicative Content
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 the importance of dams for managing the demand and supply of water. Candidates will need to be able to identify the different ways dams are used, how dams can affect different areas of water supply through interrogation of the resource. **AO3** • Dams are used to typically to store water in a reservoir and allow the release of water in a controlled way, which can be used to generate hydroelectric power (HEP). This is a technique used widely across the globe: in Africa there are over 600 dams, in Europe there are nearly 1200. • The storage of water in reservoirs behind dams, gives countries greater control over the flow of water so can reduce the chance of flooding in some areas, but can also controls flows of water in periods where supplies are lower (e.g. during a drought). This can reduce water insecurity, particularly where rainfall is seasonal. • Dams such as the Grand Renaissance Dam have been controversial since their inception because of the potential impacts of their creation, as well as the physical changes required for its construction. There are concerns from Egypt around the lack of control over their water supplies which are vital for the livelihoods and survival of its people. There are concerns from Sudan that when water is released from the dam it may overwhelm dams and rivers which have a much smaller capacity. • The ability of dams to control water supplies where rivers cross international boundaries means there are potential issues created about who controls the supply of water, as seen in the GRD example. **AO4**

	• Figure 1c shows the location of the Grand Renaissance Dam in Ethiopia holding back 74 billion cubic metres of water demonstrating its importance for water supply. • Figure 1c shows how the Grand Renaissance Dam affects a river that flows through several countries (Ethiopia, Sudan, and Egypt for the Blue Nile) and indicates where water can be held back to affect supply. • Figure 1c shows dams have a purpose beyond water supply through the creation of hydroelectricity. • Figure 1c highlights how there is the potential for conflicts to be created by dams and their control over water supplies.

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)** C (complex root system) The answer cannot be A (sand dune), B (shallow gradient at the coastline) or D (requires warm temperatures to grow)	**(1)**

Question number	Answer	Mark
2(b)(i)	**AO1 (1 mark)** A Abrasion (1) The answer cannot be B (coastal landform), C or D (features of waves).	**(1)**

Question number	Answer	Mark
2(b)(ii)	**AO1 (1 mark)** Award 1 mark for any of the following. • Longshore drift (1) • Traction (1) • Saltation (1) • Solution (1) • Suspension (1) Accept any other appropriate response.	**(1)**

Question number	Answer	Mark
2(c)	**AO1 (1 mark)/AO2 (1 mark)** Award 1 mark (AO1) for initial point and a further mark for explanation of the reason (AO2) up to a maximum of two marks. • Building designs such as being built on raised stilts (1) so they are above the level floods usually reach (1). • City and town planning that recognises which areas most at risk (1) and limits new building activity in these areas (1). • Including strategies for responding to coastal flood events in education programs (1) so people know how to respond, for example evacuation routes and shelters (1). • Using forecasting technologies (1) to be able to predict when coastal flooding will happen and evacuate before the event hits (1). • Building hard engineering strategies (sea walls) can reduce the energy/power of the waves (1) which can prevent damage to buildings (1). Accept any other appropriate response.	**(2)**

Question number	Answer	Mark
2(d)	**AO2 (2 marks)/AO3 (2 marks)** Award 1 mark (AO3) for identification of any reason and a further mark for explanation of the reason (AO2) up to a maximum of two marks each. • Some areas of the coast are not being provided with any protection (1), so they are likely to experience faster rates of coastal erosion (1). • Those in Puerto Banus may resent people in Caleta de Velez (1) because they have a range of hard engineering strategies being used to protect the coastline (1). • Industry owners in El Zabal may feel their livelihood is more important to protect than fishing (1) and may not understand why there is not protection strategy there (1). • Building a sea wall is expensive (1) which means less money is spent on other services (1). Accept any other appropriate response.	**(4)**

Question number	Answer	Mark
2(e)	**AO2 (3 marks)** Award 1 mark for initial point and 2 marks for further explanation up to a maximum of 3 marks. • Climate change can cause the melting of ice caps (1) so global sea levels will rise (1) and so coastal settlements may become flooded or abandoned (1). • Climate change may cause increased coastal erosion (1) because sea levels are higher (1) and may be accompanied by more extreme weather events so more erosion (1). • Climate change could destroy coral reefs (1) because sea temperature rises (1) which leads to coral bleaching (1). • Climate change could increase severity of storms (1) which will increase erosion of mangroves (1) leading to loss of biodiversity (1). Accept any other appropriate response.	**(3)**

Question number	Answer	Mark
2(f)	**AO3 (1 mark)** Award 1 mark for the following: • Constructive wave (1).	**(1)**

Question number	Answer	Mark
2(g)	**AO1 (1 mark) AO2 (3 marks)** Award 1 mark for initial point (AO1) a further 3 marks for development of explanation (AO2) for each. Credit annotated diagrams where provided, but do not double credit ideas if repeated in the written text. • Cave forms along a headland (1). Wave action begins to erode the headland (1) especially where there are lines of weakness (1) repetition of this process leads to this line if weakness widening creating a cave (1). Accept any other appropriate response.	**(4)**

Question number	Indicative Content
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. The question is about analysing why the multiple threats to coral reef ecosystems is important. **AO3** • Coral reefs are delicate ecosystems that are subject to a range of physical and human threats. • For coral reefs to grow they need optimal conditions including lots of sunlight, and clear and shallow water around 21-29^{oC} temperature. Climate change has the potential to increase

	water temperatures which could threaten coral growth, but there are a much wider range of threats from human activity. • Coral reefs are important for maintaining biodiversity in the ocean, and represent some of the most biologically diverse marine ecosystems on Earth. For example, the Great Barrier Reef contains over 400 coral species, 1,500 fish species, 4,000 mollusc species. • Coral reefs act as an important natural barrier for the coastline, which can reduce the power of waves hitting the coast. • Coral reefs are often popular sites for tourists to visit, and as such create jobs for many people in the tourist and hospitality industries which means it is important for economies that threats to them are reduced. **AO4** • Fig 2c shows how there are various threats to coral reef ecosystems. • Figure 2c indicates how human activities can threaten coral reef ecosystems through agriculture leading to increased pollution in the water which can affect coral growth. • Figure 2c indicates that pollution can reach water where corals are growing through groundwater flow. • Figure 2c indicates threats can include agriculture, road construction, oil and chemical spills, deforestation, stormwater runoff, coastal developments, chemicals from sunscreens as well leakages from septic tanks. • Figure 2c indicates how there are a range of stakeholders that are involved in the threats to coral reefs from tourists using sunscreens, up to city planners through plans for road construction.

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)** B (Constructive) The answer cannot be A (not a plate boundary), C (not found at a plate boundary) or D (part of the earth's crust).	**(1)**

Question number	Answer	Mark
3(b)(i)	**AO1 (1 mark)** D (eye in the centre) The answer cannot be A (low pressure in a tropical cyclone), B (high rainfall), C (high wind speeds).	**(1)**

Question number	Answer	Mark
3(b)(ii)	**AO1 (1 mark)** Award 1 mark for a suitable factor: • (Warm sea surface) temperature (1) • Coriolis force (1) • Wind shear (1) • Converging winds (1) • Air pressure (1) • Latitude (1) • Climate / seasonality (1) Accept any other appropriate response.	**(1)**

Question number	Answer	Mark
3(c)	**AO1 (1 mark)/AO2 (1 mark)** Award 1 mark (AO1) for identification of correct impact and a further mark for explanation (AO2) up to a maximum of two marks. • Damage to infrastructure (1) which requires heavy investment from the government (1). • Peoples' homes are destroyed (1) so can lead to homelessness and development of makeshift settlements (1). • Damage to crops (1) which means farmers risk having no money to buy seeds for next season (1). Accept any other appropriate response.	**(2)**

Question number	Answer	Mark
3(d)	**AO2 (2 marks)/AO3 (2 marks)** Award 1 mark (AO3) for identification of any reason and a further mark for explanation of the reason (AO2) up to a maximum of two marks each. • Serious eruptions may be considered to be rare (1) and so not considered a serious threat by residents (1). • Slopes of the volcano are very fertile (1) so many people remain to be involved in agriculture (1). • With so many settlements present people may have family connections (1) which they do not want to leave despite the risks (1). • Farming communities (typical in small settlements) as crops grow well (1) because soil is very fertile (1).	

	• People may have no choice (1) as house prices might be cheaper (1). Accept any other appropriate response.	**(4)**

Question number	Answer	Mark
3(e)	**AO2 (3 marks)** Award 1 mark for the identification of a suitable reason and 2 marks for further explanation up to a maximum of 3 marks. Candidates could identify: • Building designs can ensure they are less likely to damage during an earthquake event (1) through steel frames that sway during the earth's movement / rubber shock absorbers in foundations (1) which means it is less likely to create debris (1). • Buildings which were originally built without earthquakes in mind can be retrofitted (1) for example wire mesh to try and strengthen buildings (1) and reduce the number of buildings which would collapse (1). • Buildings can be designed with lightweight roofs or safety glass (1) so that they are less likely to break during an event (1) and so reduce the number of injuries (1). • Strict building codes (1) ensure buildings are built to reduce movement during an earthquake (1) making them less likely to collapse (1). Accept any other appropriate response.	**(3)**

Question number	Answer	Mark
3(f)	**AO3 (1 mark)** Award 1 mark for the following: • Flooding (1) • Damage to buildings (1) • Power cuts (1) • Trees blown down (1) • Homelessness (1) • Deaths / injuries (1) • Habitats destroyed (1) Accept any other reasonable response linked to the resource.	**(1)**

Question number	Answer	Mark
3(g)	**AO1 (1 mark) AO2 (3 marks)** Award 1 mark for initial point (AO1), and 3 further marks (AO2) for the extension of this point up to maximum of 4 marks. Credit annotated diagrams where provided, but do not double credit ideas if repeated in the written text. • Oceanic and continental plates move towards each other (1). Oceanic plate melts as it sinks below the continental (1) as the temperature increases with depth in the Earth's crust (1) this creates magma which rises through the continental crust to form a volcano (1). • Two tectonic plates move towards each other / meet (1) one is pushed under the other /subducted (1) and melts due to the heat within the Earth's crust (1) and the resulting magma rises to the crust's surface to form volcanoes (1). Accept any other appropriate response. Accept answers that use an annotated diagram.	**(4)**

Question number	Indicative Content
3(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 pattern of vulnerability to tropical cyclones. **AO3** • Vulnerability to tropical cyclones is affected by the conditions that are needed for tropical cyclone formation. • Countries will be vulnerable at different times of year, depending on their location. • Climate change has been linked with higher frequency of tropical cyclones, and for a shift in where they are taking place. This means that there is the potential for a greater proportion of the world's population to be at risk. • Hazard risk is a combination of the hazard (and its severity) and vulnerability. Many of the coastal areas in zone which have a high probability of a high intensity tropical storm have dense populations which increases the hazard risk. • Hazard frequency, and even intensity does not necessarily create high hazard risk. For example, those areas in the Pacific Ocean which do not have islands, the risk is low, compared to around the Philippines which have high population density and high probability of a storm up to 5 on the Saffir Simpson scale mean that hazard risk is high. **AO4** • Fig 3c shows how tropical storms can vary in intensity from 1-5 on the Saffir-Simpson scale.

	• Figure 3c shows area where there is a 10% probability of a storm striking, and the predicted intensity. • Figure 3c shows how there are large areas of South East Asia and Oceania which are highly vulnerable to tropical storms. • Figure 3c shows how the vulnerability is linked to seasonal changes for example in Bangladesh September to May being storm season.

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)

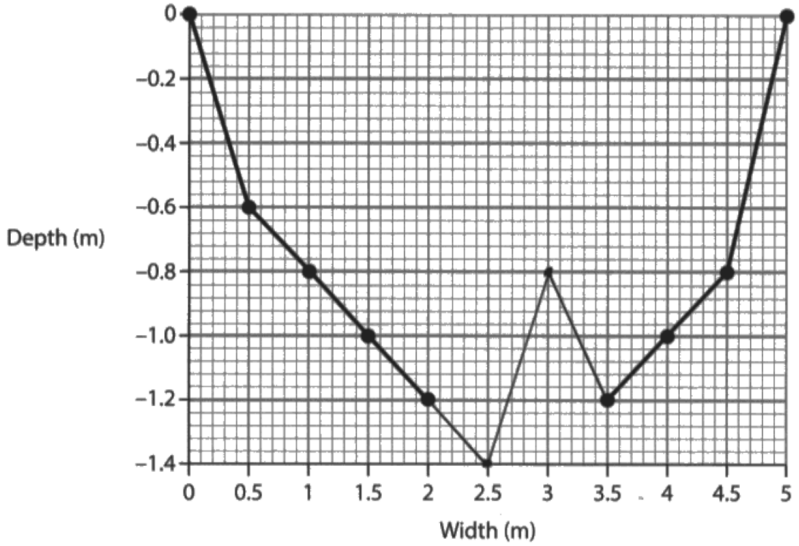
Question number	Answer	Mark
4(a)(i)	**AO3 (1 mark)** B Field sketch (1) It cannot be A, C or D as these are all secondary data sources.	**(1)**

Question number	Answer	Mark
4(a)(ii)	**AO3 (1 mark)** Award one mark for suitable piece of equipment. • Tape measure (1) • Stopwatch (1) • Flow meter (1) • Metre rule (1) • Camera (1) • Phone / tablet (1) **Do not credit pen / paper.** Accept any other appropriate response.	**(1)**

Question number	Answer	Mark
4(b)(i)	**AO4 (2 marks)** Award one mark for correct working, and one mark for correct answer. (1.2+1.0+1.2+1.3)/4 (1) OR 4.7/4 (1) 1.2 (1)	**(2)**

Question number	Answer	Mark
4(b)(ii)	**AO3 (1 mark)** Award one mark for suitable sampling strategy named. • Random (1) • Stratified (1) • Systematic (1) • Opportunistic (1)	**(1)**

Question number	Answer	Mark
4(b)(iii)	**AO3 (2 marks)** Award one mark for suitable reason and a further mark for explanation, up to a maximum of two marks. • Data has a much larger range than other sites (1) which suggest an error may have taken place (in data collection) (1). • As there are only four pieces of data (1) it would have been better to take more readings to reduce the affect of anomalies (1). • The float may have got stuck (1) meaning it took longer to travel (1). • Human error operating the stopwatch (1) resulting in incorrect time recorded (1). Accept any other appropriate response.	**(2)**

Question number	Answer	Mark
4(c)(i)	**AO4 (2 marks)** Award one mark for plotting one data point correctly, and a further mark for plotting second data point and the line. Two correct data points plotted with no line drawn award one mark. Completed version:  	**(2)**

Question number	Answer	Mark
4(c)(ii)	**AO3 (3 marks)** Award 1 mark for identification of a suitable advantage, and a further 2 marks for explanation. • (Line diagrams) allow patterns to be visualized easily (1) and therefore compared to other sites (1) to check if they fit with hypothesis (1). • (River profiles) are easy to construct (1) using Excel / by hand (1) to be able to spot any anomalies in the data (1). • (Line graphs) are easy to understand (1) which means connections are easily spotted (1) and anomalies can be identified (1). Accept any other reasonable response.	**(3)**

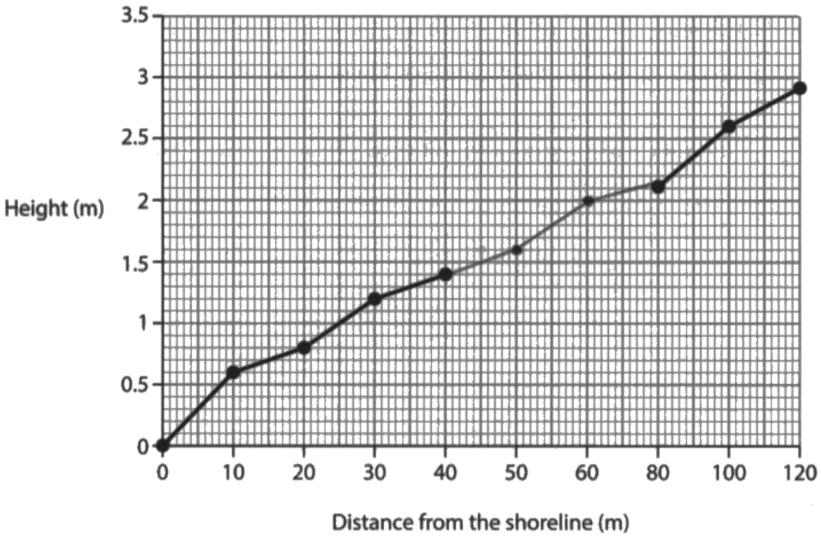
Question number	Answer	Mark
5(a)(i)	**AO3 (1 mark)** B field sketch (1) It cannot be A, C or D as these are all secondary data sources.	**(1)**

Question number	Answer	Mark
5(a)(ii)	**AO3 (1 mark)** Award one mark for suitable piece of equipment. • Tape measure (1) • Clinometer (1) • Ranging pole / measuring pole (1) • Ruler (1) • Camera (1) • Phone / tablet (1) **Do not credit pen / paper.** Accept any other appropriate response.	**(1)**

Question number	Answer	Mark
5(b)(i)	**AO4 (2 marks)** Award one mark for correct working, and one mark for correct answer. (25+20+22+18)/4 (1) OR 85/4 (1) 21.3 (1)	**(2)**

Question number	Answer	Mark
5(b)(ii)	**AO3 (1 mark)** Award one mark for suitable sampling strategy named. • Random (1) • Stratified (1) • Systematic (1) • Opportunistic (1)	**(1)**

Question number	Answer	Mark
5(b)(iii)	**AO3 (2 marks)** Award one mark for suitable reason and a further mark for explanation, up to a maximum of two marks. • Data has a much larger range than other sites (1) which suggest an error may have taken place (in data collection) (1). • As there are only four pieces of data (1) it would have been better to take more readings to reduce the effect of anomalies (1). • The ruler might not be held straight (1) meaning pebble size is recorded incorrectly (1). Accept any other appropriate response.	**(2)**

Question number	Answer	Mark
5(c)(i)	**AO4 (2 marks)** Award one mark for plotting one data point correctly, and a further mark for plotting second data point and the line. Two correct data points plotted with no line drawn award one mark. Completed version:  	**(2)**

Question number	Answer	Mark
5(c)(ii)	**AO3 (3 marks)** Award 1 mark for identification of a suitable advantage, and a further 2 marks for explanation. • (Line diagrams) allow patterns to visualized easily (1) and therefore compared to other sites (1) to check if they fit with hypothesis (1). • (Beach profiles) are easy to construct (1) using Excel / by hand (1) to be able to spot any anomalies in the data (1). • (Line graphs) are easy to understand (1) which means connections are easily spotted (1) and anomalies can be identified (1). Accept any other reasonable response.	**(3)**

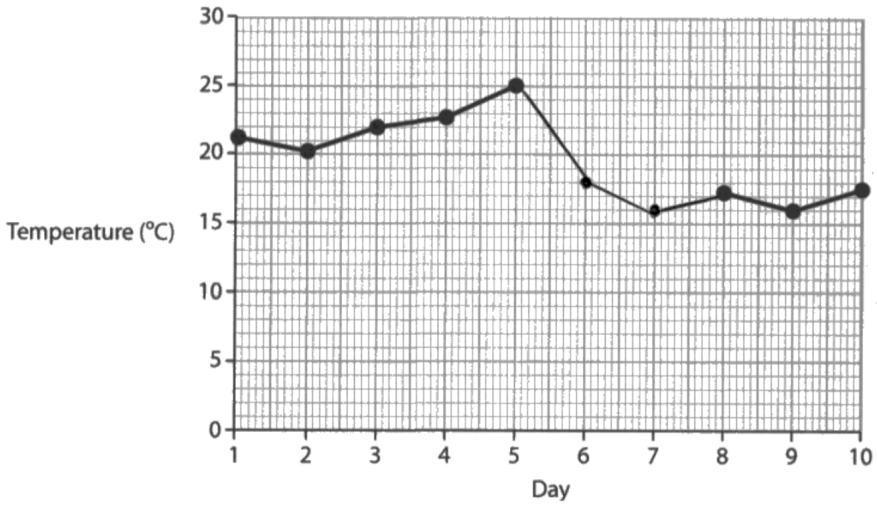
Question number	Answer	Mark
6(a)(i)	**AO3 (1 mark)** B field sketch (1) It cannot be A, C or D as these are all secondary data sources.	**(1)**

Question number	Answer	Mark
6(a)(ii)	**AO3 (1 mark)** Award one mark for suitable piece of equipment. • Rain gauge (1) • Thermometer (1) • Hygrometer (1) • Anemometer (1) • Camera (1) • Phone / tablet (1) **Do not credit pen / paper.** Accept any other appropriate response.	**(1)**

Question number	Answer	Mark
6(b)(i)	**AO4 (2 marks)** Award one mark for correct working, and one mark for correct answer. (8+6+7+8)/4 (1) OR 29/4 (1) 7.3 (1)	**(2)**

Question number	Answer	Mark
6(b)(ii)	**AO3 (1 mark)** Award one mark for suitable sampling strategy named. • Random (1) • Stratified (1) • Systematic (1) • Opportunistic (1)	**(1)**

Question number	Answer	Mark
6(b)(iii)	**AO3 (2 marks)** Award one mark for suitable reason and a further mark for explanation, up to a maximum of two marks. • Data has a much larger range than other sites (1) which suggest an error may have taken place (in data collection) (1). • As there are only four pieces of data (1) it would have been better to take more readings to reduce the effect of anomalies (1). • Holding anemometer at different heights (1) leads to errors (in data) (1). Accept any other appropriate response.	**(2)**

Question number	Answer	Mark
6(c)(i)	**AO4 (2 marks)** Award one mark for plotting one data point correctly, and a further mark for plotting second data point and the line. Two correct data points plotted with no line drawn award one mark. Completed version:  	**(2)**

Question number	Answer	Mark
6(c)(ii)	**AO3 (3 marks)** Award 1 mark for identification of a suitable advantage, and a further 2 marks for explanation. • (Line diagrams) allow patterns to be visualized easily (1) and therefore compared to other sites (1) to check if they fit with hypothesis (1) • (Line graphs) are easy to construct (1) using Excel / by hand (1) to be able to spot any anomalies in the data (1). • (Line graphs) are easy to understand (1) which means connections are easily spotted (1) and anomalies can be identified (1). Accept any other reasonable response.	**(2)**

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