Mark Scheme (Results)

November 2021

Pearson Edexcel International GCSE In Geography (4GE1) Paper 01: Physical geography

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General Marking Guidance

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

Marking guidance for levels-based mark schemes

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

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

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

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

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

Question number	Answer	Mark
1(a)(i)	**AO1 (1 mark)** B (Infiltration) (1) The answer cannot be A (store), C (store), D (store)	**(1)**

Question number	Answer	Mark
1(a)(ii)	**AO1 (1 mark)** A (Loss of water from ground water stores and plants) (1). The answer cannot be B, C or D as these incorrect or transfers.	**(1)**

Question number	Answer	Mark
1(b)(i)	**AO1 (1 mark)** Award 1 mark for any of the following. • Sediment size (1). • River velocity/speed (1). • Gradient (1). • Type of bedrock (hard/soft) (1) • Rainfall level (1) • Levels of river discharge (1) Accept any other appropriate response.	**(1)**

Question number	Answer	Mark
1(b)(ii)	**AO1 (1 mark)/AO2 (1 mark)** Award 1 mark (AO1) for identification of correct process and a further mark for explanation of the reason (AO2) up to a maximum of two marks. • Water hits the river bed / banks with great force (1) which dislodges material (1). • Air is trapped in cracks (1) due to the force of the water (1). Accept any other appropriate response.	**(2)**

Question number	Answer	Mark
1(c)	**AO2 (2 marks) / AO3 (2 marks)** Award 1 mark (AO3) for identification of any factor from Fig 1a and a further mark for explanation of the reason (AO2) up to a maximum of two marks each. • Steep slopes (1) creating rapid run off and a short lag time (1). • Rock type (1) with permeable rocks allowing infiltration increasing lag time (1). • Size of drainage basin (1) with larger drainage basin leading to increasing lag time (1). • Vegetation (1) will increase the time it takes water to reach the river (1). • Saturated soil (1) increasing run off shortening lag time (1). Accept any other appropriate response.	**(4)**

Question number	Answer	Mark
1(d)	**AO2 (3 marks)** Award 1 mark for the identification of a way in which industry can affect water quality and 2 marks for further explanation up to a maximum of 3 marks. Candidates could identify: • Industrial waste can reach water sources (1) causing water pollution (1) and killing aquatic wildlife (1). • Water flowing through old industrial sites (1) could pick up traces of heavy metals (1) affecting oxygen levels in the water (1). • Construction of industrial site (1) and discharge of warm water (1) affects freshwater wildlife (1). • Agricultural run-off from fertilizers (1) leading to eutrophication (1) reducing biodiversity (1). Accept any other appropriate response.	**(3)**

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

Question number	Answer	Mark
1(f)	**AO1 (1 mark) AO2 (3 marks)** Award 1 mark for initial point (AO1), and 3 further marks (AO2) for the extension of this point up to maximum of 4 marks. • When water levels in the river rise and flood (1) larger sediment is deposited on the channel edges (1) and smaller sediment is spread over the floodplain (1), as this repeats the levee grows taller (1). Accept any other appropriate response. Accept responses that use annotated diagrams.	**(4)**

Question number	Answer indicative content	Mark (8)
1(g)	**AO3 (4 marks) AO4 (4 marks)** **Marking instructions** Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the level-based mark scheme below. **Indicative content guidance** The indicative content below is not prescriptive, and candidates are not required to include all of it. Other relevant material not suggested below must also be credited. This question is about identifying and analysing which factors have affected the flood risk in Bangladesh. Candidates will need to be able to identify that there are a mix of physical and human factors that affect the flood risk. **AO3** • There are many physical processes that affect flood risk in Bangladesh: there is a dense river network which runs through the country; a large proportion of the country is only a small height above sea level. • The Monsoon season and snow melt from the Himalayas contribute greatly to the risk of flood. • Flooding risks are exacerbated by high population densities, particularly along flood plain areas. • Flooding is not necessarily managed effectively; greater flood prevention schemes are needed to protect livelihoods. **AO4** • Figure 1c shows how a large proportion of the country is at risk from flooding. • Figure 1c indicates how around 70% percentage of the country is not at risk of flood during the monsoon season. It shows how areas such as Sylhet in the north should remain flood free. • Figure 1c shows how the Eastern part the country is more affected by flooding caused by rainfall. • Figure 1c indicates how there is limited management of the river. It suggests there is are flood defenses on the eastern side of the Brahmaputra.	

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

Question number	Answer	Mark
2(a)	**AO1 (1 mark)** B (Plants) (1) The answer cannot be A, C or D as these are abiotic factors.	**(1)**

Question number	Answer	Mark
2(b)(i)	**AO1 (1 mark)** A (Where plant roots grow into cracks in the rocks). The answer cannot be B, C or D as these are all incorrect.	**(1)**

Question number	Answer	Mark
2(b)(ii)	**AO1 (1 mark)** Award 1 mark for any of the following. • Landslide (1) • Soil creep (1) • Rotational slumping (1) • Rock fall (1) Accept any other appropriate response.	**(1)**

Question number	Answer	Mark
2(b)(iii)	**AO1 (1 mark)/AO2 (1 mark)** Award 1 mark (AO1) for initial point and a further mark for explanation of the reason (AO2) up to a maximum of two marks. • Groynes (1) to prevent movement of sand down the coastline (1). • Sea walls (1) to reduce energy of the waves hitting the coastline (1). • Gabions (1) to protect the base of a cliff (1). Accept any other appropriate response.	**(2)**

Question number	Answer	Mark
2(c)	**AO2 (2 marks) / AO3 (2 marks)** Award 1 mark (AO3) for identification of any factor from Fig 1a and a further mark for explanation of the reason (AO2) up to a maximum of two marks each. • Temperature (1) as coral needs a minimum water temperature of 18oC (1) • Intensity of sunlight (1) as coral needs light to grow (1). • Water depth (1) as coral needs shallow (depth of less than 25m) (1). • Salinity (1) as coral can only survive in salty water (1). • Latitude (1) increased amount of light/ temperature (1). Accept any other appropriate response.	**(4)**

Question number	Answer	Mark
2(d)	**AO2 (3 marks)** Award 1 mark for the identification of a way in which tourism can threaten coastal ecosystems and 2 marks for further explanation up to a maximum of 3 marks. Candidates could identify: • Increased number of tourists walking on sand dunes (1) can damage structure (1) and prevent succession (1). • Tourists can leave litter behind (1) which can damage natural habitats (1) and discourage wildlife (1). • Tourist boats visiting coral reefs cause water pollution (1) which can kill some wildlife (1) and reduce biodiversity (1). Accept any other appropriate response.	**(3)**

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

Question number	Answer	Mark
2(f)	**AO1 (2 mark) AO2 (2 marks)** Award 1 mark for initial point (AO1), and 1 further marks (AO2) for the extension of this point up to maximum of 2 marks for each point. • Prediction techniques can be used to develop evacuation plans (1) which will enable people to move to areas of lower risk (1). • Prediction techniques can be used to plan where to build flood defense's (1) which can reduce damage to buildings (1). • Prediction techniques can be used to plan land use zones (1) enable lower value land uses is higher risk areas (1). Accept any other appropriate response.	**(4)**

Question number	Answer indicative content	Mark (8)
2(g)	**AO3 (4 marks) AO4 (4 marks)** **Marking instructions** Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the level-based mark scheme below. **Indicative content guidance** The indicative content below is not prescriptive, and candidates are not required to include all of it. Other relevant material not suggested below must also be credited. The question is about analysing the different coastal management strategies used on the coastline and how different groups of people have different priorities. **AO3** • Conflicts can arise over which management strategies are used based on the different ways groups want to use the coastline. • Different groups have their own agendas which can lead to conflict as they may not be compatible, for example allowing natural retreat in area that affects a lot of residents' homes. • Residents and local businesses are likely to favour protecting the coastline where there are economic assets at stake. • Local councillors need to manage the conflicts of the different people in the area, balancing any potential economic, social and environmental impacts of measures taken. **AO4** • Fig 2c shows how there are different coastal management strategies in place around the Isle of Wight. • Figure 2c demonstrates how some settlements and other urban areas need hard engineering strategies to protect the buildings that are located there. • Figure 2c shows how some areas of land have been allowed to retreat to allow natural processes to take over, creating a salt marsh. • Figure 2 c demonstrates a range of conflicting views on the protection of the coastline based on the views from different groups of people.	

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

Question number	Answer	Mark
3(a)	**AO1 (1 mark)** C (Tectonic plate movement) (1). The answer cannot be A (incorrect), B (impact of an earthquake not an influence or D (incorrect).	**(1)**

Question number	Answer	Mark
3(b)(i)	**AO1 (1 mark)** B (Satellite technology to track development of storms) (1). The answer cannot be A (related to earthquakes), C (a response to address the impact not to plan for cyclones), or D (related to tectonic hazards).	**(1)**

Question number	Answer	Mark
3(b)(ii)	**AO1 (1 mark)** Award 1 mark for any of the following. • Family ties keep mean they want to stay (1) • Unaware of the risk (1) • No ability to move (1) • Fertile soils (1) • Lack of ability to move (1) Accept any other appropriate response.	**(1)**

Question number	Answer	Mark
3(b)(iii)	**AO1 (1 mark)/AO2 (1 mark)** Award 1 mark (AO1) for identification of correct impact and a further mark for explanation (AO2) up to a maximum of two marks. • Closure of businesses/job loss (1) means loss of income (1). • Increased government debt (1) due to funds needed for emergency responses (1). • Damage to infrastructure (1) cost money to repair (1). • Loss of income from tourism (1) due to closure of airports/hotels (1). Accept any other appropriate response.	**(2)**

Question number	Answer	Mark
3(c)	**AO2 (2 marks) / AO3 (2 marks)** Award 1 mark (AO3) for identification of any reason from Fig 3a and a further mark for explanation of the reason (AO2) up to a maximum of two marks each. • Location on a coastline (1) which means they are closer to where a tropical cyclone could hit land (1). • Location within the latitudes where tropical cyclones are most frequent (1) therefore risk is higher of cyclone reaching the population (1). • Some countries may have higher population at risk (1) therefore the potential damage is higher (1). • India has between 1001 – 10000(1000's) people at risk (1) because of a low level of development (1) Accept any other appropriate response.	**(4)**

Question number	Answer	Mark
3(d)	**AO2 (3 marks)** Award 1 mark the identification of the cause, with two further marks for development. For example: • Two plates rub against each other at a plate margin (1) there is a build up in stress (1) which is released as an earthquakes when the plates moves (1). • Two plates meet (1) causing friction (1) which results in earthquakes at the fault lines (1). Accept any other appropriate response.	**(3)**

Question number	Answer	Mark
3(e)	**AO3 (1 mark)** Award 1 mark for the following: • Lava flow (1). • Pyroclastic flow (1). • Ash (1).	**(1)**

Question number	Answer	Mark
3(f)	**AO1 (1 mark) AO2 (3 marks)** Award 1 mark for initial point (AO1), and 3 further marks (AO2) for the extension of this point up to maximum of 4 marks. • Volcanoes usually form on a destructive or constructive plate boundaries (1). However, where there are plumes of molten rock (1) which rise through the mantle and cause the crust to melt (1) this creates hotspots (1). • Hotspots (1) such as the Hawaii (1) are formed where the earth's crust is thinner (1) allowing molten material rise to the surface more easily (1) • Hotspots (1) form where the earth's crust is thinner (1) allowing molten material to rise more easily (1) due to convection currents (1) Accept any other appropriate response.	**(4)**

Question number	Answer indicative content	Mark (8)
3(g)	**AO3 (4 marks) AO4 (4 marks)** **Marking instructions** Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the level-based mark scheme below. **Indicative content guidance** The indicative content below is not prescriptive, and candidates are not required to include all of it. Other relevant material not suggested below must also be credited. This question is about analysing the different strategies that can be used for preparing for earthquakes factors that can affect flood risk in different places. Candidates will need to be able to identify why different factors are important. **AO3** • There are a range of ways countries can prepare for earthquakes. • It is important to educate the potential population that could be affected so that they know how to respond in the event of an earthquake. This has the potential to reduce the number of deaths and injuries. • Some countries may try to have a warning system that informs people at risk when seismic activity is detected. But this relies on people having access to a phone/signal etc. • Some countries try to prepare by ensuring buildings are more resistant to ground movement from earthquakes, but this requires a high level of investment and will not be accessible for everyone. **AO4** • Fig 3c show how in Japan education is used to prepare for what to do in case of an earthquake. • Figure 3c indicates a way to prepare is through strengthening buildings. • Figure 3c shows how there are large number of high magnitude earthquakes spread across Japan. • Figure 3c shows how evacuation plans could be used as a way to prepare for an earthquake and could be useful for emergency services.	

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

Question number	Answer	Mark
4(a)(i)	**AO3 (1 mark)** D Stopwatch The answer cannot be A (measures windspeed), B (measures coverage) or C (measures gradient).	**(1)**

Question number	Answer	Mark
4(a)(ii)	**AO3 (1 mark)** Award one mark for a sampling method identified: • Random sampling (1) • Stratified sampling (1) • Systematic sampling (1) • Pragmatic sampling (1) Accept any other appropriate response.	**(1)**

Question number	Answer	Mark
4(a)(iii)	**AO3 (2 marks)** Award 1 mark for identification of way GIS might be used for fieldwork, and a further mark for description of how it is used. For example: • To plan fieldwork (1) so that suitable data can be collected (1) • To look at data (1) to be able to compare with primary data (1). • To plot data (1) to be able to analyse changes along a river course (1). Accept any other reasonable response.	**(2)**

Question number	Answer indicative content
4(b)	**AO3 (4 marks) AO4 (4 marks)** **Marking instructions** Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the level-based mark scheme below. **Indicative content guidance** The indicative content below is not prescriptive, and candidates are not required to include all of it. Other relevant material not suggested below must also be credited. This question is about candidates making a judgement of the data presentation methods and analysis that have been used to help students draw conclusions. Candidates may note the extent to which the fieldwork presentation and analysis support the conclusions in Figures 4. Responses could include: • Comments could be made on how relevant the conclusions are based on the presentation and analysis methods. • Comments could address the suitability of the data presentation method to help draw conclusions. • Comments could address the suitability of the data table to help draw conclusions. • Comments on how anomalies could have affected the results and therefore the conclusion. • Comments on the accuracy of students recording the data and the effect on conclusions. • Comment on the distribution of site selection for data collection and the impact this could have on conclusions. • Comments on other data that could have been collected. • Comments on the value of the methods in relation to the aim of the investigation. For level 2 responses candidates will need to link the conclusion to both data presentation methods and analysis. For level 3 responses there should be a greater depth of evaluation recognising the impact of the data collection presentation and analysis on the conclusions made.

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

Question number	Answer	Mark
5(a)(i)	**AO3 (1 mark)** C Clinometer The answer cannot be A (measures wind speed), B (measures coverage) or D (used for timing phenomena).	**(1)**

Question number	Answer	Mark
5(a)(ii)	**AO3 (1 mark)** Award one mark for a sampling method identified: • Random sampling (1) • Stratified sampling (1) • Systematic sampling (1) • Pragmatic sampling (1) Accept any other appropriate response.	**(1)**

Question number	Answer	Mark
5(a)(iii)	**AO3 (2 marks)** Award 1 mark for identification of way GIS might be used in a fieldwork environment, and a further mark for description of how it is used. For example: • To look at historical data (1) to be able to compare with primary data (1). • To plot data (1) to be able to analyse changes along a coastline (1). Accept any other reasonable response.	**(2)**

Question number	Answer indicative content
5(b)	**AO3 (4 marks) AO4 (4 marks)** **Marking instructions** Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the level based mark scheme below. **Indicative content guidance** The indicative content below is not prescriptive, and candidates are not required to include all of it. Other relevant material not suggested below must also be credited. This question is about candidates making a judgement of the data presentation methods and analysis that have been used to help students draw conclusions. Candidates may note the extent to which the fieldwork presentation and analysis support the conclusions in Figures 5. Responses could include: • Comments could be made on how relevant the conclusions are based on the presentation and analysis methods. • Comments could address the suitability of the data presentation method to help draw conclusions. • Comments could address the suitability of the data table to help draw conclusions. • Comments on how anomalies could have affected the results and therefore the conclusion. • Comments on the accuracy of students recording the data and the effect on conclusions. • Comment on the distribution of site selection for data collection and the impact this could have on conclusions. • Comments on other data that could have been collected. • Comments on the value of the methods in relation to the aim of the investigation. For level 2 responses candidates will need to link the conclusion to both data presentation methods and analysis. For level 3 responses there should be a greater depth of evaluation recognising the impact of the data collection presentation and analysis on the conclusions made.

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

Question number	Answer	Mark
6(a)(i)	**AO3 (1 mark)** A Anemometer (1) The answer cannot be B (measures coverage), C (measures gradient) or D (measure time).	**(1)**

Question number	Answer	Mark
6(a)(ii)	**AO3 (1 mark)** Award one mark for a sampling method identified: • Random sampling (1) • Stratified sampling (1) • Systematic sampling (1) • Pragmatic sampling (1) Accept any other appropriate response.	**(1)**

Question number	Answer	Mark
6(a)(iii)	**AO3 (2 marks)** Award 1 mark for identification of way GIS might be used in a fieldwork environment, and a further mark for description of how it is used. For example: • To look at historical data (1) to be able to compare with primary data (1). • To plot data (1) to be able to analyse changes in different areas (1). Accept any other reasonable response.	**(2)**

Question number	Answer indicative content
6(b)	**AO3 (4 marks) AO4 (4 marks)** **Marking instructions** Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the level-based mark scheme below. **Indicative content guidance** The indicative content below is not prescriptive, and candidates are not required to include all of it. Other relevant material not suggested below must also be credited. This question is about candidates making a judgement of the data presentation methods and analysis that have been used to help students draw conclusions. Candidates may note the extent to which the fieldwork presentation and analysis support the conclusions in Figures 6. Responses could include: • Comments could be made on how relevant the conclusions are based on the presentation and analysis methods. • Comments could address the suitability of the data presentation method to help draw conclusions. • Comments could address the suitability of the data table to help draw conclusions. • Comments on how anomalies could have affected the results and therefore the conclusion. • Comments on the accuracy of students recording the data and the effect on conclusions. • Comment on the distribution of site selection for data collection and the impact this could have on conclusions. • Comments on other data that could have been collected. • Comments on the value of the methods in relation to the aim of the investigation. For level 2 responses candidates will need to link the conclusion to both data presentation methods and analysis. For level 3 responses there should be a greater depth of evaluation recognising the impact of the data collection presentation and analysis on the conclusions made.

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)