



# Mark Scheme (Results)

Summer 2024

Pearson Edexcel International Advanced  
Subsidiary Level in Geography (WGE02)  
Paper 01 Geographical Investigations

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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	Identify the landforms labelled. Answer	Mark
1(a)(i)	<p style="text-align: center;">AO2 (2 marks)</p> <p>Label A = Island / Salt marsh / Sediment Island / Sand bank</p> <p>Label B = Distributary / Bifurcated channel, braided channel</p> <p>Do not accept for A or B: Estuary, Headland, Spit, Tributary, Delta, Flood plain, River</p> <p>Accept other valid answers.</p>	2

Question Number	<b>Explain one process that has</b> resulted in the formation of the delta shown. Answer	Mark
1(a)(ii)	<p style="text-align: center;">AO1 (2 marks)</p> <p>Award 1 mark for explaining a process and a further expansion mark, up to a maximum of 2 marks each:</p> <ul style="list-style-type: none"> <li>As the river slows down at the coast (1) it deposits particles/ sediment (1).</li> <li>Sediment carried is carried /transported downstream by the river (1) and is deposited /dropped at the coastline when the competence/velocity of the river is decreased when it meets the ocean (1).</li> <li>There is a positive feedback loop as deposited sediment leads to a lower energy environment (1) so the velocity of the flow drops further and there is more deposition (1).</li> </ul> <p>Answers must contain the idea of deposition. The process of transport can only score a maximum of 1 mark.</p> <p>Credit other valid explanations of a relevant process.</p>	2

Question Number	Examine the costs and benefits of coastal land reclamation and building artificial islands. Indicative content
1(b)	<p style="text-align: center;">AO1 (6 marks) AO2 (2 marks)</p> <p>Marking instructions</p> <p>Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the levels-based mark scheme below.</p> <p>Indicative content guidance</p> <p>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. Relevant points may include:</p> <p>AO1</p> <ul style="list-style-type: none"> <li>Land reclamation and the creation of artificial coastal islands is important in where land is at a premium, populations are growing and wealth allows for investment.</li> <li>Land reclamation and the creation of artificial coastal islands have economic and environmental costs and benefits.</li> <li>Answers might discuss the creation of flood defences as part of coastal management or creating new land for human activity including urban development, space for an airport, farming or for exploiting resources.</li> </ul> <p>AO2</p> <p>Economic costs and benefits</p> <ul style="list-style-type: none"> <li>Reclaiming land and building artificial islands provides more space for a city/country in a highly expensive way. But the economic benefits can be large.</li> <li>Population growth especially in cities is rapid and land is at a premium so a new island may be cost effective.</li> <li>Artificial islands provide land for tourism, e.g. Dubai, Maldives.</li> <li>Flood defences in Netherlands have reclaimed land since 13<sup>th</sup> century. Methods used are increasingly complex.</li> <li>Some artificial islands and reclaimed land are sinking and require expensive / complex maintenance to retain their value.</li> </ul> <p>Environmental costs and benefits</p> <ul style="list-style-type: none"> <li>There are few environmental benefits of coastal land reclamation and the creation of artificial islands. New habitats may be introduced.</li> <li>Costs include damage to ocean life, changes to erosion and wave patterns. Migration corridor of fish species, through the South China Sea have been disrupted by new islands.</li> <li>Existing islands, rocks, or coral reefs are used as a base, and piled with sand, burying existing wildlife and preventing sequestration of carbon by coral reefs or mangroves.</li> <li>Sea floor sand is dredged, then transported by ship/lorry bringing further pollution to air and sea.</li> </ul>

	<ul style="list-style-type: none"> <li>Extraction of sand destroys wildlife habitats and reduces protection from extreme weather events. Much is bought from low-income countries by wealthy TNCs and countries.</li> </ul> <p>There could be assessment of the extent to which there are environmental or economic costs or benefits for countries and /or groups of people or habitats.</p> <p>Most are likely to summarise that although economic costs are high, the benefits exceed these for many investors and governments. The environmental costs are high with few benefits. Credit discussion of other valid topics.</p> <p>Do not expect costs and benefits for both locations to reach Level 3.</p>
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Level	Mark	Descriptor
Level 0	0	No acceptable response.
Level 1	1–3	<ul style="list-style-type: none"> <li>Demonstrates isolated elements of geographical knowledge and understanding, some of which may be inaccurate. (AO1)</li> <li>Understanding addresses a narrow range of geographical ideas. (AO1)</li> <li>Understanding of geographical ideas lacks detail. (AO1)</li> <li>Applies knowledge and understanding to geographical information/ideas, with limited logical connections/relationships. (AO2)</li> </ul>
Level 2	4-6	<ul style="list-style-type: none"> <li>Demonstrates geographical knowledge and understanding, which is mostly relevant and may include some inaccuracies. (AO1)</li> <li>Understanding addresses a range of geographical ideas. (AO1)</li> <li>Understanding of geographical ideas is not fully detailed and/or developed. (AO1)</li> <li>Applies knowledge and understanding to geographical information/ideas logically to find some relevant connections/relationships. (AO2)</li> </ul>
Level 3	7-8	<ul style="list-style-type: none"> <li>Demonstrates accurate and relevant geographical knowledge and understanding throughout. (AO1)</li> <li>Understanding addresses a broad range of geographical ideas. (AO1)</li> <li>Understanding of the geographical ideas is detailed and fully developed. (AO1)</li> <li>Applies knowledge and understanding to geographical information/ideas logically to find fully relevant connections/relationships. (AO2)</li> </ul>

Question Number	Identify two different sources of air pollution shown in the photograph. Answer	Mark
2(a)(i)	<p style="text-align: center;">AO2 (2 marks)</p> <p>Award 1 mark for each source:</p> <ul style="list-style-type: none"> <li>• Cars / Lorries /Traffic</li> <li>• Electricity generation (pylons)</li> <li>• Factories / industrial sites</li> <li>• Cement used in buildings.</li> </ul> <p>Note – sources must be related to evidence in the photograph.</p> <p>Do not credit the pollution types (CO<sub>2</sub>, dust, air, noise etc)</p>	2

Question Number	Explain one solution planners use to reduce urban air pollution. Answer	Mark
2(a)(ii)	<p style="text-align: center;">AO1 (2 marks)</p> <p>Award 1 mark for explaining a solution used by planners to reduce urban pollution and a further expansion mark, up to a maximum of 2 marks:</p> <ul style="list-style-type: none"> <li>• Reducing the cost of public transport (1) can encourage more people to switch from using NO<sub>x</sub>-producing private vehicles (1).</li> <li>• Installing more car-charging points (1) so more people switch to electric vehicles (1).</li> <li>• Governments introduce congestion charging (1) so local people are encouraged to use alternative means of transport (1).</li> <li>• Subsidies for cost of electric cars (1) to enable more drivers to afford these vehicles which produce less particulates. (1).</li> </ul> <p>Credit other valid ideas.</p> <p>Credit ideas that are not transport related, such as banning the use of coal in cities, or use of renewable energy sources.</p> <p>The question is about planners. Do not credit actions by individuals alone, e.g. riding a bike.</p>	2

Question Number	Assess the success of planned ' <b>ideal</b> ' new towns and cities in minimising social and environmental problems. Indicative content
2(b)	<p style="text-align: center;">AO1 (6 marks) AO2 (2 marks)</p> <p>Marking instructions</p> <p>Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the levels-based mark scheme below.</p> <p>Indicative content guidance</p> <p>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. Relevant points may include:</p> <p>AO1</p> <ul style="list-style-type: none"> <li>• <b>Planning 'ideal'</b> towns/cities has a long history (garden cities, new towns, new capital cities)</li> <li>• These aim to minimise the social and environmental problems of traditional cities.</li> <li>• Eco-cities focus on reducing urban ecological footprints (transport, water use, waste and recycling)</li> <li>• They aim to provide a high-quality urban environment, but the reality may not live up to expectations.</li> <li>• Housing, urban sprawl, pollution, congestion and high costs <b>are some of the problems facing the world's</b> traditional cities.</li> </ul> <p>AO2</p> <ul style="list-style-type: none"> <li>• Iconic buildings and hi-tech companies may provide living/business environments which claim to be sustainable, reducing problems of older rundown and crowded cities.</li> <li>• Modern buildings incorporate solar panels and use modern building design, cheaper to build from scratch than retro-fit.</li> <li>• Some cities are designed to be pedestrian friendly, with work and housing closer together with reduced transport needed. Is.</li> <li>• Success could be assessed in terms of how far problems experienced in other cities are minimised.</li> <li>• Plans may not be followed through in full, and the '<b>ideal</b>' city may not materialise for many residents.</li> <li>• <b>Prices may be unaffordable, and employment in 'new' cities</b> may mean workers cannot live there and face long journeys.</li> <li>• Water, electricity and sanitation services may be inadequate, especially in locations with low water security.</li> <li>• '<b>Ideal</b>' urban developments may not benefit all individuals and groups, so views about success may be mixed.</li> <li>• Some may feel there is a lack of community or identity, limited public transport, few amenities, lack of choice of schools, social activities.</li> <li>• Ongoing development may result in prolonged disruption.</li> </ul> <p>NB specification <b>differentiates between 'ideal' and ecocities</b>, and candidates may include both. Allow this, as ecocities are planned. Allow answers which focus on towns or cities, or a combination.</p>



Level	Mark	Descriptor
Level 0	0	No acceptable response.
Level 1	1–3	<ul style="list-style-type: none"> <li>• Demonstrates isolated elements of geographical knowledge and understanding, some of which may be inaccurate. (AO1)</li> <li>• Understanding addresses a narrow range of geographical ideas. (AO1)</li> <li>• Understanding of geographical ideas lacks detail. (AO1)</li> <li>• Applies knowledge and understanding to geographical information/ideas, with limited logical connections/relationships. (AO2)</li> </ul>
Level 2	4-6	<ul style="list-style-type: none"> <li>• Demonstrates geographical knowledge and understanding, which is mostly relevant and may include some inaccuracies. (AO1)</li> <li>• Understanding addresses a range of geographical ideas. (AO1)</li> <li>• Understanding of geographical ideas is not fully detailed and/or developed. (AO1)</li> <li>• Applies knowledge and understanding to geographical information/ideas logically to find some relevant connections/relationships. (AO2)</li> </ul>
Level 3	7-8	<ul style="list-style-type: none"> <li>• Demonstrates accurate and relevant geographical knowledge and understanding throughout. (AO1)</li> <li>• Understanding addresses a broad range of geographical ideas. (AO1)</li> <li>• Understanding of the geographical ideas is detailed and fully developed. (AO1)</li> <li>• Applies knowledge and understanding to geographical information/ideas logically to find fully relevant connections/relationships. (AO2)</li> </ul>

Question Number	Explain how one idea, model or theory helped you decide on the title of your fieldwork investigation. Answer	Mark
3(a)	<p style="text-align: center;">AO3 (3 marks)</p> <p><i>NB: the aim / question / hypothesis provides a context for the investigation and the subsequent parts that follow – no credit for this.</i></p> <p>Award 1 mark for identifying an idea, model or theory, and further expansion marks up to a maximum of 3 marks. Nature of question, title or hypothesis will vary depending on the location as well as the context of the investigation.</p> <ul style="list-style-type: none"> <li>• Identification of a local change that has taken place (1) and designing an investigation to understand causes / threats / impacts (1) and therefore helped understand the expected pattern before investigating (1).</li> <li>• Use of a model e.g., bid rent model / plant succession (1) used as a basis for comparing a real-world situation to theory (1) and an opportunity to challenge the assumption (1).</li> <li>• The Butler Model (1) helped us understand tourism development (1) which was compared to our own ideas about local change (1).</li> <li>• Literature survey reviewed a model/change (1) to understand more about a location and the issues to be investigated (1) and the suitability of possible questions (1).</li> </ul> <p>Note the title / question is just to provide a context for the investigation and the subsequent parts that follow. There is no separate credit for this. Accept other valid ideas.</p>	3

Question Number	Explain why the location you selected was suitable for your fieldwork investigation. Answer	Mark
3(b)	<p style="text-align: center;">AO3 (3 marks)</p> <p>Award 1 mark for explaining why a location was chosen / selected and further marks for explanation (may be linked to different idea as to why it was appropriate), up to a maximum of 3 marks. The context will vary depending on the fieldwork areas chosen.</p> <ul style="list-style-type: none"> <li>• <b>A local coastal area</b> offered a range of different coastal ecosystems (1). This was a manageable scale (1) and therefore the fieldwork could be repeated in order to consider reliability (1).</li> <li>• The coastal area was accessible to our school (1). Local people and tourists were available for interview (1) so we could select a stratified sample of people for our questionnaire (1).</li> <li>• <b>The urban environment had already been researched</b> documenting change and rebranding (1) meaning that we could compare our results to those of other people (1). The rebranding was concentrated in small areas making it accessible (1).</li> <li>• <b>The sand dune location has a well-established model</b> that could be tested (1) so we could collect data to accept or reject the assumption (1). It was also a relatively safe environment to work in (1).</li> </ul> <p>Accept other valid ideas. Note that this question allows up to three separate reasons, and points do not need to be linked.</p>	3

Question number	Explain how you analysed the data you collected. Answer
3(c)	<p style="text-align: center;">AO3 (6 marks)</p> <p>Marking instructions</p> <p>Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the levels-based mark scheme below.</p> <p>Indicative content guidance</p> <p><b>Content depends on students' choice of research question.</b> Fieldwork analysis may include the following ideas:</p> <ul style="list-style-type: none"> <li>• Create tables to process data collected.</li> <li>• Use of graphs, maps, description, comparative tables, statistics and other methods to analyse data.</li> <li>• Used a spreadsheet to plot lines of best fit and identify anomalies.</li> <li>• Used a spreadsheet to calculate descriptive statistics: modes, means, medians etc.</li> <li>• Used a spreadsheet to calculate interquartile range and to draw up a box and whisker plot.</li> <li>• Annotated photographs used to interpret landscape and historical change.</li> <li>• Comparison with past data.</li> <li>• Coding of interview transcripts, or use of a word cloud.</li> <li>• Mobile phones used in the field to collect data and to geo-locate information and generate GIS maps.</li> <li>• Use of appropriate statistical tests for the data sets identified.</li> </ul> <p>Nature of responses will be heavily dependent on the context of the fieldwork and the environment in which it was undertaken.</p>

Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–2	<ul style="list-style-type: none"> <li>• Limited understanding of the relationships between geographical questions and the background information, geographical context and research question (AO3)</li> <li>• Uses a limited range of fieldwork research skills and techniques to obtain information that may link to, but not support, the investigation of the research question. (AO3)</li> <li>• Limited evidence of an ability to draw conclusions and the evaluation is simplistic, limited to one stage in the route to enquiry. (AO3)</li> </ul>
Level 2	3–4	<ul style="list-style-type: none"> <li>• Some understanding of the relationship between the background information, geographical context and research question (AO3)</li> </ul>

Level	Mark	Descriptor
		<ul style="list-style-type: none"> <li>• Uses some fieldwork research skills and techniques to obtain information that may link to, but not support, the investigation of the research question. (AO3)</li> <li>• Some evidence of an ability to draw conclusions and the evaluation is relevant but restricted to one or two stages in the route to enquiry. (AO3)</li> </ul>
Level 3	5–6	<ul style="list-style-type: none"> <li>• A full understanding of the relationship between the background information, geographical context, and research question (AO3)</li> <li>• Evaluates fieldwork research skills and techniques to obtain information that fully supports the investigation of the research question. (AO3)</li> <li>• Clear evidence of an ability to draw conclusions and the evaluation is full, across a number of stages in the route to enquiry. (AO3)</li> </ul>

Question number	Evaluate the success of the primary data collection methods you used. Answer
3(d)	<p style="text-align: right;">AO3 (12 marks)</p> <p>Marking instructions</p> <p>Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the levels-based mark scheme below.</p> <p>Indicative content guidance</p> <p><b>Content depends on students' choice of research question.</b></p> <p>Evaluation of success in relation to the data collection could include some the following:</p> <ul style="list-style-type: none"> <li>• The nature of initial research to inform the context of the enquiry as well as the identification of an appropriate topic to study through the route to enquiry.</li> <li>• Design of sampling framework: number of sites, spacing, sample sizes, sampling method – linked to specific methods of data collection. These will impact the extent to which the data obtained is representative of the whole population.</li> <li>• Methodologies: these will depend on specific methods chosen but can include evaluation of the equipment used, operator error; success of recording sheets / tallies.</li> <li>• Improvements in methods may form part of the response.</li> <li>• Inaccessibility of sites / lack of ability collect data due to time of day, seasons, or unanticipated hazards such as bad weather may be relevant. Evaluation should include the effects this had on the data.</li> <li>• Ethical issues could be considered e.g. appropriateness of questionnaire questions. This impacts on both the range and quality of data and in turn has effects upon the accuracy of the results and the validity of conclusions.</li> </ul>

	<ul style="list-style-type: none"> <li>Whether the data collected could be easily collated and analysed, and if data collection yielded unusual / unexpected / anomalous results which affected the reliability / validity of conclusions.</li> </ul> <p>Expect a top-level evaluation to include a balanced consideration of the relative success of the data collection methods used, discussing their strengths and weaknesses and the likely impacts this had on the wider route of enquiry.</p> <p>Nature of responses will be heavily dependent on the context of the fieldwork and the environment in which it was undertaken. However, examiners should reward detailed clear and specific data and information which are supported with depth and detail in terms of factual accuracy and realism.</p>
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Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–4	<ul style="list-style-type: none"> <li>Limited understanding of the relationships between geographical questions and the background information, geographical context, and research question (AO3)</li> <li>Uses a limited range of fieldwork research skills and techniques to obtain information that may link to, but not support, the investigation of the research question. (AO3)</li> <li>Limited interpretation, analysis based on the data / information collected. (AO3)</li> <li>Limited evidence of an ability to draw conclusions and the evaluation is simplistic, limited to one stage in the route to enquiry. (AO3)</li> </ul>
Level 2	5–8	<ul style="list-style-type: none"> <li>Some understanding of the relationship between the background information, geographical context and research question (AO3)</li> <li>Uses some fieldwork research skills and techniques to obtain information that may link to, but not support, the investigation of the research question. (AO3)</li> <li>Interpretation and analysis based on the data / information collected form part of the response (AO3)</li> <li>Some evidence of an ability to draw conclusions and the evaluation is relevant but restricted to one or two stages in the route to enquiry. (AO3)</li> </ul>
Level 3	9–12	<ul style="list-style-type: none"> <li>A full understanding of the relationship between the background information, geographical context, and research question (AO3)</li> </ul>

Level	Mark	Descriptor
		<ul style="list-style-type: none"><li>• Evaluates fieldwork research skills and techniques to obtain information that fully supports the investigation of the research question. (AO3)</li><li>• Critically considers the role of interpretation, analysis based on the data / information collected. (AO3)</li><li>• Clear evidence of an ability to draw conclusions and the evaluation is full, across a number of stages in the route to enquiry. (AO3)</li></ul>

Question Number	Identify two <b>problems with the students' data presentation</b> in Figure 3a3. Answer	Mark
4(a) (i)	<p style="text-align: center;">AO3 (2 marks)</p> <p>Award 1 mark for identifying a problem with the presentation method. Maximum 2 marks.</p> <ul style="list-style-type: none"> <li>• Line graph unsuitable for this data (1)</li> <li>• Difficult to read / understand the data (1)</li> <li>• <b>No 'neutral'/middle category</b> (1)</li> <li>• Does not have all grid lines (1)</li> <li>• The question asked is not shown, so the graph cannot be fully interpreted (1)</li> <li>• <b>'Y' and/or 'X'</b> axis is not labelled (1)</li> <li>• Does not differentiate between the local people and the visitors (1).</li> </ul> <p>Accept other valid ideas linked to the information on Figure 3a.</p>	1,1

Question Number	Explain why a bar chart is a more suitable presentation technique for this data. Answer	Mark
4(a) (ii)	<p style="text-align: center;">AO3 (2 marks)</p> <p>Award 1 mark for explaining a reason why a bar chart is more suitable with up to one further expansion mark. Also allow two separate reasons. Maximum 2 marks.</p> <ul style="list-style-type: none"> <li>• Bar chart is easier to understand (1).</li> <li>• The data is discontinuous/ has discrete sets (1) so needs to be shown as separate bars /so a line graph is meaningless (1).</li> <li>• One bar can be used for each coastal management method/piece of data (1).</li> <li>• Separate bars would allow proportions of views to be compared (1).</li> <li>• A divided bar graph /stacked bar chart / compound bar graph shows proportions effectively (1).</li> <li>• One separate bar for tourists and one for local people could be created (1).</li> </ul> <p>Accept other valid ideas.</p>	2



Question Number	Explain one advantage of the sampling procedure the students used for their questionnaire. Answer	Mark
4(a)(iii)	<p style="text-align: center;">AO3 (3 marks)</p> <p>Award 1 mark for a relevant advantage and further expansion / development marks as appropriate up to a maximum of 3 marks.</p> <ul style="list-style-type: none"> <li>• Same number of locals and visitors interviewed (1) so views of both stakeholders are included (1) which improves the reliability of any conclusions (1).</li> <li>• Stratified sampling method used for those chosen (1) to ensure views of two key groups are heard (1) and allows results to be generalised more than if just one group was included (1).</li> <li>• Sample size of 20 is relatively large (1) so it allows students to collect a range of views (1) which improves the reliability of any conclusions (1).</li> <li>• Students will not have enough time for a larger survey (1) so they have targeted an equal numbers of visitors and locals (1) which makes their analysis and conclusions more valid (1).</li> </ul> <p>Allow 1 mark for accurate/valid/reliable as part of an answer.</p> <p>Credit other valid ideas.</p>	3

Question Number	Calculate the cost for 1 metre of this sea wall. Answer	Mark
4(b)(i)	<p style="text-align: center;">AO3 (1 mark)</p> <ul style="list-style-type: none"> <li>• US\$6,000 (1)</li> <li>• Accept 6,000 (1)</li> </ul> <p>No working required</p>	1

Question Number	Calculate the cost of 0.5 kilometres of beach nourishment. Answer	Mark
4(b)(ii)	<p style="text-align: center;">AO3 (1 mark)</p> <ul style="list-style-type: none"> <li>• US\$ 5,000 (1)</li> <li>• Accept 5,000 (1)</li> </ul> <p>No working required</p>	1

Question Number	Explain one way these students could use GIS in this fieldwork investigation. Answer	Mark
4(c)	<p style="text-align: center;">AO3 (3 marks)</p> <p>Award 1 mark for identifying a valid use of GIS in this fieldwork investigation, and up to 2 further expansion marks up to a maximum of 3 marks.</p> <p>Answers may be based on Google maps, Google Street view, ARCGIS amongst other types of GIS.</p> <ul style="list-style-type: none"> <li>• GIS maps from past could be used to research speed of erosion before and after sea defences were installed (1) which could be analysed to see change over time (1) and therefore work out a rate of coastal recession in metres per decade (1).</li> <li>• GIS Geology map could be used to identify variations in local geology (1) which could be analysed for different rock strengths (1) and therefore help to understand which parts of the coast need protection from erosion/ flooding (1).</li> <li>• GIS could be used to present located fieldwork data (1) e.g., as pie charts of different management methods (1) which would allow analysis by different locations (1).</li> <li>• A GIS app might be used to help collect fieldwork data (1) which geo-locates information and photographs to a particular place (1) and processes the data to generate graphs (1).</li> <li>• GIS could be used as a base for annotated photos (1) to show the locations of different management methods (1) in relation to settlements and population density (1).</li> <li>• GIS information could be collected directly using a tablet / phone (1) which saves time duplicating maps onto paper which are easily damaged (1) and it is more precise (1).</li> <li>• GIS can be used to analyse primary fieldwork data (1) by using a special tool / technique, e.g., to group / count data (1) and produce graphs to present the data effectively (1).</li> </ul> <p>Accept other valid ideas, including site selection.</p>	3

Question Number	Identify two <b>problems with the students' data presentation</b> in Figure 4a. Answer	Mark
5(a)(i)	<p style="text-align: center;">AO3 (2 marks)</p> <p>Award 1 mark for identifying a problem with the presentation method. Maximum 2 marks.</p> <ul style="list-style-type: none"> <li>• Line graph unsuitable for this data (1)</li> <li>• Difficult to read / understand the data (1)</li> <li>• <b>No 'neutral'/middle category</b> (1)</li> <li>• Does not have all grid lines (1)</li> <li>• The question asked is not shown, so the graph cannot be fully interpreted (1)</li> <li>• <b>'Y' and/or 'X' axis is not labelled</b> (1)</li> <li>• Does not differentiate between the local people and the visitors (1).</li> </ul> <p>Accept other valid ideas linked to the information on Figure 4a.</p>	1,1

Question Number	Explain why a bar chart is a more suitable presentation technique for this data. Answer	Mark
5(a)(ii)	<p style="text-align: center;">AO3 (2 marks)</p> <p>Award 1 mark for explaining a reason why a bar chart is more suitable with up to one further expansion mark. Also allow two separate reasons. Maximum 2 marks.</p> <ul style="list-style-type: none"> <li>• Bar chart is easier to understand (1).</li> <li>• The data is discontinuous/ has discrete sets (1) so needs to be shown as separate bars /so a line graph is meaningless (1).</li> <li>• One bar can be used for each regeneration method/piece of data (1).</li> <li>• Separate bars would allow proportions of views to be compared (1).</li> <li>• A divided bar graph /stacked bar chart / compound bar graph shows proportions effectively (1).</li> <li>• One separate bar for tourists and one for local people could be created (1).</li> </ul> <p>Credit other valid ideas.</p>	2

Question Number	Explain one advantage of the sampling procedure the students used for their questionnaire. Answer	Mark
5(a)(iii)	<p style="text-align: center;">AO3 (3 marks)</p> <p>Award 1 mark for a relevant advantage and further expansion / development marks as appropriate up to a maximum of 3 marks.</p> <ul style="list-style-type: none"> <li>• Same number of locals and visitors interviewed (1) so views of both stakeholders are included (1) which improves the reliability of any conclusions (1).</li> <li>• Stratified sampling method used for those chosen (1) to ensure views of two key groups are heard (1) and allows results to be generalised more than if just one group was included (1).</li> <li>• Sample size of 20 is relatively large (1) so it allows students to collect a range of views (1) which improves the reliability of any conclusions (1).</li> <li>• Students will not have enough time for a larger survey (1) so they have targeted an equal numbers of visitors and locals (1) which makes their analysis and conclusions more valid (1).</li> </ul> <p>Allow 1 mark for accurate/valid/reliable as part of an answer.</p> <p>Credit other valid ideas.</p>	3

Question Number	Calculate the cost for 1 metre of this water feature. Answer	Mark
5(b)(i)	<p style="text-align: center;">AO3 (1 mark)</p> <ul style="list-style-type: none"> <li>• US\$6,000 (1)</li> <li>• Accept 6,000 (1)</li> </ul> <p>No working required</p>	1

Question Number	Calculate the cost of 0.5 kilometres of flower beds. Answer	Mark
5(b)(ii)	<p style="text-align: center;">AO3 (1 mark)</p> <ul style="list-style-type: none"> <li>• US\$ 5,000 (1)</li> <li>• Accept 5,000 (1)</li> </ul> <p>No working required</p>	1

Question Number	Explain one way that students could use GIS in this fieldwork investigation. Answer	Mark
5(c)	<p style="text-align: center;">AO3 (3 marks)</p> <p>Award 1 mark for identifying a valid use of GIS in this fieldwork investigation, and up to 2 further expansion marks up to a maximum of 3 marks.</p> <p>Answers may be based on Google maps, Google Street view, ARCGIS amongst other types of GIS.</p> <ul style="list-style-type: none"> <li>• GIS maps from past could be used to see past land use (1) allowing for comparison with the present (1) and identifying places that still need regeneration (1).</li> <li>• GIS could be used to present located fieldwork data (1) e.g. as pie charts of opinions about different strategies (1) allowing analysis by different locations to see which are more popular (1).</li> <li>• GIS could be used to present located fieldwork data (1) as pie charts of different bipolar survey scores (1) which would allow analysis by different locations (1).</li> <li>• A GIS app might be used to help collect fieldwork data (1) which geo-locates information and photographs to a particular place (1) and processes the data to generate graphs (1).</li> <li>• GIS could be used as a base for annotated photos (1) to show the locations of different parts of a regeneration project (1) in relation population density (1).</li> <li>• GIS information could be collected directly using a tablet / phone (1) which saves time duplicating maps onto paper which are easily damaged (1) and it is more precise (1).</li> <li>• GIS can be used to analyse primary fieldwork data (1) by using a special tool / technique, e.g. to group / count data (1) and produce graphs to present the data effectively (1).</li> </ul> <p>Accept other valid ideas, including site selection.</p>	3

