Mark Scheme (Standardisation)

Summer 2017

Pearson Edexcel IAL in
Geography (WGE02)
Paper 2: Geographical Investigations

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Summer 2017
Publications Code WGE02_01_1706_MS

General Marking Guidance

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

Question Number	Answer	Mark
1(a)(i)	**AO2 (2 marks)** **A** = Spit; accept beach. (reject: barrier island, offshore bar) **B** = Delta / river delta; accept estuary, river mouth, bay / cove. Reject named ecosystems that are not landforms.	**2**

Question Number	Answer	Mark
1(a)(ii)	**AO1 (2 marks)** Award **1** mark for explaining a way and a further expansion mark, up to a maximum of 2 marks each: • Constructive waves have strong swash / weak backwash which (1) pushes / deposits sediments up the beach creating a gentle profile (1). • Constructive waves have a low wave height / long wave length / low energy / flat waves (1) so sediment is deposited as a berm at the top of the beach, but the rest of the beach is gently sloping (1). Credit other valid explanations. Do not credit steep (beach) slopes as this is incorrect in relation to constructive waves.	**2**

Question Number	Indicative content
1b	**AO1 (6 marks)/AO2 (2 marks)** **Marking instructions** Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the levels-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. Relevant points may include: **AO1** •Rock hardness, rock resistance, jointing, joint spacing,

		faulting can all influence the development of coastal landscapes and their landforms. • Alignment of rock structures at the coast can create concordant and discordant coastlines and associated landforms e.g. headlands and bays. • Landscapes include coastlines of erosion (cliffs, aches, stack) and depositional landforms, • Landscapes can include individual features, e.g. cliff morphology (wave cut notches etc). • Ability of geology to withstand erosion and / or sub-aerial processes of weathering: resistance to erosion of sedimentary versus igneous rock types. **AO2** • Geology plays an important role in landscapes, but other natural factors come into play such as fetch, direction which the coast in facing, dominant winds and type of wave energy, tidal range • Landscapes may be influenced by other factors such as coastal engineering which protect landscapes but could interfere with natural processes. • Tectonic processes, sea-level change and off-shore gradient are additional factors.
Level	Mark	Descriptor
Level 0	0	No acceptable response.
Level 1	1–3	• Demonstrates isolated elements of geographical knowledge and understanding, some of which may be inaccurate. (AO1) • Understanding addresses a narrow range of geographical ideas. (AO1) • Understanding of geographical ideas lacks detail. (AO1) • Applies knowledge and understanding to geographical information/ideas, with limited logical connections/relationships. (AO2)
Level 2	4-6	• Demonstrates geographical knowledge and understanding, which is mostly relevant and may include some inaccuracies. (AO1) • Understanding addresses a range of geographical ideas. (AO1) • Understanding of geographical ideas is not fully detailed and/or developed. (AO1) • Applies knowledge and understanding to geographical information/ideas logically to find some relevant connections/relationships. (AO2)

Level 3	7-8	• Demonstrates accurate and relevant geographical knowledge and understanding throughout. (AO1) • Understanding addresses a broad range of geographical ideas. (AO1) • Understanding of the geographical ideas is detailed and fully developed. (AO1) • Applies knowledge and understanding to geographical information/ideas logically to find fully relevant connections/relationships. (AO2)

Question Number	Answer	Mark
2(a)(i)	**AO2 (2 marks)** Award **1** mark for each problem. • Litter / waste pollution along the railway (1) • Air pollution (haze on right side of photo) (1) • Over-crowding / very high-density population / buildings (1) • Low quality housing / slum housing in central Dhaka (1) • Death/injury from trains (1) • Lack of greenspace (1) • Informal employment / poverty (low wages, poor conditions) (1) Do not accept 'pollution' on its own. Accept other problems, but evidence **must be** from resource.	**2**

Question Number	Answer	Mark
2(a)(ii)	**AO1 (2 marks)** Award **1** mark for explaining an impact and a further expansion mark, up to a maximum of 2 marks each: • Stress can lead to health issues (1) such as heart conditions / mental wellbeing problems (1) • High levels of particulate matter / carbon monoxide (1) can cause lung and health problems / bronchitis / pulmonary disease (1)	**2**

	• Traffic / transport delays lead to lost time (1) leading to lower productivity / less time with family / lower earnings (1) NB 'air pollution' 'pollution' are too vague to credit. Do not accept CO_2 as it is not a localised pollutant. Credit other valid ideas.	

Question Number	Indicative content
2(b)	**AO1 (6 marks)/AO2 (2 marks)** **Marking instructions** Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the levels-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. Relevant points may include: **AO1** • Sustainability includes social, economic, political as well as environmental considerations, but there is much overlap between the ideas so often they cannot be considered as discrete • Regeneration generally means improvement through renewal and is different to reimaging, for instance • Urban regeneration schemes can be developed at a range of scales (small to very large) and have a range of different design briefs. • Smaller-scale regeneration projects focus on improving communities (housing, education and skills, employment opportunities) and increasing local representation. This has a stronger social, and therefore economic linkage. • Large-scale infrastructure projects (sporting events, expos, tourism development) are often the catalyst for regeneration, re-imaging and rebranding. These are also economically driven. **AO2** • Regeneration is often focused around economic improvements, rather than environmental since some schemes are privately funded and shareholders want a return. • Regeneration may not benefit all individuals and groups within and area, so the sustainability aspect can be met with mixed success.

	• Sustainability in the longer term might be difficult to judge as many schemes are relatively new, and it also depends on what metrics are used to qualify success. • There could be some assessment of the extent to which environmental or economic sustainability of achievable, within a balanced overall assessment.	
Level	Mark	Descriptor
Level 0	0	No acceptable response.
Level 1	1–3	• Demonstrates isolated elements of geographical knowledge and understanding, some of which may be inaccurate. (AO1) • Understanding addresses a narrow range of geographical ideas. (AO1) • Understanding of geographical ideas lacks detail. (AO1) • Applies knowledge and understanding to geographical information/ideas, with limited logical connections/relationships. (AO2)
Level 2	4-6	• Demonstrates geographical knowledge and understanding, which is mostly relevant and may include some inaccuracies. (AO1) • Understanding addresses a range of geographical ideas. (AO1) • Understanding of geographical ideas is not fully detailed and/or developed. (AO1) • Applies knowledge and understanding to geographical information/ideas logically to find some relevant connections/relationships. (AO2)
Level 3	7-8	• Demonstrates accurate and relevant geographical knowledge and understanding throughout. (AO1) • Understanding addresses a broad range of geographical ideas. (AO1) • Understanding of the geographical ideas is detailed and fully developed. (AO1) • Applies knowledge and understanding to geographical information/ideas logically to find fully relevant connections/relationships. (AO2)

Question Number	Answer	Mark
3(a)	**AO3 (2 marks)** ***NB:*** *the aim / question / hypothesis provides a context for the investigation and the subsequent parts that follow – no credit for this.* Award **1** mark for explaining the hazard / risk and a further mark for explaining how the risk is managed, up to a maximum of **2** marks. • In urban areas there is a lot of traffic so high risk of being struck by a vehicle (1) which was managed by only using a designed crossing (1). • Fieldwork was carried out in winter so there was a small risk of hypothermia (1) so lots of warm clothes were used (1). • The wet rocks at the coast presented a slip and trip risk (1) so walking boots were used to minimise the risk of falling over (1). • Risk of collecting bias / unreliable data leading to invalid results (1) which could be managed by careful site selection / sample size / design (1). Nature of risk, and risk management will vary depending on the location as well as the context of the investigation.	**2**

Question Number	Answer	Mark
3(b)	**AO3 (4 marks)** Award **1** mark for explaining a valid type of qualitative data and a further expansion mark up to a maximum of **2** marks each. Nature of qualitative techniques utilised will vary depending on the location as well as the context of the investigation. • Interview data from a number of respondents were used (1) to find out about attitudes towards rebranding in the city (1) • Questionnaires (open questions) used to gauge opinions from stakeholders (1) such as impacts of change (1) • Field sketches were undertaken (1) to give an accurate representation of the landscape to help with later analysis (1)	**4**

	• Digital photographs were taken of the fieldwork equipment (1) so that this could be later used to help evaluate the methods and their reliability (1). • Field notes recorded aspects of the site location and a description (1). This helped with the analysis and follow-up to link together understanding of geographical processes in the area. Allow questionnaires as a semi-qualitative technique (open questions).	

Question number	Answer
3(c)	**AO3 (6 marks)** **Marking instructions** Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the levels-based mark scheme below. **Indicative content guidance** Content depends on students' choice of research question. Secondary data includes the following ideas: • Used to find out more about the population / people of an area, e.g. local census statistics. • Assisted in design of sampling framework: number of sites, spacing, sample sizes, sampling method, plus methodology: equipment, operator error etc • Secondary data was used to contextualise and challenge primary fieldwork data • Secondary data can be used to give baseline data, e.g. to work out rates of coastal recession using GIS and historical maps • Secondary data could provide opinions from a range of online and other sources to provide textural context. • Secondary information was used to provide quantitative data for statistical analysis, e.g. the calculation of median deprivation indices for contrasting local areas 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 for detailed clear and specific data and information which are supported with depth and detail in terms of factual accuracy and realism.

Level	Mark	Descriptor
	0	No rewardable material.
Level 1	**1–2**	• Limited understanding of the relationships between geographical questions and the background information, geographical context and research question (AO3) • 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) • Limited evidence of an ability to draw conclusions and the evaluation is simplistic, limited to one stage in the route to enquiry. (A03)
Level 2	**3–4**	• Some understanding of the relationship between the background information, geographical context and research question (AO3) • Uses some fieldwork research skills and techniques to obtain information that may link to, but not support, the investigation of the research question. (AO3) • 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. (A03)
Level 3	**5–6**	• A full understanding of the relationship between the background information, geographical context and research question (AO3) • Evaluates fieldwork research skills and techniques to obtain information that may link to, but not support, the investigation of the research question. (AO3) • Clear evidence of an ability to draw conclusions and the evaluation is full, across a number of stages in the route to enquiry. (A03)

Question number	Answer
3(d)	**AO3 (12 marks)** **Marking instructions** Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the levels-based mark scheme below. **Indicative content guidance** Content depends on students' choice of research question. Evaluation should include some the following: 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 Design of sampling framework: number of sites, spacing, sample sizes, sampling method – linked to specific methods of data collection Methodologies: these will depend on specific methods chosen but can include evaluation of the equipment used, operator error; success of recording sheets / tallies Inaccessibility of sites / lack of ability collect data due to time of day, seasons, or unanticipated hazards such as bad weather • 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 Appropriate data analysis and whether the data collected could be easily collated and analysed, or was generated in a form that made this stage problematic. Conclusions could be referred to if data collection yielded unusual / unexpected / anomalous results which affected the reliability / validity of conclusions.

Level	Mark	Descriptor
	0	No rewardable material.
Level 1	**1–4**	• Limited understanding of the relationships between geographical questions and the background information, geographical context and research question (AO3) • 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) • Limited interpretation, analysis based on the data / information collected. (AO3) • Limited evidence of an ability to draw conclusions and the evaluation is simplistic, limited to one stage in the route to enquiry. (A03)
Level 2	**5–8**	• Some understanding of the relationship between the background information, geographical context and research question (AO3) • Uses some fieldwork research skills and techniques to obtain information that may link to, but not support, the investigation of the research question. (AO3) • Interpretation and analysis based on the data / information collected form part of the response(AO3) • 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. (A03)
Level 3	**9–12**	• A full understanding of the relationship between the background information, geographical context and research question (AO3) • Evaluates fieldwork research skills and techniques to obtain information that may link to, but not support, the investigation of the research question. (AO3) • Critically considers the role of interpretation, analysis based on the data / information collected. (AO3) • Clear evidence of an ability to draw conclusions and the evaluation is full, across a number of stages in the route to enquiry. (A03)

Question Number	Answer	Mark
4(a)(i)	**AO3 (2 marks)** Award **1** mark for each identified problem. Maximum **2** marks. • No y-axis label for frequency / no x-axis category label (1) • Line graph is incorrect graphical technique (1) • Difficult to read / understand the data (1) • Does not have all grid lines (1) • No strongly agree category (1) • The question asked is not shown, so the graph cannot be fully interpreted (1)	**2**

Question Number	Indicative content	Mark
4(a)(ii)	**AO3 (2 marks)** Award **1** mark for explaining a use of ICT and a further expansion mark up to a maximum of **2** marks. • A spreadsheet could be used to perform statistical analysis (1) e.g. calculation (mean, SD or other) (1). • A spreadsheet could be used organise the data into categories (1), which then makes it easy to share with other members of the group / prior to statistical analysis (1). • A computer could be used to collate data (1) and then analyse using GIS (1). • Use GIS to geo-locate data (1) in order to analyse spatial patterns (1). • Using the internet to access secondary data (1) to use as a comparison e.g. with primary data (1). Credit other valid ideas.	**2**

Question Number	Indicative content	Mark
4(a)(iii)	**AO3 (3 marks)** Award **1** mark for an explanation and further expansion / development marks up to a maximum of **3** marks. • A short stretch of coast may not be typical / people will have different attitudes elsewhere (1) so this could produce unrepresentative / anomalous results (1) introducing unreliability/ uncertainty to the conclusions (1). • Cannot compare results with a similar coastal area (1) which might have confirmed their findings as being representative (1) and allowed them to comments on the degree of reliability (1). • One short stretch could mean limited range of data / small sample size (1) so any results are unreliable (1) introducing uncertainty to any conclusions / sample size too small to analyse meaningfully (1) Credit other valid ideas.	**3**

Question Number	Answer	Mark
4(b)(i)	**AO3 (1 mark)** **Correct answer:** **B** – 4600 (Typical cost per metre for all 4 options added up, then divided by number of options (4) gives answer of 4600. **Incorrect answers:** Reason is as calculation does not give correct outcome: **A** – 3800 **C** – 5200 **D** - 6800	**1**

Question Number	Answer	Mark
4(b)(ii)	**AO3 (1 mark)** Sea walls (1) Accept the range if stated: 7350m (1)	**1**

Question Number	Answer	Mark
4(b)(iii)	**AO3 (3 marks)** Award **1** mark for the reason and a further expansion mark up to a maximum of **3** marks. • On buildings costs there is no indication of total costs (1) so the user doesn't know the criteria upon which this is based (1) therefore it makes comparisons difficult or unreliable between options (1) • On maintenance costs there is no idea of timescale (1) so medium is difficult to judge (1) and it makes comparisons difficult or irrelevant (1) • There is no additional information about the median costs for Options (1) and mean may be unreliable (1) since it doesn't show the "typical" project cost (1) • Do not know the cost range which is included (1) so comparisons are difficult (1) and therefore judgements are unreliable (1). • The data is from 2010 so outdated (1) making it hard to make judgements about which methods to use (1) in terms of cost-benefit analysis (1). • The source of the data is not clear (1) it could from a wide range of geographical locations (1) where costs of maintenance / construction could vary e.g. developed / developing world (1). Accept other valid limitations and developments of these.	**3**

Question Number	Answer	Mark
5(a)(i)	**AO3 (2 marks)** Award **1** mark for each identified problem. Maximum **2** marks. • No y-axis label for frequency / no x-axis category label (1) • Line graph is incorrect graphical technique (1) • Difficult to read / understand the data (1) • Does not have all grid lines (1) • No strongly agree category (1) The question asked is not shown, so the graph cannot be fully interpreted (1)	**2**

Question Number	Indicative content	Mark
5(a)(ii)	**AO3 (2 marks)** Award **1** mark for explaining a use of ICT and a further expansion mark up to a maximum of **2** marks. • A spreadsheet could be used to perform statistical analysis (1) e.g. calculation (mean, SD or other) (1). • A spreadsheet could be used organise the data into categories (1), which then makes it easy to share with other members of the group / prior to statistical analysis (1). • A computer could be used to collate data (1) and then analyse using GIS (1). • Use GIS to geo-locate data (1) in order to analyse spatial patterns (1). • Using the internet to access secondary data (1) to use as a comparison e.g. with primary data (1). Credit other valid ideas.	**2**

Question Number	Indicative content	Mark
5(a)(iii)	**AO3 (3 marks)** Award **1** mark for an explanation and further expansion / development marks up to a maximum of **3** marks. A small part of an urban area may not be typical / people will have different attitudes elsewhere (1) so this could produce unrepresentative / anomalous results (1) introducing unreliability/ uncertainty to the conclusions (1). Cannot compare results with a similar small urban area (1) which might have confirmed their findings as being representative (1) and allowed them to comments on the degree of reliability (1). A small urban area could mean limited range of data / small sample size (1) so any results are unreliable (1) introducing uncertainty to any conclusions / sample size too small to analyse meaningfully (1) Credit other valid ideas.	**3**

Question Number	Indicative content	Mark
5(b)(i)	**AO3 (1 mark)** **Correct answer:** **B** – 155 (Typical economic benefits for all 4 events added up, then divided by number of events (4) gives answer of 155. **Incorrect answers:** **A – 125** **C – 160** **D – 170** Reason is as calculation does not give correct	**1**

Question Number	Answer	Mark
5(b)(ii)	**AO3 (1 mark)** Tour de France accept cycling (1) Accept the value if stated: $148.	**1**

Question	Answer	Mark
5(b)(iii)	**AO3 (3 marks)** Award **1** mark for the reason and a further expansion mark up to a maximum of **3** marks. On organising costs there are no monetary values (so) so the user doesn't know the criteria upon which this is based (1) therefore it makes comparisons difficult or unreliable between options (1) On location there is a mixture of locations (1) so effect is difficult to judge (1) and it makes comparisons difficult or irrelevant (1) There is no additional information about the median benefits for Events (1) and mean may be unreliable (1) since it doesn't show the "normal" project cost (1). The data is from 2010 so outdated (1) making it hard to make judgements about which methods to use (1) in terms of cost-benefit analysis (1). The source of the data is not clear (1) it could from a wide range of geographical locations (1) where benefits could vary e.g. developed / developing world (1). Accept other valid limitations and developments of these.	**3**