GradeMax



Mark Scheme (Results)

January 2021

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

Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications are awarded by Pearson, the UK's largest awarding body. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications websites at www.edexcel.com or www.btec.co.uk. Alternatively, you can get in touch with us using the details on our contact us page at www.edexcel.com/contactus.

Pearson: helping people progress, everywhere

Pearson aspires to be the world's leading learning company. Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your students at: www.pearson.com/uk

January 2021
Publications Code WGE0_02_2101_MS
All the material in this publication is copyright
© Pearson Education Ltd 2020

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)** Award **1** mark for each correct identification. Maximum **2** marks. • Coastal encroachment / development • Water pollution from shipping / transport • Water pollution from housing / hotels /development • Air pollution from traffic and transport • Noise pollution from fishing boats • Removal of coastal ecosystems from building / shipping • Damage to coastal ecosystems from boats and shipping Accept other ideas, if specific, and linked to Figure 1.	**2**

Question Number	Answer	Mark
1(a)(ii)	**AO1 (2 marks)** Award **1** mark for explaining influence of ecosystems and a further **1** expansion mark for explaining how that influences coastal protection. • Some larger plants and trees, e.g. in mangroves, provide a coastal buffer (1) especially from the ingress of sea water inland during high tides and strong winds (1). • Coastal sand dunes provide protection against strong winds (1) and protect areas of land, property or other ecosystems near them (1). • Plants which trap sand help to protect the beach (1) when it is suffering from coasts erosion (1). • Taller shrubs and tree provide shelter and protection (1) reducing the risk of storm damage and erosion (1). Accept other valid explanations.	**2**

Question Number	Indicative content
1(b)	**AO1 (6 marks) AO2 (2 marks)** **Marking instructions**

<table>
<tr><td></td><td colspan="2">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
• Coastal management includes a range of different players and stakeholders who have different objectives and priorities.
• Conflicts are about losses / compromises for one group and advantages and gains for another.
• Winners: people who have gained from the decision either economically, socially or environmentally.
• Losers: people who have lost property, work, income etc. Others include swimmers, surfers etc, e.g. if area polluted following major sporting event such as the Brazil Olympics.
• Economic and technical considerations are more important than opinions / views of local residents and other players.
• Hard defences are seen as unsightly and therefore ruin the view / landscape for people living nearby.
• Coastal management involves decisions that directly affect peoples lives.
AO2
• Most agree that there is never enough resources available to coastal managers and planners in order to reduce potential conflicts.
• Coastal systems are very complex, and some would argue that whatever option if chosen it is a compromise in both time and space.
• Sometimes difficult coastal management decisions can be made with little conflict, e.g. Blackwater Estuary, Essex, UK.</td></tr>
<tr><td>Level</td><td>Mark</td><td>Descriptor</td></tr>
<tr><td>Level 0</td><td>0</td><td>No acceptable response.</td></tr>
<tr><td>Level 1</td><td>1–3</td><td>• 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)</td></tr>
</table>

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 idea. Maximum **2** marks. • Very high density housing / overcrowded housing (1). • No outside spaces / washing hung outside (1) • Walls look dirty from pollution (1) • Light pollution from signs (1) • Urban heat island – air conditioning units (1) • Noise from shops / traffic below houses (1) • Unaffordable hosing prices for residents (1) Accept other ideas, if specific and linked to Figure 2.	**2**

Question Number	Answer	Mark
2(a)(ii)	**AO1 (2 marks)** Award **1** mark for explaining an example and a further expansion mark that develops the idea, up to a maximum of **2** marks.	**2**

	• Informal employment within cities has low / variable rates of pay (1) even though people might be doing the same / a similar job (1). • Low levels / no job security (1) which means that people will end up with a lower quality of life (1). • Informal employment will escape formal taxation (1) so the government will have reduced income and cannot spend on social programmes (1) • Human rights and equality for women are factors liked to information employment (1) and when these are restricted people / communities are less well off (1). Accept other ideas, including links low pay and people turning to crime / drugs.	

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** • Players include: local government, businesses, residents and other individuals. • There are a range of regeneration strategies that players are involved in, e.g. sport, art, culture, heritage, technology, retail and events. • Urban housing schemes can be developed at a range of scales (small to very large) and have increased landfill costs / amounts for cities and authorities. • Players may provide funding, ideas, networking, skills, plans / planning, grant applications and take on the risks of development • Community (players) play a central role in delivering goods and services and meeting local needs. **AO2**

	• Urban regeneration in many developed countries relies on private capital, so is reliant on businesses (or individuals) providing inward investment for particular projects or proposals. • NGO and community groups play a role in improving housing and services in slum areas in developing world cities, and providing affordable housing and centres of commerce in developed cities. They may also try to balance services with housing, e.g. shops, schools and recreational facilities. • Different roles will be needed according to local and project. For example in some places government pump priming will be essential to get the area clean ready for other businesses to invest. • Local interest groups may be very much against certain types of development associated with urban regeneration and can hinder or slow the process.	
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 (3 marks)** Award **1** mark for explaining a secondary data source, and a further expansion marks up to a maximum of 2 marks. Nature of question, title or hypothesis will vary depending on the location as well as the context of the investigation. • Using a newspaper to show that a local change that has taken place (1) and designing an investigation to understand causes / threats / impacts / consequences (1). • 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). • Literature surveys reviewed past investigations (1) to understand more about a location and the issues to be investigated (1) • Use of maps / satellite images showing the proposed study area (1) and to identify specific sampling sites (1) • Use of forums / social media identifying local problems / conflicts (1) that could be investigated further / used as a basis for pilot studies (1). Note the question / hypothesis is just to provide a context for the investigation and the subsequent parts that follow. There is no separate credit for this.	**4**

Question Number	Answer	Mark
3(b)	**AO3 (2 marks)** Nature of presentation techniques utilised will vary depending on the location as well as the context of the investigation.	**2**

	• The large-scale colour-coded maps showed spatial change between different areas (1) therefore it was easy to make comparisons / draw conclusions (1) • The use of GIS revealed spatial patterns through the dot-distribution maps (1) and we are able to quickly identify traffic "hotspots" (1). • The kite diagram showed the changing frequency of plant along a transect (1) allowing comparison between different plan species over the same area (1). • The box and whiskers plot showed the ranges and median values in our data for the locations (1) and that made it easy to visually compare outcomes between the sites (1) Accept other valid ideas.	

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. Fieldwork analysis could include the following ideas: • Used a spreadsheet to calculate descriptive statistics: modes means, medians etc. • Used a spreadsheet to plot lines of best fit and identify anomalies. • Used a spreadsheet to calculate interquartile range and to draw up a box and whisker plot. • Annotated photographs were used to interpret landscape and historical change. • Coding / transcription of interview transcripts. • Smartphones were used to in the field to collect data and to geo-locate information and generate GIS maps. 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, which may include place details.

	NB: Expect a strong link to analysis for 6 marks. Do not credit data collection.

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. Design and methodology could include some the following: • Design includes elements of sampling and frequency for different fieldwork methods. • Locational considerations, especially precise details of sites, or transects and sampling locations. • Design may also include temporal decision-making, e.g. when it is safe or appropriate to collect data and information which is likely to be most accurate and or reliable. • Methods may consider the balance of primary or secondary data and information, as well as reflection on quantitative and qualitative approaches. • Methods could include the design of specific methods e.g. questionnaires, interviews, EQS etc and comments on ease of analysis, reduction in subjectivity due to good design. • Consideration of recording sheets (methods), adaptation, use of weightings to give particular focus linked to the question or aim. • Consideration of equipment, and how that is used to minimise operator error during and improve reliability of conclusions. Note: the focus for this particular question means that the bullets 1 + 2 in the Levels descriptors **below** are most relevant to the desired response.

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 correct answer. Maximum 2 marks • A Clinometer: for measuring dune slopes / gradients • C Decibel meter: for measuring the loudness of noise in the coastal area	**2**

Question Number	Indicative content	Mark
4(a)(ii)	**AO3 (2 marks)** Award **1** mark for explanation of disadvantage and further expansion marks up to a maximum of **2** marks. • The smartphone may run out of batteries (1) so the app can no longer be relied on in the environment to collect data (1). • Students may not be able to correctly read the noise / angle (1) so the results will be unreliable (1). • There is no way of calibrating the app (1) so the user is reliant on the app producing the correct result which is not easy to check (1). • Its is difficult to read the smartphone screen in bright sunlight (1) so the app is difficult to use in some weather / climates (1). Credit other valid ideas.	**2**

Question Number	Answer	Mark
4(b)(i)	**AO3 (1 mark)** 1 mark for correct calculation • Range = 9 (1) Accept 10 (1)	**1**

4(b)(ii)	**AO3 (1 mark)** 1 mark for correct calculation • Mode = -2	**1**

4(b)(iii)	**AO3 (2 marks)** 1 mark for correct rank order: 0 0 4 5 7 9 (1) 1 mark for correct calculation Mid point = 4.5 (1)	**2**

Question Number	Answer	Mark
4(c)	**AO3 (4 marks)** Award **1** mark for explanation of a reason and a further expansion mark up to a maximum of **2** marks per limitation • Numerical scale is unknown in terms of conflict (1) so limited conclusions can be drawn in terms of magnitude of impact (1). • Some numbers are outside of scale range, e.g. 38 (1) so there must have been an error in the recording (1). • No indication of when the data was collected (1) so this means conclusions could be inconclusive (1) • Design - no indication of who was being asked (locals vs visitors etc) (1) and this could introduce bias (1). • Sample size is unknown (1) so it makes any conclusions partial and tentative (1). • The scores appear twice in the matrix which is redundant (1), so this makes the conflict matrix overly complex difficult to read / interpret (1). • The key is confusing in its use of colour (1), because positive scores are green in the key / legend but red in the matrix (1) (or vice versa). • The key and the awarded scores don't match as values over +/-9 have been awarded (1) which suggest that the matrix has been incorrectly completed (1). • The conflict matrix categories are confusing as some are people / groups whereas others are land-uses (waterfront housing) (1), so it's unclear whether	**4**

	the conflict is between people / players or land-uses (1). Accept criticism of both technique / design of table, as well as data which has been added to the table.	

Renowned

Question Number	Answer	Mark
5(a)(i)	**AO3 (2 marks)** Award **1** mark for each correct answer. Maximum 2 marks • A Camera: recording view and direction • C Decibel meter: for measuring the loudness of traffic noise	**2**

Question Number	Indicative content	Mark
5(a)(ii)	**AO3 (2 marks)** Award **1** mark for explanation of disadvantage and further expansion marks up to a maximum of **2** marks. • The smartphone may run out of batteries (1) so the app can no longer be relied on in the environment to collect data (1). • Students may not be able to correctly read the noise (1) so the results will be unreliable (1). • There is no way of calibrating the app (1) so the user is reliant on the app producing the correct result which is not easy to check (1). • Its is difficult to read the smartphone screen in bright sunlight (1) so the app is difficult to use in some weather / climates (1). Credit other valid ideas.	**2**

Question Number	Answer	Mark
5(b)(i)	**AO3 (1 mark)** 1 mark for correct calculation • Range = 9 (1) Accept 10 (1)	**1**

5(b)(ii)	**AO3 (1 mark)** 1 mark for correct calculation	**1**

	• Mode = -2	

5(b)(iii)	**AO3 (2 marks)** 1 mark for correct rank order: 0 0 4 5 7 9 (1) 1 mark for correct calculation Mid point = 4.5 (1)	**2**

Question Number	Answer	Mark
5(c)	**AO3 (4 marks)** Award **1** mark for explanation of a reason and a further expansion mark up to a maximum of **2** marks per limitation • Numerical scale is unknown in terms of conflict (1) so limited conclusions can be drawn in terms of magnitude of impact (1). • Some numbers are outside of scale range, e.g. 38 (1) so there must have been an error in the recording (1). • No indication of when the data was collected (1) so this means conclusions could be inconclusive (1) • Design - no indication of who was being asked (locals vs visitors etc) (1) and this could introduce bias (1). • Sample size is unknown (1) so it makes any conclusions partial and tentative (1). • The scores appear twice in the matrix which is redundant (1), so this makes the conflict matrix overly complex difficult to read / interpret (1). • The key is confusing in its use of colour (1), because positive scores are green in the key / legend but red in the matrix (1) (or vice versa). • The key and the awarded scores don't match as values over +/-9 have been awarded (1) which	**4**

	suggest that the matrix has been incorrectly completed (1). • The conflict matrix categories are confusing as some are people / groups whereas others are land-uses (out-of-town shopping) (1), so it's unclear whether the conflict is between people / players or land-uses (1). Accept criticism of both technique / design of table, as well as data which has been added to the table.	

Pearson Education Limited. Registered company number 872828
with its registered office at 80 Strand, London, WC2R 0RL, United Kingdom