GCE AS MARKING SCHEME

SUMMER 2019

AS (NEW)
GEOGRAPHY - COMPONENT 1
B110U10-1

INTRODUCTION

This marking scheme was used by WJEC for the 2019 examination. It was finalised after detailed discussion at examiners' conferences by all the examiners involved in the assessment. The conference was held shortly after the paper was taken so that reference could be made to the full range of candidates' responses, with photocopied scripts forming the basis of discussion. The aim of the conference was to ensure that the marking scheme was interpreted and applied in the same way by all examiners.

It is hoped that this information will be of assistance to centres but it is recognised at the same time that, without the benefit of participation in the examiners' conference, teachers may have different views on certain matters of detail or interpretation.

WJEC regrets that it cannot enter into any discussion or correspondence about this marking scheme.

GCE AS GEOGRAPHY

SUMMER 2019 MARK SCHEME

Component 1: Changing Landscapes

Guidance for Examiners

Positive marking

It should be remembered that learners are writing under examination conditions and credit should be given for what the learner writes, as opposed to adopting an approach of penalising him / her for any omissions. It should be possible for a very good response to achieve full marks and a very poor one to achieve zero marks. Marks should not be deducted for a less than perfect answer if it satisfies the criteria of the mark scheme.
The mark scheme for this component includes both point-based mark schemes and banded mark schemes.

Point-based mark schemes

For questions that are objective or points-based the mark scheme should be applied precisely. Marks should be awarded as indicated and no further subdivision should be made. Each creditworthy response should be ticked in red ink. Annotations must reflect the mark awarded for the question. The targeted assessment objective (AO) is also indicated.

Banded mark schemes

For questions with mark bands the mark scheme is in two parts.
The first part is advice on the indicative content that suggests the range of concepts, processes, scales and environments that may be included in the learner's answers. These can be used to assess the quality of the learner's response. This is followed by an assessment grid advising on bands and the associated marks that should be given in responses that demonstrate the qualities needed in the three AOs, AO1, AO2 and AO3, relevant to this component. The targeted AO(s) are also indicated, for example AO2.1c.
Banded mark schemes are divided so that each band has a relevant descriptor. The descriptor for the band provides a description of the performance level for that band. Each band contains marks. Examiners should first read and annotate a learner's answer to pick out the evidence that is being assessed in that question. Once the annotation is complete, the mark scheme can be applied. This is done as a two stage process.

Assessment Objective	Strands	Elements
AO1 Demonstrate knowledge and understanding of places, environments, concepts, processes, interactions and change, at a variety of scales.	N/A	This AO is a single element.
AO2 Apply knowledge and understanding in different contexts to interpret, analyse and evaluate geographical information and issues.	N/A	1a - Apply knowledge and understanding in different contexts to analyse geographical information and issues.
		1b - Apply knowledge and understanding in different contexts to interpret geographical information and issues.
		1c - Apply knowledge and understanding in different contexts to evaluate geographical information and issues
AO3 Use a variety of relevant quantitative, qualitative and fieldwork skills to: • investigate geographical questions and issues • interpret, analyse and evaluate data and evidence • construct arguments and draw conclusions.	1 - investigate geographical questions and issues	N/A
	2 - interpret, analyse and evaluate data and evidence	
	3 - construct arguments and draw conclusions	

Banded mark schemes Stage 1 – Deciding on the band

Beginning at the lowest band, examiners should look at the learner's answer and check whether it matches the descriptor for that band. Examiners should look at the descriptor for that band and see if it matches the qualities shown in the learner's answer. If the descriptor at the lowest band is satisfied, examiners should move up to the next band and repeat this process for each band until the descriptor matches the answer.

If an answer covers different aspects of different bands within the mark scheme, a 'best fit' approach should be adopted to decide on the band and then the learner's response should be used to decide on the mark within the band. For instance if a response is mainly in band 2 but with a limited amount of band 3 content, the answer would be placed in band 2, but the mark awarded would be close to the top of band 2 as a result of the band 3 content.

Examiners should not seek to mark candidates down as a result of small omissions in minor areas of an answer.

Banded mark schemes Stage 2 – Deciding on the mark

Once the band has been decided, examiners can then assign a mark. During standardising (marking conference), the qualities of each mark band will be discussed in detail. Examiners will then receive examples of answers in each mark band that have been awarded a mark by the Principal Examiner. Examiners should mark the examples and compare their marks with those of the Principal Examiner.

When marking, examiners can use these examples to decide whether a learner's response is of a superior, inferior or comparable standard to the example. Examiners are reminded of the need to revisit the answer as they apply the mark scheme in order to confirm that the band and the mark allocated is appropriate to the response provided.

Indicative content is not exhaustive, and any other valid points must be credited. In order to reach the highest bands of the mark scheme a learner need not cover all of the points mentioned in the indicative content but must meet the requirements of the highest mark band. Where a response is not creditworthy, that is contains nothing of any significance to the mark scheme, or where no response has been provided, no marks should be awarded.

The mark scheme reflects the layout of the examination paper. Mark questions 1 and 2 or 3 and 4 in Section A, all questions in Section B and all questions in Section C. If the candidate has responded to all questions in Section A, mark all these responses. Award the higher marks attained; further, possible rubric infringements will be discussed at the marking conference.

Be prepared to reward answers that give **valid and creditworthy** responses, especially if these do not fully reflect the 'indicative content' of the mark scheme.

Section A: Coastal or Glacial Landscapes

Either: Coastal Landscapes

1. (a) Label **Figure 1b** to explain the processes responsible for the formation of landform **X**. Content: 1.1.5	AO1	AO2.1a	AO2.1b	AO2.1c	AO3		**Total**
					5		**5**

Indicative content

Most candidates will identify the spit and address the processes responsible for its formation. However, some may discuss the mudflats/saltmarshes behind the spit. Accept both routes. Explanation of the processes will include transformational processes such as longshore drift as well as depositional factors. Deposition occurs when and where there is insufficient energy to move sediment further, and learners should understand the processes of sediment sorting and flocculation.

Arrowed explanations will assist the candidate to reach Band 3.

Credit any other valid points.

Award the marks as follows:		
Band	**Marks**	
3	**4-5**	Clear explanation and identification. A confident grasp and understanding is shown and applied to the resource.
2	**2-3**	Sound explanation linked to the landform(s). Statements are beginning to explain the formation.
1	**1**	Simple statements lacking explanation. Limited use of the resource as a source of data.
	0	No valid comments.

(b) Examine the role that wind plays in the development of a coastal sand dune. Content: 1.1.6	AO1	AO2.1a	AO2.1b	AO2.1c	AO3		**Total**
	7			3			**10**

Indicative content

Aeolian Transport is the first process of coastal dune formation and involves the movement and weathering of sand particles behind and along the shoreline. Aeolian transportation is when the wind transports sediment.

AO1

AO1 content encompasses knowledge and understanding of how aeolian processes form coastal sand dunes. This may include:

- erosion of sediment from beach
- transportation of sediment
- description of suspension, saltation and traction with link to grain size
- deposition where wind speed falls behind obstacles
- growth of embryo dunes
- fixation of dunes
- movement of sand within dunes - blowouts

AO2

Candidates should address the **importance** of wind and/or consider interrelationships between wind and other factors identified. This may include:

- the relative importance of wind
- the role of biotic factors
- the role of physical objects at the strand line
- the changing role of wind with distance inland
- the changing role of wind within the dune system – blowouts

Marking guidance

Some responses may use annotated diagrams which should be credited.

Credit any other valid points.

Award the marks as follows:		
	AO1 (7 marks)	**AO2.1c (3 marks)**
Band	*Demonstrates knowledge and understanding of the role that wind plays in the development of a sand dune.*	*Applies knowledge and understanding to examine the role that wind plays in the development of a sand dune.*
3	**5-7 marks** Demonstrates detailed and accurate knowledge and understanding through the use of appropriate, accurate and well-developed examples. Demonstrates detailed and accurate knowledge and understanding of the role of wind in the development of a sand dune. Demonstrates detailed and accurate knowledge and understanding of the link between wind and sand dune development. Well, annotated sketches/diagrams/ maps may also be used and should be credited.	**3 marks** Applies knowledge and understanding to produce a thorough and coherent examination that is supported by evidence. Applies knowledge and understanding to produce a thorough and coherent examination of the role.
2	**3-4 marks** Demonstrates accurate knowledge and understanding through the use of appropriate and well-developed examples. Demonstrates accurate knowledge and understanding of the role of wind in dune development. Demonstrates accurate knowledge and understanding of the role of wind in dune development. Sketches/diagrams/ maps may also be used and should be credited.	**2 marks** Applies knowledge and understanding to produce a coherent but partial examination that is supported by some evidence. Applies knowledge and understanding to produce a coherent but partial examination of the role wind and the development of a sand dune.
1	**1-2 marks** Demonstrates limited knowledge and understanding through a limited number of undeveloped examples. Demonstrates limited knowledge and understanding of the role of wind. Demonstrates limited links between wind and sand dune development. Basicsketches/diagrams/ maps may be used and can be credited.	**1 mark** Applies knowledge and understanding to produce an examination with limited coherence and support from some evidence. Applies knowledge and understanding to produce a limited examination of the role of wind and sand dune development.
	0 marks Response not creditworthy or not attempted.	**0 marks** Response not creditworthy or not attempted.

2. (a) Use **Figure 2** to describe the pattern of wave energy. Content: 1.1.1 / 1.1.3	AO1	AO2.1a	AO2.1b	AO2.1c	AO3		**Total**
					5		**5**

Indicative content

- Three areas identified on the map south-west/northeast/ north-west) – not all are needed
- NW with the highest energy with the use of data
- SW energy ranging from 45 KW/m to 16-20 for approx. 400 km
- NE energy ranging from 0-5 to 36-40 for approx. 500km

There are many other possible patterns that can be identified but a spatial awareness is needed for marks in Band 3 i.e. an overall sense of pattern. Some will show clear use of latitude and longitude values, this will also assist in reaching Band 3.

Anticipate other credible approaches to describing patterns.

Award the marks as follows:		
Band	**Marks**	
3	**4-5**	Clear description and identification with clear patterns identified. Clear us of the resource used and patterns addressed. The wide use of the resource as a source of data to support the description. Not all areas of the resource need to be covered to reach this band.
2	**2-3**	Some identification of a pattern is evident. Partial use of the resource as a source of data to support the description. Some understanding of highs and lows is evident.
1	**1**	Simple statements of varying impacts. Limited use of the resource as a source of data.
	0	No valid comments.

(b) Discuss the impact of **either** eustatic **or** isostatic sea level changes on the development of **one** coastal landform. Content: 1.1.7	AO1	AO2.1a	AO2.1b	AO2.1c	AO3		**Total**
	7			8			**15**

Indicative content

Landforms that could be identified include fjords, rias or raised beaches

Eustatic change is when the sea level changes due to an alteration in the volume of water in the oceans or, alternatively, a change in the shape of an ocean basin and hence a change in the amount of water the sea can hold. Eustatic change is always a global effect.

During and after an ice age, eustatic change takes place. At the beginning of an ice age, the temperature falls and water is frozen and stored in glaciers inland, suspending the hydrological cycle. This results in water being taken out of the sea but not being put back in leading to an overall fall in sea level. Conversely, as an ice age ends, the temperature begins to rise and so the water stored in the glaciers will re-enter the hydrological cycle and the sea will be replenished, increasing the sea levels.Increases in temperature outside of an ice age will also effect the sea level since an increasing temperature will cause the ice sheets to melt, putting more water in the sea.

Isostatic sea level change is the result of an increase or decrease in the height of the land. When the height of the land increases, the sea level falls and when the height of the land decreases the sea level rises. Isostatic change is a local sea level change.

AO1
Candidates should be able to show the knowledge and understanding of the impacts of eustatic or isostatic sea level changes on the development of one landform.

AO2
Candidates demonstrate application of knowledge and understanding to evaluate the impact of eustatic/isostatic sea level change on the development of one landform. The more developed response will identify that there are other factors that can contribute to the development of the landform such as ice, rock type, and erosional processes, amongst others.

Marking guidance

Only accept one landform and credit the best attempted.

In order to reach Band 3 (AO2), there will be a substantiated conclusion that links clearly to the question.

Credit any other valid points.

Award the marks as follows:		
	AO1 (7 marks)	**AO2.1c (8marks)**
Band	*Demonstrates knowledge and understanding of the impact of sea level changes on the development of one coastal landform.*	*Applies knowledge and understanding to discuss the impact of sea level changes on the development of one coastal landform.*
3	**6-7 marks** Demonstrates detailed and accurate knowledge and understanding through the use of appropriate, accurate and well-developed examples. Demonstrates detailed and accurate knowledge and understanding of the role of eustatic sea level change on a landform. Well, annotated sketches/diagrams/ maps may also be used and should be credited.	**7-8 marks** Applies knowledge and understanding to produce a thorough and coherent discussion that is supported by evidence. Applies knowledge and understanding to produce a thorough and coherent discussion of the impact of sea level change on a landform. A clear conclusion will be evident.
2	**3-5 marks** Demonstrates accurate knowledge and understanding through the use of appropriate and developed examples. Demonstrates accurate knowledge and understanding of some of the role of eustatic sea level change on a landform. Sketches diagrams/maps may also be used and should be credited.	**3-6 marks** Applies knowledge and understanding to produce a coherent but partial analysis that is supported by some evidence. Applies knowledge and understanding to produce a coherent but partial discussion of the impact of sea level change on a landform.
1	**1-2 marks** Demonstrates limited knowledge and understanding through a limited number of underdeveloped examples. Demonstrates limited understanding of the role of eustatic sea level change on a landform. Sketches /diagrams/maps may be used and can be credited.	**1-2 mark** Applies knowledge and understanding to produce analysis with limited coherence and support from some evidence. Applies knowledge and understanding to produce a limited analysis and discussion of the impact of sea level change on a landform.
	0 marks Response not creditworthy or not attempted.	**0 marks** Response not creditworthy or not attempted.

Or: Glaciated Landscapes

3. (a) Label **Figure 3b** to explain the processes responsible for the formation of landform **Y**. Content: 1.2.6	AO1	AO2.1a	AO2.1b	AO2.1c	AO3		**Total**
					5		**5**

Indicative content

Kettle lake basins were formed as the glaciers receded. While this was happening, a block of ice broke off the glacier, and remained. As the glacier continued to melt, the debris from the glacier (soil, rocks, stones, gravel, etc.) filled in around the block of ice. When the block of ice finally melted, all the debris surrounding it fell into the hole, creating the kettle type basin, which when filled with water, became a lake.

Arrowed explanations (clearly linking annotations to the figure) will help the candidate to reach Band 3.

Marking guidance

Candidates may reach Band 3 with two very detailed annotations.

Credit any other valid points.

Award the marks as follows:		
Band	**Marks**	
3	**4-5**	A clear explanation of the processes – arrowed to the correct locations.
2	**2-3**	Some explanation. Some understanding is shown but lacks depth and clarity. Statements are beginning to explain the formation.
1	**1**	Simple statements of one feature limited relevance to the resource as a source of data.
	0	No valid comments.

(b) Contrast some of the features of highland and lowland glacial landscapes. Content: 1.2.7	AO1	AO2.1a	AO2.1b	AO2.1c	AO3		**Total**
	7			3			**10**

Indicative content

Candidates should be able to identify and differentiate between the landscapes created by valley glaciers and ice sheets. This is important as these different categories of glacier produce different landscapes.

Glaciated valley (highland) landscapes are typically dominated by erosional features such as cirques and U-shaped valleys, while landscapes affected by ice sheets (lowland) commonly include features such as extensive drumlin fields and outwash plains..

AO1
Candidates should be able to show the knowledge and understanding of the distinct features of both highland and lowland glacial landscapes.

AO2
Candidates demonstrate the application of knowledge and understanding through an ability to contrast the features of highland and lowland glacial landscapes e.g. in terms of type or scale of landforms seen or a contrast between the processes which led to their formation.

Credit any other valid points.

Award the marks as follows:		
	AO1 (7 marks)	**AO2.1c (3 marks)**
Band	*Demonstrates knowledge and understanding of the variations between highland and lowland glacial landscapes.*	*Applies knowledge and understanding to contrast the features of highland and lowland glacial landscapes.*
3	**5-7 marks** Demonstrates detailed and accurate knowledge and understanding through the use of appropriate, accurate and well-developed examples. Demonstrates detailed and accurate knowledge and understanding of the variations between highland and lowland glacial landscapes. Well, annotated sketches/diagrams/ maps may also be used and should be credited.	**3 marks** Applies knowledge and understanding to produce a thorough and coherent contrast that is supported by evidence. Applies knowledge and understanding to produce a thorough and coherent assessment of variations between highland and lowland glacial landscapes.
2	**3-4 marks** Demonstrates accurate knowledge and understanding through the use of appropriate and well-developed examples. Demonstrates accurate knowledge and understanding of the variations between highland and lowland glacial landscapes. Sketches/diagrams/ maps may also be used and should be credited.	**2 marks** Applies knowledge and understanding to produce a partial contrast that is supported by some evidence. Applies knowledge and understanding to produce a coherent but partial assessment of variations between highland and lowland glacial landscapes.
1	**1-2 marks** Demonstrates limited knowledge and understanding through a limited number of undeveloped examples. Demonstrates limited knowledge and understanding of the variations between highland and lowland glacial landscapes. Demonstrates limited links between highland and lowland glacial landscapes. Basicsketches/diagrams/ maps may be used and can be credited.	**1 mark** Applies knowledge and understanding to produce a contrast with limited coherence and support from some evidence. Applies knowledge and understanding to produce a limited assessment of the variations between highland and lowland glacial landscapes.
	0 marks Response not creditworthy or not attempted.	**0 marks** Response not creditworthy or not attempted.

4. (a) Use **Figure 4** to describe the pattern of ice retreat. Content: 1.2.4	AO1	AO2.1a	AO2.1b	AO2.1c	AO3		**Total**
					5		**5**

Indicative content

- The biggest retreat is from 24.3 KA to 23.7 KA with a retreat if 250km
- Some candidates will use latitude and longitude values
- There are many other possible patterns that can be identified but a spatial awareness is needed for Band 3 i.e. an overall sense of pattern.
- Effective manipulation of data from the resource should be credited where it assists in explaining the pattern shown.

Credit any other valid points.

Award the marks as follows:		
Band	**Marks**	
3	**4-5**	A clear description of the pattern. The wide use of the resource as a source of data to support the description. Not all features are needed to enter this band but there must be a reference to time and overall pattern.
2	**2-3**	Some identification the pattern with some use of data. Partial use of the resource as a source of data to support the description. Some understanding of the pattern.
1	**1**	Simple statements made. Limited use of the resource as a source of data.
	0	No valid comments.

(b) Discuss the view that the most significant changes to glacial landscapes happen over millennia. Content: 1.2.8	AO1	AO2.1a	AO2.1b	AO2.1c	AO3		**Total**
	7			8			**15**

Indicative content

AO1
Candidates should be able to show the knowledge and understanding of how glacial processes create changes to glacial landscapes over different time scales.

The timescales identified could vary from seconds to millennia. In any landscape, there are processes which operate infrequently but at high magnitude and can have an instantaneous effect, for example, rapid mass movement causing changes in glacial valley profiles.

By contrast, there are landforms associated with seasonal variations in fluvioglacial transport and deposition. In the formation of varves, the coarser sediment is deposited in summer when meltwater is abundant and stream transport is active; the finer sediment settles out slowly during the winter.

It is important that learners understand that landscapes also evolve over longer time scales and that they may recognise the impacts of postglacial reworking of glacial deposits over thousands of years. Processes discussed can be effectively linked to the formation of a landform.

AO2
Candidates demonstrate the application of knowledge and understanding to evaluate whether the most significant changes happen over millenia. Approaches could include a discussion of:

- how significant changes can happen at very short time scales
- how significant changes can happen at seasonal time scales
- how significant changes can happen over longer time scales
- how different time scales may impact selected landforms in different ways
- how the impacts of different time scales may be equally significant to the creation of the landscape.

In order to reach Band 3 (AO2), there will be a substantiated conclusion that links clearly to the question.

Credit any other valid points.

Award the marks as follows		
	AO1 (7 marks)	**AO2.1c (8marks)**
Band	*Demonstrates knowledge and understanding of glacial processes and changes to landscapes over different time scales*.	*Applies knowledge and understanding to evaluate the significance of changes to landscapes over different time scales.*
3	**6-7 marks** Demonstrates detailed and accurate knowledge and understanding through the use of appropriate, accurate and well-developed examples. Demonstrates detailed and accurate knowledge and understanding of how glacial processes vary over different time scales. Well, annotated sketches/diagrams/ maps may also be used and should be credited.	**7-8 marks** Applies knowledge and understanding to produce a thorough and coherent discussion that is supported by evidence. Applies knowledge and understanding to produce a thorough and coherent discussion of changes over different time scales. A clear conclusion will be evident.
2	**3-5 marks** Demonstrates accurate knowledge and understanding through the use of appropriate and developed examples. Demonstrates accurate knowledge and understanding of how glacial processes vary over different time scales. Sketches/diagrams/ maps may also be used and should be credited.	**3-6 marks** Applies knowledge and understanding to produce a coherent but partial analysis that is supported by some evidence. Applies knowledge and understanding to produce a coherent but partial discussion of changes over different time scales.
1	**1-2 marks** Demonstrates limited knowledge and understanding through a limited number of underdeveloped examples. Demonstrates limited understanding of how glacial processes vary over different time scales. Sketches /diagrams/maps may be used and can be credited.	**1-2 mark** Applies knowledge and understanding to produce analysis with limited coherence and support from some evidence. Applies knowledge and understanding to produce a limited analysis and discussion of changes over different time scales.
	0 marks Response not creditworthy or not attempted	**0 marks** Response not creditworthy or not attempted

Section B: Tectonic Hazards

5. (a) Use **Figure 5** to suggest the impacts of the volcanic eruption on the region shown. Content: 1.3.4	AO1	AO2.1a	AO2.1b	AO2.1c	AO3		**Total**
					5		**5**

Indicative content

Potential impacts could include:

- Demographic – mortality, migration, population structure changes
- Economic – costs of losses
- Social – impacts on health, infrastructure, families
- Environmental.

Marking guidance

There are a wide variety of impacts available to discuss. Accept all relevant approaches but they must be related to the region shown and points made should use eveidence from the figure in support.

Credit any other valid points.

Award the marks as follows:		
Band	**Marks**	
3	**4-5**	Detailed understanding of more than one impact with clear development. Clear use of the resource.
2	**2-3**	Sound understanding is shown with a lack of development and maybe only one impact suggested. Some use of the resource.
1	**1**	Partial statements made with limited understanding and developments. Limited use of the resource.
	0	No valid comments.

(b) Use **Figure 6** to describe the changes in Bogoslof volcanic island.	AO1	AO2.1a	AO2.1b	AO2.1c	AO3		**Total**
					5		**5**

Indicative content

- Overall, the extent has stayed the same
- The lake in the centre has got bigger on an east/west access and north-south – with some use of quantification (30m)
- The small lake to the **right** of the island has been infilled

The focus of the response should be on ***changes***. Do not credit description that does not identify change.

Marking guidance

Credit any other valid points.

Award the marks as follows:		
Band	**Marks**	
3	**4-5**	Clear description of changes with confident use of the resource. Detailed use of the resources by using compass and scale measurements
2	**2-3**	Some sound description of changes with some use of the resource. Generally lacks depth and clarity.
1	**1**	Simple statements. Limited relevance to the resource as a source of data.
	0	No valid comments.

(c) (i) Use **Figure 7** to calculate the total area of land created between 11th and 31st of January, 2017. Show your workings and give your answer to 2 decimal places.	AO1	AO2.1a	AO2.1b	AO2.1c	AO3		**Total**
					2		**2**

Indicative content

Workings should be shown as follows:

1.02 – 0.437 (1 mark)

0.58 km^2 (1 mark)

(ii) Use **Figure 7** to calculate the percentage growth of Bogoslof Island from 19th March 2015 to 24th April 2017. Show your workings and give your answer to 2 decimal points.	AO1	AO2.1a	AO2.1b	AO2.1c	AO3		**Total**
					3		**3**

Indicative content

1.290 – 0.288 = 1.002 (1 mark)

$\frac{1.002}{0.288}$ x 100 = 347.92 (1 mark)

Accept 347.92% (1 mark)

(iii) Name a suitable graphical method for representing the data in **Figure 7**.	AO1	AO2.1a	AO2.1b	AO2.1c	AO3		**Total**
					1		**1**

Indicative content

Accept: bar graph, line graph, scattergraph.

Do not accept: pie chart

(iv) Justify your choice of method in (c)(iii).	AO1	AO2.1a	AO2.1b	AO2.1c	AO3		**Total**
					4		**4**

Indicative content

Answers that score well will select and justify through evaluating one appropriate graphical technique that enables interpretation along with the justification of why the choice of technique is appropriate. Near the lower end, there will be a graphical method selected with the limited justification of why it was selected. Some candidates will attempt to draw the graph but must add justification to reach Band 2. Examples of justification will include – easy to draw, trends can be shown, a clear representation of the data, further calculations can be made from the graph etc. Credit positive evaluative points as justification. Full justification may also involve a discussion of why the method would be better than a given alternative.

Credit any other valid points.

Award the marks as follows:		
Band	**Marks**	
3	**4**	Demonstrates a clear and well-developed justification of their chosen method.
2	**2-3**	Demonstrates a sound justification of their chosen method.
1	**1**	Partial statements made with limited understanding and development.
	0	No valid comments.

(d) (i) Outline the main characteristics of **two** types of volcanic eruption. Content: 1.3.3	AO1	AO2.1a	AO2.1b	AO2.1c	AO3		**Total**
	6						**6**

Indicative content

Knowledge and understanding of the characteristics of the major types of volcano including shield, composite and cinder. Differences in shape, structure and composition may be identified. These characteristics can be related to the nature of different volcanic eruption types. Particular reference can be made to explosive and effusive eruptions. The type of volcano and eruption type can be related to the tectonic situation.

Accept well-annotated diagrams.

Credit any other valid points.

Award the marks as follows:		
Band	**Marks**	
3	**5-6**	Detailed knowledge and understanding of two types of volcanoes with clear characteristics identified. There will be at least two characteristics identified and these will be well developed.
2	**3-4**	Sound understanding is shown with a lack of balance between the two types of eruption. One type done well will stay in this band. Characteristics may be identified but these would lack development.
1	**1-2**	Partial statements made showing limited understanding.
	0	No valid comments.

(d) (ii) State **one** reason why few deaths are caused by lava flows. Content: 1.3.3	AO1	AO2.1a	AO2.1b	AO2.1c	AO3		**Total**
	2						**2**

Indicative content

Deaths caused directly by lava flows are uncommon because most move slowly enough that people can move out the way easily. Death and injury can result when onlookers approach an advancing lava flow too closely or their retreat is cut off by other flows. Deaths attributed to lava flows are often due to related causes, such as explosions when lava interacts with water, the collapse of an active lava delta that forms where lava enters a body of water, asphyxiation due to accompanying toxic gases, pyroclastic flows from a collapsing dome, and lahars from meltwater. A clear development point is needed for the second mark.

Credit any other valid points.

(e) Volcanoes only generate hazards at the local scale.' Discuss Content:1.3.4	AO1	AO2.1a	AO2.1b	AO2.1c	AO3		**Total**
	5			7			**12**

Indicative content

AO1
Candidates should show knowledge and understanding of diferent types of volcanic hazards and their impacst. These hazards may inlcude pyroclastic flows, lava flows, ash fall, lahars, jokulhlaups, volcanic landslides and toxic gases. Not all are needed. Candidates will link these hazards to a range of impacts at a range of scales. This could be local (in the immediate vicinity of the event), regional (at a broader scale) or global (at a worldwide scale). Responses may include knowledge and understanding of the following range of impacts:

- Demographic impacts
- Economic impacts
- Social impacts
- Environmental impacts.

These impacts can be (i) primary in that they are the immediate and direct consequence of the event, or (ii) secondary in that they are indirect consequences of the event.
It is recognised that detailed exemplar material for volcanic events may not fall within the last two decades but they should not be historic in character.

AO2
Candidates are required to apply knowledge and understanding to evaluate whether the the impacts of volcanic hazards only happen at the local scale. An evaluation could include:

- some volcanic events lead to hazards where impacts are concentrated locally
- some volcanic events lead to hazards where impacts spread regionally
- some volcanic events lead to hazards where impacts are seen globally
- a discussion of how the type of margin/eruption may contribute to the scale of the impacts
- the globalisation of the world economy may mean that the impacts of volcaninc hazards are more significant today than they would have been in the past.

Credit any other valid points.

Marking guidance

In order to reach Band 3 (AO2), there will be a substantiated conclusion that links clearly to the question.

Award the marks as follows:		
	AO1 (5 marks)	**AO2.1c (7 marks)**
Band	*Demonstrates knowledge and understanding of the impacts of tectonic hazards.*	*Applies knowledge and understanding to discuss impacts at a variety of scales.*
3	**4-5 marks** Demonstrates detailed and accurate knowledge and understanding through the use of appropriate, accurate and well-developed examples. Demonstrates detailed and accurate knowledge and understanding of impacts of tectonic hazards. Well, annotated sketches/diagrams/ maps may also be used and should be credited.	**6-7 marks** Applies knowledge and understanding to produce a thorough and coherent assessment that is supported by evidence. Applies knowledge and understanding to produce a thorough and coherent discussion on the impacts on a variety of scales. Balanced evaluation of the relative importance of other factors. A clear conclusion will be evident.
2	**2-3 marks** Demonstrates accurate knowledge and understanding through the use of appropriate and developed examples. Demonstrates accurate knowledge and understanding of some understanding of impacts of tectonic hazards. Sketches/diagrams/ maps may also be used and should be credited.	**3-5 marks** Applies knowledge and understanding to produce a coherent but partial assessment that is supported by some evidence. Applies knowledge and understanding to discuss the impacts on a variety of scales Partial evaluation of the relative importance of other factors.
1	**1 mark** Demonstrates limited knowledge and understanding through a limited number of undeveloped examples. Demonstrates limited understanding of the question. Basicsketches/diagrams/ maps may be used and can be credited.	**1-2 mark** Applies knowledge and understanding to produce an assessment with limited coherence and support from some evidence. Limited application of knowledge and understanding to discuss impacts on a variety of scale. Limited evaluation of the relative importance of other factors.
	0 marks Response not creditworthy or not attempted.	**0 marks** Response not creditworthy or not attempted.

6. (a) Examine the view that earthquake hazards impact countries with low levels of development more significantly than countries with high levels of development. Content: 1.3.6	AO1	AO2.1a	AO2.1b	AO2.1c			**Total**
	10			5			**15**

Indicative content

AO1
Encompasses knowledge and understanding of earthquake hazards e.g. ground shaking, liquefaction, landslides and tsunammi, and their impacts on countries at varying levels of development. Responses may include knowledge and understanding of the following range of impacts:

- Demographic impacts
- Economic impacts
- Social impacts
- Environmental impacts.

AO2
Applies knowledge and understanding to examine the extent to which earthquakes hazards have a greater impact on countries with lower levels of development. There could be a number of factors identified in the discussion including:

- An examination of how differing levels of development effect the nature and extent of earthquake impacts f.e. candidates may contrast the impacts of the Kobe earthquake that killed 5000 with an earthquake of a slightly smaller intensity hit Turkey in 1999, killing 17,000 people. HIC's have disaster plans, government departments responsible for managing and coordinating emergency responses, and for educating the public about natural hazards. Many LIC's struggles to provide these facilities
- An examination of how social factors including the population density, population profile (age, gender) and levels of education could lead to hazards impacting to a greater or a lesser extent
- An examination of how political factors including the quality of governance that could lead to hazards impacting to a greater or a lesser extent
- An examination of how geographical factors including rural/urban location, time of day and degree of isolation that could lead to hazards impacting to a greater or a lesser extent.

Credit any other valid points.

Award the marks as follows:		
	AO1 (10 marks)	**AO2.1c (5 marks)**
Band	*Demonstrates knowledge and understanding of earthquake hazards and their impacts on countries at varying levels of development.*	*Applies knowledge and understanding to examine the extent to which earthquake hazards impact countries at varying levels of development differently.*
3	**8-10 marks** Demonstrates detailed and accurate knowledge and understanding through the use of appropriate, accurate and well-developed examples. Demonstrates detailed and accurate knowledge and understanding of the statement. Well, annotated sketches/diagrams/ maps may also be used and should be credited.	**4-5 marks** Applies knowledge and understanding to produce a thorough and coherent examination that is supported by evidence.
2	**4-7 marks** Demonstrates accurate knowledge and understanding through the use of appropriate and developed examples. Demonstrates accurate knowledge and understanding of the statement. Sketches/diagrams/ maps may also be used and should be credited.	**2-3 marks** Applies knowledge and understanding to produce a coherent but partial examination that is supported by some evidence.
1	**1-3 marks** Demonstrates limited knowledge and understanding through a limited number of underdeveloped examples. Demonstrates limited understanding of the statement. Sketches /diagrams/maps may be used and can be credited.	**1 mark** Applies knowledge and understanding to produce an examination with limited coherence and support from some evidence.
	0 marks Response not creditworthy or not attempted.	**0 marks** Response not creditworthy or not attempted.

6. (b) Evaluate the responses to **two** tectonic events. Content: 1.3.8	AO1	AO2.1a	AO2.1b	AO2.1c	AO3		**Total**
	10			10			**20**

Indicative content

AO1
The list below encompassess possible responses that may be identified. Not are all are needed for full marks.

Short-term	Countries providing search and rescue teams Countries providing helicopters and boats in search effort Countries and NGOs donating food, tents and water (water purification) Countries and NGOs sending medical teams Providing aid money Burying the dead to stop spread of diseases (recovery of bodies)
Mid-term	Re-connection of water and electricity supplies Ongoing medical rehabilitation and possible counselling Rebuilding of homes or creation of more permanent temporary structures Re-connection of communication links (internet, phone masts) Rebuilding of transport links (roads, railways, airports, ports) Clearing away damaged buildings Re-open schools and hospitals Cancelling of debt (also long-term)
Long-term	Countries providing long-term aid (donations) to a region or country Countries creating enterprise zones to encourage investment Improvement in warning systems (tsunami warning system) Countries investing in effected areas (FDI) Improved education of hazard risks Create new shelters and evacuation routes. Build new defences. Help return of refugees and homing of orphanages

AO2
Candidates will apply knowledge and understanding to evaluate how responses vary. An examination could include:

- An evaluation of the importance of technology in mitigating the risk associated with particular events or case studies e.g. comparison of two events
- An evaluation of the importance of other factors in determining the ability of a state or country to utilise the technology available e.g. level of development, level of education and quality of governance

In order to reach Band 3 (AO2), there will be a substantiated conclusion that links clearly to the question.

Credit any other valid points.

Award the marks as follows:		
	AO1 (10 marks)	**AO2.1c (10marks)**
Band	*Demonstrates knowledge and understanding of responses to tectonic events.*	*Applies knowledge and understanding to evaluate the success of two different responses to a tectonic event.*
3	**8-10 marks** Demonstrates detailed and accurate knowledge and understanding through the use of appropriate, accurate and well-developed examples. Demonstrates detailed and accurate knowledge of a range of responses to a tectonic event. Well, annotated sketches/diagrams/ maps may also be used and should be credited.	**8-10 marks** Applies knowledge and understanding to produce a thorough and coherent evaluation that is supported by evidence. A clear conclusion will be evident.
2	**4-7 marks** Demonstrates accurate knowledge and understanding through the use of appropriate and developed examples. Demonstrates partial knowledge and understanding of some responses to a tectonic event. Sketches/diagrams/ maps may also be used and should be credited.	**4-7 marks** Applies knowledge and understanding to produce a coherent but partial evaluation that is supported by some evidence.
1	**1-3 marks** Demonstrates limited knowledge and understanding through a limited number of underdeveloped examples. Demonstrates limited understanding of responses to a tectonic event. Sketches /diagrams/maps may be used and can be credited.	**1-3 mark** Applies knowledge and understanding to produce an evaluation with limited coherence and support from some evidence.
	0 marks Response not creditworthy or not attempted.	**0 marks** Response not creditworthy or not attempted

Section C: Challenges in the 21st Century

7. To what extent do changing landscapes improve the economic characteristics of places?	AO1	AO2.1a	AO2.1b	AO2.1c	AO3		**Total**
				10			**10**

Indicative content
Within the answer to question 7, candidates may use Figures 8 and 9, together with appropriate knowledge and understanding of the connections between different aspects of this area across the whole specification in order to develop a sustained line of reasoning which is coherent, relevant, substantiated and logically structured.

Near the lower end, there will be a limited interpretation of Figures 8 and 9 and limited knowledge, understanding of change and applied understanding from across the specification.

Indicative content

Figure 8a: AlHamla LNG Tanker at Milford Haven

Figure 8b: Cairngorm Mountains ski centre

Marking guidance

Accept any landscape and do not limit to the photographs given.

Candidates may use the resources but it is not essential – they will look to discuss the benefits of tourism to the local, national economy. However, some will also look at the impacts of tourism on the area and this should be credited to gain access to band 3. The focus of the question should identify the candidate's synoptic approach to the questions. Candidates should also try to incorporate into their answer the concept of scale.

Credit any other valid points. Candidates should be credited for use of examples drawn from across the specification.

Award the marks as follows:		
Band	**Marks**	
3	**7-10**	Applies knowledge and understanding from across the specification to produce a thorough and coherent evaluation that is supported by evidence. Well-developed synthesis of geographical ideas, concepts and issues from the resources provided and from across the specification and in different contexts, in order to make well-judged connections. Applies knowledge and understanding from across the specification to judge the extent to which a place is changing, (use of the photographs) accurate and well-developed examples from across the specification. Applies knowledge and understanding of how money can have a positive impact on places.
2	**4-6**	Applies knowledge and understanding from across the specification to produce a coherent but partial evaluation that is supported by some evidence. Partial synthesis of geographical ideas, concepts and issues from the resources provided and from across the specification and in different contexts, in order to make partial connections. Applies knowledge and understanding from across the specification to partially judge the extent to which a place is changing with the use of appropriate and well-developed examples from across the specification. Partially applies knowledge and understanding of how the flows have money have a positive impact on places.
1	**1-3**	Applies knowledge and understanding from across the specification to produce an evaluation with limited coherence and support from some evidence. Limited synthesis of geographical ideas, concepts and issues from the resources provided and from across the specification and in different contexts, making limited connections. Limited application of knowledge and understanding from across the specification to make limited judgements on the extent which the flows of money have a positive impact on places, a limited number of under developed examples from across the specification. Limited application of knowledge and understanding of the factors that have caused a change in a place
	0	Response not creditworthy or not attempted.