GCE

Geography

H081/01: Landscape and place

Advanced Subsidiary GCE

Mark Scheme for June 2019

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by examiners. It does not indicate the details of the discussions which took place at an examiners' meeting before marking commenced.

All examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the report on the examination.

Annotations

Annotation	Meaning
SEEN	Point has been seen and noted
	Indicates a whole answer for which there is no credit
BP	Must be used on all blank pages where there is no candidate response
DEV	Development of a point
IRRL	Irrelevant; a significant amount of material that does not answer the question
L1	Level 1
L2	Level 2
L3	Level 3
L4	Level 4
NE	No place specific detail
R	Rubric error (place at start of Question not being counted)
	Highlighting AO2 credit as advised. This is used in conjunction with the highlight tool for identifying AO1
	Point mark questions where indicated by the tick in the mark scheme

Subject–specific Marking Instructions

INTRODUCTION

Your first task as an Examiner is to become thoroughly familiar with the material on which the examination depends. This material includes:

- the specification, especially the assessment objectives
- the question paper and its rubrics
- the mark scheme.

You should ensure that you have copies of these materials.

You should ensure also that you are familiar with the administrative procedures related to the marking process. These are set out in the OCR booklet **Instructions for Examiners**. If you are examining for the first time, please read carefully **Appendix 5 Introduction to Script Marking: Notes for New Examiners**.

Please ask for help or guidance whenever you need it. Your first point of contact is your Team Leader.

USING THE MARK SCHEME

Please study this Mark Scheme carefully. The Mark Scheme is an integral part of the process that begins with the setting of the question paper and ends with the awarding of grades. Question papers and Mark Schemes are developed in association with each other so that issues of differentiation and positive achievement can be addressed from the very start.

This Mark Scheme is a working document; it is not exhaustive; it does not provide 'correct' answers. The Mark Scheme can only provide 'best guesses' about how the question will work out, and it is subject to revision after we have looked at a wide range of scripts.

The Examiners' Standardisation Meeting will ensure that the Mark Scheme covers the range of candidates' responses to the questions, and that all Examiners understand and apply the Mark Scheme in the same way. The Mark Scheme will be discussed and amended at the meeting, and administrative procedures will be confirmed. Co–ordination scripts will be issued at the meeting to exemplify aspects of candidates' responses and achievements; the co–ordination scripts then become part of this Mark Scheme.

Before the Standardisation Meeting, you should read and mark in pencil a number of scripts, in order to gain an impression of the range of responses and achievement that may be expected.

In your marking, you will encounter valid responses which are not covered by the Mark Scheme: these responses must be credited. You will encounter answers which fall outside the 'target range' of Bands for the paper which you are marking. Please mark these answers according to the marking criteria.

Please read carefully all the scripts in your allocation and make every effort to look positively for achievement throughout the ability range. Always be prepared to use the full range of marks.

LEVELS OF RESPONSE QUESTIONS:

The indicative content indicates the expected parameters for candidates' answers, but be prepared to recognise and credit unexpected approaches where they show relevance.

Using 'best–fit', decide first which set of level descriptors best describes the overall quality of the answer. Once the level is located, adjust the mark concentrating on features of the answer which make it stronger or weaker following the guidelines for refinement.

Highest mark: If clear evidence of all the qualities in the level descriptors is shown, the HIGHEST Mark should be awarded.

Lowest mark: If the answer shows the candidate to be borderline (i.e. they have achieved all the qualities of the levels below and show limited evidence of meeting the criteria of the level in question) the LOWEST mark should be awarded.

Middle mark: This mark should be used for candidates who are secure in the level. They are not 'borderline' but they have only achieved some of the qualities in the level descriptors.

Be prepared to use the full range of marks. Do not reserve (e.g.) highest level marks 'in case' something turns up of a quality you have not yet seen. If an answer gives clear evidence of the qualities described in the level descriptors, reward appropriately.

Quality of extended response will be assessed in questions marked with an (*). Quality of extended response is not attributed to any single assessment objective but instead is assessed against the entire response for the question.

	AO1	AO2	AO3	Quality of extended response
Comprehensive	A wide range of detailed and accurate knowledge that demonstrates fully developed understanding that shows full relevance to the demands of the question. Precision in the use of question terminology.	Knowledge and understanding shown is consistently applied to the context of the question, in order to form a: clear, developed and convincing analysis that is fully accurate. clear, developed and convincing interpretation that is fully accurate. detailed and substantiated evaluation that offers secure judgements leading to rational conclusions that are evidence based.	Quantitative, qualitative and/or fieldwork skills are used in a consistently appropriate and effective way and with a high degree of competence and precision.	There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.
Thorough	A range of detailed and accurate knowledge that demonstrates well developed understanding that is relevant to the demands of the question. Generally precise in the use of question terminology.	Knowledge and understanding shown is mainly applied to the context of the question, in order to form a : clear and developed analysis that shows accuracy. clear and developed interpretation that shows accuracy. detailed evaluation that offers generally secure judgements, with some link between rational conclusions and evidence.	Quantitative, qualitative and/or fieldwork skills are used in a suitable way and with a good level of competence and precision.	There is a line of reasoning presented with some structure. The information presented is in the most-part relevant and supported by some evidence.

Reasonable	Some sound knowledge that demonstrates partially developed understanding that is relevant to the demands of the question. Awareness of the meaning of the terms in the question.	Knowledge and understanding shown is partially applied to the context of the question, in order to form a: sound analysis that shows some accuracy. sound interpretation that shows some accuracy. sound evaluation that offers generalised judgements and conclusions, with limited use of evidence.	Quantitative, qualitative and/or fieldwork skills are used in a mostly suitable way with a sound level of competence but may lack precision.	The information has some relevance and is presented with limited structure. The information is supported by limited evidence.
Basic	Limited knowledge that is relevant to the topic or question with little or no development. Confusion and inability to deconstruct terminology as used in the question.	Knowledge and understanding shows limited application to the context of the question in order to form a: simple analysis that shows limited accuracy. simple interpretation that shows limited accuracy. Un-supported evaluation that offers simple conclusions.	Quantitative, qualitative and/or fieldwork skills are used inappropriately with limited competence and precision.	The information is basic and communicated in an unstructured way. The information is supported by limited evidence and the relationship to the evidence may not be clear.

Question			Answer	Marks	Guidance
1	(a)	(i)	**Study Fig. 1 which shows patterns of temperature and precipitation for the Isle of Portland on the Dorset coast. Using evidence from Fig. 1, describe the patterns of temperature and precipitation of the Isle of Portland.** Features of the climate include: *Temperature* - highest in summer, May to September / lowest in winter December to March (✓) - annual range relatively low (✓) - monthly max / min averages suggest narrow range, mostly above freezing (✓) *Precipitation* - relatively even distribution / rain falls in every month(✓) - highest in winter, Oct to Dec all > 80 mm / lowest in summer May to September (✓)	3	**AO3 – 3 marks** Reference to both temperature and precipitation is required for maximum marks. Explanation is not credited. 3 x 1 (✓) for each valid point.
	(a)	(ii)	**Suggest <u>one</u> way in which the climate of the Isle of Portland influences weathering.** Precipitation: totals; seasonal distribution, and Temperature: mean monthly max/min; seasonal distribution; range – all may influence type and rate of weathering processes at this location, such as: Oxidation Carbonation Solution Hydrolysis Hydration Tree roots Organic acids Freeze-thaw References to flows of energy are entirely appropriate and creditworthy.	4	**AO2 – 4 marks** 1 x 1 (✓) for a way in which climate influences weathering 3 x 1 (✓) for each valid point which shows understanding of the link between the feature of the climate suggested and weathering. An example response could include statements such as: *Precipitation occurs in all months at the Isle of Portland so carbonation is therefore possible throughout the year (✓). Rainwater combines with dissolved carbon dioxide in the atmosphere to produce weak carbonic acid (✓). This reacts with calcium carbonate in any limestone in the area producing calcium bicarbonate which is soluble (✓) and as a result will weaken the overall rock structure (✓).*

Question			Answer	Marks	Guidance
	(b)		**Explain the formation of coastal arches.** **Level 3 (6–8 marks)** Demonstrates **thorough** knowledge and understanding of how arches are formed (AO1). This will be shown by including **well-developed** ideas about the formation of arches. **Level 2 (3–5 marks)** Demonstrates **reasonable** knowledge and understanding of how arches are formed (AO1). This will be shown by including **developed** ideas about the formation of arches. **Level 1 (1–2 marks)** Demonstrates **basic** knowledge and understanding of how arches are formed (AO1). This will be shown by including **simple** ideas about the formation of arches. **0 marks** No response worthy of credit.	**8**	**AO1 – 8 marks** **Indicative content** Knowledge and understanding of the formation of coastal arches could potentially include: • wave refraction causes wave energy to focus on the sides of headlands as the orthogonal converge • faults or master joints in the headland are exploited by wave erosion • processes of marine erosion include hydraulic action and abrasion • wave attack is concentrated between high and low tide levels, where caves form • caves may enlarge / extend along the line of weakness, possibly meeting another cave which started on the other side of the headland, creating a tunnel-like, low arch • the arch may widen / increase in height as erosion / rock falls continue • rock type and structure is a factor which influences the morphology and longevity of arches A labelled and/or annotated diagram may help explanation, but there is no requirement for this.
	(c)*		**'Coastal landscape systems change only slowly over long periods of time.' Discuss.** **AO1** **Level 3 (6–8 marks)** Demonstrates **thorough** knowledge and understanding of differing rates of change in coastal landscape systems. The answer should include **accurate place-specific** detail.	**14** **AO1** **x8** **AO2** **x6**	**Indicative content** **AO1 – 8 marks** Knowledge and understanding of differing rates of change in coastal landscape systems could potentially include: • how and why landscapes change slowly in the longer term o relatively slow processes of erosion such as hydraulic action / abrasion / attrition and weathering such as solution / oxidation which operate over millennia

Question	Answer	Marks	Guidance
	Level 2 (3–5 marks) Demonstrates **reasonable** knowledge and understanding of differing rates of change in coastal landscape systems. The answer should include some **place-specific** detail which is **partially accurate**. **Level 1 (1–2 marks)** Demonstrates **basic** knowledge and understanding of differing rates of change in coastal landscape systems. There is an attempt to include **place-specific** detail but it is **inaccurate**. **0 marks** No response or no response worthy of credit. **AO2** **Level 3 (5–6 marks)** Application of knowledge and understanding is **thorough**. Analysis is clear, developed and convincing. Evaluation of the differing rates of change in coastal landscapes systems is detailed and substantiated. Judgements are secure and evidence based leading to rational conclusions. **Level 2 (3–4 marks)** Application of knowledge and understanding is **reasonable**.		o effects of relatively slow climate change on coastal landscapes during a previous time period such as features of emergent and submergent coastlines o effects of more resistant rock types on development of landforms of erosion such as headlands and bays, caves, arches and stacks e.g. in the granites of Cornwall o development of large scale depositional features such as bayhead beaches, tombolos and spits e.g. Orford Ness • how and why landscapes can change faster in the shorter term o seasonal changes such as in beach profiles o the relatively fast effects of erosion and mass movement as a result of storm events such as breaching spits or sudden cliff collapse o the more rapid changes where rocks are weakly coherent such as the crags of East Anglia o impact of human activity on sediment budgets such as dam construction or the consequences of shoreline management strategies o anthropological effects of global warming, such as ocean temperatures / acidification on coral reef ecosystems or on flooding in low lying coasts **AO2 – 6 marks** Application of knowledge and understanding to analyse and evaluate the extent to which coastal landscape systems change only slowly could potentially include: • there are examples of coastal landscape systems, within and beyond the UK, which have evolved slowly over millennia through relatively slow geomorphic processes e.g. highland coasts – which support the statement • on the other hand there are examples of landforms, and flows of

Question			Answer	Marks	Guidance
			Analysis is sound with some development that is mostly relevant. Evaluation of the differing rates of change in coastal landscape systems is sound but partial. Judgements are generalised with some use of evidence leading to appropriate conclusions. **Level 1 (1–2 marks)** Application of knowledge and understanding is **basic**. Analysis is simple with little or no development. Evaluation of the differing rates of change in coastal landscape systems is weak or absent. Judgements, if present, are unsupported leading to simple conclusions. **0 marks** No response or no response worthy of credit. **Quality of extended response** **Level 3** There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated. **Level 2** There is a line of reasoning with some structure. The information presented is mostly relevant and substantiated. **Level 1** There is little or no line of reasoning without structure. The information presented has little or no relevance and is superficial.		material and energy within coastal landscape systems which have experienced more rapid change e.g. storm effects, seasonal changes, rock falls in seconds • many coastal landscape systems have developed through the combined effects of slow overall landscape evolution and relatively fast change at local scale • rates of change in coastal landscape systems are influenced by a range of factors such as geology, climate, tides, ocean currents, and the impact of human activity on flows of energy and materials • the impact of human activity has been relatively slow historically, but the pace of change has increased significantly in recent decades as a result of technology, population growth, intended and unintended impacts of shoreline management and the effects of globalisation on trade and tourism • the relatively recent anthropogenic impact of global warming on ocean temperatures has increased rates of landscape change / coastal erosion since storms / hurricanes have increased in frequency and energy

Question			Answer	Marks	Guidance
2	(a)	(i)	**Study Fig. 2 which shows patterns of temperature and precipitation for Tulloch Bridge in the Grampian Mountains. Using evidence from Fig. 2, describe the patterns of temperature and precipitation of Tulloch Bridge.** Features of the climate include: *Temperature* - highest in summer May to September / lowest October to April (☐) - annual range moderately high (☐) - mean minimum below 0 °C, December to February (☐) *Precipitation* - substantial in every month(☐) - highest in winter October to March, all > 150 mm / lowest April to September (☐)	3	**AO3 – 3 marks** Reference to both temperature and precipitation is required for maximum marks. Explanation is not credited. 3 x 1 (☐) for each valid point
	(a)	(ii)	**Suggest <u>one</u> way in which the climate of Tulloch Bridge influences weathering.** Precipitation: totals; seasonal distribution, and Temperature: mean monthly max/min; seasonal distribution; range – all may influence type and rate of weathering processes at this location, such as: Freeze-thaw Oxidation Carbonation Solution Hydrolysis Hydration Tree roots Chelation References to flows of energy are entirely appropriate and creditworthy.	4	**AO2 – 4 marks** 1 x 1 (✓) for a way in which climate influences weathering 3 x 1 (✓) for each valid point which shows understanding of the link between the feature of the climate suggested and weathering. An example response could include statements such as: *There is sufficient precipitation in every month for water/snow to cause freeze thaw weathering (☐) Water flows into small cracks in the rock during the warmer day time (☐)When temperatures fall at night the water turns to ice and expands (☐)Eventually this leads to fracturing of rock through repeated stress (☐)Temperature ranges suggest that freeze-thaw cycles may be at their fastest rate between December and February (☐)*
	(b)		**Explain the formation of glacial troughs.**	8	**AO1 – 8 marks**

Question			Answer	Marks	Guidance
			Level 3 (6–8 marks) Demonstrates **thorough** knowledge and understanding of how troughs are formed (AO1). This will be shown by including **well-developed** ideas about the formation of troughs. **Level 2 (3–5 marks)** Demonstrates **reasonable** knowledge and understanding of how troughs are formed (AO1). This will be shown by including **developed** ideas about the formation of troughs. **Level 1 (1–2 marks)** Demonstrates **basic** knowledge and understanding of how troughs are formed (AO1). This will be shown by including **simple** ideas about the formation of troughs. **0 marks** No response or no response worthy of credit.		**Indicative content** Knowledge and understanding of the formation of glacial troughs could potentially include: • glaciers flow down pre-existing river valleys under gravity • glaciers erode sides and floor of valleys in upland areas causing valley shape to become steeper, wider and straighter • morphology of the trough (cross and long profiles) may depend on the geology • long profile of the trough is influenced by type of ice flow such as extending and compressive flow • processes of glacial erosion include plucking and abrasion • scale / rates of erosion depends on a wide range of factors such as characteristics of the basal debris being transported, ice thickness and basal water pressure • trough formation also depends on pre- and inter- glacial weathering processes especially freeze-thaw / frost shattering and pressure release • troughs may include depositional features such as various types of moraine and scree slopes A labelled and/or annotated diagram may help explanation, but there is no requirement for this.
	(c)*		**'Glaciated landscape systems change only slowly over long periods of time.' Discuss.** **AO1** **Level 3 (6–8 marks)** Demonstrates **thorough** knowledge and understanding of differing rates of change in glaciated landscape systems. The answer should include **accurate place-specific** detail. **Level 2 (3–5 marks)**	**14** **AO1 x8** **AO2 x6**	**Indicative content** **AO1 – 8 marks** Knowledge and understanding of differing rates of change in glaciated landscape systems could potentially include: • how and why landscapes change slowly in the longer term o relatively slow processes of erosion such as plucking / abrasion and weathering such as freeze-thaw / solution which operate over millennia

Question			Answer	Marks	Guidance
			Demonstrates **reasonable** knowledge and understanding of differing rates of change in glaciated landscape systems. The answer should include some **place-specific** detail which is **partially accurate**. **Level 1 (1–2 marks)** Demonstrates **basic** knowledge and understanding of differing rates of change in glaciated landscape systems. There is an attempt to include **place-specific** detail but it is **inaccurate**. **0 marks** No response or no response worthy of credit. **AO2** **Level 3 (5–6 marks)**		o effects of relatively slow climate change on processes in a glaciated landscape during a previous time period such as glacial and inter-glacial periods o effects of relatively slow climate change during a previous time period on glacio-fluvial landforms such as kames or on periglacial landforms such as patterned ground o effects of altitude and latitude on rates of development of different types of glaciated landforms of erosion and deposition such as troughs or till sheets o the influence of geology such as more resistant rock on rates of geomorphic processes o slow processes of glacial deposition of large scale features such as drumlin fields and till sheets over millennia • how and why landscapes can change faster in the shorter term o seasonal changes in glacier mass balance and the impact on meltwater discharge and rates of deposition (glacial and glacio-fluvial) o rapid events such as rock fall or avalanche in seconds o impact of human activity on flows of material and energy such dam construction trapping sediment o impact of human activity in periglacial landscapes on flows of material and energy such as increased heat produced by buildings **AO2 – 6 marks** Application of knowledge and understanding to analyse and evaluate the extent to which glaciated landscape systems change only slowly

Question			Answer	Marks	Guidance
			Application of knowledge and understanding is **thorough**. Analysis is clear, developed and convincing. Evaluation of the differing rates of change in glaciated landscapes systems is detailed and substantiated. Judgements are secure and evidence based leading to rational conclusions. **Level 2 (3–4 marks)** Application of knowledge and understanding is **reasonable**. Analysis is sound with some development that is mostly relevant. Evaluation of the differing rates of change in glaciated landscape systems is sound but partial. Judgements are generalised with some use of evidence leading to appropriate conclusions. **Level 1 (1–2 marks)** Application of knowledge and understanding is **basic**. Analysis is simple with little or no development. Evaluation of the differing rates of change in glaciated landscape systems is weak or absent. Judgements, if present, are unsupported leading to simple conclusions. **0 marks** No response or no response worthy of credit. **Quality of extended response** **Level 3** There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated. **Level 2** There is a line of reasoning with some structure. The information presented is mostly relevant and substantiated. **Level 1** There is little or no line of reasoning without structure. The		could potentially include: • there are examples of glaciated landscape systems, within and beyond the UK, which have evolved slowly over millennia through relatively slow geomorphic processes e.g. upland and lowland areas of The Lake District and Minnesota – which support the statement • on the other hand there are examples of landforms, and flows of material and energy within glaciated / glacio-fluvial / periglacial landscape systems which have experienced more rapid change e.g. sudden rock falls and seasonal changes on meltwater and solifluction • many glaciated landscape systems have developed through the combined effects of slow overall landscape evolution and relatively fast change at local scale • rates of change in glaciated landscape systems are influenced by a range of factors such as geology, climate, latitude, altitude, microclimate and the impact of human activity on flows of energy and materials • the impact of human activity has been relatively slow historically, but the pace of change has increased significantly in recent decades as a result of resource extraction, technology, growth of the tourism industry

Question			Answer	Marks	Guidance
			information presented has little or no relevance and is superficial.		
3	(a)	(i)	**Study Fig. 3 which shows patterns of temperature and precipitation for In Salah in the Sahara Desert.** **Using evidence from Fig. 3, describe the patterns of temperature and precipitation of In Salah.** Features of the climate include: *Temperature* - highest in summer May to October mean max > 34°C / lowest November to March (□) - annual range high (□) - mean monthly max / min range high (□) *Precipitation* - very low annual total (14mm) (□) - minimal but even distribution throughout the year (□) - precipitation in every month except July (□)	3	**AO3 – 3 marks** Reference to both temperature and precipitation is required for maximum marks. Explanation is not credited. 3 x 1 (□) for each valid point
	(a)	(ii)	**Suggest <u>one</u> way in which the climate of In Salah influences weathering.** Precipitation: totals; seasonal distribution, and Temperature: mean monthly max/min; seasonal distribution; range – all may influence type and rate of weathering processes at this location, such as: Insolation weathering Salt crystal growth Oxidation Solution Hydrolysis Hydration References to flows of energy are entirely appropriate and creditworthy.	4	**AO2 – 4 marks** 1 x 1 (✓) for a way in which climate influences weathering 3 x 1 (✓) for each valid point which shows understanding of the link between the feature of the climate suggested and weathering. An example response could include statements such as: *Insolation weathering is probable in the Salah's climate as there are high temperatures all year round (□) Very high daytime temperatures heat rock surfaces causing outer layers to expand (□) When temperatures fall at night the outer rock layers contract (□) Eventually this leads to fracturing of rock parallel to the surface, and exfoliation (□)The frequency of diurnal temperature changes in this area of low rainfall and clear skies for most of the year leads to rapid rates of insolation weathering (□).*

Question			Answer	Marks	Guidance
	(b)		**Explain the formation of desert pavements.** **Level 3 (6–8 marks)** Demonstrates **thorough** knowledge and understanding of how desert pavements are formed (AO1). This will be shown by including **well-developed** ideas about the formation of desert pavements. **Level 2 (3–5 marks)** Demonstrates **reasonable** knowledge and understanding of how desert pavements are formed (AO1). This will be shown by including **developed** ideas about the formation of desert pavements. **Level 1 (1–2 marks)** Demonstrates **basic** knowledge and understanding of how desert pavements are formed (AO1). This will be shown by including **simple** ideas about the formation of desert pavements. **0 marks** No response or no response worthy of credit.	**8**	**AO1 – 8 marks** **Indicative content** Knowledge and understanding of the formation of desert pavements could potentially include: • process of aeolian / wind erosion causes deflation • wind energy removes fine-grained particles such as sand, silt and clay from the surface • these fine-grained particles may be transported away from an area by creep, saltation and in suspension depending on wind speed • this selective removal leaves the coarser grained particles (which cannot be moved by wind energy) more tightly packed at the surface • over time this process creates a desert surface entirely composed of the remaining coarse rocky particles or lag deposits • the lag deposits form the rocky surface known as desert pavement or reg • the desert pavement protects underlying material from further deflation A labelled and/or annotated diagram may help explanation, but there is no requirement for this.

	(c)*		**'Dryland landscape systems change only slowly over long periods of time.' Discuss.** **AO1** **Level 3 (6–8 marks)** Demonstrates **thorough** knowledge and understanding of differing rates of change in dryland landscape systems. The answer should include **accurate place-specific** detail. **Level 2 (3–5 marks)** Demonstrates **reasonable** knowledge and understanding of differing rates of change in dryland landscape systems. The answer should include some **place-specific** detail which is **partially accurate**. **Level 1 (1–2 marks)** Demonstrates **basic** knowledge and understanding of differing rates of change in dryland landscape systems. There is an attempt to include **place-specific** detail but it is **inaccurate**. **0 marks** No response or no response worthy of credit.	**14** **AO1 x8** **AO2 x6**	**Indicative content** **AO1 – 8 marks** Knowledge and understanding of differing rates of change in dryland landscape systems could potentially include: • how and why landscapes change slowly in the longer term o relatively slow processes of wind and river erosion and parallel retreat of slopes and weathering such as salt crystal growth which operate over millennia o effects of relatively slow climate change on processes in dryland landscapes during a previous time period such as in colder periods for example periglacial landforms or in more pluvial periods for example canyon formation o effects of altitude and latitude on rates of development of different types of dryland landforms of erosion and deposition o effects of more resistant lithology and geological structure on landform development o deep chemical weathering over millions of years, when the climate was wetter, in the formation of pediments and inselbergs o slow processes of deposition of large scale features such as dune fields (sand seas or ergs) • how and why landscapes can change faster in the shorter term o seasonal changes in stream flow and the impact on wadi and canyon development o effects of rapid events such as flash floods on alluvial fans in seconds, rock falls or dust storms o impact of human activity on processes and flows of material and energy such as dam construction and trapping of sediment, or modification of rivers o impact of human activity through tourism and recreation

			AO2 **Level 3 (5–6 marks)** Application of knowledge and understanding is **thorough**. Analysis is clear, developed and convincing. Evaluation of the differing rates of change in dryland landscape systems is detailed and substantiated. Judgements are secure and evidence based leading to rational conclusions. **Level 2 (3–4 marks)** Application of knowledge and understanding is **reasonable**. Analysis is sound with some development that is mostly relevant. Evaluation of the differing rates of change in dryland landscape systems is sound but partial. Judgements are generalised with some use of evidence leading to appropriate conclusions. **Level 1 (1–2 marks)** Application of knowledge and understanding is **basic**. Analysis is simple with little or no development. Evaluation of the differing rates of change in dryland landscape systems is weak or absent. Judgements, if present, are unsupported leading to simple conclusions. **0 marks** No response or no response worthy of credit. **Quality of extended response** **Level 3** There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated. **Level 2**		on landforms within dryland systems such as sand dunes and on fragile ecosystems including cryptobiotic crusts and xerophytic plants **AO2 – 6 marks** Application of knowledge and understanding to analyse and evaluate the extent to which glaciated landscape systems change only slowly could potentially include: • there are examples of dryland landscape systems, mid- and low-latitude, which have evolved slowly over millennia as a result of relatively slow geomorphic processes e.g. the Colorado Plateau and the Namib desert. • on the other hand there are examples of landforms, and flows of material and energy within dryland landscape systems which have experienced more rapid change e.g. sudden rock falls, flash floods and seasonal changes • many dryland landscape systems have developed through the combined effects of slow overall landscape evolution and relatively fast change at local scale • rates of change in dryland landscape systems are influenced by a range of factors such as geology, climate, latitude, altitude, microclimate and the impact of human activity on flows of energy and materials • the impact of human activity has been relatively slow historically, but the pace of change has increased significantly in recent decades as a result of resource extraction, especially water, recreation and the growth of the tourism industry

			There is a line of reasoning with some structure. The information presented is mostly relevant and substantiated. **Level 1** There is little or no line of reasoning without structure. The information presented has little or no relevance and is superficial.		
4	**(a)**		**Explain <u>two</u> ways in which emotional attachment to place can influence people's behaviour and activities in a place.** Explanation of ways in which emotional attachment to place can influence people's behaviour and activities in a place could include: • attachment to a neighbourhood by its residents (✓) enhancing / sustaining environmental quality by a local community / action group such as a park, playground (DEV) or improving safety / reducing crime by neighbourhood watch (DEV). • attachment to a homeland by a nation (✓) various political policies / rallies / conflict to achieve independence (DEV) or nation-building preserving language / other cultural traits (DEV). • attachment to site of religious significance or spiritual meaning (✓) regular travel on pilgrimage / to festivals in the calendar / or places of worship /sacred sites (DEV) or building of synagogues, churches and mosques (DEV). • attachment to a place of recreation (✓) repeated trips to a location such as sports stadium / coastal site / ski resort (DEV) building hotels / services (DEV).	**4** **AO1** **x4**	**AO1 – 4 marks** 2 x 1 (✓) for each point that identifies a way in which people have emotional attachment to a place. 2 x 1 (DEV) for explanation of each way in which people's behavior and / or activities in a place can be influenced by their emotional attachment to it.

4	(b)	(i)	**Study Fig. 4a, a model of changing employment structure in a country by sector.** **Using evidence from Fig. 4a, identify one sectoral change in employment.** Sectoral changes in employment could include: • Overall decline in percentage employed in the primary sector from 70% to 10% • Rise in percentage employed in the secondary sector from the pre-industrial to industrial period • Decline in percentage employed in the secondary sector from the industrial to the post-industrial period • Overall growth in percentage employed in the tertiary sector from 10% to 55% • Emergence / growth of the quaternary sector in the post- industrial period	**1** **AO3** **x1**	**AO3 – 1 mark** 1 x 1 mark (✓) for a statement which identifies one sectoral change in employment.
4	(b)	(ii)	**With reference to Fig. 4a, suggest the role of two players involved in driving structural economic change.** Players (stakeholders) and their roles involved in driving structural economic change linked to Fig. 4a could include: • supra-national government (✓) encouraging industrialisation by providing grants for infrastructure development or creating protective trade tariffs, such as ASEAN (DEV) • national government (✓) in strategic planning in education and training encouraging tertiary sector growth such as highly skilled IT workforce in some cities of India (DEV) • local government (✓) planning local industrial estates / office parks strengthening tertiary sector such as in docklands regeneration (DEV)	**4** **AO2x4**	**AO2 – 4 marks** 2x1 (✓) for identification of players involved in driving structural economic change. 2x1 (DEV) for explaining the role of each player in driving structural economic change which can be linked to the resource.

			• large TNCs (✓) national and local impacts by decisions to open or close factories, offices, mines, possible links to changes in any of the sectors (DEV) • smaller private businesses / entrepreneurs (✓) historically involved in setting up factories in a period of industrialisation (DEV) or recent outsourcing of tertiary activity (DEV)		
4	**(c)**		**Using evidence from Figs. 4b and 4c, explain two ways in which social inequality affects people's daily lives.** **Level 3 (5-6 marks)** Demonstrates **thorough** application of knowledge and understanding to provide a clear and developed analysis that shows accuracy to explain ways in which social inequality affects people's daily lives (AO2). Demonstrates **reasonable** investigation and interpretation of the resource to fully evidence the different features of the residential areas shown. There must be sound ideas linking resource evidence to the impact on people's daily lives (AO3). **Level 2 (3-4 marks)** Demonstrates **reasonable** application of knowledge and understanding to provide sound analysis that shows some accuracy to explain ways in which social inequality affects people's daily lives (AO2). Demonstrates **basic** investigation and interpretation of the resource to evidence the different features of the areas shown. There must be limited ideas linking resource evidence to the impact on people's daily lives (AO3). **Level 1 (1-2 marks)** Demonstrates **basic** application of knowledge and	**6** **AO2 x4** **AO3 x2**	**Indicative content** **AO2 – 4 marks** Application of knowledge and understanding to analyse ways in which social inequality affects people's daily lives could potentially include: • inequality in housing type / density suggests differences in personal space, overcrowding, which affects, health, life expectancy • housing quality suggests inequalities in household income which reflects differences in educational and employment opportunities • inequality in personal mobility / road quality suggests differing access to services, places of work • difference in environmental quality can affect health and well-being **AO3 – 2 marks** Evidence from investigation and interpretation of the resources could potentially include: *Fig. 4b New York,* • detached house in low density suburb • large house, many rooms, well-kept garden and driveway; expensive property • expensive car, easy access to road network • leafy suburb

			understanding to provide simple analysis that shows limited accuracy to explain ways in which social inequality affects people's daily lives (AO2). Demonstrates **basic** investigation and interpretation of the resource to provide limited evidence of different features of the areas shown. There are limited ideas of the impact of social inequality on people's daily lives with limited or no link to resource evidence (AO3). **0 marks** No response or no response worthy of credit.		*Fig. 4c Delhi,* • informal high density slum dwellings • small shanty homes, probably one room for entire family, nearly all space occupied by shacks • no vehicles, no road, barely a footpath • open sewer, home-made attempts to prevent flooding Max 2 marks (AO3) for basic identification of information from the resources only.
4	**(d)***		**Using a case study, to what extent do shifting flows of people help to shape the profile of a place over time?** **AO1** **Level 3 (6–8 marks)** Demonstrates **thorough** knowledge and understanding of shifting flows of people and other factors that shape the profile of a place over time. The answer should include **accurate place-specific** detail. **Level 2 (3–5 marks)** Demonstrates **reasonable** knowledge and understanding of shifting flows of people and other factors that shape the profile of a place over time. The answer may include some **place-specific** detail which is **partially accurate**. **Level 1 (1–2 marks)** Demonstrates **basic** knowledge and understanding of shifting flows of people and other factors that shape the profile of a place over time. There may be an attempt to include **place-specific** detail but it is **inaccurate**.	**14** **AO1** **x8** **AO2** **x6**	**Indicative content** **AO1 – 8 marks** Knowledge and understanding of the role of different factors that help to shape the profile of a place over time, with shifting flows of people a focus. *Shifting flows of people:* • migration influences the profile of a place - in and out of an area, internal and international • commuter flows influence the profile of places in which people choose to live and work • the impact of these flows (migration and commuting) includes: demographic, such as population total, age- and ethnic- structure; socio-economic, such as labour market, impact on services; cultural, such as religion, traditions Other factors could potentially include: *Resources:* • availability of natural resources such as coal can influence the profile of a place both as it is exploited and when in decline • level and type of technology can influence the profile of a

			0 marks No response or no response worthy of credit. **AO2** **Level 3 (5–6 marks)** Application of knowledge and understanding is **thorough**. Analysis is clear, developed and convincing. Evaluation of the role shifting flows of people and other factors in shaping the profile of a place over time is detailed and substantiated. Judgements are secure and evidence based leading to rational conclusions. **Level 2 (3–4 marks)** Application of knowledge and understanding is **reasonable**. Analysis is sound with some development that is mostly relevant. Evaluation of the role of shifting flows of people and other factors in shaping the profile of a place over time is sound but partial. Judgements are generalised with some use of evidence leading to appropriate conclusions. **Level 1 (1–2 marks)** Application of knowledge and understanding is **basic**. Analysis is simple with little or no development. Evaluation of the role of shifting flows of people and other factors in shaping the profile of a place over time is weak or absent. Judgements, if		place through its impact on the local economy *Money and investment:* • investment in a place by various levels of government can influence the profile of a place such as its infrastructure, environment and service provision • investment by TNCs can influence place profile in both and beneficial and negative ways • migrant remittances can influence place profiles if used for local investment *Ideas:* • ability to participate in the knowledge economy can influence the profile of a place **AO2 – 6 marks** Application of knowledge and understanding to analyse and evaluate the relative importance of shifting flows of people and other factors in shaping the profile of a place over time could potentially include: • the impact and importance of shifting flows of people such as commuter and migration flows on the profile of a place over time. There is a wide range of possible examples that could be used to support this influence at any scale. • the relative impact and importance of other factors (resources, money and investment, and ideas) on the profile of a place • the idea that all or many factors together (economic, social, political, environmental) could have an influence on the profile of a place; places are defined by a combination of characteristics • the profile of a place can change over time as each or any of these factors changes; they may be of differing importance at various points in time

			present, are unsupported leading to simple conclusions. **0 marks** No response or no response worthy of credit. **Quality of extended response** **Level 3** There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated. **Level 2** There is a line of reasoning with some structure. The information presented is mostly relevant and substantiated. **Level 1** There is little or no line of reasoning without structure. The information presented has little or no relevance and is superficial.		

Question			Answer	Marks	Guidance
5	(a)		**Study Fig. 5a,a sketch map of Lossiemouth, a coastal town in Moray, Scotland, and Fig. 5b, place profile information about Lossiemouth.**	3	**AO3 – 3 marks** 1 x 1 mark for a valid/appropriate question. 2 x 1 (DEV) marks for justification with credit per point using evidence from the resource or practical considerations
		(i)	**Using evidence from Fig. 5a and/or Fig. 5b, suggest and justify a field research question appropriate for the Lossiemouth area.** There are a vast range of possible questions or issues that can be identified as possible in the area shown in the data set and aerial photograph. Research questions could focus on the following: • Physical – rate of coastal erosion (✓), how is the coastline managed (✓), high / low energy coastline (✓). • Human – image of place (✓), perceptions of place (✓) sphere of influence (✓).		
		(ii)	**Explain how one type of primary, quantitative data could be used to help you answer the question you suggested in (a)(i).** This should be linked to the answer given in (a)(i). Any reasonable type of data should be credited.	3	**AO3 – 3 marks** 1 x 1 mark for a valid/appropriate type of primary, quantitative data (e.g. pedestrian count, wave count, sediment size, EQI) 2 x 1 (DEV) marks for justification of how it would help answer the question suggested.

Question			Answer	Marks	Guidance
		(iii)	**Evaluate the opportunities to collect data for the research question suggested in (a)(i) through the use of geospatial technologies, such as smart phones and tablet devices.** **Level 3 (5–6 marks)** Demonstrates a **thorough** understanding of the advantages and disadvantages of geospatial technologies in order to evaluate its suitability and relevance to the research question. **Level 2 (3–4 marks)** Demonstrates a **reasonable** understanding of the advantages and disadvantages of geospatial technologies in order to evaluate its suitability and relevance to the research question. **Level 1 (1–2 marks)** Demonstrates a **basic** understanding of the advantages and disadvantages of geospatial technologies in order to evaluate its suitability and relevance to the research question. **0 marks** No response or no response worthy of credit	6	**AO3 – 6 marks** This is a question linked to the research question suggested in (a)(i) so it should demonstrate an appropriate use of geospatial technologies. • Surveys could be done on a tablet to collect the location and time of the interview (or the recorded interview) to see if there are both temporal and spatial patterns to the data, as well the more efficient management of the data collected. • Photographs taken can be geo-located using the device's GPS and using a data collection app, such as Collector from ArcGIS, allows for the auto-location of data to allow a more accurate analysis of data when returning from fieldwork • Using a smart phone may not give the most accurate GPS location; a dedicated device may be better. • Geospatial technologies are expensive so it may not be practical to use them in all situations. NB It is not enough just to describe the various features of a generic smart phone (i.e compass)
	(b)		**With reference to a fieldwork investigation you have carried out, to what extent were the practical field**	**12**	**AO3 – 12 marks**

Question			Answer	Marks	Guidance
			methodologies appropriate to the investigation of core human and/or physical processes? **Level 4 (10–12 marks)** Demonstrates a comprehensive evaluation as to the extent to which the practical field methodologies chosen were appropriate to the fieldwork investigation carried out. This will be shown by including well-developed ideas about the practical field methodologies and clear evaluation of the part that they played in driving forward the investigation. **Level 3 (7–9 marks)** Demonstrates a thorough evaluation as to the extent to which the practical field methodologies chosen were appropriate to the fieldwork investigation carried out. This will be shown: **either** by including well-developed ideas about practical field methodologies and developed evaluation of the part the practical field methodologies played in driving forward the investigation; **or** by including well-developed evaluation of the part the practical field methodologies played in driving forward the investigation and developed ideas about practical field methodologies.		An evaluation of the relative importance of the practical field methodologies used in the investigation with a clear reference to the fieldwork carried out by the candidate. This should include an explanation of the purpose of the investigation and the justification for using the practical field methodologies to drive it forward. This should enable candidates to demonstrate knowledge and understanding of how the practical field methodologies help to shape the investigation. Answers may also include explanation of the relative level of importance or otherwise such as: • What methodologies were chosen. • What, if any, methodologies were discounted in the planning stages. • How effective these methodologies were and whether they were appropriate. • The extent to which these practical field methodologies supported the core investigation into human and / or physical processes. There should also be some evaluation as to the appropriateness of the methodologies following the conducting of the fieldwork; did they allow the expected data to be collected / did they have to be adjusted in light of the investigation / was the evaluation entirely positive?

Question			Answer	Marks	Guidance
			Level 2 (4–6 marks) Demonstrates a reasonable evaluation as to the extent to which the practical field methodologies chosen were appropriate to the fieldwork investigation carried out. This will be shown: **either** by including developed ideas about practical field methodologies and simple evaluation of the part the practical field methodologies played in driving forward the investigation; **or** by including developed evaluation of the part the practical field methodologies played in driving forward the investigation and simple ideas about practical field methodologies. **Level 1 (1–3 marks)** Demonstrates a basic evaluation as to the extent to which the practical field methodologies chosen were appropriate to the fieldwork investigation carried out. This will be shown by including simple ideas about practical field methodologies and how important they were. **0 marks** No response or no response worthy of credit.		

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