Oxford Cambridge and RSA

A Level Geography

H481/01 Physical systems

Sample Question Paper

Date – Morning/Afternoon

Time allowed: 1 hour 45 minutes

You must have:
- the Resource Booklet
- the OCR 12-page Answer Booklet
  (OCR 12 sent with general stationary)

You may use:
- a ruler (cm/mm)
- a piece of string
- a calculator

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INSTRUCTIONS
- Use black ink. You may use an HB pencil for graphs and diagrams.
- Section A: Choose **one** option and answer **all** parts of the question in the option.
- Section B: Answer **all** questions.
- Write your answer to each question in the Answer Booklet.
- Additional paper may be used if required but you must clearly show your candidate number, centre number and question number(s).
- Do **not** write in the bar codes.
- The separate Resource Booklet will be found inside this document.

INFORMATION
- The total mark for this paper is **72**.
- The marks for each question are shown in brackets **[ ]**.
- Quality of extended response will be assessed in questions marked with an (*).
- This document consists of **4** pages.

Section A – Landscape Systems

Answer **all** questions from **one** option.

Option A – Coastal landscapes

1. **(a)** Study **Fig. 1**, a coastal landscape in South Wales.

(i) Using **Fig. 1**, describe the main features of the coastal landscape shown.

[4]

(ii) Using **Fig. 1**, suggest how geomorphological processes have influenced the formation of the landforms in this landscape.

[6]

(b) Explain the influence of climate change on the formation of **either** rias **or** fjords.

[8]

(c)* Using a case study, assess the significance of the changes in coastal landscape systems that have **unintentionally** been caused by human activity.

[18]

Option B – Glaciated landscapes

2. **(a)** Study **Fig. 2**, a glaciated landscape in Norway.

(i) Using **Fig. 2**, describe the main features of the glaciated landscape shown.

[4]

(ii) Using **Fig. 2**, suggest how geomorphological processes have influenced the formation of the landforms in this landscape.

[6]

(b) Explain the influence of climate change on the formation of **either** eskers **or** outwash plains.

[8]

(c)* Using a case study, assess the impact of human activity in causing change within **periglacial** landscape systems.

[18]

Option C – Dryland landscapes

3. **(a)** Study **Fig. 3**, a dryland landscape in Algeria.

(i) Using **Fig. 3**, describe the main features of the dryland landscape shown.

[4]

(ii) Using **Fig. 3**, suggest how geomorphological processes have influenced the formation of the landforms in this landscape.

[6]

(b) Explain the influence of climate change on the formation of **either** inselbergs **or** pediments.

[8]

(c)* Using a case study, assess the extent to which **economic activity** has caused change within dryland landscape systems.

[18]

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Section B – Earth's Life Support Systems

Answer **all** questions

4. **(a)** Study **Fig. 4**, climate graphs for Barrow, Alaska and Iquitos, Peru.

(i) Using evidence from **Fig. 4**, outline differences in the climates of the two locations.

[4]

(ii) Using **Fig. 4**, suggest **two** ways in which climate is likely to influence the water cycle in **Barrow**.

[6]

(b) Explain how land use changes can be a catalyst for change in the water cycle.

[8]

(c)* To what extent do human factors affect the carbon cycle in the tropical rainforest?

[18]

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Oxford Cambridge and RSA

…day June 20XX – Morning/Afternoon

A Level Geography

H481/01 Physical systems

SAMPLE MARK SCHEME

Duration: 1 hour 45 minutes

MAXIMUM MARK 72

DRAFT

This document consists of 28 pages

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MARKING INSTRUCTIONS

PREPARATION FOR MARKING

SCORIS

1. Make sure that you have accessed and completed the relevant training packages for on-screen marking: *scoris assessor Online Training*; *OCR Essential Guide to Marking*.

2. Make sure that you have read and understood the mark scheme and the question paper for this unit. These are posted on the RM Cambridge Assessment Support Portal http://www.rm.com/support/ca

3. Log-in to scoris and mark the **required number** of practice responses ("scripts") and the **required number** of standardisation responses.

   YOU MUST MARK 10 PRACTICE AND 10 STANDARDISATION RESPONSES BEFORE YOU CAN BE APPROVED TO MARK LIVE SCRIPTS.

TRADITIONAL

Before the Standardisation meeting you must mark at least 10 scripts from several centres. For this preliminary marking you should use **pencil** and follow the **mark scheme**. Bring these **marked scripts** to the meeting.

MARKING

1. Mark strictly to the mark scheme.

2. Marks awarded must relate directly to the marking criteria.

3. The schedule of dates is very important. It is essential that you meet the scoris 50% and 100% (traditional 50% Batch 1 and 100% Batch 2) deadlines. If you experience problems, you must contact your Team Leader (Supervisor) without delay.

4. If you are in any doubt about applying the mark scheme, consult your Team Leader by telephone, email or via the scoris messaging system.

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5. Work crossed out:
   a. where a candidate crosses out an answer and provides an alternative response, the crossed out response is not marked and gains no marks
   b. if a candidate crosses out an answer to a whole question and makes no second attempt, and if the inclusion of the answer does not cause a rubric infringement, the assessor should attempt to mark the crossed out answer and award marks appropriately.

6. Always check the pages (and additional objects if present) at the end of the response in case any answers have been continued there. If the candidate has continued an answer there then add a tick to confirm that the work has been seen.

7. There is a NR (No Response) option. Award NR (No Response)
   - if there is nothing written at all in the answer space
   - OR if there is a comment which does not in any way relate to the question (e.g. ‘can’t do’, ‘don’t know’)
   - OR if there is a mark (e.g. a dash, a question mark) which isn’t an attempt at the question.

   Note: Award 0 marks – for an attempt that earns no credit (including copying out the question).

8. The scoris **comments box** is used by your Team Leader to explain the marking of the practice responses. Please refer to these comments when checking your practice responses. **Do not use the comments box for any other reason.**
   If you have any questions or comments for your Team Leader, use telephone, email or the scoris messaging system.

9. Assistant Examiners will send a brief report on the performance of candidates to their Team Leader (Supervisor) via email by the end of the marking period. The report should contain notes on particular strengths displayed as well as common errors or weaknesses. Constructive criticism of the question paper/mark scheme is also appreciated.

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10. **Annotations**

Annotation	Meaning

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11. 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.

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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.

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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.

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	AO1	AO2	AO3
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.
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.	Quantitative, qualitative and/or fieldwork skills are used in a suitable way and with a good level of competence and precision.

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		detailed evaluation that offers generally secure judgements, with some link between rational conclusions and 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.
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 or no application to the context of the question in order to form a: simple analysis that shows limited accuracy	Quantitative, qualitative and/or fieldwork skills are used inappropriately with limited competence and precision.

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		simple interpretation that shows limited accuracy. Un-supported evaluation that offers simple conclusions.	

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Question			Answer	Marks	Guidance
1	a	i	Main features of the coastal landscape shown: • steep, high cliffs (✓) • alternating small headlands and bays (✓) • arch with stacks and/or stumps off the end of the headland (✓) • cave and notch also visible at base of cliff (✓) • plateau/flat cliff top area (✓)	4	4 x 1 mark (✓) for each descriptive point. More than one descriptive point may be provided for each landform. No credit for simply naming the landform without some form of observation from the resource.
		ii	**Level 2 (4–6 marks)** Demonstrates **thorough** interpretation (AO2) of how geomorphological processes influenced the formation of the landforms in the landscape in this location. There is **reasonable** evidence provided from the figure (AO3). This will be shown by including **developed** ideas about the geomorphological processes which influence the formation of the landforms in the landscape shown. **Level 1 (1–3 marks)** Demonstrates **reasonable** interpretation (AO2) of how geomorphological processes influenced the formation of the landforms in the landscape in this location. There is **basic** evidence provided from the figure (AO3). This will be shown by including **simple** ideas about the geomorphological processes which influence the formation of the landforms in the landscape shown. **0 marks** No response or no response worthy of credit.	6	**Indicative content** Possible processes and influences identified could include: • wave erosion, mass movement and weathering • waves breaking at the base of the cliff and on the sides of the headland are able to wear away by corrasion/pounding/hydraulic action • weaknesses are exploited to form caves which enlarge to form the arch • undercutting of the cliff between HTM and LTM leading to mass movement; cliff collapse and retreat • bays may be eroded into weaker geology or along lines of weakness • weathering processes, such as salt crystal growth and frost action, weaken the cliff face and arch roof • weakened rocks may then fall under gravity. Information from the figure should be explicitly used as evidence to support the explanation e.g. notch at the base of the cliff, lines of weakness on the cliff face.

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Question			Answer	Marks	Guidance
	b		**Level 3 (6–8 marks)** Demonstrates **thorough** knowledge and understanding of the formation of rias or fjords and the influence of climate change on the formation of either rias or fjords (AO1). This will be shown by including **well-developed** explanations about the formation of rias or fjords and how climate change influences the formation of either rias or fjords. **Level 2 (3–5 marks)** Demonstrates **reasonable** knowledge and understanding of the formation of rias or fjords and the influence of climate change on the formation of either rias or fjords (AO1). This will be shown by including **developed** explanations about the formation of rias or fjords and how climate change influences the formation of either rias or fjords. **Level 1 (1–2 marks)** Demonstrates **basic** knowledge and understanding of the formation of rias or fjords and the influence of climate change on the formation of either rias or fjords (AO1). This will be shown by including **simple** explanations about the formation of rias or fjords and how climate change influences the formation of either rias or fjords. **0 marks** No response or no response worthy of credit.	8	**Indicative content** Knowledge and understanding of the formation of rias and how climate change influence the formation: • rias are formed as sea level rises in a warming climate • as sea level rises, low –lying coastal environments become submerged and river valleys are drowned to form rias • they typically have gently sloping sides, variable depth and a winding plan form as a result of the action of fluvial processes before the climate changed • rejuvenation in river valleys as sea level fell during an earlier, colder period may have resulted in increased valley deepening before submergence occurred • increased water depth is likely to be associated with larger waves and greater wave energy, thereby increasing rates of erosion and further modification. Knowledge and understanding of the formation of fjords and how climate change influence the formation: • fjords are formed as sea level rises in a warming climate • as sea level rises, low –lying coastal environments become submerged and glacial valleys are drowned to form fjords • they typically have steeply sloping sides, uniform depth across their width and a relatively straight plan form • they may have a shallow threshold, due to over deepening by glacial erosion during an earlier, colder period • increased water depth is likely to be associated with larger waves and greater wave energy, thereby increasing rates of erosion and further modification.

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Question	Answer	Marks	Guidance
c*	**AO1** **Demonstrate knowledge and understanding of places, environments, concepts, processes, interactions and change at a variety of scales.** **Level 3 (8–10 marks)** Demonstrates **comprehensive** knowledge and understanding of the changes in coastal landscape systems that have unintentionally been caused by human activity. The answer must also include **place-specific** detail for the case study. Amount of relevant place-specific detail determines credit within the level. **Level 2 (4–7 marks)** Demonstrates **thorough** knowledge and understanding of the changes in coastal landscape systems that have unintentionally been caused by human activity. No place-specific detail to be credited at the **bottom** of the level. **Level 1 (1–3 marks)** Demonstrates **basic** knowledge and understanding of the changes in coastal landscape systems that have unintentionally been caused by human activity. There is **no** or **inaccurate** place-specific detail. **0 marks** No response or no response worthy of credit.	18	**Indicative content** Knowledge and understanding of changes in coastal landscape systems unintentionally caused by human activity, potentially including: • trade and port development or tourist resort development can impact the sediment cell balance • off-shore dredging to obtain gravel for the construction industry can lead to sediment imbalance off-shore • groyne installation can trap material being moved by longshore drift • credit any relevant activities and/or changes within unintentionally caused by human activity in coastal landscape systems. Analysis and evaluation, potentially including: • sediment imbalance off-shore resulting in increased erosion rates onshore, especially in times of storms and high wave energy to generate additional sediment, which can lead to a restoration of the disturbed equilibrium • groyne installation can lead to sediment starvation downdrift, with the resultant lack of beach width to absorb wave energy leading to increased rates of erosion on unprotected cliffs • consideration of the scale, significance and/or range of the changes • the argument of whether the changes are unintentional and the significance of the changes to the landscape system.

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Question			Answer	Marks	Guidance
			AO2 **Apply knowledge and understanding in different contexts to analyse, interpret and evaluate geographical information and issues.** **Level 3 (6–8 marks)** Demonstrates **comprehensive** analysis and evaluation of the significance of the changes that have been unintentionally caused by human activity in coastal landscape systems. There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated. **Level 2 (3–5 marks)** Demonstrates **thorough** analysis and evaluation of the significance of the changes that have been unintentionally caused by human activity in coastal landscape systems. There is a line of reasoning presented with some structure. The information presented is in the most-part relevant and supported by some evidence. **Level 1 (1–2 marks)** Demonstrates **basic** analysis and evaluation of the significance of the changes that have been unintentionally caused by human activity in coastal landscape systems. 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. **0 marks** No response or no response worthy of credit.		

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Question			Answer	Marks	Guidance
2	a	i	Main features of the glaciated landscape shown: • steep, sharp pyramidal peaks (✓) • long, radiating arêtes from those peaks (✓) • arêtes have narrow ridges and steep sides (✓) • deep, circular corries in the background (✓) • steep-sided, U-shaped trough (✓) • steep, rocky truncated spurs on the valley sides (✓)	4	4 x 1 mark (✓) for each descriptive point. More than one descriptive point may be provided for each landform. No credit for simply naming the landform without some form of observation from the resource.
		ii	**Level 2 (4–6 marks)** Demonstrates **thorough** interpretation (AO2) of how geomorphological processes influenced the formation of the landforms in the landscape in this location. There is **reasonable** evidence provided from the figure (AO3). This will be shown by including **developed** ideas about the geomorphological processes which influence the formation of the landforms in the landscape shown. **Level 1 (1–3 marks)** Demonstrates **reasonable** interpretation (AO2) of how geomorphological processes influenced the formation of the landforms in the landscape in this location. There is **basic** evidence provided from the figure (AO3). This will be shown by including **simple** ideas about the geomorphological processes which influence the formation of the landforms in the landscape shown. **0 marks** No response or no response worthy of credit.	6	**Indicative content** Possible processes and influences identified can include: • glacial erosion, nivation, weathering and mass movement • a valley glacier has moved through the landscape, eroding a trough by plucking and abrasion causing widening, deepening and straightening of a former V-shaped river valley • corries are formed as nivation enlarges small hollows, and then ice moves by rotational flow under-weight and gravity • erosion processes steepen the back wall and deepen the hollow • arêtes are formed as the divide between hollows was narrowed as they enlarged • mountain tops became sharpened to a peak, if 3 or more corries enlarged around them. Frost weathering contributes to this sharpening • the main valley glacier widened, deepened and straightened the pre-existing river valley to form the trough with former interlocking spurs truncated • mass movement may contribute by causing weathered debris to fall into the glacier provide abrasive material for erosion.

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Question			Answer	Marks	Guidance
					Information from the figure should be explicitly used as evidence to support the explanation e.g. corries eroding back-to-back to leave arêtes between them.
	b		**Level 3 (6–8 marks)** Demonstrates **thorough** knowledge and understanding of the formation of eskers or outwash plains and the influence of climate change on the formation of either eskers or outwash plains (AO1). This will be shown by including **well-developed** explanations about the formation of eskers or outwash plains and how climate change influences the formation of either eskers or outwash plains. **Level 2 (3–5 marks)** Demonstrates **reasonable** knowledge and understanding of the formation of eskers or outwash plains and the influence of climate change on the formation of either eskers or outwash plains (AO1). This will be shown by including **developed** explanations about the formation of eskers or outwash plains and how climate change influences the formation of either eskers or outwash plains. **Level 1 (1–2 marks)** Demonstrates **basic** knowledge and understanding of the formation of eskers or outwash plains and the influence of climate change on the formation of either eskers or outwash plains (AO1). This will be shown by including **simple** explanations about the formation of eskers or outwash plains and how climate change influences the formation of either eskers or outwash	8	**Indicative content** Knowledge and understanding of the formation of eskers and how climate change can influence the formation: • sub-glacial meltwater streams flow during a glacial period • these are highly charged with debris due to hydrostatic pressure • they dry up at the end of the melting period • the loss of volume of water causes deposition and leaves their over-filled channels as sinuous ridges of sediment across the valley floor. Knowledge and understanding of the formation of outwash plains and how climate change can influence the formation: • increasing temperature at the end of a glacial period produces large quantities of meltwater • this has enough energy to transport debris from upland areas to lowland areas • as meltwater streams lose energy due to reduced gradient and gradually lose volume as ice cover has all melted, deposition occurs • streams become braided due to deposition in the channel causing them to divide • the network of streams covers a wide area, and overbank deposition in times of high flow forms an outwash plain or sandur.

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Question			Answer	Marks	Guidance
			plains. **0 marks** No response or no response worthy of credit.		
	c*		**AO1** **Demonstrate knowledge and understanding of places, environments, concepts, processes, interactions and change at a variety of scales.** **Level 3 (8–10 marks)** Demonstrates **comprehensive** knowledge and understanding of the impacts of human activity in causing change in periglacial landscape systems. The answer must also include **place-specific** detail for the case study. Amount of relevant place-specific detail determines credit within the level. **Level 2 (4–7 marks)** Demonstrates **thorough** knowledge and understanding of the impacts of human activity in causing change in periglacial landscape systems No place-specific detail to be credited at the **bottom** of the level. **Level 1 (1–3 marks)** Demonstrates **basic** knowledge and understanding of the impacts of human activity in causing change in periglacial landscape systems There is **no** or **inaccurate** place-specific detail. **0 marks** No response or no response worthy of credit.	**18**	**Indicative content** Knowledge and understanding of the impact of human activity in causing change within periglacial landscape systems, potentially can include: • resource extraction, such as the oil industry in Alaska • the construction of buildings and infrastructure can lead to heat generation and increased energy flow through the periglacial system • the permafrost itself can be thawed, leading to the development of thermokarst, including thaw lakes and alases • the removal of surface vegetation may also contribute to these changes • as permafrost thaws stored methane and CO2 are released into the atmosphere store. Analysis and evaluation, potentially can include: • heat generation and increased energy flow may thaw the surface, meaning the active layer is more mobile for longer in the year, and may also increase rates of frost heave and ground subsidence • consideration of the scale, significance and/or range of the changes • the assessment of the impact of human activity in causing change as opposed to physical impacts in the landscape system.

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Question			Answer	Marks	Guidance
			AO2 **Apply knowledge and understanding in different contexts to analyse, interpret and evaluate geographical information and issues.** **Level 3 (6–8 marks)** Demonstrates **comprehensive** analysis and evaluation of the impacts of human activity in causing change within periglacial landscape systems. There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated. **Level 2 (3–5 marks)** Demonstrates **thorough** analysis and evaluation of the impacts of human activity in causing change within periglacial landscape systems There is a line of reasoning presented with some structure. The information presented is in the most-part relevant and supported by some evidence. **Level 1 (1–2 marks)** Demonstrates **basic** analysis and evaluation of the impacts of human activity in causing change within periglacial landscape systems 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. **0 marks** No response or no response worthy of credit.		

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Question			Answer	Marks	Guidance
3	a	i	Main features of the dryland landscape shown: • open, flat landscape (✓) • low, isolated rock outcrops in the background (✓) • accumulations of sand over most of the surface (✓) • pedestal or mushroom rock in foreground with narrow base and wider top (✓)	4	4 x 1 mark (✓) for each descriptive point. More than one descriptive point may be provided for each landform. No credit for simply naming the landform without some form of observation from the resource
		ii	**Level 2 (4–6 marks)** Demonstrates **thorough** interpretation (AO2) of how geomorphological processes influenced the formation of the landforms in the landscape in this location. There is **reasonable** evidence provided from the figure (AO3). This will be shown by including **developed** ideas about the geomorphological processes which influence the formation of the landforms in the landscape shown. **Level 1 (1–3 marks)** Demonstrates **reasonable** interpretation (AO2) of how geomorphological processes influenced the formation of the landforms in the landscape in this location. There is **basic** evidence provided from the figure (AO3). This will be shown by including **simple** ideas about the geomorphological processes which influence the formation of the landforms in the landscape shown. **0 marks** No response or no response worthy of credit.	6	**Indicative content** Possible processes and influences identified could include: • aeolian erosion and deposition, weathering and mass movement • aeolian deposition occurs as the wind loses energy forming the widespread sand accumulations • aeolian deflation may have picked up sand and used it in the abrasion of the base of the pedestal rocks, below the height at which saltating grains are carried • differences in rock resistance may also be relevant, with weaker rock at the base being eroded more rapidly than more resistant rock above • weathering may lead to evaporation of water and case-hardening to form a duricrust of minerals on the top of the pedestal making it even more resistant to erosion • insolation weathering may cause flaking or fragmentation of the rock, with debris falling under gravity to the surface. Information from the figure should be explicitly used as evidence to support the explanation e.g. the narrowness of the pedestal base.

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Question			Answer	Marks	Guidance
	b		**Level 3 (6–8 marks)** Demonstrates **thorough** knowledge and understanding of the formation of inselbergs or pediments and the influence of climate change on the formation of either inselbergs or pediments (AO1). This will be shown by including **well-developed** explanations about the formation of inselbergs or pediments and how climate change influences the formation of either inselbergs or pediments. **Level 2 (3–5 marks)** Demonstrates **reasonable** knowledge and understanding of the formation of inselbergs or pediments and the influence of climate change on the formation of either inselbergs or pediments (AO1). This will be shown by including **developed** explanations about the formation of inselbergs or pediments and how climate change influences the formation of either inselbergs or pediments. **Level 1 (1–2 marks)** Demonstrates **basic** knowledge and understanding of the formation of inselbergs or pediments and the influence of climate change on the formation of either inselbergs or pediments (AO1). This will be shown by including **simple** explanations about the formation of inselbergs or pediments and how climate change influences the formation of either inselbergs or pediments. **0 marks** No response or no response worthy of credit.	8	**Indicative content** Knowledge and understanding of the formation of inselbergs and how climate change can influence the formation: • Inselbergs are rounded, isolated hills • their formation is much debated, but it is thought that they are relic features from wetter climatic periods during which deep chemical weathering occurred on crystalline rocks below the surface • they are subsequently exposed as fluvial processes removed surface material • they may also be remnants of degraded mesas and buttes. Knowledge and understanding of the formation of pediments and how climate change can influence the formation: • pediments are gently sloping surfaces or rock and debris found at the base of mountain ranges • their formation is much debated but they are most likely to have been formed in wetter climatic periods when rivers laterally eroded the base of mountain slopes creating a wide rock surface • high rates of weathering on the slopes also contribute to slope retreat, enlarging the pediment • debris accumulates at the base of the slope but is removed by fluvial processes • as the climate dries, rivers are lost from the landscape and more recently weathered debris is then able to accumulate as an apron at the base of the slope.

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Question	Answer	Marks	Guidance
c*	**AO1** **Demonstrate knowledge and understanding of places, environments, concepts, processes, interactions and change at a variety of scales.** **Level 3 (8–10 marks)** Demonstrates **comprehensive** knowledge and understanding of the change caused by economic activity in dryland landscape systems. The answer must also include **place-specific** detail for the case study. Amount of relevant place-specific detail determines credit within the level. **Level 2 (4–7 marks)** Demonstrates **thorough** knowledge and understanding of the change caused by economic activity in dryland landscape systems. No place-specific detail to be credited at the **bottom** of the level. **Level 1 (1–3 marks)** Demonstrates **basic** knowledge and understanding of the change caused by economic activity in dryland landscape systems. There is **no** or **inaccurate** place-specific detail. **0 marks** No response or no response worthy of credit. **AO2** **Apply knowledge and understanding in different contexts to analyse, interpret and evaluate geographical**	18	**Indicative content** Knowledge and understanding of change caused by economic activity within dryland landscape systems, potentially can include: • damage is caused to brittle, fragile cryptobiotic crusts and the sparse vegetation • exposed surfaces are subjected to higher erosion rates as there is no protection against aeolian erosion or flash floods causing fluvial erosion • this leads to an increase in loose material in the system • eroded sediment may then be blown to marginal areas where it accumulates as loess. Analysis and evaluation of the extent to which economic activity caused change within dryland landscape systems, potentially can include: • consideration of the scale, significance and/or range of the changes • the extent of the changes within the dryland landscape system being due to the economic activities • whether the changes are intentional or not and the significance of the changes to the landscape system.

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Question			Answer	Marks	Guidance
			information and issues. **Level 3 (6–8 marks)** Demonstrates **comprehensive** analysis and evaluation of the extent to which economic activity has caused change within dryland landscape systems. There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated. **Level 2 (3–5 marks)** Demonstrates **thorough** analysis and evaluation of the extent to which economic activity has caused change within dryland landscape systems. There is a line of reasoning presented with some structure. The information presented is in the most-part relevant and supported by some evidence. **Level 1 (1–2 marks)** Demonstrates **basic** analysis and evaluation of the extent to which economic activity has caused change within dryland landscape systems. 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. **0 marks** No response or no response worthy of credit.		

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Question			Answer	Marks	Guidance
4	a	i	Differences in climates of the two locations can include: • Temperatures in Barrow are sub-zero for most of the year, with a minimum of -27°C in Jan and a maximum of 5°C in July, whereas in Iquitos temperatures are much higher at around 27°C (✓) • Temperatures in Iquitos are less variable, with a range of only about 2°C, compared to Barrow with a range of 32°C (✓) • Rainfall in Iquitos it is much higher overall, totalling about 2800mm compared to 100mm in Barrow (✓) • There is little variation in Barrow with a maximum of 25mm in August and a minimum of 5mm in April, whereas Iquitos has a contrasting seasonal pattern, being lower in August (about 170mm) and higher in March (about 320mm) (✓)	4	4 x 1 mark (✓) for valid comparative point More than one point may be provided for each comparison No credit for simply naming the difference without some form of evidence from the climate graphs
		ii	**Level 2 (4–6 marks)** Demonstrates **thorough** interpretation (AO2) to suggest ways in which climate is to influence the water cycle in Barrow. There is **reasonable** evidence provided from the figure (AO3). This will be shown by including **developed** ideas about ways in which climate is likely to influence the water cycle and may develop one way more than the other. **Level 1 (1–3 marks)** Demonstrates **reasonable** interpretation (AO2) to suggest ways in which climate is to influence the water cycle in Barrow. There is **basic** evidence provided from the figure (AO3). This will be shown by including **simple** ideas about ways in which climate is likely to influence the water cycle. **0 marks** No response or no response worthy of credit.	6	**Indicative content** Influences of climate on the water cycle in Barrow can include: • the storage of frozen water on the surface during the winter • the release of water by thawing in the spring and evapotranspiration during the higher temperatures of the summer • precipitation totals are low throughout the year resulting in low levels of flow overall in the cycle. Information from the figure 4 should be explicitly used as evidence to support the explanation such as which months are summer, with the highest temperatures.

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Question			Answer	Marks	Guidance
	b		**Level 3 (6–8 marks)** Demonstrates **thorough** knowledge and understanding of how land use changes can be a catalyst for change in the water cycle (AO1). This will be shown by including **well-developed** explanations about how land use changes can be a catalyst for change in the water cycle. **Level 2 (3–5 marks)** Demonstrates **reasonable** knowledge and understanding of how land use changes can be a catalyst for change in the water cycle (AO1). This will be shown by including **developed** explanations about how land use changes can be a catalyst for change in the water cycle. **Level 1 (1–2 marks)** Demonstrates **basic** knowledge and understanding of how land use changes can be a catalyst for change in the water cycle (AO1). This will be shown by including **simple** explanations about how land use changes can be a catalyst for change in the water cycle. **0 marks** No response or no response worthy of credit.	8	**Indicative content** Knowledge and understanding of ways that land use changes can be a catalyst for change in the water cycle, potentially can include: • growth in urban areas, forestry and farming practices will stimulate changes to both stores and flows • an increasing area of impermeable concrete and tarmac surfaces which increase surface run-off into nearby channels. • evaporation from warm urban surfaces may still be significant • Storm drains will also transfer water quickly from the urban surfaces to a nearby river • forestry will affect interception, uptake and transpiration, depending upon whether trees are being planted or chopped down. For example, planting will increase interception storage and rates of uptake or the reduction in vegetation will mean less transpiration • farming may affect interception, uptake and transpiration in various ways depending upon whether crop planting, harvesting or deforestation are taking place. For example, if ploughing takes place, then infiltration rates will be increased • other relevant land use changes or impacts.
	c*		**AO1** **Demonstrate knowledge and understanding of places, environments, concepts, processes, interactions and change at a variety of scales.** **Level 3 (8–10 marks)**	18	**Indicative content** Knowledge and understanding of human factors affecting the carbon cycle in the tropical rainforest, potentially including: • deforestation and / or afforestation • farming techniques

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Question			Answer	Marks	Guidance
			Demonstrates **comprehensive** knowledge and understanding of how human factors affect the carbon cycle in the tropical rainforest. **Level 2 (4–7 marks)** Demonstrates **thorough** knowledge and understanding of how human factors affect the carbon cycle in the tropical rainforest. **Level 1 (1–3 marks)** Demonstrates **basic** knowledge and understanding of how human factors affect the carbon cycle in the tropical rainforest. **0 marks** No response or no response worthy of credit. **AO2** **Apply knowledge and understanding in different contexts to analyse, interpret and evaluate geographical information and issues.** **Level 3 (6–8 marks)** Demonstrates **comprehensive** analysis and evaluation of the extent to which human factors affects the carbon cycle in the tropical rainforest. There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated. **Level 2 (3–5 marks)** Demonstrates **thorough** analysis and evaluation of the extent to which human factors affects the carbon cycle in the tropical rainforest.		• tourism • resource extraction • mineral extraction • other relevant activities and/or effects. Analysis and evaluation, potentially can include: • removal of vegetation eliminates plants which would otherwise be capturing and storing carbon from the atmosphere through photosynthesis • as dense forests are replaced by crops/pasture land/built environments, there is usually a net decrease in the carbon store, as smaller plants and concrete store far less carbon than large trees • deforestation encourages more soil to be eroded, and carbon stored in the soil is rapidly taken into rivers via surface runoff or throughflow • whether human factors affect the carbon cycle in a significant manner compared to physical factors. Consideration of the scale, significance, direction and/or range of the impacts.

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Question			Answer	Marks	Guidance
			There is a line of reasoning presented with some structure. The information presented is in the most-part relevant and supported by some evidence. **Level 1 (1–2 marks)** Demonstrates **basic** analysis and evaluation of the extent to which human factors affects the carbon cycle in the tropical rainforest. 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. **0 marks** No response or no response worthy of credit.		

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Assessment Objectives (AO) grid

Candidates answer either question 1, 2 or 3. This has been considered in the totals indicated below.

Question	AO1	AO2	AO3	Marks
1(a)(i)			4	4
1(a)(ii)		4	2	6
1(b)	8			8
1(c*)	10	8		18
2(a)(i)			4	4
2(a)(ii)		4	2	6
2(b)	8			8
2(c*)	10	8		18
3(a)(i)			4	4
3(a)(ii)		4	2	6
3(b)	8			8
3(c*)	10	8		18
4(a)(i)			4	4
4(a)(ii)		4	2	6
4(b)	8			8
4(c*)	10	8		18
Total	36	24	12	72

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