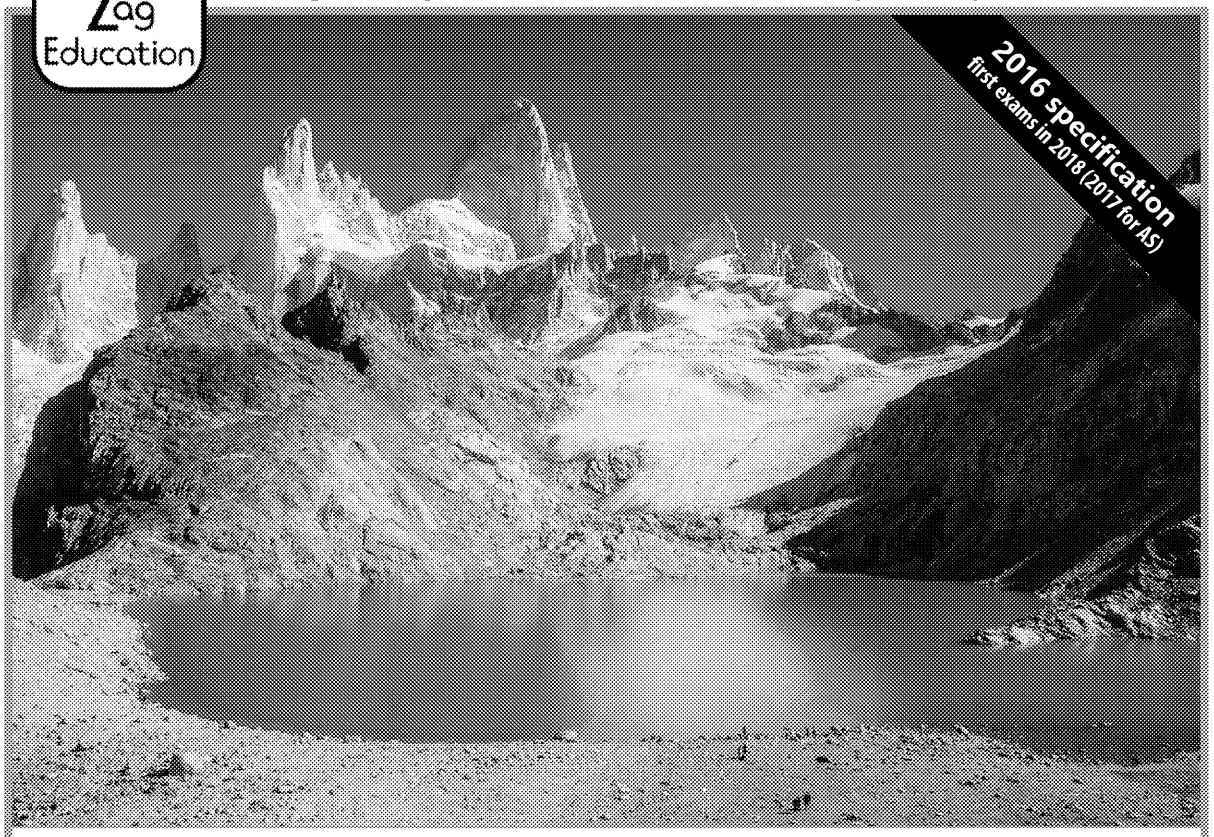
Zig Zag Education

Geography AS / A Level | OCR | H081/H481



Topic Tests

for AS and A Level OCR Geography

1.1B Glaciated Landscapes

zigzageducation.co.uk

POD 7302

Contents

Teacher's Introduction

This resource has five tests on Topic 1.1.2 Option B – Glaciated Landscapes for the A Level OCR Geography specification. Every key aspect of the specification is covered in this resource.

These topic tests are designed to test the students' knowledge and enable the teacher to diagnose the students' strengths and weaknesses in certain areas. Each test covers a range of question types, and there is a wide variety of stimulus material. These tests are not intended to mimic exam papers; section 1 answers do not necessarily match OCR's standard command word mark allocation.

The resource is designed to be co-teachable with both AS and A Level students.

Mark schemes for each topic test can be found at the back of this resource. For 'closed' questions, where only one answer is acceptable, a model answer has been provided. For 'open' and extended questions, indicative content has been included.

When to Use This Resource

This resource can be used at the end of a particular topic area, or at the end of the whole unit in order to enable consolidation of knowledge. The students can also use the tests towards the end of the course, to assess knowledge either before or after revision. There is scope to provide your students with one test every two weeks if teaching the A Level course over two years.

How to Use This Resource

The tests can be completed individually in class, or set as homework tasks. The tests can be quickly marked by the student or the teacher, at home or in the classroom, as answers are provided.

These structured tests provide an opportunity to mark and score students in order to monitor progress. The tests are provided in a non-write-on format.

The Benefits to the Student

Students can be confident they have been tested on every key aspect of the specification. After completing a test, they will know which areas they are strong in, and which require further work, and can set their own goals for future learning. The answer sections also provide students with an indication of what a good answer entails.

Differentiation

In order to support lower ability students while pushing the more able, each test has been written in two sections.

- The first section has approximately 40 marks and has been written to test knowledge of the core elements of the specification.
    - These questions are for all students and the difficulty or complexity of questions generally increases throughout the test.
- The second section has approximately 8–12 further marks of extension questions for higher ability students.
- The final test draws from themes from the whole topic. This test would be ideal as an end-of-topic activity, and to identify gaps in the students' knowledge.

October 2017

Test 1 – Glacial Systems

1. Define the term 'system'.

2. Explain how a glacier can be thought of as a system.

3. Give an example of an input, store and an output of a glacial system.

4. What is meant by the mass balance of a glacier?

5. When can a glacier be thought of as in equilibrium?

6. Explain how the mass balance of a glacier affects its size.

7. Study the image below of the Jakobshavn Glacier in Greenland.

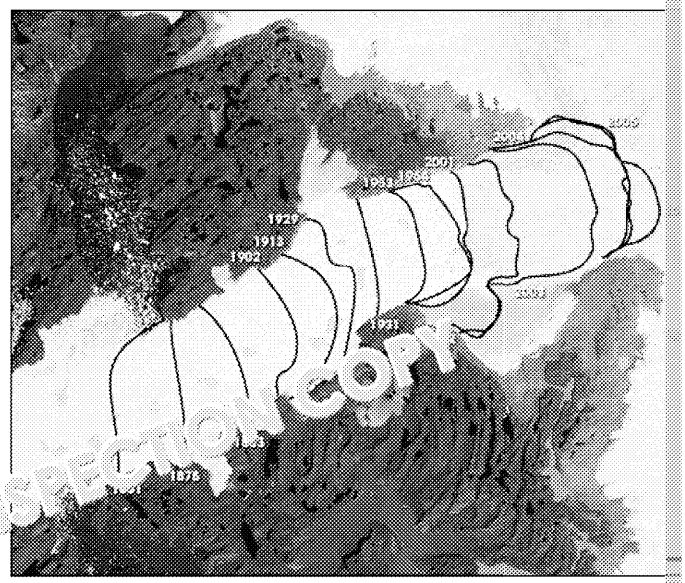


Figure 1 Jakobshavn Glacier over time

Suggest what has happened to the mass balance of this glacier over time.

8. a. Name three factors that can influence glacial systems.

   b. Explain how **one** of these factors influences glacial systems.

9. Explain how glacial ice forms.

10. Differentiate between valley glaciers and ice sheets.

11. Compare warm-based glaciers with cold-based glaciers.

12. Explain the different ways in which ice moves in a glacial system.

Extension Questions

13. Explain why understanding the systems approach is important when studying

Test 2 – Glacial Landforms

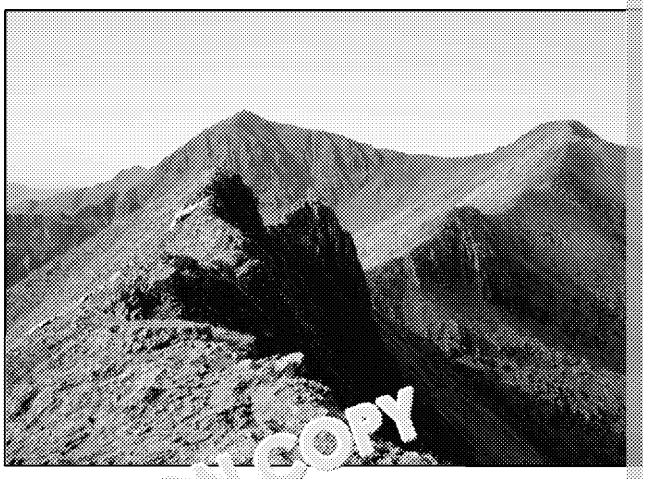
1. Explain how freeze-thaw weathering occurs.

2. Describe the following glacial erosional processes:
   - Abrasion
   - Plucking

3. State the different ways in which [illegible] can be transported by a glacier.

4. Differentiate between [illegible]dgement till and ablation till.

5. State two erosional landforms that can be seen in the image below.



6. Explain the processes behind the formation of erosional landforms in a glacia

7. a. Describe the following types of moraine:
   - [illegible]ral
   - Medial
   - Terminal
   - Recessional

   b. Explain how lateral moraine is formed.

8. Describe the characteristics of a drumlin.

9. Explain how the landforms of a valley glacier you have studied have been sh factors.

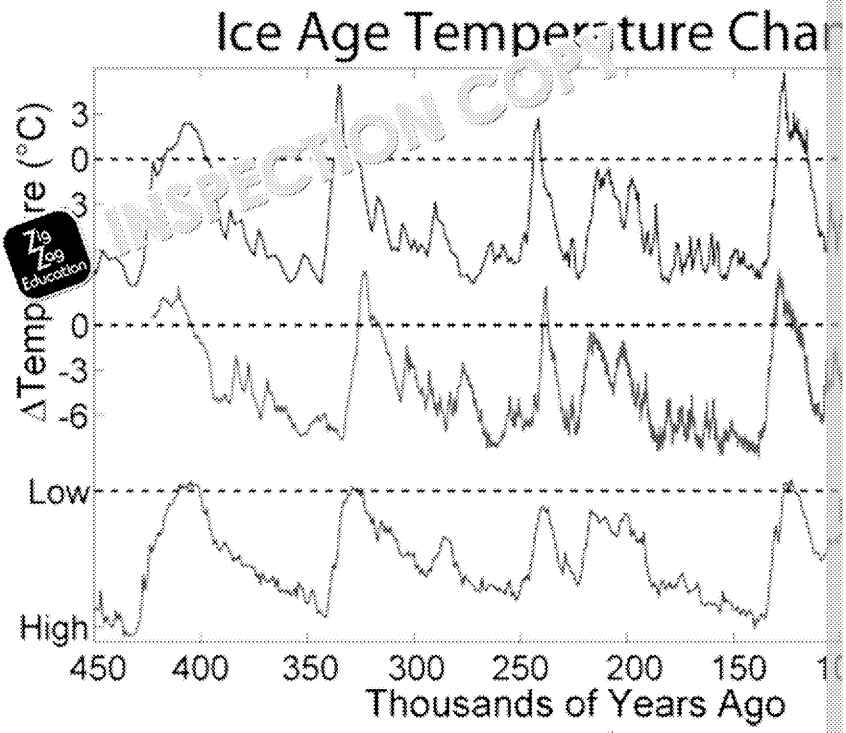
10. Explain the ways in which the ice sheet landscape th[illegible]u have studied cha scales.

Extension Questions

11. Examin[illegible] importance of glacial erosion in the formation of glaciated lanc

Test 3 – Glacial Landforms and Clim

1. Study the graph below which shows the temperature changes over the last 4 the changes in ice volume.



   a. Describe the patterns you can see in the graph

   b. Explain how the temperature change during the post-glacial periods will geomorphic processes working on the landscape.

2. Compare and contrast till with outwash.

3. Explain what an 'esker' is and how it is formed.

4. Describe the characteristics of periglacial landscapes.

5. Explain how the climate of periglacial landscapes affects which geomorphic p

6. Explain how the periglacial process of frost heave occurs.

7. Study the image below.

a. What periglacial landforms can you see in this picture?

b. Explain how these landforms form.

8. Suggest how changes in climate will affect fluvioglacial and periglacial landfo

Extension Questions

9. Explain how chang[illegible] have created fluvioglacial and periglacial lan

Test 4 – Human Activity in Glacia
Periglacial Landscapes

1. a. Give an example of a human activity taking place in a periglacial landsca
studied.

   b. Suggest reasons this activity is taki[illegible]

   c. Explain the impa[illegible] activity on the periglacial system.

   d. Ex[illegible]e effect the activity is having on periglacial landforms.

   e. Explain the effect the activity is having on the periglacial landscape as a

2. a. Give an example of a human activity taking place in a glaciated landsca

   b. Suggest reasons this activity is taking place.

   c. Explain the impacts of this activity on the glacial system.

   d. Explain the effect the activity is having on glacial landforms.

   e. Explain the effect the activity is having on the glaciated landscape as a

Extension Questions

3. 'Human [illegible]viti[illegible] [illegible]periglacial landscapes more than glaciated landscape
How fa[illegible]u agree with this statement?

Test 5 – Overview

1. Outline how a glacier can be thought of as a system with inputs, stores, flows

2. Explain how geology can influence the glacial system.

3. Explain how the process of nivation works.

4. Describe the characteristics of depositional landforms in glacial landscapes.

5. Explain what a [illegible]s and how it is formed.

6. Explain how changes in climate can alter landforms over time.

7. a. Give an example of a human activity taking place in a glaciated landscape landscape.

   b. Explain how these activities can affect the landscape systems.

AS Level Question

8. Assess the extent to which glaciated landscapes are a product of geomorphic

A Level Question

9. 'Climate change will have the most effect in shaping the characteristics of gl future.'

   To what extent do you agree with this statement?

Answers
Test 1 – Glacial Systems

1. 2 marks
A model of a part of the natural world [1] consisting of stores, and flows betwee

Also allow marks for description of systems, such as ch... s, attributes, etc.

2. 5 marks
- Glaciers can be seen to h... stores, transfers and outputs. [1]
- Inputs consist of ... direct and from avalanches), solar and geotherm
- The ... is the store. [1]
- E... deposition, ice movement and transportation transfer the materia
- Th... puts then come in the form of meltwater, debris, icebergs and wate

3. 3 marks
Examples:
Inputs = snowfall (direct and from rock falls, etc.), solar and geothermal energy
Store = ice in the glacier [1]
Outputs = meltwater, debris, icebergs, water vapour [1]

4. 1 mark
The mass balance is the difference between the inputs (accumulation) and the o

5. 1 mark
When accumulation is equal to ablation [1]

6. 2 marks
- If the mass balance is negative it means that it is r... ing as ablation is g
- If the mass balance is positive then the glac... a... ncing, and accumulatio

7. 3 marks
The glacier appears to h... ing net negative balance [1] as over time the
There appears to ... en a continued period where the rate of ablation was g
accum... [1]

8. a. 3 marks
- Climate
- Latitude
- Altitude
- Geology
- Relief
- Any other va

b. 4 marks
Example using climate:
- Climate determines the temperature of the glacier system. [1]
- A warmer climate (above 0 °C) will melt glacial ice more easily where
melt the ice. [1]
- The amount of precipitation also changes a glacial system; with more
accumulation. [1]
- Wind can affect weathering and geomorphologi... processes. [1]
- Seasonal variation in climate and precipit... an also influence the pr
[1]

9. 4 marks
- Snow accumul... glacier, the low temperatures keep the snow froz
- M... ow ... the glacier and as it does so it compresses the layer of s
- Th... sure from the top layer of snow turns the bottom layer into ice. [1
- The process continues over hundreds of years to form the glacial ice. [1]

10. 2 marks
Ice sheets are much larger and thicker expanses of ice covering whole regions o
Valley glaciers follow old river valleys and may be extensions of ice sheets of co

11. 4 marks
Four of the following example points:
- Warm-based glaciers are found in more temperate climates where the sum
above freezing and there are high rates of snowfall. [1]
- This means that there is plenty of meltwater that causes the ice to be more
occur. [1]
- This faster rate of movement in the warm-based glaciers leads to more ero
deposition of material. [1]
- Cold-based glaciers occur in very cold clir ate w re there is little snowfa
- This means that there is little me a the ice is frozen to the bedroc
- Cold-based glaciers, there e, ery slowly over time usually through the
- Any other valid

12. 6 mark
Examp s:
- Glacial ice moves due to the force of gravity. [1]
- The build-up of pressure pulls the ice crystals downhill making the glacier
obstacle in the way. This is known as internal deformation. [1]
- Depending on the gradient of the valley, compressional and extensional flo
- Compressional flow occurs when the gradient of the valley is shallower an
valley has a steeper gradient. [1]
- Basal sliding occurs as the ice on the bedrock melts due to pressure, lubric
allowing it to move. [1]
- Creep occurs when the ice encounters an obstacle and distorts under the p
the obstacle. [1]

Extension Questions

13. 8 marks
Example points:
- The systems approach is an i rt model for understanding how the n
- Understanding glacie systems helps with seeing glaciated landscapes a
- Understandi ps, outputs, stores and flows helps to establish the
- It lp understand how glaciers change over time and why they m
- A standing of the mass balance of glaciers helps with understanding
- This can also help with understanding the health of glaciers as well as the facto
- However, processes must also be considered as highly important in unders
- Weathering, erosion, transportation and deposition help us to understand
therefore, the characteristics of glacial landscapes. [1]

Test 2 – Glacial Landforms

1. 4 marks
- Water (from precipitation or meltwater) finds its way into small cracks in th
glaciers. [1]
- This water then freezes and expands, causing the cr in the rock to wide
- This process repeats in cycles of melting a eez g. [1]
- As it does so the crack widens and c a the rock. [1]

2. 2 marks
- Abrasion occ n cks get caught up in the glacier and rub against th
sc g causing them to break apart. [1]
- Pl ccurs as rocks become frozen to the valley floor and sides; as the
pul away from the bedrock and valley. [1]

3. 3 marks
Subglacial (underneath the glacier) [1]
Englacial (within the glacier) [1]
Supraglacial (on top of the glacier) [1]

4. 2 marks
Lodgement till is the debris held beneath an advancing glacier that becomes lod
weight of the ice and left behind. [1]
Ablation till is the debris left behind after a glacier melts, produced at the snout

5. 2 marks
Any two erosional landforms:
- Arêtes [1]
- Pyramidal peak [1]
- Also accept corrie [1]

6. 8 marks
Example points:
- Corrie ori[illegible]ough the process of nivation which erodes the ground
- Th[illegible]w is then enlarged by the weight of the ice on top of it. [1]
- Plucking erodes the back wall and abrasion erodes the floor, both of which
- Two corries back to back create a steep ridge between them known as an a
- As the glacier flows down the valley, the weight and pressure of the ice car
u-shaped valley or glacial trough. [1]
- As the glacier erodes the valley it erodes the old interlocking spurs to form
- Hanging valleys are also created. [1]
- Rôche moutonnées are protruding sections of rock on the valley floor that a
the surrounding rock. [1]
- The rock gets smoothed down by erosion on the upstream side but made ja
through plucking and abrasion. [1]
- Any other valid point(s).

7. a. 4 marks
Lateral moraine is glacial debris found on the edge of the valley floor. [1]
Medial moraine is glacial debris found in the middle of the glacier. [1]
Terminal moraine is glacial debris found at the sn[illegible] the glacier. [1]
Recessional moraine is glacial debris found [illegible] the terminal moraine. [1

b. 3 marks
Lateral moraine is forme[illegible] from the valley sides is exposed to we
then breaks off a[illegible] lands on the edge of the glacier [1]. The glac
deposited [illegible] ier melts. [1]

8. 2 mark[illegible]
Drumlins are egg-shaped depositional features [1]. The upstream end is steep a
downstream end is streamlined and smooth. [1]

9. 6 marks
Answers will relate to the specific case study that the student has studied and sh
relating to that case study.

Answers may relate to, but are not restricted to, the following points:
- The climate of the area could have influenced the type of landforms that fo
glaciers have more erosional and depositional landforms than cold-based g
- Amount of precipitation affects geomorphic processes and weathering whi
- The geology, different rock types as well as levels of resistances create a va
- The number of glacial and interglacial periods.

10. 4 marks
Answers will relate to the specific case study that the student has studied and sh
relating to that case study.

Answers may relate to, but are [illegible]ted to, the following points:
- Over long period[illegible]acial and interglacial activity shapes and resha
- Over these [illegible]ods of time, erosion, transport and deposition of materi
- A[illegible]ange timescale, seasonality can affect the rate of geomorphi
th[illegible]cape.
- Some changes can happen instantly such as rock falls and landslides.

11. 10 marks
Example points:
- Erosion is key in forming the glaciated landscapes we know today. [1]
- It helps to shape certain landforms, such as corries, arêtes and glacial troug
- These features are part of what makes glaciated landscapes unique and inte
- However, there are also many other processes at work that create these la
- Depositional processes form many interesting and significant landforms, su moraines [1]. This is also true of fluvial processes. [1]
- Weathering is also an important process that helps to form glaciated lands weathering helps the processes of erosion to occur. [1]
- The climate affecting glaciated landscapes also has an effect on the effectivene
- For example, temperate glaciers experience more erosion and deposition th climates are potentially more important than glacial erosion in the formation
- Lithology also plays a key role in the formation of glaciated landscapes as s the nature of the rock's resistance to erosion. [1]
- A variation in lithology and a warmer climate creates a very different glaci landscape with little lithology variation. [1]

Test 3 – Glacial Landforms and Climat

1. a. 3 marks
- Fluctuations between cold periods and warmer periods (glacial and in
- Within each fluctuation there are further fluctuations. [1]
- During the colder periods more volumes of ice, during the warmer pe

b. 3 marks
- Move from glacial erosion, transport and deposition to fluvioglac presence of meltwater. [1]
- The meltwater creates fluvial processes which result in differen landscape and the depositional landforms. [1]
- It, therefore, helps to create new landforms unique to periods of degla

2. 4 mark
Exampl s:
- Outwash is smoother than till due to the fluvial processes acting on the ma
- Outwash is finer than till. [1]
- Outwash is deposited in order of size, with the larger sediment being depo with little sign of sorting. [1]
- Till is not stratified whereas outwash tends to be stratified, showing the di built up over time. [1]

3. 6 marks
- Eskers are lengthy, winding ridges of glacial sediment [1] that run in the di
- Usually they are several kilometres long and can reach heights of 20 to 30
- Eskers are made from the gravel, silt and other sediments from a subglacia
- Subglacial streams flow through the glacier and are able to carry a large lo hydrostatic pressure. [1]
- This load builds the bed of the river higher than the surrounding land so w created. [1]

4. 2 marks
- Cold environments that lie on the edge of glacial areas and contain areas o
- Experience seasonal variation with the summer temperatures reaching ab freeze-thaw cycles. [1]

5. 2 mark
Periglacial landscapes' main processes are freeze-thaw weathering and frost he
Both of these processes rely on there being varying temperatures so that the me freezing and thawing. [1]

6. 4 marks
   - Frost heave occurs due to the cycles of water freezing and melting in the gr
   - The ice crystals in the soil expand as they freeze. [1]
   - This causes the soil and rocks to be pushed upwards and outwards. [1]
   - This then helps to form landforms such as patterned ground. [1]

7. a. 2 marks
   - Ice wedge polygons
   - A pingo

   b. 8 marks
   Ice wedge polygons:
   - During the winte[illegible]e so[illegible]ontracts and forms cracks. [1]
   - In the spri[illegible]e[illegible]ese cracks widen and fill with meltwater which co[illegible] cr[illegible]er. [1]
   - [illegible] year this freeze-thaw process continues, widening the cracks ye[illegible]ards and forms ridges. [1]
   - This creates a polygon pattern on the ground. [1]

   Pingos:
   - Can form as closed-system or open-system. [1]
   - Start formation either underneath a lake bed or where there is thin pe[illegible] frozen. [1]
   - Water gets trapped in the unfrozen ground and then freezes. [1]
   - This causes it to expand. This expansion and the hydrostatic pressure [illegible] shape on the land. [1]

8. 6 marks
   - Repeat cycles of advancing and retreating glaciers can alter these landform[illegible]
   - During a longer interglacial period, increased meltwaters create even more[illegible]
   - Increased temperatures also mean areas of periglacial landforms will begi[illegible] periglacial. [1]
   - Cycles of freezing and thawing may stop which, in [illegible] will change the lan[illegible] [1]
   - As temperatures increase even mor[illegible]e l[illegible]orms may move away from r[illegible] periglacial landforms [1] an[illegible]n[illegible]a, become inhabited by vegetation (ex[illegible]
   - Any other valid po[illegible]

Extension Questions

9. 8 marks
   Example points:
   - Fluvioglacial and periglacial landforms only exist because of changes in the [illegible]
   - Fluvioglacial landforms are formed from the meltwater of glaciers which ca[illegible] to melt, during post-glaciation. [1]
   - As the glaciers retreat, the meltwater deposits outwash creating various la[illegible] plains and eskers. [1]
   - Periglacial landforms exist on the edge of glacial areas and have, therefore, [illegible] climate has changed during the glacial and interglacial periods. [1]
   - Periglacial landforms rely on cycles of freezing and thawing to form and, th[illegible] climate reaches above 0°C at certain times of the ye[illegible]1]
   - These cycles of freezing and thawing create th[illegible]ch[illegible]e landforms of ping[illegible]
   - Both fossil fluvioglacial and periglaci[illegible]ar[illegible]fo[illegible]s can be found in areas tha[illegible] edge of a glaciated area. [1]
   - As the climate contin[illegible]o ch[illegible]ge these landforms will begin to form in di[illegible] others. [1]

1. a. 1 mark
Answers will be specific to the case study the student has studied, e.g. reso

b. 3 marks
Answers will be specific to the case study the student has studied.
Answers may relate to some of the following poin
- Resources are depleted elsewhere.
- Periglacial landscapes are ri esources.
- Rising demand for s ces.

Or any other s gestion.

c. 6
An will be specific to the case study the student has studied.
Answers may relate to some of the following points:
- It may affect the processes in the system, e.g. the rate of weathering a affected.
- It may also impact the flow of material through the system, e.g. alter t through the system which, in turn, could affect the geomorphic proces
- It may also affect the amount of energy going into the system, e.g. it co due to release of gases or the development of industry or residential a

Or any other suitable suggestion.

d. 4 marks
Answers will be specific to the case study the student has studied.
Answers may relate to some of the following points:
- Change in the geomorphic processes could cause changes to landform
- Change in energy (e.g. increased temperature) could lead to the perm the formation of different landforms.

Or any other suitable suggestion.

e. 6 marks
Answers will be specific t h study the student has studied.
Answers may re of the following points:
- c on of the changes in processes, flows and landforms wi
- mation of thermokarst and alases due to the thawing of the ice.
- nges in temperature, removal of vegetation and debris may have si

Or any other suitable suggestion.

2. a. 1 mark
Answers will be specific to the case study the student has studied, e.g. dam

b. 3 marks
Answers will be specific to the case study the student has studied.
Answers may relate to some of the following points:
- Good water store.
- Glacial environments provide plenty of freshwater.
- Used to produce electricity which is in high demand.

Or any other suitable suggestion

c. 6 marks
Answers will be specific to the case study the student has studied.
Answers may relate to some of the following points:
- It may affect the cess s in the system, e.g. by changing the natural
- It may al he flow of material through the system, e.g. alter t ough the system which, in turn, could affect the geomorphic proces ment deposition.
- It may also affect the amount of energy going into the system.

Or any other suitable suggestion.

d. 4 marks
Answers will be specific to the case study the student has studied.
Answers may relate to some of the following points:
- Change in the geomorphic processes could cause changes to landform
- May be more depositional features as the discharge of the water is altere
- Due to the build-up of sediment in the dam, the outlet channels are of more erosional power to change the landforms.

Or any other suitable suggestion.

e. 6 marks
Answers will be specific to the case study the student has studied.
Answers may relate to some of the following points:
- Changes to the shape of the landscape.
- ca[illegible] pollution downstream.
- decrease in discharge in the outlet rivers can lead to the rivers dr
- risk of flooding has increased.

Or any other suitable suggestion.

Extension Questions

3. 12 marks
Students should refer to the two case studies that they have studied on human a and glaciated landscapes.
They should discuss the different ways periglacial and glaciated landscapes are af
They should assess and give their opinion on the statement.

Answers may relate to, but are not restricted to, the following points:
- Impact on periglacial landscapes is significant because they are fragile enviro
- Human activity can influence the characteristics of the landscape through c periglacial system.
- Permafrost could thaw which, in turn, could e[illegible]e landscape and poten
- Impact on glaciated landscapes is sig[illegible]ca[illegible]t because they are also fragile a changes can affect the landsc[illegible]
- The discharge and be[illegible]d o[illegible]e outlet rivers may be affected which, in tu landforms and [illegible]v[illegible]onment.
- Bi[illegible]ds [illegible]ay be affected by pollution.
- Co[illegible]n will depend on the case studies studied and the human activity

Test 5 – Overview

1. 4 marks
- A glacier has inputs of snowfall and avalanches as well as solar energy. [1]
- The store is the ice in the glacier. [1]
- The flow is through ice movement, such as internal deformation and basal s
- The outputs are in meltwater, debris, icebergs and water vapour. [1]

2. 4 marks
- The composition of the rock determines which landfo[illegible]ns may or may not
- For example, more resistant rocks will form m[illegible]ro[illegible]uding landforms. [1
- The structure of the rock will also affe[illegible]t[illegible]e fo[illegible]ation of landforms and th
- For example, some rocks may b[illegible]m[illegible]permeable or break apart more eas
- Any other point(s).

3. 4 marks
- N[illegible]s a combination of processes that occur under the snow. [1]
- Fr[illegible]aw and chemical weathering erode the ground. [1]
- If the snow patch is on a slope then the processes of solifluction, where the weathered parts of rock moves downhill, may also occur. [1]
- Nivation helps create hollows where corrie glaciers often form. [1]
- Any other valid point(s).

4. 6 marks
Example points:
- Drumlins are egg-shaped domes [1]. The upstream end is steep and rough
streamlined and smooth. [1]
- Erratics are large rocks and boulders that are of completely different origi
- Moraines are the build-up of rock debris that has been deposited by the gla
e.g. recessional, terminal, lateral or medial. [1]
- Till plains are broad areas of flat land that contain deposits of silt, sand

5. 6 marks
Example points:
- A kame is a fluvioglacial depositional landform [1] with the appearance of
- It is composed of sediment that has been deposited in a depression [1] tha
- It is found in the space between glaciers and the valley sides. [1]
- When the glacier retreats it leaves behind a mound material of varying size

6. 6 marks
Example points:
- Certain landforms only exist due to changes in climate, e.g. fluvioglacial lan
form. [1]
- Periglacial landforms need some seasonal variation in temperature in orde
- As the temperatures have changed repeatedly in cycles over millions of yea
development of certain glacial and periglacial landforms. [1]
- In this current interglacial period, the temperature is warming which is ch
landforms. [1]
- For example, periglacial landscapes are thawing in some areas which mean
e.g. pingo collapse. [1]
- Where areas were once glaciated, evidence can be found in the landscape a
modified over time by weathering and other geomorphic processes as well
- Any other valid point(s).

7. a. 2 marks
Answers may relate to the specific case study the student has studied.
Examples:
- Bacton extraction
- coastal construction

b. 8 marks
Answers will be specific to the case study the student has studied.
Answers may relate to some of the following points:
- It may affect the processes in the system, e.g. the rate of weathering a
affected or by changing the natural system of water flow.
- It may also impact the flow of material through the system, e.g. alter t
through the system which, in turn, could affect the geomorphic proce
sediment deposition.
- It may also affect the amount of energy going into the system, e.g. it co
due to release or gases of the development of industry or residential a

Or any other suitable suggestion.

AS Level Question

8. 14 marks
Students must understand the range of processes that shape these landscapes, i
Students must demonstrate a balanced view for and against the statement.
Students must make a judgement of their own opinion on the statement.

Answers may relate to, but are not restricted to, the follow i g points:

- Geomorphological processes play an importar in orming glaciated la
  - Weathering, frost action and niva ion
  - Erosion forms certain la ll orn ch as corries, arêtes and hanging v
  - Deposition also f s o landforms such as drumlins, erratics and
  - The move t. o ce also carves out the land through internal def
    em ow and basal sliding.
- O cesses and factors at play:
  - vioglacial processes such as meltwater erosion, transportation and shaping the landscape.
  - Climate also plays a key role.
  - Climate affects where glaciated landscapes are able to form and past c has changed many times over millions of years.
  - Climate can also have a direct impact on geomorphological processes
  - For example, warm-based glaciers that are found in more temperate c erode and transport and deposit material than cold-based glaciers.

  Or any other valid point(s).

A Level Question

10. 16 marks
Students must demonstrate a balanced view for a nst the importance of c landscapes and consider which other fact al glaciated landscapes.
Students must make a judgeme t w important climate change will be i the future.

Answer re but are not restricted to, the following points:

- E climate change on shaping glaciated landscapes:
  - mate has always been changing and this has always had an impact o landscapes.
  - This means that the characteristics of glaciated landscapes have been the landscapes have changed from fluvial to glacial and back to fluvial
  - The current impact of climate change has been accelerated by human
  - Temperature is rising, ice is melting and sea levels are rising at a much f
  - This is consequently changing the shape and characteristics of glaciat
  - However, glaciated landscapes are dynamic landscapes and are, there despite climate change.
  - Processes such as weathering, erosion and deposition are constantly landscapes.

- Future effects of climate change:
  - If climate change continues at the rate that it cur ntly is then it may l characteristics of glaciated landscapes.
  - As the ice melts a positive feedback c cle y begin that will drastica from equilibrium, so it wil s mass and, therefore, its ecosystem
  - This could drastica ch ge the landforms and biodiversity that you

- Other facto a fluence glaciated landscapes:
  - ma tivities such as dam construction, industrialisation or resou
  - e also have significant impacts on the landscape.
  - Can change the system by altering the processes, flows of material an
  - Can also cause pollution in some cases.

Or any other valid point(s).