



# Cambridge International AS & A Level

---

## GEOGRAPHY

9696/11

Paper 1 Core Physical Geography

May/June 2023

1 hour 30 minutes

You must answer on the enclosed answer booklet.

You will need: Answer booklet (enclosed)  
Insert (enclosed)

---

## INSTRUCTIONS

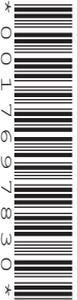
- Answer **four** questions in total:
  - Section A: answer **all** questions.
  - Section B: answer **one** question.
- Follow the instructions on the front cover of the answer booklet. If you need additional answer paper, ask the invigilator for a continuation booklet.
- Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

## INFORMATION

- The total mark for this paper is 60.
- The number of marks for each question or part question is shown in brackets [ ].
- The insert contains all the resources referred to in the questions.

---

This document has **4** pages. Any blank pages are indicated.



**Section A**

Answer **all** questions in this section. All questions are worth 10 marks.

**Hydrology and fluvial geomorphology**

- 1 Fig. 1.1 shows the velocity of flow that erodes, transports and deposits sediment in a river channel.
- (a) (i) Name the diagram shown in Fig. 1.1. [1]
- (ii) State the size of sediment at the lowest erosion velocity shown in Fig. 1.1. [1]
- (b) Use Fig. 1.1 to explain why the minimum velocity needed for sediment erosion varies. [4]
- (c) Explain **two** reasons for the variation of deposition along a river channel. [4]

**Atmosphere and weather**

- 2 Fig. 2.1 is a photograph which shows the state of water on two different surfaces on a winter day, in England, UK.
- (a) Describe the state of water on the **two** different surfaces shown in Fig. 2.1. [2]
- (b) Suggest reasons for the difference in the state of water on the **two** different surfaces shown in Fig. 2.1. [4]
- (c) Explain why there can be a difference between the state of water during the daytime and night-time. [4]

**Rocks and weathering**

- 3 Fig. 3.1 is a map of Lochnagar, South Island, New Zealand.
- (a) (i) Give an estimate for the area of the landslide shown in Fig. 3.1. [1]
- (ii) State the direction of movement of the landslide shown in Fig. 3.1. [1]
- (b) Use evidence from Fig. 3.1 to suggest reasons for slope instability in this area. [4]
- (c) Explain how a mass movement can affect the slope of an area. [4]

**Section B**

Answer **one** question from this section. All questions are worth 30 marks.

**Hydrology and fluvial geomorphology**

- 4 (a) (i) Briefly explain why precipitation may not always reach a river channel. [3]
- (ii) Outline **two** factors which influence the formation of a braided channel. [4]
- (b) Describe and explain how soft engineering and hard engineering can be used to prevent river floods. [8]
- (c) 'Urbanisation always results in an increase in channel flow.'  
With the aid of examples, how far do you agree? [15]

**Atmosphere and weather**

- 5 (a) (i) Define the atmospheric terms *latent heat transfer* and *dew*. [4]
- (ii) Describe how the orographic uplift of air may result in precipitation. [3]
- (b) Describe and explain the formation of an urban heat island. [8]
- (c) With the aid of examples, assess the extent to which ocean currents are the main energy transfer within the global energy budget. [15]

**Rocks and weathering**

- 6 (a) (i) Define the terms *rainsplash* and *rills*. [4]
- (ii) Briefly explain how afforestation can reduce mass movement on a slope. [3]
- (b) Explain how the type and rate of weathering is influenced by precipitation. [8]
- (c) With the aid of examples, assess the extent to which subduction is involved in the formation of tectonic landforms. [15]

**BLANK PAGE**

---

The boundaries and names shown, the designations used and the presentation of material on any maps contained in this question paper/insert do not imply official endorsement or acceptance by Cambridge Assessment International Education concerning the legal status of any country, territory, or area or any of its authorities, or of the delimitation of its frontiers or boundaries.

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced online in the Cambridge Assessment International Education Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at [www.cambridgeinternational.org](http://www.cambridgeinternational.org) after the live examination series.

Cambridge Assessment International Education is part of Cambridge Assessment. Cambridge Assessment is the brand name of the University of Cambridge Local Examinations Syndicate (UCLES), which is a department of the University of Cambridge.