



# **Cambridge International AS & A Level**

---

**GEOGRAPHY**

**9696/13**

Paper 1 Core Physical Geography

**October/November 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 is a photograph which shows waterfalls in Iceland.

(a) Name the feature labelled A in Fig. 1.1. [1]

(b) Describe the landscape features shown in Fig. 1.1. [4]

(c) Explain how waterfalls are formed. [5]

**Atmosphere and weather**

2 Fig. 2.1 shows incoming (shortwave) solar radiation. Fig. 2.2 shows outgoing longwave radiation.

(a) State the total amount of outgoing longwave radiation shown in Fig. 2.2. Show your working. [2]

(b) Compare the size of the components of the incoming (shortwave) solar radiation shown in Fig. 2.1. [4]

(c) Explain how atmospheric conditions and surface conditions affect the components shown in Fig. 2.1. [4]

**Rocks and weathering**

3 Fig. 3.1 shows the global distribution of plate boundaries and subduction zones.

(a) Name the type of plate boundary labelled Z. [1]

(b) Describe the global distribution of subduction zones shown in Fig. 3.1. [4]

(c) Explain how volcanic island arcs are formed. [5]

## Section B

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

### Hydrology and fluvial geomorphology

4 (a) (i) Describe the process of base flow in the drainage basin system. [3]

(ii) Briefly explain how the porosity and permeability of soils affect infiltration. [4]

(b) Describe and explain the factors that affect the shape of an annual hydrograph. [8]

(c) 'River floods cannot be prevented but their impacts can be reduced.'

With the aid of one or more examples, how far do you agree with this statement? [15]

### Atmosphere and weather

5 (a) (i) Define the atmospheric terms *sublimation* and *clouds*. [4]

(ii) Briefly explain latent heat transfer. [3]

(b) Explain how latitude affects the seasonal variation in global wind belts. [8]

(c) With the aid of examples, how far do you agree with the view that precipitation is mainly caused by uplift of air? [15]

### Rocks and weathering

6 (a) (i) Define the mass movement terms *heaves* and *falls*. [4]

(ii) Briefly explain how rocks can be weathered by freeze–thaw action. [3]

(b) Explain how human activity may increase the stability of slopes. [8]

(c) 'Rock type and rock structure are the most important factors in affecting the type of weathering.'

With the aid of examples, how far do you agree with this statement? [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.