



Cambridge International AS & A Level

GEOGRAPHY

9696/13

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 Hjulström curve.
- (a) (i) Name the type of sediment which is eroded at a velocity of 20 cm/s shown in Fig. 1.1. [1]
- (ii) State the maximum velocity for gravel to be deposited shown in Fig. 1.1. [1]
- (b) Describe the variations in velocity of flow for transport and deposition shown in Fig. 1.1. [4]
- (c) Using Fig. 1.1, explain the relationship between velocity of flow and the erosion of different types of sediment. [4]

Atmosphere and weather

- 2 Fig. 2.1 shows average annual precipitation for Lima and the surrounding area, Peru.
- (a) State the average annual precipitation shown at A on Fig. 2.1. [1]
- (b) Describe the pattern of rainfall shown in Fig. 2.1. [4]
- (c) Suggest reasons for the pattern of rainfall such as that shown in Fig. 2.1. [5]

Rocks and weathering

- 3 Fig. 3.1 is a photograph which shows a mass movement.
- (a) Name the type of mass movement shown in Fig. 3.1. [1]
- (b) Draw a sketch of the mass movement shown in Fig. 3.1. Label the main features. [4]
- (c) Explain the causes of the type of mass movement such as that shown in Fig. 3.1. [5]

Section B

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

Hydrology and fluvial geomorphology

- 4 (a) (i) Describe the main features of a meander. [3]
- (ii) Explain **two** factors which influence the level of a water table. [4]
- (b) Describe and explain the formation of deltas. [8]
- (c) With the aid of examples, assess the extent to which different land-use changes affect channel flows. [15]

Atmosphere and weather

- 5 (a) (i) Define the atmospheric terms *evaporation* and *sublimation*. [4]
- (ii) Briefly explain the formation of hail. [3]
- (b) Describe and explain the enhanced greenhouse effect. [8]
- (c) 'Wind belts are the main influence on the global atmospheric transfer of energy.'
With the aid of examples, how far do you agree? [15]

Rocks and weathering

- 6 (a) (i) Describe the processes of sediment movement on a slope. [3]
- (ii) Explain how modifying a slope with pinning and netting could reduce mass movement. [4]
- (b) Explain how the type and rate of weathering is influenced by temperature. [8]
- (c) With the aid of examples, assess the extent to which the type of plate boundary determines the plate tectonic landforms present. [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 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.