



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]

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