Cambridge Assessment International Education

Cambridge International AS & A Level

GEOGRAPHY **9696/11**

Paper 1 Core Physical Geography **May/June 2023**

1 hour 30 minutes

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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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