



Cambridge International AS & A Level

GEOGRAPHY

9696/13

Paper 1 Core Physical Geography

October/November 2022

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 Table 1.1 shows the precipitation routes for three land uses.
- (a) Calculate the percentage of precipitation that has entered the ground in the forested area. [1]
 - (b) Compare the precipitation routes for the three land uses shown in Table 1.1. [4]
 - (c) Suggest how the storm hydrograph for a drainage basin in a forested area would differ from that in an urban area. [5]

Atmosphere and weather

- 2 Fig. 2.1 shows a model of daytime and night-time surface temperatures across an urban area.
- (a) With reference to Fig. 2.1, state the land use with the smallest difference between the daytime and night-time surface temperatures. [1]
 - (b) Compare the daytime and night-time surface temperatures across the urban area shown in Fig. 2.1. [4]
 - (c) Suggest reasons for the pattern of daytime and night-time surface temperatures shown in Fig. 2.1. [5]

Rocks and weathering

- 3 Fig. 3.1 is a photograph which shows mass movements on a coastal cliff in Dorset, UK.
- (a) Name the mass movement feature labelled X in Fig. 3.1. [1]
 - (b) Describe the main features of the mass movements shown in Fig. 3.1. [4]
 - (c) Explain the conditions under which mass movements such as those shown in Fig. 3.1 occur. [5]

Section B

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

Hydrology and fluvial geomorphology

- 4 (a) (i) Define the fluvial terms *cavitation* and *solution*. [4]
- (ii) Briefly explain the process of saltation within a river channel. [3]
- (b) Describe and explain how the landforms of a braided river channel differ from those of a meandering river channel. [8]
- (c) 'Soft engineering is more effective than hard engineering in the prevention of river floods.'
With the aid of examples, how far do you agree? [15]

Atmosphere and weather

- 5 (a) (i) Define the atmospheric terms *snow* and *sensible heat transfer*. [4]
- (ii) Describe the enhanced greenhouse effect. [3]
- (b) Describe and explain how the energy budget is different between daytime and night-time. [8]
- (c) 'Land and sea distribution has the greatest effect on seasonal variations in global pressure systems.'
With the aid of examples, to what extent do you agree? [15]

Rocks and weathering

- 6 (a) (i) Outline the main differences between continental tectonic plates and oceanic tectonic plates. [3]
- (ii) Explain the mass movement process of heave. [4]
- (b) Explain how human activity may decrease the stability of slopes. [8]
- (c) With the aid of examples, assess the extent to which subduction is the most significant process in the formation of landforms associated with the movement of tectonic plates. [15]

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