



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]

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