



Cambridge International AS & A Level

GEOGRAPHY

9696/12

Paper 1 Core Physical Geography

May/June 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.

2

Section A

Answer **all** questions in this section. All questions are worth 10 marks.

Hydrology and fluvial geomorphology

- 1 Fig. 1.1 and Fig. 1.2 show the annual hydrographs for two rivers.
- (a) (i) State the highest value of 5-year average discharge for River Fitzroy shown in Fig. 1.1. [1]
- (ii) Calculate the range of 5-year average discharge for River Tym shown in Fig. 1.2. Show your working. [2]
- (b) Compare the trends of average monthly discharge shown in Fig. 1.1 and Fig. 1.2. [3]
- (c) Suggest **two** reasons for the differences in the annual hydrographs shown in Fig. 1.1 and Fig. 1.2. [4]

Atmosphere and weather

- 2 Fig. 2.1 shows the Earth's global energy budget.
- (a) Calculate the difference between incoming (shortwave) solar radiation and outgoing longwave radiation at the Equator. Show your working. [2]
- (b) Describe the pattern of outgoing longwave radiation shown in Fig. 2.1. [3]
- (c) With reference to Fig. 2.1, explain why there is excess energy at lower latitudes. [5]

Rocks and weathering

- 3 Fig. 3.1 is a photograph which shows a weathered rock.
- (a) Name the main type of physical weathering shown in Fig. 3.1. [1]
- (b) Draw a labelled diagram(s) to explain how the rock shown in Fig. 3.1 was weathered. [4]
- (c) Explain why climate is important in determining the rate of weathering. [5]

3

Section B

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

Hydrology and fluvial geomorphology

- 4 (a) (i) Define the hydrological terms *stemflow* and *throughflow*. [4]
- (ii) Briefly explain how underground water may form springs. [3]
- (b) Describe and explain how a meander forms. [8]
- (c) With the aid of examples, discuss the view that sediment size is the most important influence on deposition in a river. [15]

Atmosphere and weather

- 5 (a) (i) Define the atmospheric terms *convection* and *wind belts*. [4]
- (ii) Briefly describe how solar radiation may be reflected. [3]
- (b) Explain how human activity can affect the temperature of an urban area. [8]
- (c) With the aid of examples, assess the extent to which human activity is the main cause of global warming. [15]

Rocks and weathering

- 6 (a) (i) Define the tectonic terms *ocean trench* and *sea floor spreading*. [4]
- (ii) Briefly describe the processes occurring at a conservative plate boundary. [3]
- (b) Explain why slope processes occur at different rates. [8]
- (c) 'Mass movements can never be effectively reduced.'
- With the aid of one or more examples, how far do you agree? [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.