Cambridge Assessment International Education

Cambridge International AS & A Level

GEOGRAPHY **9696/13**

Paper 1 Core Physical Geography **May/June 2022**

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.

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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]

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]

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