



# **Cambridge International AS & A Level**

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**GEOGRAPHY**

**9696/31**

Paper 3 Advanced Physical Geography Options

**May/June 2024**

**1 hour 30 minutes**



You must answer on the enclosed answer booklet.

You will need: Answer booklet (enclosed)  
Insert (enclosed)

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**INSTRUCTIONS**

- Answer **four** questions in total:  
Answer questions from **two** options.  
For **each** option, follow the instructions inside on which questions to answer.
- 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.
- You should make reference to appropriate examples studied in the field or the classroom, even where such examples are not specifically requested by the question.

**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.

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This document has **4** pages. Any blank pages are indicated.

Answer questions from **two** different options.

### Tropical environments

If answering this option, answer Question 1 and **either** Question 2 **or** Question 3.

- 1 Fig. 1.1 shows a pyramid of biomass for a seasonally humid tropical (savanna) ecosystem.
  - (a) Describe the pattern of biomass stores shown in Fig. 1.1. [3]
  - (b) Explain the pattern you described in (a). [7]
- 2 Assess the relative importance of the processes involved in the formation of different tropical karst landforms. [20]
- 3 'The most important factor influencing tropical climates is atmospheric pressure.'  
How far do you agree with this view? [20]

### Coastal environments

If answering this option, answer Question 4 and **either** Question 5 **or** Question 6.

- 4 Fig. 4.1 shows erosion rates along a section of a barrier island near Lagos, Nigeria, 2001–13.
  - (a) Describe the pattern of erosion rates shown in Fig. 4.1. [3]
  - (b) Suggest **two** reasons for the pattern you described in (a). [7]
- 5 Assess the relative importance of the factors influencing the formation of coastal saltmarshes **and** mangroves. [20]
- 6 'The characteristics and formation of fringing reefs, barrier reefs, and atolls are very different.'  
How far do you agree with this view? [20]

## Hazardous environments

If answering this option, answer Question 7 and **either** Question 8 **or** Question 9.

7 Fig. 7.1 shows pyroclastic flows from Soufrière Hills volcano, Montserrat, on 8 January 2010.

(a) Describe the pattern of pyroclastic flows shown in Fig. 7.1. [4]

(b) Explain how pyroclastic flows are formed. [6]

8 Assess the extent to which impacts of hazards resulting from atmospheric disturbances vary. [20]

9 Using a case study, evaluate the problems of sustainable management of a hazardous environment. [20]

## Hot arid and semi-arid environments

If answering this option, answer Question 10 and **either** Question 11 **or** Question 12.

10 Fig. 10.1 is a photograph which shows a hot arid landscape in Namibia.

(a) With the aid of a labelled diagram, describe the main physical features of landform A shown in Fig. 10.1. [4]

(b) Explain the formation of landform A shown in Fig. 10.1. [6]

11 Using a case study, evaluate the solutions to the problems of sustainable management in **either** a hot arid **or** semi-arid environment. [20]

12 Assess the extent to which aridity is caused by the rain shadow effect. [20]

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