



Cambridge International AS & A Level

GEOGRAPHY

9696/31

Paper 3 Advanced Physical Geography Options

May/June 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:
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.

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 is a photograph which shows a tropical landscape in southern Africa.
- (a) Describe the main features of the landscape shown in Fig. 1.1. [4]
- (b) Suggest how the landform labelled **A** in Fig. 1.1 has formed. [6]
- 2 Assess the view that rock type is the most important factor influencing soil types in tropical environments. [20]
- 3 'The differences between the climatic characteristics of humid tropical and seasonally humid tropical environments are mainly the result of latitude.'
- 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 mean erosion and mean deposition rates along a stretch of coastline on Hatteras Island, North Carolina, USA, 1989–2002.
- (a) Describe the pattern of mean erosion and mean deposition rates shown in Fig. 4.1. [4]
- (b) Explain why the rates of erosion and deposition vary along a stretch of coastline. [6]
- 5 Assess the influence of sub-aerial processes in the formation of coastal landforms. [20]
- 6 Evaluate the view that sea level rise is the greatest threat to coral reefs. [20]

Hazardous environments

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

- 7 Fig. 7.1 shows a liquefaction hazard map for the island province of Bohol, The Philippines.
- (a) Describe the pattern of liquefaction risk shown in Fig. 7.1. [4]
- (b) Explain the factors which influence the hazard of soil liquefaction. [6]
- 8 'Monitoring is the most effective method of managing mass movement hazards.'
- How far do you agree with this view? [20]
- 9 To what extent are high winds the most significant hazard of small-scale atmospheric disturbances (tornadoes)? [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 shows a cross-section of a mountain front and an alluvial fan in a semi-arid environment in the Anza-Borrego Desert, California, USA.
- (a) Describe the cross-section shown in Fig. 10.1. [3]
- (b) Suggest how alluvial fans such as that shown in Fig. 10.1 are formed. [7]
- 11 To what extent is aridity caused by ocean currents? [20]
- 12 Assess the extent to which chemical weathering is the most important weathering process in the formation of landforms of hot arid and semi-arid environments. [20]

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