



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
General Certificate of Education Advanced Subsidiary Level and Advanced Level

**GEOGRAPHY**

**9696/22**

Paper 2 Advanced Physical Options

**May/June 2013**

**1 hour 30 minutes**

Additional Materials: Answer Booklet/Paper



**READ THESE INSTRUCTIONS FIRST**

If you have been given an Answer Booklet, follow the instructions on the front cover of the Booklet.

Write your Centre number, candidate number and name on all the work you hand in.

Write in dark blue or black pen.

You may use a soft pencil for any diagrams, graphs or rough working.

Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **two** questions only. Each question answered **must** be from a different topic.

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.

All the Figures and the Photographs referred to in the questions are contained in the Insert.

At the end of the examination, fasten all your work securely together.

The number of marks is given in brackets [ ] at the end of each question or part question.

This document consists of **3** printed pages, **1** blank page and **1** Insert.



### Tropical environments

Only **one** question to be answered from this topic.

- 1 (a) Explain the nature of energy flows and trophic levels for **one** tropical ecosystem. You may answer by means of fully annotated diagrams. [10]
- (b) Outline the problems of sustainable management for **one** tropical ecosystem. Evaluate a scheme, or schemes, to sustainably manage a tropical ecosystem. [15]
- 2 (a) Fig. 1 gives climate data for A, a humid tropical area and B, a seasonally humid tropical area. Describe and explain the nature of the two tropical climates shown in Fig. 1. [10]
- (b) Assess the factors and processes that lead to deep weathering under humid tropical conditions. Explain how granite landforms may develop over time. [15]

### Coastal environments

Only **one** question to be answered from this topic.

- 3 (a) Describe the conditions which provide the best environment for the growth of coral and explain how coral may be threatened by changes to those conditions. [10]
- (b) With reference to a stretch, or stretches of coast, describe some of the problems of sustainable management and evaluate the effectiveness of attempted solutions. [15]
- 4 (a) Fig. 2 shows an area of tidal sedimentation and coastal salt marsh. Explain how sedimentation and salt marshes develop in tidal estuaries along a depositional coast such as in Fig. 2. [10]
- (b) Using examples, explain how marine erosion, sub-aerial processes, rock type and structure interact to produce different landforms along a cliffed coastline. [15]

### Hazardous environments

Only **one** question to be answered from this topic.

- 5 (a) Fig. 3 shows two types of mass movement affecting slopes.

Explain the possible causes of the two types of mass movement shown in Fig. 3 and suggest hazards that might be created by them. [10]

- (b) Describe some of the problems of sustainable management for **one** particular hazardous environment and evaluate any possible solutions to such problems. [15]

- 6 (a) Describe how **either** tropical storms (cyclones and hurricanes) **or** tornadoes develop. Outline how a particular area may suffer from the immediate impact of one of these climatic hazards. [10]

- (b) Explain and evaluate the methods of prediction of tropical storms and tornadoes. Evaluate other measures that may be taken to reduce their hazardous impact. [15]

### Arid and semi-arid environments

Only **one** question to be answered from this topic.

- 7 (a) Describe the causes of aridity in arid and semi-arid environments and explain how the climatic characteristics of these environments differ. [10]

- (b) Explain how plants have adapted to **either** an arid **or** a semi-arid environment. With reference to an example, or examples, evaluate solutions to managing such an environment sustainably. [15]

- 8 (a) Photographs A and B show some desert landforms.

Describe the landforms shown and explain the factors and processes that have led to their development. [10]

- (b) Outline the evidence for climate change in hot arid and semi-arid environments. Evaluate the role of Pleistocene pluvials in the development of desert landforms. [15]

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*Copyright Acknowledgements:*

Question 8 Photograph A      © *Sand dunes of Erg Chebbi Merzouga, Sahara desert, Morocco, North Africa*; Alamy Ref: A7C77N; geophoto / Alamy.  
Question 8 Photograph B      © *Grand Staircase-Escalante National Monument*; <http://www.thedailygreen.com>; 7 March 2010.

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