

Cambridge  
International  
AS & A Level

**Cambridge International Examinations**  
Cambridge International Advanced Subsidiary and Advanced Level

**GEOGRAPHY**

**9696/21**

Paper 2 Advanced Physical Options

**October/November 2014**

**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 an HB pencil for any diagrams or graphs.

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

**DO NOT WRITE IN ANY BARCODES.**

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 Photograph 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 may be answered from this topic.

- 1 (a) For **one** tropical ecosystem, describe its climax vegetation and explain how it may be replaced by a plagioclimax or secondary vegetation. [10]
- (b) Describe the different weathering processes operating under humid and seasonally humid tropical conditions. Assess the role of weathering and other factors in the development of deep weathering profiles and basal surfaces of weathering. [15]
- 2 (a) Fig. 1 shows stages in the development of karst landforms in an area of tropical limestone.
- Explain how the processes of weathering and erosion lead to the development of tropical karst landforms such as those shown in Fig. 1. [10]
- (b) Outline the main characteristics of soil profiles in **one** tropical ecosystem. Describe the impact of human activities on soils in **one** tropical ecosystem and suggest how soils may be sustainably managed. [15]

## Coastal environments

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

- 3 (a) With the aid of diagrams, describe **three** types of cliff profile (cross section form). Explain the factors and processes that have led to their development. [10]
- (b) Explain why beaches and coastal sand dunes are fragile and changeable coastal landforms. Evaluate methods of achieving sustainable management of dunes and beaches. [15]
- 4 (a) Explain the causes of sea level change and the results of such changes on coral reefs. [10]
- (b) Fig. 2 is a coastal sediment cell subject to shoreline management.
- Describe the sediment sources, transportation and deposition within the cell. Explain possible causes for the need for management from A to C and describe how this need is being met. [15]

### Hazardous environments

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

- 5 (a) Fig. 3 shows the development of a landslide on a cliff or river bluff.
- Explain the factors and processes which cause such a landslide. What measures might be taken to limit the hazardous impact of such mass movements? [10]
- (b) Describe the hazards associated with tropical storms (hurricanes and cyclones) and evaluate their impact on the areas which they affect. Explain which measures have proved effective in reducing the hazardous impact of tropical storms. [15]
- 6 (a) Explain the occurrence and characteristics of volcanoes associated with:
- (i) an oceanic plate converging with a continental plate,  
(ii) hot spots. [10]
- (b) Explain the factors that determine how hazardous an earthquake event might be. Evaluate measures that have been taken to reduce the hazardous impact of earthquakes. [15]

### Arid and semi-arid environments

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

- 7 (a) Photograph A is of vegetation in an area of a hot and dry climate.
- Describe and explain how vegetation, such as that shown in Photograph A, has adapted to extreme temperatures and drought. [10]
- (b) Outline the evidence for climatic change in hot arid environments. Examine to what extent the landforms of hot deserts are a result of past pluvial climates. [15]
- 8 (a) Describe the processes of erosion, transport and deposition by wind in deserts and explain how they lead to the development of **one** erosional landform and **one** depositional landform. [10]
- (b) Explain how the nature of climate and soils pose problems for the sustainable management of **either** semi-arid **or** arid environments. Evaluate any attempted or possible solutions to such problems. [15]

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*Copyright Acknowledgements:*

Question 2 Fig. 1                   © [http://go.owu.edu/~jbkrygie/krygier\\_html/geog\\_111/geog\\_111\\_lo/geog\\_111\\_takehome.html](http://go.owu.edu/~jbkrygie/krygier_html/geog_111/geog_111_lo/geog_111_takehome.html)  
Question 4 Fig. 2                   © <http://www.townplanning.sabah.gov.my/iczm/Reports/Shoreline%20Management/mst21.jpg>  
Question 5 Fig. 3                   Adapted from: © <http://www.maine.gov/dacf/mgs/hazards/landslides/facts/landslide.htm>  
Question 7 Photograph A           © Jacques Jangoux 2007.

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