



**GEOGRAPHY**

**9696/21**

Paper 2 Advanced Physical Options

**October/November 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 may be answered from this topic.

- 1 (a) Describe the characteristics of soils in tropical rainforest areas. Explain the factors that have affected the formation of these soils. [10]

- (b) Fig. 1 shows nutrient cycling in an area of tropical rainforest that has been cleared for shifting cultivation.

Describe the nutrient cycling shown in Fig. 1 and explain the extent to which this differs from the nutrient cycle found in undisturbed tropical rainforest. [15]

- 2 (a) Using examples, describe and explain the characteristics of monsoon climates in the tropics. [10]

- (b) Describe the landforms that have been developed in limestone in the tropics. To what extent have climate, vegetation and weathering contributed to the shape of these landforms? [15]

### Coastal environments

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

- 3 (a) Describe the main sources of coastal sediment and explain how such sediment is produced within the coastal zone. [10]

- (b) Photograph A shows some coastal landforms.

Draw a sketch diagram to identify the landforms. Explain how the landforms were formed and to what extent they may be affected by human activities. [15]

- 4 (a) Explain the main characteristics of:

(i) high energy waves,

(ii) low energy waves,

(iii) refracted waves. [10]

- (b) Describe the main processes of marine erosion. Using examples, explain why the rate and effects of coastal erosion vary along a stretch of coastline. [15]

### Hazardous environments

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

- 5 (a) Explain how tectonic plate boundaries that are close to densely populated areas can be hazardous. [10]
- (b) Fig. 2 shows some of the hazards associated with an eruption of the Nevado del Ruiz volcano in Colombia.
- Explain the nature of the hazards and assess the ways in which deaths from volcanic hazards might be prevented. [15]
- 6 (a) Explain the causes and most common locations of tropical cyclones (hurricanes) and tornadoes. [10]
- (b) Describe the hazards that are produced by tropical cyclones (hurricanes) and tornadoes. To what extent is it possible to manage these hazards? [15]

### Arid and semi-arid environments

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

- 7 Photograph B shows some vegetation found in a hot arid environment.
- (a) Describe the types of vegetation in Photograph B and explain how vegetation is adapted to survive in hot arid environments. [10]
- (b) Using examples, explain the problems facing sustainable management in **either** an arid **or** a semi-arid environment and evaluate attempted solutions to such problems. [15]
- 8 (a) Describe and explain the characteristics of climates in arid and semi-arid areas. [10]
- (b) Using examples, describe the processes of weathering and erosion that have produced landforms in hot arid areas. To what extent are landforms in hot arid areas the product of present day climatic conditions? [15]

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*Copyright Acknowledgements:*

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Question 5 Fig. 2 © R Korach & B McGuire; Philips Guide to Global Hazards; Philips; 2003.  
Question 7 Photograph B © <http://en.gtwallpaper.com>.

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