



GEOGRAPHY

9696/21

Paper 2 Advanced Physical Options

October/November 2009

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 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) Describe the factors that affect the development of soils in the humid tropics. [10]
- (b) In the tropics, to what extent does the formation of landforms in granite differ from that of landforms in limestone? [15]
- 2 (a) Fig. 1 shows the average position of the inter-tropical convergence zone (ITCZ) in July and January.
Describe and explain the ITCZ, its movement and its effects upon tropical rainfall. [10]
- (b) Describe the vegetation structure of the tropical rainforest and of the savanna, and explain why they differ. [15]

Coastal environments

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

- 3 (a) Why do beaches vary in profile and plan? [10]
- (b) To what extent can coral coastlines be regarded as fragile environments? What steps can be taken to protect them? [15]
- 4 (a) Figs 2A and 2B show a stretch of coastline before and after disturbance of a sediment cell. Fig. 2A shows an undisturbed sediment cell and Fig. 2B a disturbed sediment cell.
Explain how the changes shown in Fig. 2B have affected the operation of the sediment cell shown in Fig. 2A. [10]
- (b) Describe the landforms that are produced by erosion along a rocky coastline. Explain the main factors that shape these landforms. [15]

Hazardous environments

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

- 5 (a) How and where do earthquakes occur? [10]
- (b) What methods can be used to predict earthquakes? How successful have these methods been? [15]
- 6 (a) Fig. 3 shows two different types of development on a river flood plain, together with some predicted levels of flooding.
- To what extent will the regulated flood plain development (B) be more successful than the unregulated flood plain development (A) in reducing the hazards associated with flooding? [10]
- (b) Flooding can occur in more than one type of hazardous environment.
- Explain how this might be caused by different hazards and describe the hazardous effects that water might have. [15]

Arid and semi-arid environments

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

- 7 (a) Compare and contrast the climatic characteristics found in hot arid and semi-arid areas. [10]
- (b) How might sustainable management strategies be used to address environmental problems in **either** hot arid **or** semi-arid areas? [15]
- 8 (a) Photograph A shows landforms and vegetation in a hot desert environment.
- Using a labelled diagram, identify and describe the landforms and vegetation shown in Photograph A. [10]
- (b) Explain the processes that you consider most significant in the formation of desert landforms such as those shown in Photograph A. [15]

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Question 5 Figure 3 © Smithson, Addison, Atkinson; *Fundamentals of the Physical Environment*; p.300; Routledge; 2002.
Question 8 Photograph A R J Small; © UCLES.

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