

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

GEOGRAPHY

9696/01

Paper 1 Core Geography

October/November 2004

3 hours

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 on both sides of the paper.
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 **all** questions in Section A.
Answer **one** question from Section B.
Answer **one** question from Section C.

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.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.
All the Figures referred to in the questions are contained in the insert.

This document consists of **5** printed pages and **3** blank pages and an insert.



Section A

Answer **all** the questions in this section. All questions carry 10 marks.

Hydrology and geomorphology

- 1 Fig. 1 shows the Hjulstrom curve (water velocities at which sediment is eroded, transported and deposited).
- (a) (i) Name the type of sediment that requires the lowest velocity to be **eroded**. [1]
- (ii) Name the type of sediment that is likely to be **transported** at all velocities. [1]
- (b) (i) Describe and explain the relationship between water velocity and the **erosion** of clay and sand particles. [4]
- (ii) Explain the variation in water velocity that is required to **transport** and to **deposit** sediments of different particle diameter. [4]

Atmosphere and weather

- 2 Fig.2 shows the mean (average) temperatures (°C) in July.
- (a) Describe **two** differences in the pattern of the isotherms between the northern and southern hemispheres shown in Fig. 2. [4]
- (b) Describe and explain the differences between the temperatures of land masses and sea areas. [6]

Rocks and weathering

- 3 Fig. 3 shows the average rates of physical (mechanical) weathering in relation to average annual temperatures and precipitation.
- (a) State the maximum range of temperatures and precipitation under which
- (i) rapid physical weathering occurs and
- (ii) slow physical weathering occurs. [4]
- (b) Briefly describe **one** physical weathering process that is characteristic of areas of rapid weathering and **one** physical weathering process that is characteristic of areas of slow weathering. [6]

Population change

- 4 Fig. 4 gives information for countries in South America about total fertility rate and the percentage of women in the work force in 1998 and the decrease in average number of births per woman, 1963-1993.
- (a) (i) Which countries experienced the smallest decrease in the average number of births per woman between 1963 and 1993? [2]
- (ii) State the range of total fertility rates in 1998. [1]
- (iii) Name **two** factors, other than women's employment, which may decrease fertility rates significantly. [2]
- (b) Describe and explain the relationship suggested by Fig. 4 between fertility and the percentage of women in the work force. [5]

Settlement dynamics

- 5 Fig. 5 shows Harris and Ullman's (1945) multiple nuclei model of urban structure.
- (a) Describe the **main** features of the model's **residential** pattern in Fig. 5. [5]
- (b) Suggest reasons why businesses today might choose to locate in the outlying business district of a town or city, rather than in its central business district. [5]

Section B: The Physical Core

Answer **one** question only from this section. All questions carry 25 marks.

Hydrology and fluvial geomorphology

- 6 (a) (i) Describe how precipitation intensity can affect discharge in a river channel. [4]
- (ii) Define the term *water balance*. [3]
- (b) With the aid of diagrams, describe and explain the landforms that are found in meandering river channels. [8]
- (c) Describe and explain the effects upon a catchment system of the building of dams for water storage. [10]

Atmosphere and weather

- 7 (a) (i) Define the term *urban heat island*. [4]
- (ii) Describe **one** effect of the urban heat island on urban weather. [3]
- (b) (i) Briefly explain why temperatures usually decrease with height above the earth's surface. [5]
- (ii) Describe **one** circumstance when temperature does not decrease with height. [3]
- (c) Explain how clouds and raindrops are formed. [10]

Rocks and weathering

- 8 (a) (i) Define the terms *continental plate* and *oceanic plate*. [4]
- (ii) Describe **one** landform that may develop at a convergent plate boundary. [3]
- (b) With the aid of diagrams describe the principal features of a divergent plate boundary. [8]
- (c) How does an understanding of plate tectonics help to explain the development of the earth's crustal features? [10]

Section C: The Human Core

Answer **one** question only from this section. All questions carry 25 marks.

Population change

- 9 Fig. 6 shows the demographic transition model.
- (a) Describe the characteristics of Stage 1. [7]
 - (b) Draw a line on Fig. 6 to show the changes in total population over time. Add labels to your line to explain these changes. Attach Fig. 6 to your answer booklet/answer paper. [8]
 - (c) To what extent can the demographic transition model help us to understand future population trends in MEDCs? [10]

Population change

- 10 (a) Give the meaning of the terms *voluntary migration* and *involuntary (forced) migration*. Support your answer with an example of each. [7]
- (b) Describe and explain **one** involuntary (forced) migration you have studied. [8]
 - (c) To what extent is it true that pull factors are more important than push factors in **voluntary** migration? [10]

Settlement dynamics

- 11 (a) Explain the meaning of the term *settlement hierarchy*. Illustrate it using an area you have studied. [7]
- (b) Draw and label a diagram to show the relationships between any **two** settlements of different sizes. [8]
 - (c) To what extent is the primate city associated with an early stage of a country's urban development? [10]

Copyright Acknowledgements:

Insert Fig. 4 Rowntree, L (2000) map of South America: Fertility and Women in the Workforce in *Diversity Amid Globalisation*, Prentiss Hall.

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