

VICTORIA JUNIOR COLLEGE PRELIMINARY EXAMINATION

GEOGRAPHY Higher 2

9730/1

Paper 1 Physical Geography

**Monday 14th September 2015
3 hours**

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READ THESE INSTRUCTIONS FIRST

Write your name and class on all answer sheets that 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.

Section A

Answer all questions.

Section B

Answer two questions, each from a different topic.

Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.
The number of marks is given in brackets [] at the end of each question or part question.

You are reminded of the need for good English and clear presentation in your answers.
At the end of the examination, fasten all your work securely together.

Section A

Answer **all** questions.

Questions 1, 2 and 3 carry 12 marks. Question 4 carries 14 marks.

You should allocate your time accordingly.

Lithospheric Processes, Hazards and Management

1. Fig. 1 is a schematic diagram that shows the formation of volcanic islands due to hotspot activity.
 - a) With reference to Fig. 1, describe and explain the formation of volcanic islands. [6]
 - b) Imagine you are a volcanologist in Hawaii. What information would you use in developing a hazard map for volcanic eruptions? [6]

Atmospheric Processes, Hazards and Management

2. Fig. 2 shows the rainfall distribution in Australia from 1 April 1997 to 31 March 1998.
 - a) With reference to Fig. 2, describe the pattern of rainfall distribution in Australia from 1997 to 1998. [3]
 - b) Explain how El Nino can cause droughts in Australia. [5]
 - c) What are the implications of droughts for Australia? [4]

Hydrologic Processes, Hazards and Management

3. Fig. 3 shows Manning's Equation.

- a) Define the term *hydraulic radius*. [1]
- b) With reference to Fig. 3, describe and explain how velocity changes with distance downstream in a drainage basin. [7]
- c) With reference to Fig. 3, explain how human activities may affect the velocity of a river. [4]

Lithospheric and Hydrologic Processes, Hazards and Management

4. Photograph A shows a river valley in an alpine region.

- a) Describe the key features of the river shown in Photograph A. [4]
- b) Explain how hydrological changes within this basin may affect
 - (i) river processes [6]
 - (ii) weathering processes [4]

Section B

Answer two questions, each from a different topic.

All questions carry 25 marks.

Lithospheric Processes, Hazards and Management**5 EITHER**

- a) Distinguish between slides, flows and heaves. [9]
- b) Assess the extent to which magnitude and frequency influence the severity of tectonic hazards. [16]

5 OR

- a) Describe the evidence for the Plate Tectonics Theory. [9]
- b) To what extent are granite and limestone landforms in tropical and temperate regions related to present climatic conditions? [16]

Atmospheric Processes, Hazards and Management**6 EITHER**

- a) Explain the factors influencing the distribution and development of tropical cyclones. [9]
- b) To what extent is latitude the most important factor influencing the characteristics of tropical climates? [16]

6 OR

- a) Describe and explain the factors influencing urban heat island (UHI). [9]
- b) Discuss the challenges in managing the impacts of climate change. [16]

Hydrologic Processes, Hazards and Management**7 EITHER**

- a) Describe the differences in the nature of braided and meandering channels. [9]
- b) To what extent are floods better managed in developed countries (DCs) as compared to less developed countries (LDCs)? [16]

7 OR

- a) Explain the factors that affect the movement of water through a drainage basin. [9]
- b) To what extent do you agree that braided and meandering channels are found in very different locations? [16]