



**SERANGOON JUNIOR COLLEGE**  
**JC2 PRELIMINARY EXAMINATIONS 2014**  
**Higher 2**

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**GEOGRAPHY**

**9730/01**

Paper 1 Physical Geography

**Wednesday**  
**20 Aug 2014**  
**3 hours**

Additional materials: Writing Paper  
1 Insert

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**READ THESE INSTRUCTIONS FIRST**

Write your name and civics group 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, highlighter, glue or correction fluid.

**Section A**

Answer **all** questions.

**Section B**

Answer **two** questions, each from a different topic.

The Insert contains all the Figures referred to in the question paper.  
Diagrams and sketch maps should be drawn whenever they serve to illustrate an answer.  
The world outline map may be annotated and handed in with relevant answers.  
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.  
The number of marks is given in brackets [ ] at the end of each question or part question.

## Section A

Answer **all** the questions in this section.  
 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 shows the rock cycle.

- (a) What is meant by the *rock cycle*? [2]
- (b) With reference to Fig. 1, compare the way in which igneous and metamorphic rocks are formed. [4]
- (c) Briefly describe the role of *plate tectonics* in the *rock cycle*. [6]

### Atmospheric Processes, Hazards and Management

2 Figs 2A and 2B feature the monsoon wind system over India. Fig. 2C shows the climograph of Nagpur, India.

- (a) Distinguish between the two terms: *prevailing winds* and *monsoon winds*. [2]
- (b) With reference to Fig. 2, discuss the role of monsoon winds in influencing seasonal variations in precipitation in Nagpur, India. [6]
- (c) To what extent are the precipitation patterns of tropical monsoon climates distinctive from other tropical climates? [4]

### Hydrologic Processes, Hazards and Management

3 Fig. 3 features the varying regime of the River Rhone. The River Rhone runs from Switzerland to France and it is one of the major rivers in Europe.

- (a) Describe the key characteristics of the regime of the River Rhone catchment. [3]
- (b) Suggest why the shapes of the two graphs at Lyons are different. [5]
- (c) Briefly outline **two** ways in which human activities can alter the regime of a river. [4]

**Lithospheric and Hydrologic Processes, Hazards and Management**

- 4** Fig. 4A shows the landslide susceptibility map for Saint Lucia. Saint Lucia is an island country in the eastern Caribbean Sea. The location and tectonic setting of Saint Lucia is featured in Fig. 4B.
- (a)** Citing evidence from Figs 4A and 4B, suggest reasons for the occurrence of mass movements in Saint Lucia. **[5]**
- (b)** Suggest the effects of mass movements on channel flow and morphology. **[4]**
- (c)** Imagine that you are a government official working for Saint Lucia's Seismic Research Center. Discuss how you would map an earthquake hazard map for Saint Lucia. **[5]**

## Section B

Answer **two** questions, each from a different topic. Each question carries 25 marks.

### Lithospheric Processes, Hazards and Management

#### 5 EITHER

- (a) Describe and explain the key characteristics of earthquakes. [9]
- (b) "While the intensity (of a tectonic event) is important, of equal or greater importance is the presence of a population whose demographic or socioeconomic characteristics may place its members at greater risk of harm before, during, and after a disaster." Population Reference Bureau 2011 [16]

With reference to examples, explain why many people continue to live in areas at risk from tectonic hazards and suggest how governments can mediate that risk.

#### 5 OR

- (a) Compare the key properties of granite and limestone. [9]
- (b) "Surface processes are more important than sub-surface processes in the development of landforms". [16]

With reference to landforms that you have studied, discuss the validity of the statement.

### Atmospheric Processes, Hazards and Management

#### 6 EITHER

- (a) Compare the impacts of tropical cyclones experienced in developed countries (DCs) with those in less developing countries (LDCs). [9]
- (b) To what extent are tropical cyclones predictable hazards? [16]

#### 6 OR

- (a) Distinguish between *aridity*, *drought* and *desertification* in the study of tropical climates. [9]
- (b) "It is more effective for humans to manage the risks posed by climate change than to try to curb its occurrence." [16]

To what extent do you agree with this statement?

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

- (a)** With the aid of a diagram, describe and explain how sub-surface flows and stores may contribute to surface flows and stores. **[9]**
- (b)** With reference to one or more examples, identify the factors that impede the sustainable management of drainage basins and suggest ways to overcome these challenges. **[16]**

**7 OR**

- (a)** Briefly describe the ways in which a river may transport its load and explain the importance of critical erosion velocity in the transportation of the load within a river channel. **[9]**
- (b)** To what extent can meandering channels be considered as stable channel patterns? **[16]**

**End of Paper**