

TAMPINES JUNIOR COLLEGE PRELIMINARY EXAMINATION



CANDIDATE NAME			
CIVICS GROUP	1 2	TUTOR'S NAME	
GEOGRAPH	Y		9730/01
Paper 1 Physical Geography			Wednesday, 4 September 2013
			3 hours
Additional materials:	Answer Paper		
	1 Insert		
	World outline map		

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, highlighters, glue or correction fluid.

1 Cover sheet

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 questions. 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. Fill in your particulars and indicate the questions attempted on the Cover sheet, and attach it to the front of your writing paper. The number of marks is given in brackets [] at the end of each question or part question.

This document consists of 4 printed pages and 1 Insert.

Section A

Answer **all** the questions in this section. Questions 1, 2 and 3 carry 12 marks and Question 4 carries 14 marks. You should allocate your time accordingly.

Lithospheric Processes, Hazards and Management

- 1 Study Fig. 1, which shows a hazard map of Mount Merapi, an active volcano in Indonesia.
 - (a) With reference to Fig. 1, describe the pattern in the distribution of volcanic hazards from the eruption of Mount Merapi. [5]
 - (b) Explain the potential impacts of the hazards shown in Fig. 1. [5]
 - (c) Suggest and briefly explain one other strategy that can be employed to manage the effects of volcanic eruptions apart from the one shown in Fig. 1. [2]

Atmospheric Processes, Hazards and Management

- 2 Study Fig. 2, which shows changes in the total melt area of the Greenland ice sheet from 1979 to 2008.
 - (a) Using Fig. 2, describe the pattern of changes to the total melt area from 1979 to 2008.
 - (b) Explain one possible reason for the low levels of melting in 1992. [3]
 - (c) Explain how the melting of glaciers and polar ice caps may have global impacts. [5]

Hydrologic Processes, Hazards and Management

- **3** Fig. 3 shows the relationship between different ground surfaces, evapotranspiration, infiltration and runoff.
 - (a) With reference to Fig. 3, describe the relationship between ground surface, evapotranspiration, infiltration and runoff. [3]
 - (b) Account for the relationship described in (a). [5]
 - (c) Use two annotated diagrams to illustrate how the conversion of a forested area to an urban area might affect the shape of a hydrograph in the area during a rainfall event.
 [4]

Atmospheric and Hydrologic Processes, Hazards and Management

- **4** Figs 4A and 4B show two distinct atmospheric circulations over the Pacific Ocean.
 - (a) Name the atmospheric condition shown in Fig. 4B. [1]
 - (b) Account for the differences in weather patterns shown in Figs 4A and 4B and explain how Peru and Indonesia may be affected by this weather phenomenon. [7]
 - (c) Describe how you would obtain measurements to calculate the hydraulic radius at a point in a small stream. Briefly explain one difficulty you may encounter when undertaking this fieldwork.
 [6]

Section B

Answer **two** questions, each from a different topic. All questions carry 25 marks.

Lithospheric Processes, Hazards and Management

5 EITHER

- (a) Describe and explain the processes of weathering and mass movement found typically in the humid tropics. [9]
- (b) 'Water plays the most important role in the weathering of rocks.' Discuss. [16]

5 OR

- (a) Describe and explain two strategies used to predict earthquakes. [9]
- (b) With reference to examples, discuss the extent to which the impacts of earthquakes are influenced by the level of economic development of the affected countries. [16]

Atmospheric Processes, Hazards and Management

6 EITHER

(a)	How have human activities contributed to global warming?	[9]
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(b) Evaluate the strategies employed to reduce global warming. [16]

6 OR

- (a) Explain the development of a tropical cyclone. [9]
- (b) Evaluate the strategies employed to manage the impacts of tropical cyclones in developed countries (DCs) and less developed countries (LDCs). [16]

Hydrologic Processes, Hazards and Management

7 EITHER

- (a) With the help of one or more diagrams, describe the characteristics of braided streams and explain how they may develop. [9]
- (b) With reference to examples, assess the effectiveness of measures used to resolve transboundary water conflicts. [16]

7 OR

- (a) With reference to examples, explain the causes and effects of river floods. [9]
- (b) To what extent do you agree that structural flood management strategies are the most effective in managing the hazardous effects of floods? [16]

'Gunung Merapi: Mountain of Fire', accessed from: http://gunungmerapi.weebly.com/hazards.html Redrawn from Dan Satterfield (2010) 'TV weather people and climate change', *AGU Blogosphere*, http://blogs.agu.org/wildwildscience/2010/04/03/why-im-not-afraid-to-talk-about-climate-change/ Chaucer Technology School, http://www.chaucer.ac.uk/ctsshared/Geography/ Lyndon State College Atmospheric Sciences, http://apollo.lsc.vsc.edu/classes/met130/notes/chapter10/ 5