TAMPINES JUNIOR COLLEGE
PRELIMINARY EXAMINATIONS 2008

GEOGRAPHY **9730/1**
Higher 2

15 August 2008 **3 hours**

READ THESE INSTRUCTIONS FIRST

Write your name, index number and civics class on every page of the answer scripts that you have submitted for marking.
You may use a soft pencil for any diagrams, graphs or rough working.

Section A
Answer ALL questions

Section B
Answer TWO questions, each from a different topic.

Diagrams and sketch maps should be drawn whenever they serve to illustrate an answer.
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.

This document consists of 6 printed pages

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. Figure 1 shows the tectonic map of the world.

a) With the aid of diagrams, show how A and B in Figure 1 are formed. [8]

b) How else can landforms similar in activity to those found in A be formed elsewhere in the world? [4]

Hydrological Processes, Hazards and Management

2. Figure 2 shows the tributaries of a stream.

a) Describe how Bifurcation ratio of a stream is measured and calculate the Bifurcation ratio for the stream in Figure 2 (using Strahler's method). [4]

b) What other factors besides that measured in (a) can be used to determine the efficiency of a stream? [8]

Atmospheric Processes, Hazards and Management

3. Figure 3A and 3B shows different types of resultant precipitation.

a) Identify and describe the processes that led to the formation of precipitation in Figures 3A and 3B. [6]

b) Explain the impacts over areas X and Y as a result of the type of air movement (indicated by arrows) shown in Figures 3A and 3B respectively. [6]

Lithospheric & Atmospheric Processes, Hazards and Management

4. Figure 4 shows the rock cycle.

a) With reference to examples, compare the characteristics of the 3 major rock types shown in Figure 4. [6]

b) Briefly describe a landform as a result of weathering of sedimentary rocks. [4]

c) How would a change in climate affect the weathering and resultant landform described in (b)? [4]

Section B

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

Lithospheric Processes, Hazards and Management

5 EITHER

a) Describe the weathering processes in Humid Tropical and Low Latitude Desert areas and its impact on rock structure. [9]

b) With reference to examples, discuss the effects of mass movement and assess the strategies used to mitigate its impact on the human and physical landscape. [16]

OR

a) Briefly describe the nature and effects of earthquakes. [9]

b) With reference to relevant examples, assess the effectiveness of various earthquake mitigation strategies. [16]

Hydrological Processes, Hazards and Management

6 EITHER

a) Compare the nature and causes of Infiltration Excess Flow (Hortonian Overland Flow) and Saturation Overland Flow. [9]

b) Discuss to what extent the hydrological cycle at the basin scale is influenced by climate and geology. [16]

OR

a) Compare the conditions under which turbulent flow, laminar flow and helicoidal flow occurs within river channels. [9]

b) To what extent are braided channels a result of human activities? Discuss. [16]

Atmospheric Processes, Hazards and Management

7 EITHER

a) With the aid of a labeled diagram, describe the nature and formation of a tropical cyclone.[9]

b) With reference to examples, compare the effects of tropical cyclones in LEDCs and MEDCs. [16]

OR

a) Briefly explain the causes of surface winds. [9]

b) Describe and explain the major climatic effects of these surface winds. [16]

Figure 2 for Question 2

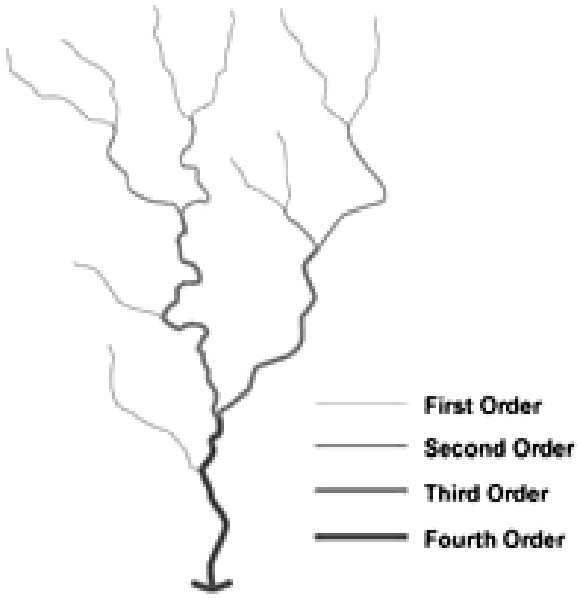


Figure 4 for Question 4

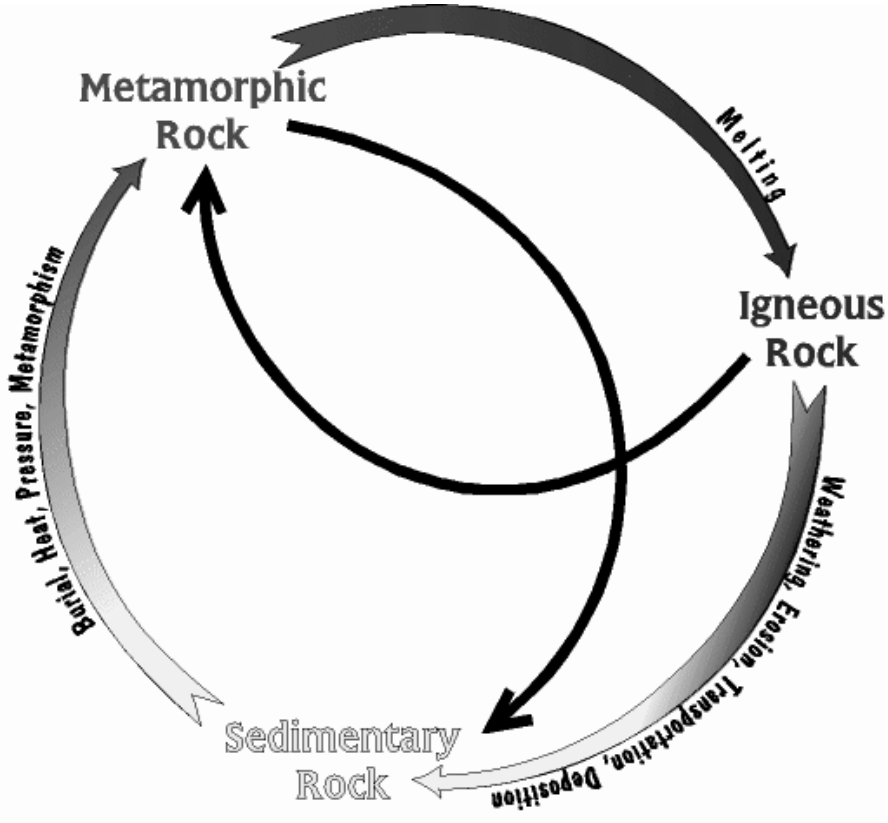


Figure 3A and 3B for Question 3

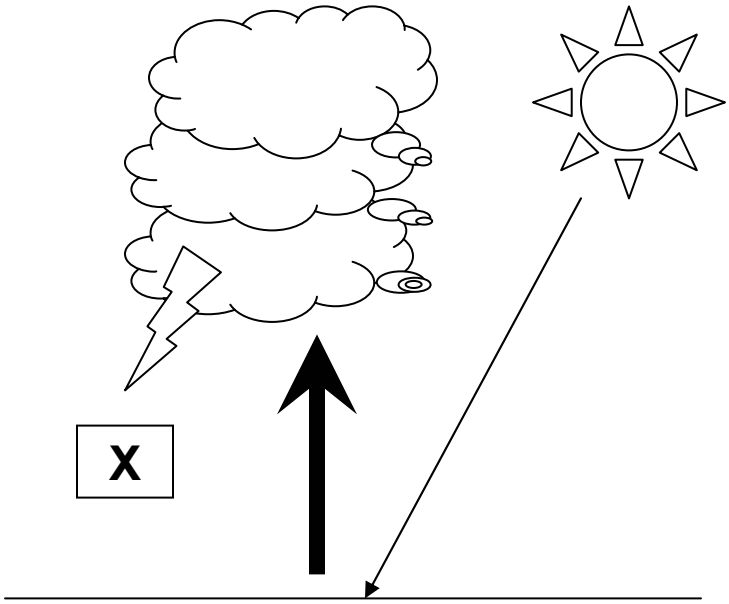


Figure 3A

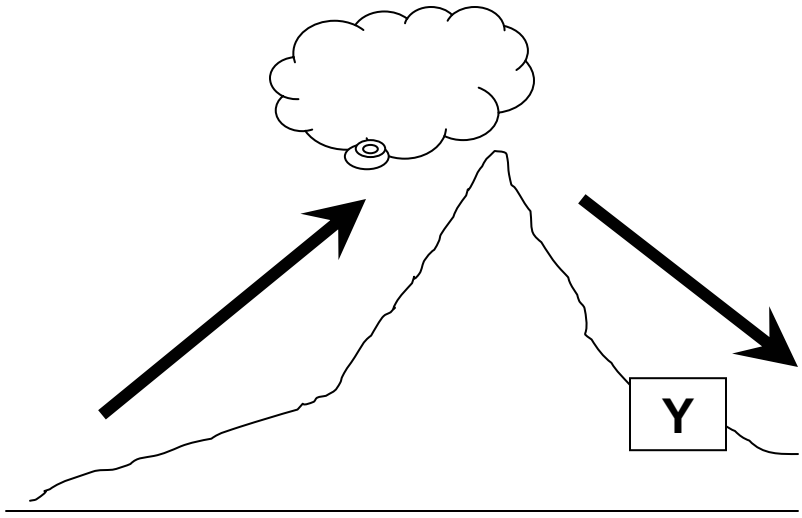
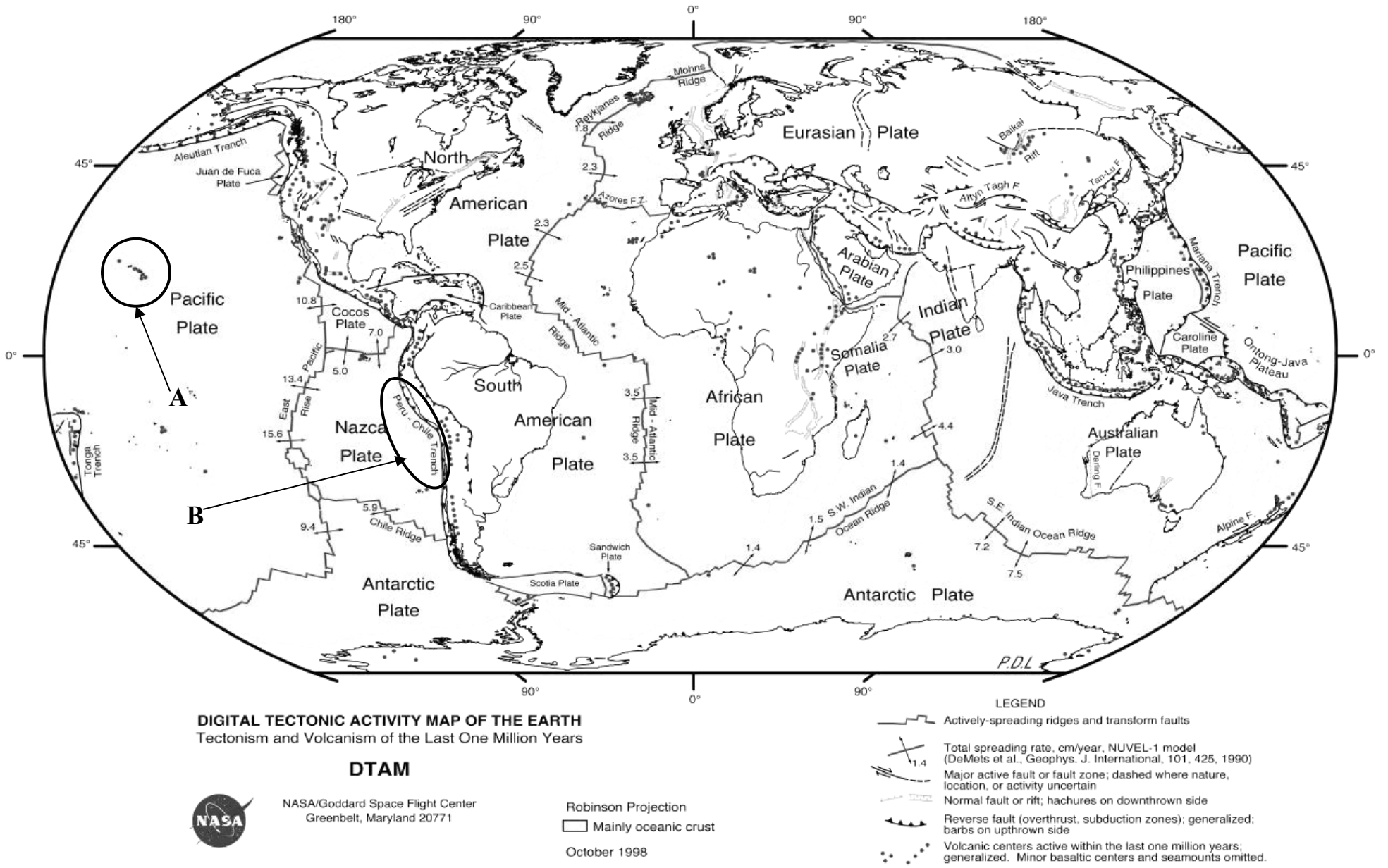


Figure 3B



DIGITAL TECTONIC ACTIVITY MAP OF THE EARTH
Tectonism and Volcanism of the Last One Million Years

DTAM

NASA/Goddard Space Flight Center
Greenbelt, Maryland 20771

Robinson Projection
Mainly oceanic crust
October 1998

LEGEND
- Actively-spreading ridges and transform faults
- Total spreading rate, cm/year, NUVEL-1 model (DeMets et al., Geophys. J. International, 101, 425, 1990)
- Major active fault or fault zone; dashed where nature, location, or activity uncertain
- Normal fault or rift; hachures on downthrown side
- Reverse fault (overthrust, subduction zones); generalized; barbs on upthrown side
- Volcanic centers active within the last one million years; generalized. Minor basaltic centers and seamounts omitted.

Figure 1 for Question 1