NANYANG JUNIOR COLLEGE

Preliminary Examination

H2 GEOGRAPHY 9730/01

Physical Geography 10 September 2008

3 hours

Additional Materials: Answer Paper
Insert
World Outline Map

READ THESE INSTRUCTIONS FIRST

Write your class, index 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.

Section A
Answer all questions.

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

The Insert contains the Photograph and all the Figures referred to in the question paper.
You should make reference to appropriate examples studied in the field or the classroom, even where such examples are not specifically requested by 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.
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 and Question 4 carries 14 marks.
You should allocate your time accordingly.

Lithospheric Processes, Hazards and Management

1 Fig.1 shows a weathered granite landform in a temperate region.

(a) Draw a labelled sketch to show the main landform features. [4]

(b) Describe and explain the weathering processes responsible for the landform shown. [8]

Atmospheric Processes, Hazards and Management

2 Figs 1A and 1B show two different methods by which air is uplifted from the Earth's surface.

(a) Identify the methods by which air is uplifted from the Earth's surface as shown in Figs 1A and 1B. [2]

(b) Briefly explain the processes that have brought about the uplift in each diagram. [6]

(c) Account for the type of weather that might result from the uplift shown in Fig. 1B. [4]

Hydrologic Processes, Hazards and Management

3 Fig. 2 shows changes in channel properties from source to mouth in a drainage basin.

(a) Describe the relationship between stream discharge and bed material grain size. [1]

(b) Account for the change in bed material grain size downstream. [2]

(c) The hydraulic radius is an integral part of stream study.

(i) Explain how it is calculated in the field. [3]

(ii) How would it change downstream and why? [2]

(iii) Show how it may differ in meandering and braided channels. [4]

Atmospheric and Hydrologic Processes, Hazards and Management

4 Fig. 3 shows some climatic data for (X) a place in a tropical monsoon region and (Y) a place in a sub-tropical desert region.

(a) Using the data provided, compare the two climates shown. [3]

(b) Explain the main features of the climates shown in X and Y. [5]

(c) How and why are the flows and stores of water in tropical monsoon catchments different from those in sub-tropical deserts? [6]

Section B

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

Lithospheric Processes, Hazards and Management

5 EITHER

(a) Using diagrams, explain the formation of mid-ocean ridges and island arcs. [9]

(b) How do rapid mass movements occur? Assess the strategies used to mitigate the effects of hazards associated with rapid mass movements. [16]

OR

(a) What is the *rock cycle*? Show how the rock cycle explains the formation and characteristics of igneous, sedimentary and metamorphic rocks. [9]

(b) With the use of examples, explain the extent to which climate is influential in the development of block and granular disintegration of rocks. [16]

Atmospheric Processes, Hazards and Management

6 EITHER

(a) Explain the causes of surface winds. [9]

(b) To what extent do you agree with the view that 'cities make their own climates'? [16]

OR

(a) Explain why temperature normally decreases with altitude in the troposphere. [9]

(b) With reference to examples you have studied, evaluate the effectiveness of strategies used to predict and mitigate the effects of tropical cyclones. [16]

Hydrologic Processes, Hazards and Management

7 EITHER

(a) What is *infiltration capacity* and what factors affect its rate across space and time? [9]

(b) With reference to examples you have studied, show how shared water resources between states have led to tension and conflicts. Assess the effectiveness of measures that have been implemented. [16]

OR

(a) With the aid of diagrams, explain the sequence of events leading to the formation and migration of meanders. [9]

(b) With reference to an area you have studied, examine the issues that can arise as a result of channel management. [16]