ST ANDREW'S JUNIOR COLLEGE
PRELIMINARY EXAMINATIONS 2008

GEOGRAPHY 9730/01
Higher 2

Paper 1 Physical Geography

Thursday 28 August 2008 **3 hours**

Additional Materials: Insert
Writing Paper
World Outline Map

READ THESE INSTRUCTIONS FIRST

Write your name, class, and index number on all the work you hand in.
Write in dark blue or black pen.
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** question, each from a different topic.

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.
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.

This paper consists of **4** printed pages.

[Turn Over]

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 the different volcanic eruptions related to magma type and associated mode of gas expansion.

a) Identify the plate boundary associated with each type of volcanic eruption shown in Fig. 1. [3]

b) Account for the different nature of volcanic eruptions shown in Fig. 1. [4]

c) Explain how you would draw up a hazard map of an earthquake-prone region, identifying the areas of high and low risks. [5]

Atmospheric Processes, Hazards and Management

2 Fig. 2 shows the path taken by Hurricane Katrina in 2005.

a) Describe the strength and track of Hurricane Katrina from its inception to its dissipation. [4]

b) Account for the description you made in (a). [8]

Hydrologic Processes, Hazards and Management

3 Figs 3A and 3B are two drainage basins of approximately the same area.

a) From Figs 3A and 3B, state which drainage basin

(i) has a greater discharge at the gauging station

(ii) will record a flood first at the gauging station if similar storms hit both basins at the same time,

(iii) has a higher stream order,

(iv) has a higher bifurcation ratio (show your working). [5]

b) Explain the reasons for your answer to **(a)(iii)**. [2]

c) What factors might cause a drainage basin such as B to have a higher drainage density than one such as A? [5]

Atmospheric and Hydrologic Processes, Hazards and Management

4 Fig. 4 shows the hydrological cycles of a rural and an urban setting.

a) Describe **one** similarity and **one** difference between runoff and groundwater flow. [2]

b) Describe the differences in the hydrological cycle between the rural and urban setting. [4]

c) Explain how changes in the hydrological cycle of an urban setting can influence the urban micro-climate. [8]

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 the Richter Scale and the Mercalli Scale. [9]

b) Discuss the effects of mass movement and assess to what extent these effects can be mitigated. Illustrate your answer with an example or examples. [16]

OR

a) Discuss the differences between igneous, sedimentary and metamorphic rocks. [9]

b) "Rock structure may not be the most significant factor affecting weathering but it is plays an important role". Discuss. [16]

Atmospheric Processes, Hazards and Management

6 EITHER

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

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

OR

a) Explain the vertical and horizontal movements of heat energy at the global scale. [9]

b) Describe the possible impact of global warming on the Polar Regions and assess to what extent these impacts can be halted. [16]

Hydrologic Processes, Hazards and Management

7 EITHER

a) Differentiate between river capacity and river competence and with the aid of a diagram, describe how rivers transport their load. [9]

b) To what extent is the discharge of a river dependent on climate? [16]

OR

a) Discuss the natural and anthropogenic causes of floods. [9]

b) With reference to examples, discuss how catchment management schemes can reduce the risk of flooding but can also create problems and conflicts of interests. [16]