RAFFLES INSTITUTION
Preliminary Examinations 2015

H2 GEOGRAPHY 9730/01

Paper 1 Physical Geography Duration: 3 hours

Additional material: Writing Paper
Insert 1
World Outline Map (to be supplied upon request)

READ THESE INSTRUCTIONS FIRST

Section A: Answer all questions.
Section B: Answer **two** questions, each from a different topic.

Write in dark blue or black pen.
You may use a soft pencil for any diagrams, graphs or rough working.
The number of marks is given in brackets [ ] at the end of each question or part question.
Insert 1 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 using the string provided.

Section A

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

Lithospheric Processes, Hazards and Management

1 Fig. 1A shows a list of management methods for tectonic hazards and Fig. 1B shows the tectonic hazards around Mount Etna.

(a) Discuss the main purpose of the methods shown in Fig. 1A. [2]

(b) With reference to Fig. 1B, describe four different types of hazards that affect local people when Mount Etna erupts. [4]

(c) Suggest ways to mitigate the impact of the hazards on an environment such as that shown in Fig. 1B. [6]

Atmospheric Processes, Hazards and Management

2 Fig. 2 shows the global distribution of average annual insolation (watts per square metre).

(a) Briefly explain the terms *shortwave radiation* and *longwave radiation*. [2]

(b) Describe and explain the changes with latitude in the average annual insolation shown in Fig. 2. [7]

(c) Explain how and why the average annual isolation varies over continents and oceans. [3]

Hydrologic Processes, Hazards and Management

3 Fig. 3A shows the changes in land use from 1950 to 1968 in Cannon's Brook catchment, UK. Fig. 3B shows the monthly overland flow for Cannon's Brook catchment during the same period. The line graph in blue represents the measured overland flow and the line graph in red represents the simulated overland flow if no changes to land use had been made from 1950 onwards.

(a) Describe the changes in land use from 1950 to 1968 in Fig. 3A. [4]

(b) Describe the differences between actual measurements of overland flow and simulated overland flow seen in Fig. 3B. [2]

(c) Explain how overland flow would be modified before and after the change in land use. [6]

Atmospheric and Lithospheric Processes, Hazards and Management

4 Fig. 4A shows the path of Tropical Cyclone Haiyan in November, 2013 and the numbers represent the category of the storm according to the Saffir Simpson scale. Fig. 4B represents the amount of damage caused by the cyclone across the Philippines. Photographs A and B show some impacts of the tropical cyclone in Tacloban, Philippines.

(a) Describe the path and development of Tropical Cyclone Haiyan as shown in Fig. 4A. [4]

(b) Explain why tropical cyclones are generated in this region. [3]

(c) With the help of Fig. 4B, suggest reasons why some parts of the Philippines were more badly damaged than others. [3]

(d) Suggest how the tropical cyclone might have contributed to the damage shown in Photographs A and 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 types of evidence that can be used to support the existence of mantle convection currents. [9]

(b) To what extent is Peltier's model useful in explaining the rate and type of weathering in different locations? [16]

5 OR

(a) With the aid of diagrams, explain why earthquakes occur at different plate boundaries. [9]

(b) "Rock structure is the most important factor determining the development of different granite landforms in the Tropics."

Examine the validity of this statement. [16]

Atmospheric Processes, Hazards and Management

6 EITHER

(a) Explain the effects of global warming on the physical **or** human environment. [9]

(b) 'Global warming requires global solutions to be resolved successfully.'

To what extent do you agree with this statement? [16]

6 OR

(a) Describe and explain how the climate of an urban area differs from a nearby rural area. [9]

(b) To what extent is the distribution and production of precipitation in tropical climates determined by seasonal variations? [16]

Hydrological Processes, Hazards and Management

7 EITHER

(a) Describe and explain how braided rivers are formed. [9]

(b) With reference to examples, evaluate the success of resolving conflicts of interest in transborder river basins. [16]

7 OR

(a) Explain the meaning of the term *settling velocity* and how it determines the various modes of fluvial transport within a river channel. [9]

(b) Examine the extent to which the successful management of floods dependent on prediction? [16]

END