YISHUN JUNIOR COLLEGE JC2 PRELIMINARY EXAMINATIONS 2013

H2 GEOGRAPHY

9730/01

PAPER 1 PHYSICAL GEOGRAPHY

27 AUGUST 2013, TUESDAY 3 HOURS

Additional materials: Answer Paper 1 Insert World outline map

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READ THESE INSTRUCTIONS FIRST

Write your name and CTG 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 highlighters or correction fluid.

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

The Insert contains all the Figures and the Photographs 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 the 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.

This document consists of 4 printed pages and 1 Insert.

SECTION A

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

Lithospheric Processes, Hazards and Management

- 1 Photograph A shows a limestone landform in Guilin, South China.
 - (a) Draw a well-annotated sketch of the landform shown in Photograph A. [4]
 - (b) Explain the main weathering processes that are responsible for the formation of this landform. [6]
 - (c) Suggest reasons why this landform tends to be found in the Tropics. [2]

Atmospheric Processes, Hazards and Management

2 Fig. 1 shows the mean annual radiant energy and heat balance of the Earth.

(a)	Define the term 'earth's heat budget'.	[2]
(b)	With reference to Fig. 1, explain the processes which act on incoming solar radiation.	[6]
(c)	Explain how the energy and heat balance of the Earth might change if there is an increase in greenhouse gases.	[4]

Hydrologic Processes, Hazards and Management

3 Fig. 2 shows the Hjulström curve which shows the relationship between velocity and load in a river channel.

(a)	State the minimum velocity required to pick up sand.	[1]
(b)	Using Fig. 2, explain the relationship between velocity and load in a river channel.	[5]
(c)	Explain how you would conduct fieldwork in a small stream to measure river discharge.	[6]

Atmospheric and Hydrologic Processes, Hazards and Management

4 Fig. 3A shows the urban heat island profile of an area and Fig. 3B shows the air temperatures and wind speeds of the same area. Photograph B shows a flood event in an urban area.

(a)	Describe the urban heat island profile shown in Fig. 3A.	[2]
(b)	With reference to Figs. 3A and 3B, explain how buildings might affect air temperatures and wind speeds.	[6]
(-)	Fundais when floods pright security an unkern setting such as that	[0]

(c) Explain why floods might occur in an urban setting such as that [6] shown in Photograph B.

Section **B**

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

Lithospheric Processes, Hazards and Management

5 EITHER

5

(a)	Explain why the knowledge of Plate Tectonics is important in understanding the nature and distribution of volcanoes.	[9]
(b)	Using relevant examples, discuss the extent to which water is responsible for the occurrence of mass movements on slopes.	[16]
OR		
(a)	Distinguish between igneous and sedimentary rocks.	[9]
(b)	To what extent is rock jointing pivotal in the development of granite landforms?	[16]

Atmospheric Processes, Hazards and Management

6	EITHER			
	(a)	Explain the causes of droughts.	[0]	
	(b)	With reference to either droughts or cyclones, assess the effectiveness of strategies used to manage droughts or cyclones.	[16]	
6	OR			
	(a)	Describe and explain the characteristics of the <i>Inter-tropical Convergence Zone</i> (ITCZ).	[9]	
	(b)	Evaluate the following statement: 'Latitudinal position is the main factor influencing the climate of a place.'	[16]	

Hydrologic Processes, Hazards and Management

7 EITHER

7

(a)	Distinguish between the conditions leading to the formation of meanders and braided rivers.	[9]
(b)	Define the term 'channel morphology'. Why is an understanding of channel morphology crucial in understanding fluvial processes occurring in a river?	[16]
OR		
(a)	Explain the terms "Hortonian Overland Flow" and "Saturation Overland Flow".	[9]
(b)	To what extent do you agree that geology is the principal factor influencing the characteristics of storm hydrographs?	[16]