INNOVA JUNIOR COLLEGE
JC 2 PRELIMINARY EXAMINATION 2
in preparation for General Certificate of Education Advanced Level
Higher 2

GEOGRAPHY 9730/01

Paper 1 Physical Geography **19 Sep 2012**

3 hours

Additional Materials: Writing Paper
1 Insert
World Outline Map (Upon Request)

READ THESE INSTRUCTIONS FIRST

Write your name and class 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 all the Figures and 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 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 Study Figs 1A and 1B which show the average rates of physical and chemical weathering in relation to mean annual temperature and precipitation.

(a) Define the term *weathering*. [1]

(b) State the maximum range of temperatures and precipitation under which very slow chemical weathering occurs. [2]

(c) Briefly describe **one** physical weathering process that is characteristic of areas of rapid physical weathering and **one** physical weathering process that is characteristic of areas of slow physical weathering. [4]

(d) Describe the circumstances under which biological weathering has the greatest impact upon rocks. [5]

Atmospheric Processes, Hazards and Management

2 Figs 2A and 2B show the development of the Inter-Tropical Convergence Zone (ITCZ).

(a) Using Fig. 2A and 2B, describe and explain the formation of the ITCZ. [4]

(b) Using Fig. 2B explain the influence the ITCZ may have upon precipitation. [4]

(c) Explain one other major factor that is combined with the shifting of the ITCZ to produce monsoons. [4]

Hydrologic Processes, Hazards and Management

3 Photograph A shows features of a meander and Photograph B shows a braided river.

(a) Identify the features labeled A and B in Photograph A and describe the processes that have led to the formation of the features. [4]

(b) Draw a well-annotated sketch of the channel shown in Photograph B. [4]

(c) Briefly explain the main reasons why the channels shown in photographs A and B develop differently. [4]

Atmospheric and Hydrologic Processes, Hazards and Management

4 Fig. 3 shows the Hjulstrom Curve.

(a) Describe and explain the processes operating within the channel and the particles affected when the velocity of the river is at 100cm/sec. [4]

(b) Define the term *erosion*. To what extent does Fig. 3 support the argument that 'the higher the velocity, the greater the erosion? [6]

(c) What effects might the passage of a tropical cyclone have on river channel flow and sediment transport within a drainage basin? [4]

Section B

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

Lithospheric Processes, Hazards and Management

5 EITHER

(a) Fig 4 is a cross section diagram of a granite inselberg in a tropical region.

Explain how the processes of weathering and the removal of regolith have operated in stages to produce a granite inselberg in a tropical area, such as that shown in Fig 4. [9]

(b) 'Hazards produced by mass movement are typically caused by the interplay of natural and anthropogenic factors'. Evaluate the validity of this statement. [16]

OR

(a) With the aid of a diagram or diagrams, explain the formation of surface and subsurface limestone landforms in temperate regions. [9]

(b) To what extent can the plate tectonic theory be used to account for the global distribution and formation of fold mountains, rift valleys and volcanoes? [16]

Atmospheric Processes, Hazards and Management

6 EITHER

(a) Outline the characteristics of hot low latitude deserts. Explain the climatic conditions that produce them. [9]

(b) Explain the conditions necessary for the formation of tropical cyclones. Assess the importance of level of development in determining the hazardous impacts of tropical cyclones. [16]

OR

(a) Explain how stability and instability within the atmosphere produce different weather conditions. [9]

(b) Explain how urban heat islands develop. To what extent can urban heat islands influence the weather in cities? [16]

Hydrologic Processes, Hazards and Management

7 EITHER

(a) Explain the effects of climate and geology on the rising and falling limb of a storm hydrograph. [9]

(b) 'Hazards from flooding occur more due to natural rather than anthropogenic factors'. How far do you agree with this view? [16]

OR

(a) Discuss the various factors that can influence the drainage density of a catchment area. [9]

(b) What are the problems associated with the use of water resources in river basins that cross national boundaries? To what extent have these problems been overcome? [16]

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This Insert contains all the Figures and Photographs referred to in the questions.

Figs 1A and 1B for Question 1

Average rates of physical and chemical weathering in relation to mean annual temperature and precipitation

Fig. 1A Physical weathering

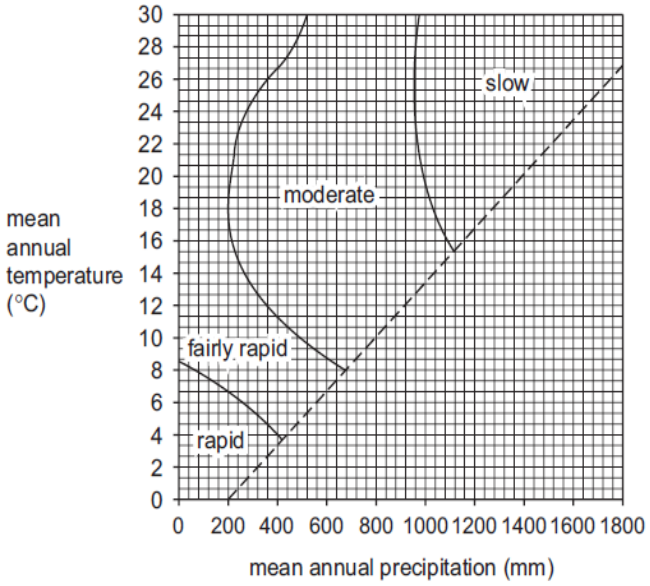
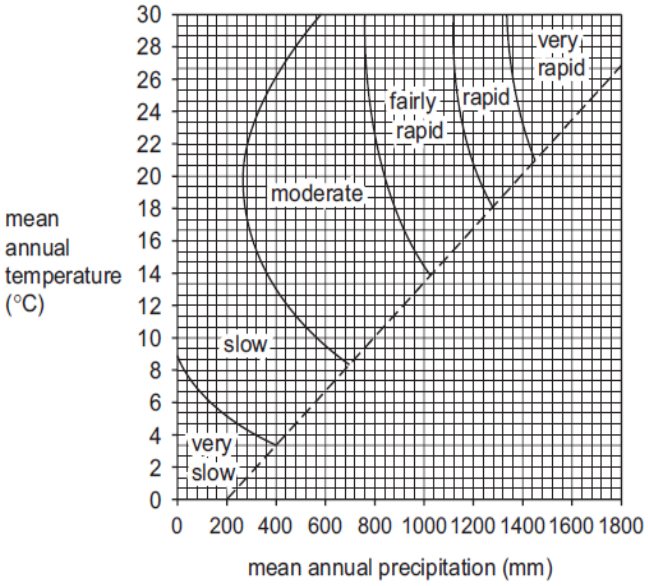


Fig. 1B Chemical weathering



Figs 2A and 2B for Question 2

Fig. 2A Plan view of the ITCZ

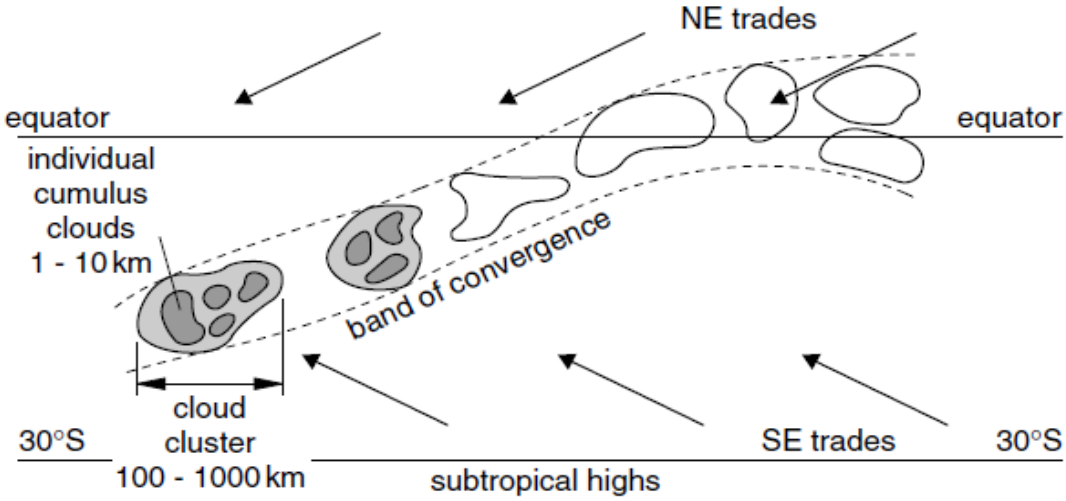
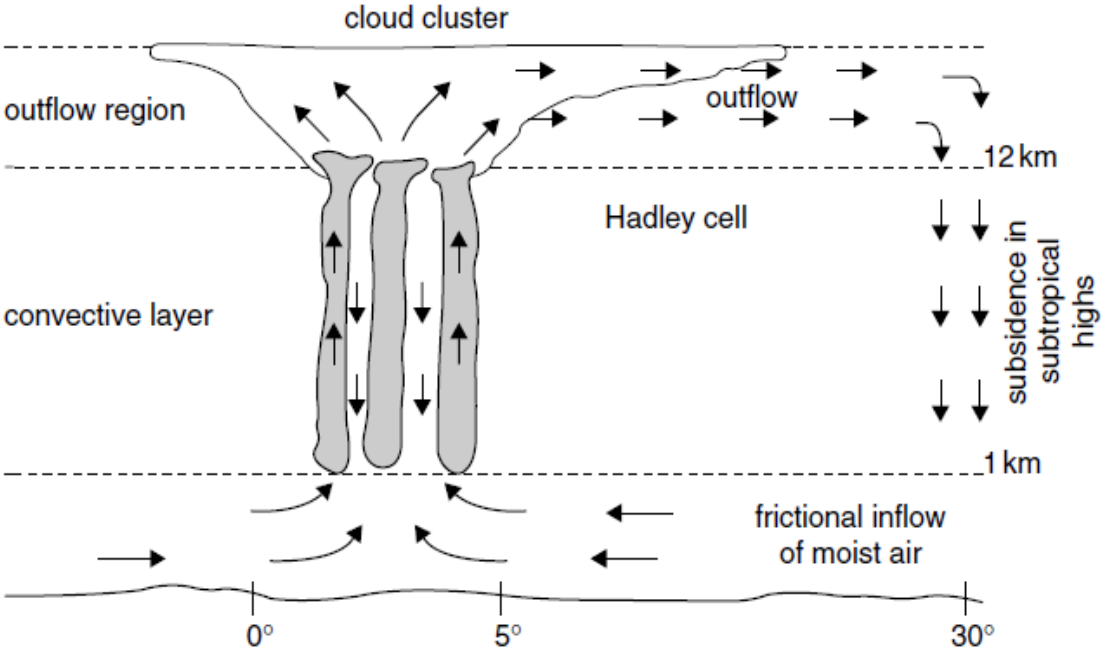


Fig. 2B Cross section view of the ITCZ



Photographs A and B for Question 3

Photograph A

Photograph B

Fig. 3 for Question 4

The Hjulstrom Curve

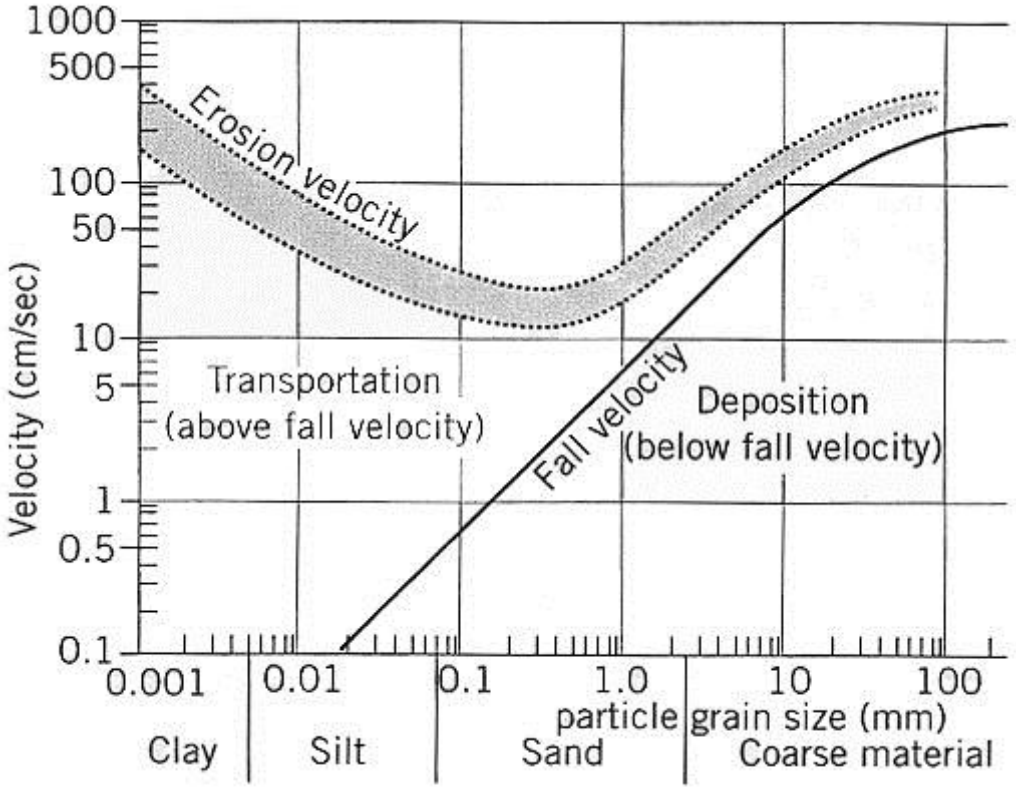


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Fig. 4 for Question 5 Either (a)

Cross section diagram of an inselberg in a tropical region