

RIVER VALLEY HIGH SCHOOL
General Certificate of Education Advanced Level
Preliminary Examination II
Higher 2

GEOGRAPHY
Paper 1 Physical Geography

9730/01
15 September 2016
3 hours

Additional Materials: Answer Paper
 1 Insert
 World outline map
 Cover Page

READ THESE INSTRUCTIONS FIRST

Write your name, admission number 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 an HB pencil for any diagrams, graphs, or rough working.
Do not use staples, paper clips, 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 Photograph referred to in the questions.
You should make reference to appropriate examples studied in the field or the classroom, even where such examples are not specifically required by the question.
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 below the cover page securely together.
The number of marks is given in brackets [] at the end of each question or part question.

This document consists of 5 printed pages, 1 blank page and 1 Insert.



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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 types of weathering in relation to mean annual temperature and precipitation. Photograph A shows an area of limestone landscape in the Yorkshire Dales, UK that may occur at zone **X** seen in Fig. 1.
 - (a) Study Fig. 1 and describe the conditions under which **X** and **Y** would occur. [4]
 - (b) In understanding where different types of weathering takes place, explain the limitations of the model seen in Fig. 1. [3]
 - (c) Identify the landform shown in Photograph A and explain its formation. [5]

Atmospheric Processes, Hazards and Management

- 2 Fig. 2A shows the global distribution of insolation with the location of Lima, Peru and Vilhena, Bolivia. Fig. 2B shows the climographs of Lima, Peru and Vilhena, Bolivia.
 - (a) With reference to Fig. 2A, describe the global distribution of insolation received at the earth's surface. [4]
 - (b) Account for the relationship between latitude and insolation received on the earth's surface. [4]
 - (c) Referring to Figs. 2A and 2B, comment on the climatic differences between Lima and Vilhena and suggest reasons for them. [4]

Hydrologic Processes, Hazards and Management

- 3** Fig. 3A shows the variation in interception and related processes between different forest environments. Fig. 3B shows the effects of vegetation on infiltration capacity.
- (a)** Referring to Fig. 3A, describe and account for the differences in interception and related processes between temperate deciduous forest and subtropical rainforest. [6]
 - (b)** With reference to Figs. 3A and 3B, explain the influence of vegetation on infiltration capacity. [2]
 - (c)** Explain how you would conduct fieldwork to investigate the effects of vegetation on infiltration capacity. [4]

Atmospheric and Lithospheric Processes, Hazards and Management

- 4** Fig. 4 shows the spatial distribution of lahars and pyroclastic flows of the eruption of Mt. Pinatubo, Philippines in 1991.
- (a)** With reference to Fig. 4, describe the spatial distribution of the lahars and pyroclastic flows. [4]
 - (b)** Briefly explain the effects of lahars. [3]
 - (c)** With reference to Fig. 4, explain why lahars usually travel further than pyroclastic flows. [3]
 - (d)** With the use of examples, discuss the atmospheric impacts that can occur as a result of a volcanic eruption. [4]

Section B

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

Lithospheric Processes, Hazards and Management

5 EITHER

- (a) Explain how Plate Tectonics Theory can account for the processes and landforms found at constructive plate boundaries. [9]
- (b) 'Prediction, mitigation and response can reduce the hazardous effects of earthquakes.' To what extent do you agree with the statement? [16]

OR

- (a) Discuss the role of vegetation in the chemical weathering of rocks. [9]
- (b) 'The development of granitic landforms is chiefly governed by the jointing of the underlying basal rock.' Discuss the validity of this statement with reference to areas you have studied. [16]

Atmospheric Processes, Hazards and Management

6 EITHER

- (a) With the aid of an annotated diagram, describe and explain the characteristics and causes of a tropical cyclone. [9]
- (b) To what extent is the management of cyclonic hazards dependent on the development of the affected country? [16]

OR

- (a) Explain the concept of atmospheric instability and outline the factors that give rise to it in the tropics. [9]
- (b) *"Tackling climate change is a collective endeavour, it means collective accountability and it is not too late."* (Christine Lagarde, 2015)

Assess the effectiveness of responses to climate change and discuss the challenges to their success. [16]

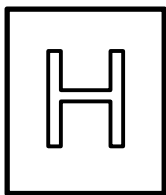
Hydrologic Processes, Hazards and Management**7 EITHER**

- (a) Outline the factors that affect the drainage density of a drainage basin and explain how they might influence the storm hydrograph of the basin. [9]
- (b) 'When it comes to flood hazards, man reaps what he sows.' To what extent do you agree with this assertion? [16]

OR

- (a) Explain the meaning of the terms: *channel competence*, *channel velocity* and *channel discharge* in relation to how the river channel changes downstream. [9]
- (b) With the aid of diagrams, compare the characteristics and conditions that lead to the formation of meandering and braided channels. [16]

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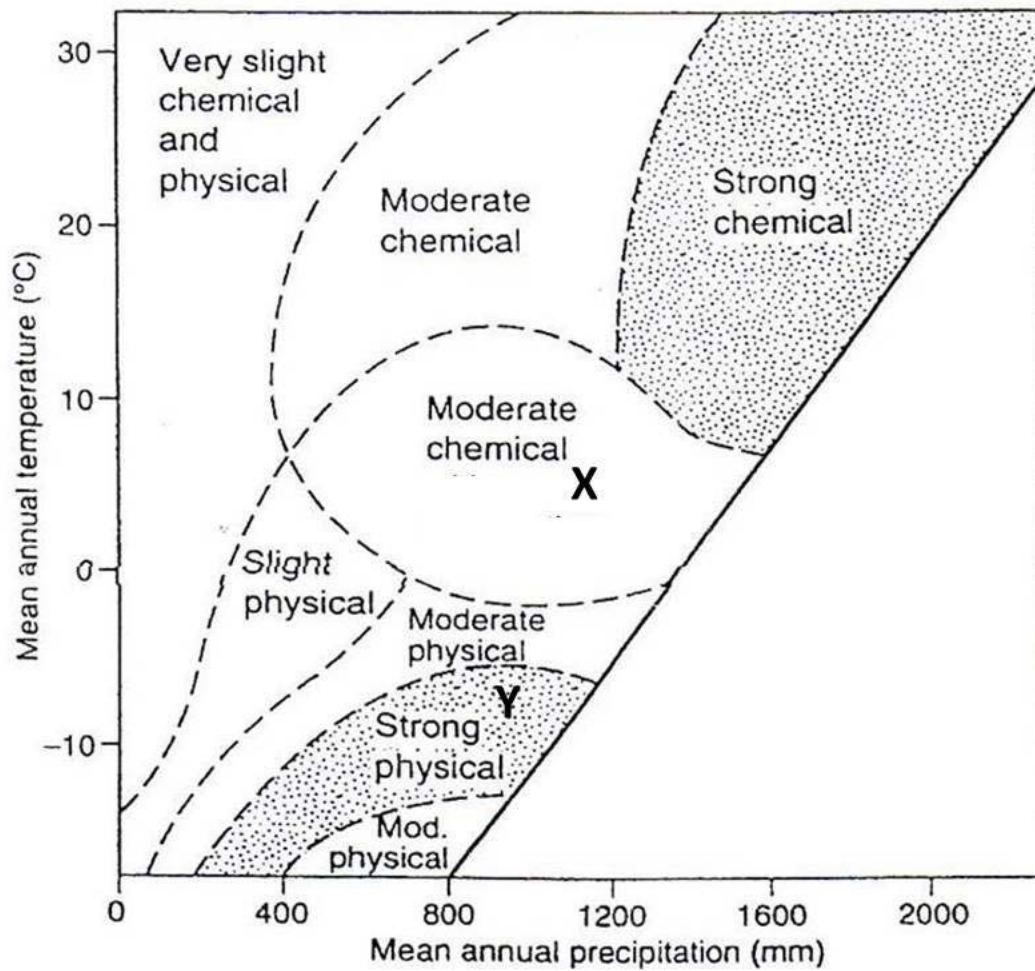
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Fig. 1 for Question 1

Model of the different types of weathering in relation to mean annual temperature and precipitation



Photograph A for Question 1

Limestone landscape, Yorkshire Dales, UK



Fig. 2A for Question 2

Global distribution of insolation with the location of Lima, Peru and Vilhena, Bolivia

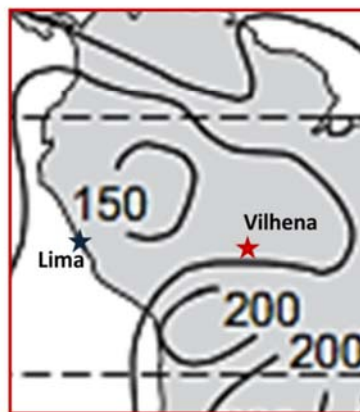
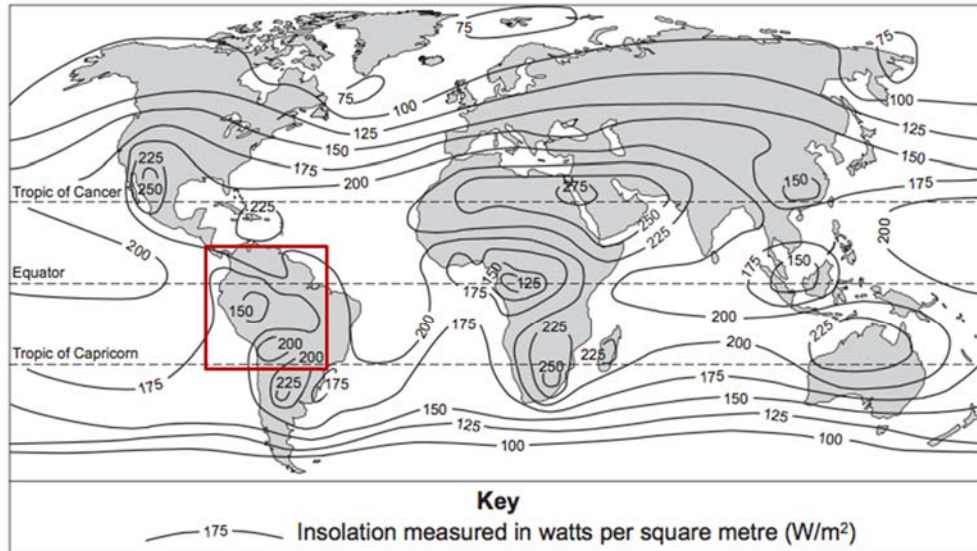


Fig. 2B for Question 2

Climographs of Lima, Peru and Vilhena, Bolivia

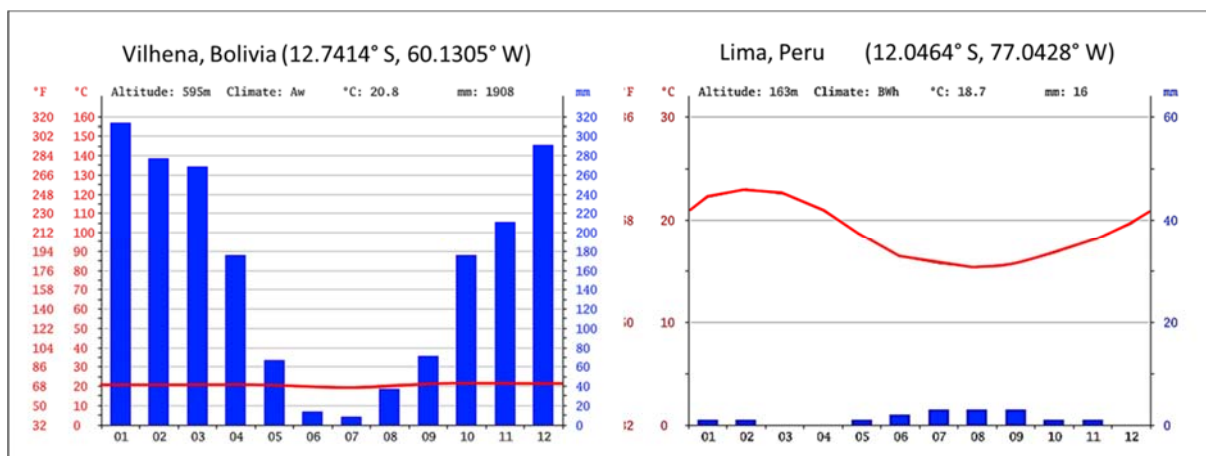


Fig. 3A for Question 3

Interception and related processes in various forest environments

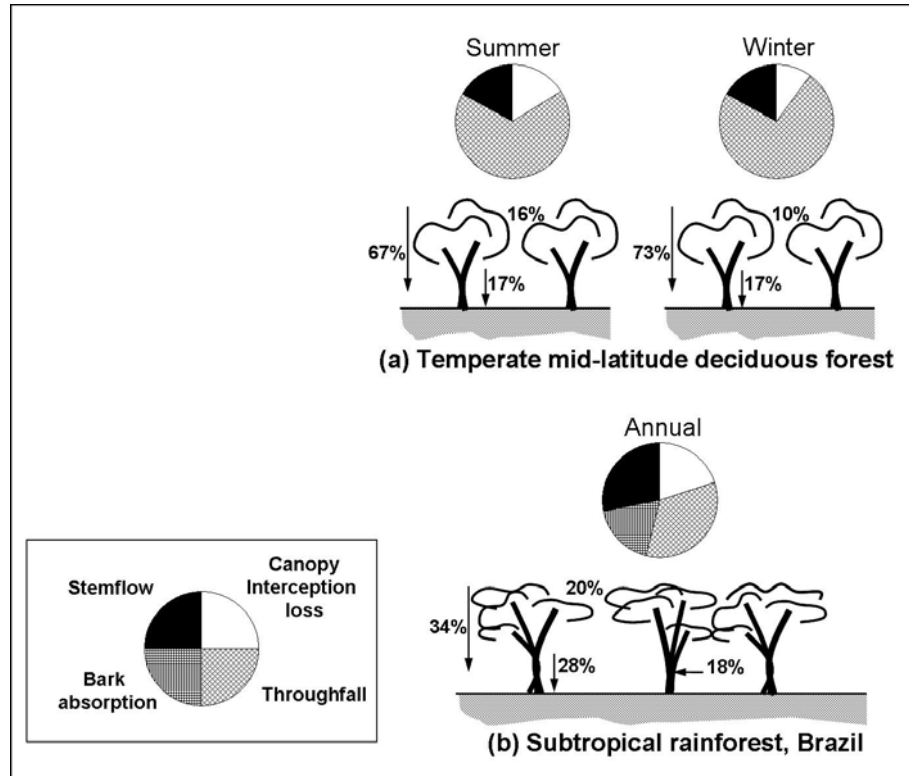


Fig. 3B for Question 3

Effect of vegetation on infiltration capacity and runoff

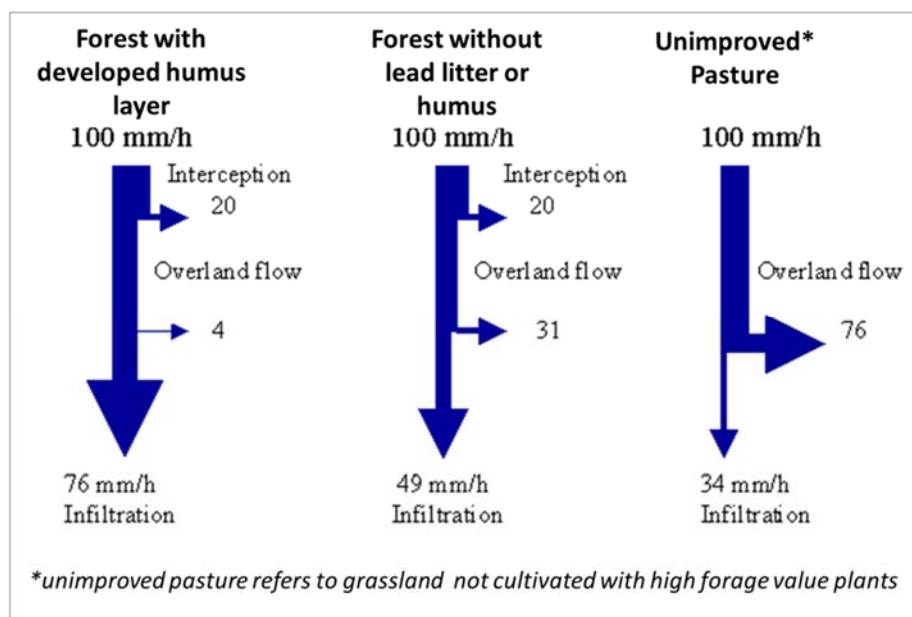


Fig. 4 for Question 4

Spatial distribution of the eruption of Mt. Pinatubo, Philippines, 1991

