

YISHUN JUNIOR COLLEGE JC2 PRELIMINARY EXAMINATION 2015

H2 GEOGRAPHY

Paper 1 Physical Geography

9730/01

19 AUGUST 2015

WEDNESDAY 0800 – 1100 HOURS

QUESTION PAPER

Additional materials:

Answer Paper

1 Insert

World outline map



TIME 3 HOURS

READ THESE INSTRUCTIONS FIRST

Start each question on a fresh piece of paper.

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 staples, paperclips, highlighters, glue or correction fluid.

Section A

Answer **all** questions.

Section B

Answer **two** questions, each from a different topic.

The Insert contains the Table and all Figures 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** questions from this section.

Question 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 Photograph A shows the ash column that erupted from Mount Sinabung, Sumatra, Indonesia on June 19, 2015. A resident is seen standing on his cabbage field in the foreground of the photograph. Fig. 1 shows the cross-section of Sumatra. The location of Mount Sinabung is also indicated on the cross-section.
- (a) (i) Describe the nature of the ash column seen in Photograph A. [2]
- (ii) Briefly suggest two ways in which volcanic ash is hazardous to humans. [2]
- (b) Using information from Fig.1, explain the cause of the eruption. [5]
- (c) (i) Besides ash, identify one other hazard which could result from the eruption. [1]
- (ii) Describe one strategy that could be used to mitigate the hazard identified in (c)(i). [2]

Atmospheric Processes, Hazards and Management

- 2 Figs 2A and 2B show the sea surface temperature over the Pacific Ocean in December 1993 and 1997 respectively. Fig. 2C is a map of the same region.
- (a) Describe the differences in sea surface temperatures between December 1993 and December 1997 as shown in Figs 2A and 2B. [3]
- (b) Explain how the differences described in (a) might influence atmospheric conditions over the equatorial region of the Pacific Ocean. [5]
- (c) Explain the possible impacts of such changes on communities in Indonesia and/or Australia. [4]

Hydrologic Processes, Hazards and Management

- 3** Fig. 3 shows the flows of surface and subsurface water on a grassy hillside.
- (a)** Describe the differences between the flows observed on this hillside. [4]
 - (b)** Explain why the graph in Fig. 3 might change if the hillside was paved over with concrete. [3]
 - (c)** Suggest how you might investigate how infiltration rates vary along a hillside such as the one observed in Fig. 3. [5]

Atmospheric and Lithospheric Processes, Hazards and Management

- 4** Figs 4A, 4B and 4C show elevation, precipitation, and prevailing winds in South America respectively. Location X has been marked out on both Figs 4A and 4B.
- (a)** With reference to Fig. 4A, describe the fold mountain range that passes through X and explain its formation. [5]
 - (b)** With reference to Fig. 4B, describe the precipitation patterns observed in South America. [4]
 - (c)**
 - (i)** Identify the dominant surface winds at X. [1]
 - (ii)** Explain how an understanding of the winds at X can help account for its mean annual precipitation level. [4]

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 igneous and sedimentary rocks. [9]
- (b) 'The chemical composition and the structure of rocks are major factors in influencing weathering.' Discuss this statement. [16]

5 OR

- (a) Distinguish between the following pairs of terms:
- (i) Heave and flow
- (ii) Translational slide and rotational slide [9]
- (b) Discuss the effectiveness of the strategies taken to manage earthquake hazards. [16]

Atmospheric Processes, Hazards and Management

6 EITHER

- (a) Explain the locational and seasonal distribution of tropical cyclones. [9]
- (b) To what extent do you agree that cyclones can be predicted and their impacts mitigated? [16]

6 OR

- (a) Describe and account for the similarities and differences between tropical rainforest, monsoon and savannah climates. [9]
- (b) Explain the causes of global warming and assess the measures taken to mitigate it. [16]

Hydrologic Processes, Hazards and Management

7 EITHER

- (a) With the aid of diagrams, distinguish between the characteristics of meandering and braided channel patterns. [9]
- (b) To what extent does a river's discharge influence its channel pattern? [16]

7 OR

- (a) With reference to examples, explain why some drainage basins experience water shortages. [9]
- (b) Assess the effectiveness of hard-engineering strategies in managing the impacts of flooding. [16]