NANYANG JUNIOR COLLEGE
Year 2 Preliminary Examination

H2 GEOGRAPHY 9730/01

Physical Geography 17 Sept 2013

3 hours

Additional Materials: Answer Paper
Insert
World Outline Map

READ THESE INSTRUCTIONS FIRST

Write your class, index number and name 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 the Photograph and all the Figures referred to in the question paper.
You should make reference to appropriate examples studied in the field or the classroom, even where such examples are not specifically requested by 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 Fig. 1 shows a map of the tectonic plates in and near Japan.

(a) Using information from Fig. 1, describe the movement of the Pacific Plate that resulted in the 11 March 2011 Tohoku earthquake. [2]

(b) With the aid of a well-annotated diagram and information from the figure, describe and explain how a tsunami was generated with the Tohoku earthquake. [6]

(c) Two other earthquakes were indicated on Fig. 1 as well. Suggest reasons why Japan is prone to earthquakes. [4]

Atmospheric Processes, Hazards and Management

2 Fig. 2 shows major atmospheric pressure systems at the earth's surface in January and July.

(a) Name the cartographic method used to depict the global atmospheric pressure systems. [1]

(b) (i) Describe one similarity in the location of high pressure areas in January and July. [2]

(ii) Describe one difference in the location of high pressure areas in January and July. [2]

(c) Explain the development of the high and low pressure areas and how they influence the pattern of surface winds. [7]

Hydrologic Processes, Hazards and Management

3 Fig. 3 shows the River Stour basin in Dorset (UK).

(a) Use a hydrological term to describe the extent (limit) of the drainage basin. [1]

(b) Draw the type of diagram you would to show the discharge pattern if precipitation were to fall evenly throughout the basin. [2]

(c) Suggest **one** reason to explain the drainage pattern in Fig. 3. [2]

(d) Describe the data you would need and explain the methods you would use to predict the likelihood of flooding by the river. How reliable do you think your predictions might be? [7]

Lithospheric and Hydrologic Processes, Hazards and Management

4 Fig. 4 shows the monthly average rainfall data from the city of Surat Thani, on the Malay Peninsula in southern Thailand. The shaded bars show the rainfall for January–March 2011.

Fig. 5 shows the 4 districts in southern Thailand hit by mudslides in March – April 2011.

Photograph A shows the destruction in the village of Ban Ton Harn in Khao Phanom district of Krabi province.

(a) With reference to Fig. 4, compare the 2011 and 1951 – 2011 average rainfall data for the month of March. [2]

(b) Using information from the figures and photograph, explain how rainfall can trigger mudslides to occur in the 4 districts. [6]

(c) Hazard zone mapping is one of the mitigation methods used to minimize the impacts of hazards such as mudslides. Briefly outline the steps and considerations involved in producing such maps in the management of mudslides in southern Thailand. [6]

Section B

Answer **two** questions from this section.

Lithospheric Processes, Hazards and Management

5 EITHER

(a) With the aid of diagrams, describe **and** account for the landforms associated with divergent plate boundaries [9]

(b) With reference to examples, discuss the factors contributing to effective volcanic hazard management. [16]

OR

(a) Using diagrams, describe and explain the characteristics **and** formation of inselbergs. [9]

(b) Discuss the significance of climate, weathering processes **and** geology in the formation of karstic landforms in Tropical **and** Temperate regions. [16]

Atmospheric Processes, Hazards and Management

6 EITHER

(a) Explain how cities can modify local atmospheric conditions. [9]

(b) Describe the main aspects of tropical monsoon climates. To what extent are they distinctive from other tropical climates? [16]

OR

(a) Using diagrams, explain the formations of convectional rainfall, orographic and frontal rainfall. [9]

(b) Compare the impact of drought in DCs and LDCs. Assess the effectiveness of management strategies in reducing the impact of drought on areas you have studied? [16]

Hydrologic Processes, Hazards and Management

7 EITHER

(a) Describe **and** explain the changes to channel morphology from the upper to lower course of a river. [9]

(b) With reference to examples, discuss the political, social, economic **and** environmental consequences of river floods. [16]

OR

(a) With the aid of diagrams, compare **and** contrast a meandering **and** a braided channel. [9]

(b) With reference to examples, evaluate the extent to which conflicts of interests between riparian states may arise due to economic factors. [16]