



PIONEER JUNIOR COLLEGE  
JC2 Preliminary Examination  
Higher 1

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**GEOGRAPHY**

**8813/01**

Paper 1

**11 September 2017**

**3 hours**

Additional Materials:     Answer Paper  
                                  World outline map

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**READ THESE INSTRUCTIONS FIRST**

Write your Name, Class and Index Number on the work you hand in.  
Write in dark blue or black pen on both sides of the paper.  
You may use a HB pencil for any diagrams or graphs.  
Do not use staples, paper clips, glue or correction fluid.

Answer **four** questions in total.

**Section A**

Answer Question 1.

**Section B**

Answer Question 2.

**Section C**

Answer two questions, each from a different theme.

The Insert contains all the Resources 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 requested by the question.  
Diagram 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****Theme 3: Geographical Investigation**

- 1 Your class was divided into groups of 4 to undertake a fieldwork exercise to investigate the influence of land use on infiltration rates in Singapore.

Your group chose to conduct the study at 2 sites of different land use. Site A is a built up residential area in Bukit Batok whilst Site B is a nature park in Bukit Batok.

Your group identified one suitable point at each site to conduct the investigation and took measurements twice: on a Saturday morning and early afternoon in June 2017. Your group was given 3 hours to complete each measurement.

The following equipment were provided to measure infiltration rate at the two different land use sites:

- Single-ring infiltrometer comprising a tin can about 30cm tall with a diameter of 10cm with both ends of it removed.
- 1.5 litre bottle of water
- A ruler
- Hammer
- Wooden plank
- Stopwatch

At the respective sites, the tin can was driven into the soil to about 10cm deep by using a hammer onto a wooden plank placed on the rim of the can. A ruler was placed vertically inside the tin can to record the fall in water level.

Water was poured to a depth of 10cm. Measurements of the remaining depth of water was taken every 15 minutes to compute the infiltration rate. At the same time constant top-ups of water were carried out to maintain a regular head of water above soil.

Your group also collected soil samples from both sites. It was deduced that the soil collected from Site A was clay whilst the soil collected at Site B was sand.

Resource 1 shows photographs of Sites A and B where the study was conducted. Resource 2 shows data collected on infiltration rates at Sites A and B. Resource 3 shows photographs of the soil samples collected at both sites.

- (a) With reference to Resource 1, suggest a suitable hypothesis for your group [1] investigation.
- (b) Explain how your group would minimise the impact of your investigation differently [5] at the two sites shown in Resource 1.
- (c) With reference to Resource 2, sketch a line graph to represent the infiltration rates for [5] Site A and Site B over time respectively. Suggest 2 reasons why this method may be better than the one depicted in Resource 2.
- (d) Your group concluded that some of the infiltration data collected may not be [7] completely reliable and/or accurate. Explain how the process of data collection could be improved.
- (e) Evaluate the usefulness of Resource 2 and Resource 3 in helping to understand the [7] influence of land use on infiltration rates in Singapore.

**Section B**

**Theme 2: Urban Change**

**Urban Issues in Brazil**

2 Favelas in Brazil refer to slums located within or on the outskirts of the country's large cities. Resource 4 depicts the location of favelas in Brazil. Resource 5 shows a photograph of a favela in Rio de Janeiro. Resource 6 shows changes in service provision in a favela in Rio de Janeiro. Resource 7 shows an article on the relocation of slum dwellers in Rio de Janeiro prior to the World Cup.

- (a) Describe the location of favelas in Brazil as depicted in Resource 4. [3]
- (b) Explain the characteristics of favelas as seen in Resource 5. [5]
- (c) With reference to Resource 5, explain the potential hazards faced by slum dwellers. [4]
- (d) Account for the changes in service provision in favelas as shown in Resource 6. [5]
- (e) With reference to Resource 7, evaluate the Brazilian government's strategy of relocating slum dwellers. [8]

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Section C

Answer two questions from this section. **Either** Question 3 **or** Question 4 and **Either** Question 5 **or** Question 6.

Theme 1: Climate Change and Flooding

- 3 (a) Explain the possible effects of climate change on human activity. [9]
- (b) 'Utilizing alternative energy sources is the most promising measure to combat [16] against climate change.' To what extent do you agree with this statement?
- 4 (a) Explain the atmospheric and surface conditions necessary for the development of [9] tropical cyclones.
- (b) 'Soft-engineering strategies are the most effective protection against flooding.' To [16] what extent do you agree with this statement?

Theme 2: Urban Change

- 5 (a) Explain why the ecological footprint of cities vary at different levels of [9] development.
- (b) 'The key to managing waste in cities sustainably is to reduce waste generation.' [16] To what extent do you agree with this view?
- 6 (a) Explain how the issue of **either** crowding **or** fear is produced in cities in countries [9] at high levels of development.
- (b) Assess the success of strategies used to mitigate the issue of **either** crowding **or** [16] fear in the city.

Commented [CKL1]: Same comment as above

Commented [CKL2]: Following from the previous question, would it mean that the student need to evaluate the strategies undertaken by a city in countries of high development?