

Catholic Junior College JC2 Preliminary Examinations Higher 2

GEOGRAPHY

Paper 2

9751/02

27 Aug 2018

3 hours

Additional Materials: Answer Paper 1 Insert

READ THESE INSTRUCTIONS FIRST

Write your class 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 an HB pencil for any diagrams, graphs or rough working. Do not use staples, paper clips, highlighters, glue or correction fluid.

Candidates answer **all** questions.

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, you are to hand in **each question separately.** The number of marks is given in brackets [] at the end of each question or part question.

Start each question on a fresh sheet of paper. You will hand in each question separately.

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Section A

Theme 4: Geographical Investigations

1 You are part of a group of classmates that was tasked to investigate the influence of land use on infiltration rates in Singapore. The group was divided up into 2 teams of four to measure the infiltration rate at 2 locations simultaneously.

In planning the geographical investigation, the teams identified the land use areas by first looking at the land use map of Singapore. For practicality reasons, the teams chose to conduct their study at two sites of different land use - Site A which is a nature park land within Bukit Timah Nature Reserve and Site B, a built-up residential area in the Dairy Farm Estate.

The teams chose to collect data on infiltration within the different land use areas they had identified. The study was conducted at one accessible point within each survey site. The investigation was conducted on the Saturday morning of 30 June 2018.

The infiltration rate is measured by using a set of infiltration rings and by timing the speed at which the water level in the ring falls. The following equipment and materials were used to measure infiltration rate at the two different land use sites:

- Dual-ring infiltrometer comprising two tin cans, the first about 30 cm tall with a diameter of 15 cm and the second smaller tin can about 25 cm tall and with a smaller diameter of 9 cm. Both tin cans have both ends of it removed.
- Plentiful supply of water
- A ruler
- Hammer
- Wooden plank
- Stopwatch

At the respective sites, the smaller tin can (measuring 25 cm by 9 cm) was driven into the soil to about 10 cm deep by using a hammer onto a wooden plank placed on the rim of the can. The larger tin can (measuring 30 cm by 15 cm) was then placed over the smaller tin can and then driven into the soil to about 10 cm deep too. It was noted that at site B, the students had difficulty hammering the infiltration ring into the ground.

A ruler was placed vertically inside the inner ring to record the fall in water level. Water was poured into both the rings to a depth of 10 cm. The level of water in the outer ring was topped up to keep it at a constant level of 10 cm. As the water level decreased by every 1 cm, a recording of the time was taken. This is the fall rate. The data was recorded in the recording sheet.

Resource 1 shows a map of the nature park in Bukit Timah Nature Reserve and residential area in the Dairy Farm Estate. Resource 2A and 2B comprises photographs of Sites A and B where the study was conducted. Resource 3 shows data collected on infiltration rates at Sites A and B.

- (a) With reference to Resource 1, 2A and 2B, suggest a suitable research [3] question for your group investigation and state 2 reasons why the research question is at a suitable scale.
- (b) With reference to Resource 2A and 2B, explain how you would [4] minimise the impact of your investigation differently at the two sites.
- (c) Explain the limitations of the data representation method in Resource 3 [5] and how would you improve on it.
- (d) Evaluate the reliability of the data collected as shown in Resource 3 in [9] ascertaining the influence of land use on infiltration rates
- (e) Suggest two ways to improve on your data collection method. [4]

Section B

Theme 1: Tropical Environments

Impact of Tropical Cyclone in The Philippines

2 Typhoon Haiyan, known as Super Typhoon Yolanda in The Philippines, was one of the strongest tropical cyclones ever recorded. On making landfall, Haiyan devastated portions of Southeast Asia, particularly the Philippines. It is the deadliest Philippine typhoon on record, killing at least 6,300 people in that country alone. Tropical-storm-force winds are extending 240 kilometers from the typhoon's centre causing catastrophic destruction in the Visayas (one of the three principal geographical divisions of the Philippines, located in the central part of the archipelago) particularly on Samar and Leyte. According to UN officials, about 11 million people were affected – many were left homeless

Resource 4 is the climograph of Guiuan, the location where Typhoon Haiyan first made landfall at 4.40am at peak intensity. Resource 5 shows

devastation caused by Typhoon Haiyan in Tacloban City, Eastern Samur. Resource 6 shows the development of Typhoon Haiyan across The Philippines on November 8, 2013. Resource 7 shows the total cost of infrastructure and agriculture damaged by Typhoon Haiyan.

- (a) With reference to Resource 4, identify the type of climate and [4] describe the variations in both temperature and precipitation throughout the year.
- (b) With reference to Resource 6, describe the path and intensity of the [3] storm across The Philippines.
- (c) With reference to Resource 6, explain how tropical cyclones develop [4] high wind speeds and intense rainfall.
- (d) Using Resources 5, 6 and 7, account for the impacts of Cyclone on [5] the Visayas.
- (e) With reference to all Resources and your own knowledge, evaluate [9] the extent to which prediction can help to mitigate the effects of flooding in Tacloban City.

Theme 2: Development, Economy and Environment

Diamond Extraction in Angola, West Africa

3 Angola is the fifth largest diamond producer in the world. It was engaged in a civil war between 1975 and 2002 and earns the reputation of engaging in blood diamonds, as rebels fund their insurgency through the sale of diamonds. The country has also been accused of poor human rights abuses such as use of violence and child labour in diamond mines. The Multidimensional Poverty Index (MPI) shows that 77% of Angola's population was classified as poor in 2001.

Resource 8 shows the distribution of global diamond production. Resource 9 shows the distribution of Angola's natural resources across the country, while Resource 10 shows Angola's diamond production and exports between 2004 and 2012. Resource 11 shows an online article about Angola's plan to ease controls over its diamond sector.

(a) With reference to Resource 8, describe the pattern of diamond [4] production in the world in 2016.

- (b) With reference to Resource 9, compare the distribution of natural [4] resources in the country.
- (c) With reference to Resource 10, describe the relationship between [4] diamond production and exports in Angola from 2004 to 2012.
- (d) Using information from Resource 11, explain the environmental impacts [6] that diamond mining has on Angola.
- (e) With reference to all resources, explain how the resource curse thesis [7] may be used to explain the impact of extractive industries on Angola's development.

Theme 3 – Sustainable Development

Liveability in Melbourne

4 Melbourne is a city in Australia. It has been ranked constantly for 7 consecutive years by The Economist as the world's most liveable city. It is shifting away from its manufacturing focus to be a more knowledge and service-based economy. Further advances in digital technology and automation are expected to cause the loss of even more manufacturing jobs in coming years

Resource 12 shows the changes in city's rankings by The Economist from 2007-2017. Resource 13 shows the spatial distribution of disadvantage across Melbourne. Resource 14 shows the trends in housing and homelessness.

- (a) Describe the variations in liveability score from 2007-2017 as shown in [4] Resource 12.
- (b) With reference to Resource 12 and your own knowledge, explain [4] possible reasons why some cities experienced an increase in liveability score while others experienced a decrease.
- (c) With reference to Resource 13, describe the spread of disadvantage [4] across Melbourne.
- (d) Explain the relationship between housing price and average age of first [6] home buyers and homelessness as shown in Resource 14.
- (e) Using Resource 5, 6 and your own knowledge, suggest reasons why [7] some neighbourhoods has high levels of disadvantage.

**** END OF PAPER ****