



NAN HUA HIGH SCHOOL
Preliminary Examination 2025

CANDIDATE
NAME

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CENTRE
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CLASS

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INDEX
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GEOGRAPHY

2279/01

Paper 1

27 August 2025

1 hour 45 minutes

Candidates answer on the Question Paper.

READ THESE INSTRUCTIONS FIRST

Write your name, class, and index number on all the work you hand in.

Write in dark blue or black pen.

You may use an HB pencil for any diagrams or graphs.

Do not use staples, paper clips, glue, or correction fluid/tape.

Answer **all** questions.

The insert contains additional resources referred to in the questions.

The number of marks is given in brackets [] at the end of each question or part question.

The total mark for this paper is **50**.

Answer **all** questions.

1 Cluster 1: Geography in Everyday Life

Marina Bay Sands in Singapore is popular with tourists for its iconic architecture, and world class shopping and dining amenities. A group of students wanted to investigate the research question, 'Which area in Marina Bay Sands is the most popular with visitors?'

Fig. 1.1 shows the map of Marina Bay Sands where the students conducted their investigation.

(a) Describe two factors that the students should consider when deciding on the fieldwork locations in Marina Bay Sands. [2]

- Students have to take note of traffic hazards in the area and road crossing procedures.
- Students have to consider if there are enough of them to be deployed for the investigation at the different sites so that the data is representative enough for the investigation.

(b) The students wanted to design a closed ended questionnaire to answer their research question.

With reference to Fig. 1.1, explain how the students could collect the data needed to answer their research question. [5]

Location / Site

- The students can pair up and locate themselves at the entrances of MBS / taxi stands / MRT station entrances as the range and volume of visitors would be the greatest.
- These locations are ideal as they are where most visitors would alight and enter Marina Bay sands hence providing opportunities for students to approach the visitors easily.

Sampling method

- Students could use the simple random sampling as it is used to remove bias that may come from the choices made by the students / has a greater chance of creating a representative sample.
- Students could use a random number generator / a die to select the visitors to survey.

Duration / Time

- Students should also conduct the questionnaire for an hour, 3 times in the day to ensure representation of the visitors within the day.
- Students should also consider conducting the questionnaire for a week at the same time periods.

- (c) To further support their investigation, the students also counted the number of visitors to Marina Bay Sands. They positioned themselves at several locations: at the four Bayfront Mass Rapid Transit (MRT) entrances that connect to Marina Bay Sands and the three Marina Bay Sands taxi stands on a weekday to conduct the count of visitors. They used a tally counter to count the visitors. Table 1.1 shows a tabulation of their data.

Time	No. of visitors at the entrances of Bayfront MRT station	No. of visitors at Marina Bay Sands Shoppes taxi stands
10.00am - 11.00am	250	80
11.00am - 12.00pm	350	150
12.00pm - 1.00pm	300	180
1.00pm - 2.00pm	400	130

Table 1.1

- (i) From Table 1.1, identify the period of day that has the highest number of visitors. [1]
- 1pm - 2 pm
- (ii) Suggest how the students could present the data in Table 1.1. [3]
- The students could present the data in a bar graph.
 - The x-axis would be the time periods while the y-axis would be the number of visitors.
 - There will be two bars per time period to show the count at the entrances of Bayfront MRT stations and the count at the taxi stands. / The total number of visitors should be added up to plot the total number of visitors during each time period.
- (iii) Evaluate the reliability of the data collected by the students in the visitor's count. [6]

Reliable

- The students paired up so that they can be located at more sites to do the counting which made the data more representative of the visitors which in turn increases the reliability of the data collected.
- They also selected appropriate locations such as MRT entrances and taxi stands which are linked to MBS and these locations are where visitors will alight to enter MBS hence making the data reliable.
- These locations also allow the students to get the range and volume of visitors needed to collect the data.
- They use a tally counter for their counting hence removing the human error of double counting which made the data collected reliable.

Not reliable

- However, the students only conducted the counting on one weekday which may not be representative of visitors' number entering MBS on other days.
- They conducted the counting from 10 am to 2 pm which does not represent visitors numbers at other timings of the day.

(d) As an extension of their learning, the students thought of investigating the hypothesis, '*The ArtScience Museum is the most popular in the Marina Bay Sands area.*' with locals. They thought of using mental maps to collect data. [3]

Describe how the students could use mental maps to investigate this hypothesis.

- Blank papers could be given to locals to draw features in a map form such as what they know, believe and / or feel about the Marina Bay Sands area. [1 mark] Free form mental maps are representative of the visitors' perceptions of the two places. [1 additional mark]
- A base map could also be given if locals could not draw from scratch and students could ask locals to add details by labeling or annotating their perceptions of the features in the Marina Bay Sands area.
- Using mental maps drawn as discussion points, semi structured interviews with open-ended questions can be conducted to find out more about the mappers' perceptions of the area [1 mark]
- Check to see if the ArtScience Museum is featured in the mental maps / how the ArtScience Museum is featured [1 mark].

2 Cluster 2: Tourism

(a) Study Figs. 2.1 and 2.2 which show some tourism statistics of New Zealand from 2013 to 2016.

International Visitor Arrivals for 2013 - 2016							
	2013	2014	2015	2016	2014	2015	2016
					Annual Percentage change (%)		
Oceania	1,311,872	1,359,120	1,415,588	1,514,080	3.6	4.2	6.9
Asia	528,624	575,200	681,568	814,640	8.8	18.5	19.5
Americas	264,576	285,664	307,024	348,192	8.0	7.5	13.4
Other regions	88,880	98,048	88,624	89,472	10.3	-9.6	1.0
Total	2,611,377	2,752,257	2,947,901	3,255,463	5.4	7.1	10.4

Source: <http://www.tdc.co.tt/index.php>

Fig. 2.1

Total Tourism Expenditure by tourists				
Year	Total Tourism Expenditure \$ (million)	Annual percentage change	Gross Domestic Product \$ (million)	International tourism as a percentage of total exports
2013	26 947	1.3	62 766	15.8
2014	28 039	4.1	67 002	15.4
2015	30 935	10.3	67 514	17.9
2016	34 699	12.2	70 144	20.7

Source: <http://www.tdc.co.tt/index.php>

Fig. 2.2

- (i) Using Fig. 2.1, describe the trend of visitor arrivals to New Zealand from 2013 to 2016. [3]
- In general, visitor arrivals to NZ have increase from 2013 to 2016, from 5.4% change in 2014 to 10.4% in 2016.
 - The largest increase was from Asia, from 8.8% change in 2014 to 19.5% in 2016
 - Oceania has the smallest increase from 3.6% change in 2014 to 6.9% in 2016.
 - Other regions showed a decline from 10.3% change in 2014 to 1% in 2016. In fact, there was a significant drop in visitor arrivals in 2015 which resulted in -9.6% change compared to the previous year.
- (ii) With reference to Figs. 2.1 and 2.2, explain how tourism is both beneficial and risky to New Zealand's economy. [3]

Benefits

- Tourism brings significant benefits to the NZ economy through its earnings. For instance, in 2013, the country earned \$26.9billion and in 2016, the earnings increased to \$34.7billion / tourism as a percentage of total exports has increased from 15.8% to 20.7%.
- International tourism accounts for 20.7% of NZ's total exports. This would have led to jobs and stimulated local businesses.
- Tourism may lead to more investments into NZ due to greater awareness of business opportunities there.

Risks

- However, the fact that it accounts for 20% of NZ's exports indicate its reliance on this sector of the economy. This makes NZ vulnerable to fluctuations in visitor arrivals due to economic downturns, outbreak of diseases and other disasters.
- This would impact NZ negatively, for eg. loss of jobs, closure of businesses which affects NZ's economy negatively.

(b) Explain how expansion of public transport services and infrastructure has contributed to the growth of tourism. [3]

- More countries are constructing transport infrastructure such as roads, railways and airports.
- Connectivity within different parts of a country as well as between countries has increased. Tourists can travel to more places in shorter times.
- Many countries have also expanded their network of public transport services by increasing the number of public bus and train routes.
- Travelling within the destination region has become more convenient for tourists, leading to tourist growth.

(c) Study Fig. 2.3 (Insert), which shows a beach next to the Aegean Sea in Greece. The beach is popular among the locals and visited by many tourists every year.

With reference to Fig. 2.3, suggest how tourism could damage the local environment.

[5]

- The beach is badly littered with plastic bottles and other waste. These bottles are non-biodegradable and can lead to environmental degradation such as land and water pollution. [1 mark]
- The beach is crowded with tourists who may make too much noise and may disturb which can disturb and frighten off animals. [1 mark]
- Travelling by air, sea or land requires large amounts of fossil fuels to be burned, which generates a significant amount of greenhouse gases. [1 mark]
- Services provided by tourism such as air-conditioned accommodation can also contribute to the increase of greenhouse gases which can lead to enhance greenhouse effect. [1 mark]

- Many accommodations in tourist areas may not have the proper sewage system such as wastewater treatment facilities and untreated sewage may be improperly disposed of to the sea, causing water pollution. [1 mark]
- The construction of tourist facilities may encroach on natural areas, destroying natural environments and threatening wildlife habitat. [1 mark]
- Tourism may result in an overuse of natural resources such as water, leading to depletion of natural resources. [1 mark] These may lead to negative environmental impacts such as droughts, which may harm people and terrestrial and aquatic ecosystems. [1 additional mark]

3 Cluster 3: Climate

(a) Study Fig. 3.1 (Insert), which shows global average surface temperature, global average sea level and Northern Hemisphere snow cover from 1850 to 2000.

Using Fig. 3.1, describe the relationship between global average surface temperature, global average sea level and northern hemisphere snow cover. [3]

- Fig. 3.1 shows that an increase in global average surface temperature of 0.8°C from 1850 to 2000 is accompanied by a decline in Northern Hemisphere snow cover of 2 million km^2 from 1920 - 2000
- When global average surface temperature increases by 0.8°C , a corresponding increase in global average sea level by about 190mm from 1870 to 2000.
- When Northern Hemisphere snow cover decreases by about 2 million km^2 from 1920 – 2000, global average sea level increases by about 190mm from 1870 – 2000.

(b) Explain why temperature differs between tropical equatorial climate and cool temperate climate. [3]

- Due to the Earth's spherical shape, solar angle, which is the angle that the sun's rays strike the Earth's surface, varies at different parts of the earth.
- As areas experiencing tropical equatorial climate are nearer the equator, the solar angle is larger and the sun's rays are more concentrated, resulting in higher / warmer temperatures.
- Whereas areas with cool temperate climate are at a higher latitude with a smaller solar angle where the solar radiation is less direct, and the sun's rays are spread over a larger area and is less concentrated, leading to lower temperatures.

(c) 'The largest cause of climate change is deforestation.' How far do you agree with this statement? Support your answer with examples.

Level	Marks	Descriptors
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3	7-9	• Develops arguments that support both sides of the discussion clearly using a range of points with good elaboration. (For and against the statement). • Examples (must include locations) used demonstrate comprehensive understanding of the issue or phenomenon. • Evaluation is derived from a well-reasoned consideration (based on at least 1 criteria) of the arguments. Examples of criteria: Time- Long term vs short term impact/influence Scale- Area extent, geographical scale (local, national, regional, global) Inter-relationship between factors/impact
2	4-6	• Develops arguments that support one side of the discussion well using one or two points with some elaboration. • Example(s) used demonstrate a good understanding of the issue or phenomenon. • Evaluation is well supported by arguments.
1	1-3	• Arguments are unclear with limited description or may be listed. • No examples provided or examples are generic, demonstrating a basic understanding of the issue or phenomenon. • Evaluation is simple, missing or unclear.
0	0	No creditworthy response

Suggested answer:

I agree with the statement to a large extent. Large-scale deforestation can contribute vastly to climate change as many activities require clearance of large areas of forest although the burning of fossil fuels and urbanisation can cause climate change as well.

Large-scale deforestation which involves removal of forests is due to the need for resources and land. Resources such as timber and wood is used to produce paper and building materials for industrialisation. Forests are cleared for land due to the need for urban development or agricultural needs. Deforestation results in increased levels of carbon dioxide as it reduces the number of trees that absorb carbon dioxide through photosynthesis. During photosynthesis, trees store carbon, thus when trees are cut down or burned, the stored carbon is released back into the atmosphere as carbon dioxide. Clearing of trees also exposes soil to sunlight. This increases the soil temperature and the rate of carbon oxidation.

For example, globally, tropical deforestation contributes to about 20% of annual greenhouse gas emissions. With more greenhouse gases in the atmosphere, there is enhanced greenhouse effect and global temperatures increase, resulting in climate change.

However, the burning of fossil fuels has contributed to climate change as well. Fossil fuels have high carbon content. The burning of fossil fuels such as coal, oil and natural gas produces large amounts of carbon dioxide and other greenhouse gases which contributes to the enhanced greenhouse effect. The use of fossil fuels increased steeply since the start of the industrial revolution in the 1880s, contributing to more than 35 billion tonnes of carbon dioxide emissions per year.

In cities, fossil fuels are burned to power the high concentration of vehicles as well as household activities such as heating, cooking and lightings. Cities consume about 78% of the world's energy and contribute significantly to the emission of greenhouse gases which will lead to climate change.

Evaluation

In conclusion, I agree with the statement to a large extent as deforestation is a means for other causes such as agriculture and urbanisation that contribute to climate change. Large areas of forests are removed due to the needs of people which include burning of fossil fuels and urbanisation. As such the changing land use will require deforestation which is a main cause of climate change.

End of paper