Candidate Name	Form Class	Index Number

ANG MO KIO SECONDARY SCHOOL
END-OF-YEAR EXAMINATION 2022
SECONDARY TWO EXPRESS

GEOGRAPHY

4 October 2022
1 hour 15 minutes

Setter: Ms Adilah AB

Candidates answer on the Question Paper.

Additional Materials: Graph Paper

READ THESE INSTRUCTIONS FIRST

Write your name, index number and class on all the work you hand in.
Write in dark blue or black pen.
You may use a soft pencil for any rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer ALL the questions in the question paper.
Staple the **graph paper** at the back of the question paper.
Candidates are encouraged to support their answers with the use of relevant examples.

At the end of the examination, fasten all your answers securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

35

This document consists of **12** printed pages.

[Turn Over

SECTION A [17 marks]

1. (a) Study Fig. 1, a table which shows the world's urban population from 2000 to 2020.

Year	World's Urban Population (%)
2000	47
2005	49
2010	52
2015	54
2020	56

Fig. 1

(i) With reference to Fig. 1, represent the data using a suitable graph on the **graph paper** provided**.** [3]

(ii) With reference to Fig. 1, describe how the world's urban population has changed from 2000 to 2020.

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(b) Study Fig. 2, a photograph of an informal settlement in Mahul, Mumbai.

Fig. 2

(i) With reference to Fig. 2, describe **two** characteristics of informal housing.

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(ii) With reference to Fig. 2, explain **one** impact informal housing has on the environment.

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(c) Study Fig. 3, an artist's impression of Bukit Canberra which is an integrated hub developed by Housing Development Board in 2021.

Fig. 3

With reference to Fig. 3, explain **two** ways in which the planning authorities ensure that the needs of residents are met.

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(d) Evaluate the effectiveness of slum upgrading as a strategy to manage housing in a sustainable manner.

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SECTION B [18 marks]

2. (a) (i) Give **two** examples of a transport infrastructure.

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(ii) Describe **two** indicators of high-quality transport infrastructure.

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(b) Study Fig. 4, an infographic showing some attractions in Japan.

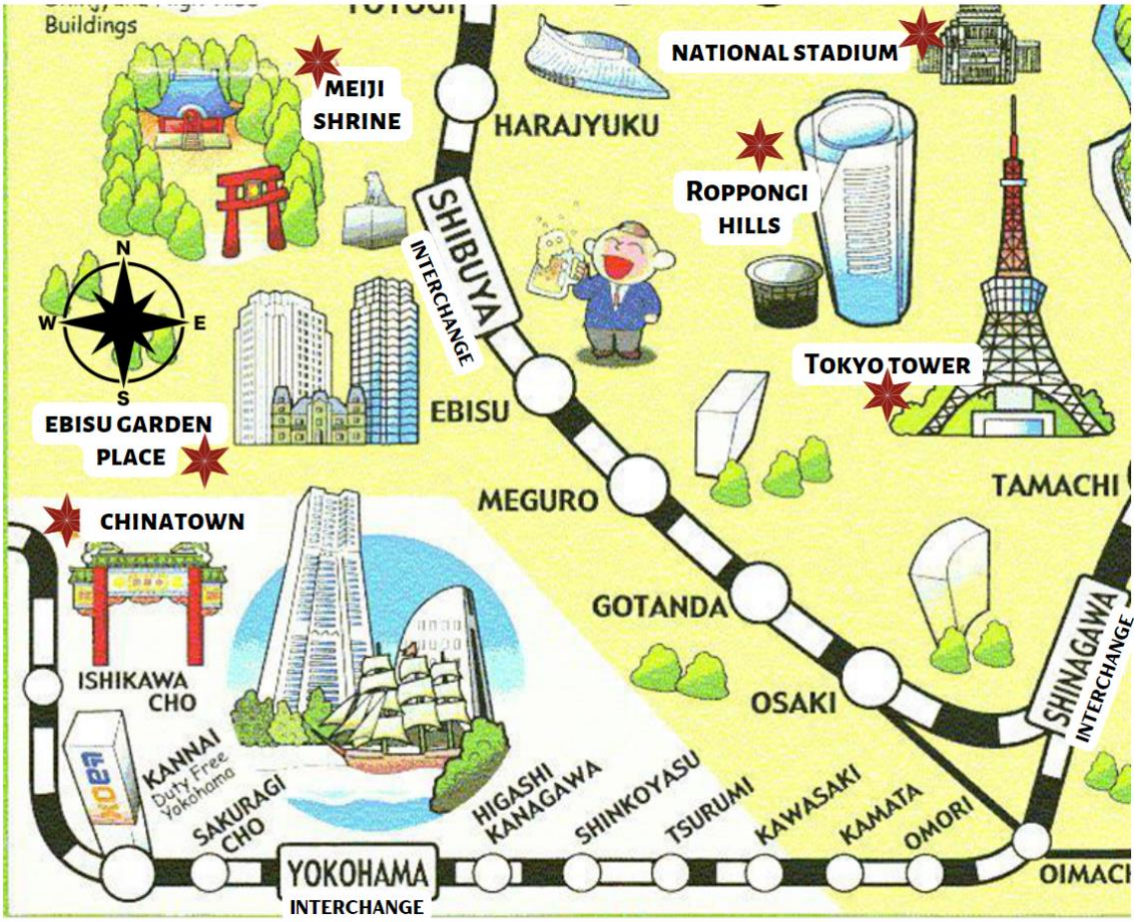

Fig. 4

With reference to Fig. 4, describe and account for the distribution of major transport nodes in Japan.

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(c) Study Fig. 5, an infographic showing the benefits of using Pandamart.

**Note: Pandamart is an online service which delivers groceries, health foods, household essentials to Singapore residences.*

Fig. 5

With reference to Fig. 5, explain why there is a need for transportation in cities.

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(d) Study Fig. 6, an excerpt of an article explaining the harms of traffic congestion.

> Traffic congestion imposes huge health impact on urban residents. In Mexico City, drivers spend more than 50 hours a year in peak traffic congestion and vehicles move as slowly as 10 km/hr on average during peak hour. Research shows that these may lead to health issues among commuters.
>
> Traffic congestion is also a major cause of air pollution, which contributes to chronic respiratory diseases. In 2017, a study was done on the impacts of gas emissions released during traffic congestion periods in Canada. The results showed that the $PM_{2.5}$ emissions during traffic jams has contributed to 119 respiratory-related deaths per year in Greater Toronto and Hamilton Area (GTHA).

Fig. 6

(i) With reference to Fig. 6, describe **two** features of traffic congestion.

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(ii) With reference to Fig. 6, explain how transport systems can have a negative impact on people's health.

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(e) Evaluate the effectiveness of road pricing as a strategy to manage provision of transport in a sustainable manner.

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Copyright Acknowledgements:

Question 1(a) (i) & (ii)	https://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS?end=2021&start=2000
Question 1(b) (i) & (ii)	Adapted from https://www.theguardian.com/cities/2018/feb/26/mumbai-poor-mahul-gentrification
Question 1(c)	Adapted from https://www.ura.gov.sg/Corporate/Planning/Master-Plan/Regional-Highlights/North-Region
Question 2(b)	Adapted from http://tokyojapanmap360.com/tokyo-tourist-map
Question 2(c)	https://www.foodpanda.sg/groceries
Question 2(d) (i) & (ii)	https://www.sciencedirect.com/science/article/pii/S0160412017318263

END OF PAPER

Additional Page

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Candidate Name	Form Class	Index Number

ANG MO KIO SECONDARY SCHOOL
END-OF-YEAR EXAMINATION 2022
SECONDARY TWO EXPRESS
ANSWER KEY

GEOGRAPHY

4 October 2022
1 hour 15 minutes

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SECTION A [17 marks]

1. (a) Study Fig. 1, a table which shows the world's urban population from 2000 to 2020.

Year	World's Urban Population (%)
2000	47
2005	49
2010	52
2015	54
2020	56

Fig. 1

(i) With reference to Fig. 1, represent the data using a suitable graph on the **graph paper** provided**.** [3]

- Title **[1m]**
- Axes Labels **[1m]**
  - Note: Ensure both bar and axes labels are provided and are accurate.
- Plotting **[1m]**
  - Note: Ensure uniform spacing between bars.

*Accept both line and bar graphs.

(ii) With reference to Fig. 1, describe how the world's urban population has changed from 2000 to 2020. [2m]

- The world's urban population has **increased steadily/constantly/gradually** [trend: **1m**]
- from **47% in 2000 to 56% in 2020** [evidence: **1m**]

(b) Study Fig. 2, a photograph of an informal settlement in Mahul, Mumbai.

Fig. 2

(i) With reference to Fig. 2, describe **two** characteristics of informal housing. [2m]

- **Characteristic 1:** Poor quality building materials
- **Evidence:** The slum in Mahul, Mumbai is built with scavenged/scrap materials such as zinc sheets and wooden boards which make these houses vulnerable to being flooded by heavy rain OR catch fire easily OR collapse easily. (must describe about either the susceptibility to flooding or catching fire or collapsing easily)

- **Characteristic 2:** Lack of access to basic services
- **Evidence:** The slum in Mahul, Mumbai lacks access to basic services such as proper waste disposal system/sanitation as shown by the piles of rubbish disposed on the ground.

- **Characteristic 3:** No legal right to occupy land
- **Evidence**: Fig.1 shows a few slums being demolished as slum-dwellers are illegal occupants of the land since they build houses out of necessity on any available land.

*Accept any 2 out of the 3 answers above. **[2m]**

(ii) With reference to Fig. 2, explain **one** impact informal housing has on the environment. [3m]

- Land pollution
- Land pollution refers to the introduction of foreign substances onto land areas, which in high concentrations, can have harmful effects on plants, animals and humans. **[def -1m]**
- In informal housing, general waste can be disposed of on the ground outside their homes due to lack of access to basic services such as proper waste disposal systems. **[elab -1m]**
- These can lead to long-term damage of land, making it unsafe for sustainable human use. **[link to concept of sustainability -1m]**

(c) Study Fig. 3, an artist's impression of Bukit Canberra which is an integrated hub developed by Housing Development Board in 2021.

Fig. 3

With reference to Fig. 3, explain **two** ways in which the planning authorities ensure that the needs of residents are met. [3]

- By building **amenities** [Point] such as **swimming complex/ polyclinic** [Evidence] to provide enjoyment/comfort for residents [Elab]
    - Accept any other valid amenities-related description.
- By developing the residential areas near **greenery** [Point] such as the **Bukit Canberra Community Farm/Therapeutic Garden** [Evidence] so that residents may enjoy better quality of life/healthy living/cleaner air [Elab]
- By accommodating the **needs of all age groups** [Point] such as the **Senior Care Centre and the Gym & Fitness Studio** [Evidence] which **cater to the needs/improve quality of lives of elderly** as well as **adults and children** respectively. [Elab]
    - Accept any other valid age groups-related description.

- Point + Evidence #1: **[1m]**
- Point + Evidence #2: **[1m]**
- Elaboration for at least 1 point: **[1m]**

(d) Evaluate the effectiveness of slum upgrading as a strategy to manage housing in a sustainable manner. [4]

- Elaboration
  - Informal housing is a **necessity** if slum-dwellers are to **survive** in the city, as **demolishing** slums and **resettling** the occupants/people **may not be practical**. **[1m]**
  - In slum upgrading, government provides slum-dwellers with **access to basic services and upgrade the construction quality** of slums. **[1m]**
  - Example: The Rocinha Project in Rio de Janeiro, Brazil has provided 75% of the houses (in 2015) to have electrical supply compared to 30% in 2013.

  Note: If candidates' elaboration are missing a few key terms but have **met the basic requirement of describing the strategy, marker can consider awarding **1m for example** of the strategy.*

- Advantage **[1m]** – Accept 1 adv
  - Informal settlers have **better levels of health** and **reduction** in spread of **waterborne diseases** since they have **access to basic services.**
  - (With better access to basic services such as) **clean piped water/proper sanitation facilities/proper waste disposal syste**m, upgraded slums are **less likely to contribute to water/ land pollution**. (Students to make sense of cause & effect)

- Disadvantage **[1m]** – Accept 1 disadv
  - Slum improvement schemes is **not a long-term solution** since some of the areas where informal housing is built **may not be in places that are zoned/intended for housing use.**
  - May **not improve quality of life** of slum-dwellers as **crime rates and unemployment still remain high.**

SECTION B [18 marks]

2. (a) (i) Give two examples of a transport infrastructure. [1m]

- Roads, railway tracks, walkways, bridges, bicycle lanes, signages, information systems, ticketing systems etc

*Accept any 2 answers above **[1m]**

(ii) Describe **two** indicators of high-quality transport infrastructure. [2m]

- **Large capacity**: allows high number of people or goods to be moved (number of passengers picked up at stations)
- **Wide Coverage**: wide availability and reach of infrastructure (number of people living within 1 km radius of a node)
- **High frequency**: services arrive on a high frequency basis/short waiting time (how often transport services arrive)
- **Convenience**: Easy movement during travel (ease of transferring between train stations and bus stops)
- **Environmentally sustainable**: low environmental impact of infrastructure (impact of bus fleet on air quality)

*Accept any 2 answers above **[2m]**

(b) Study Fig. 4, an infographic showing some attractions in Japan.

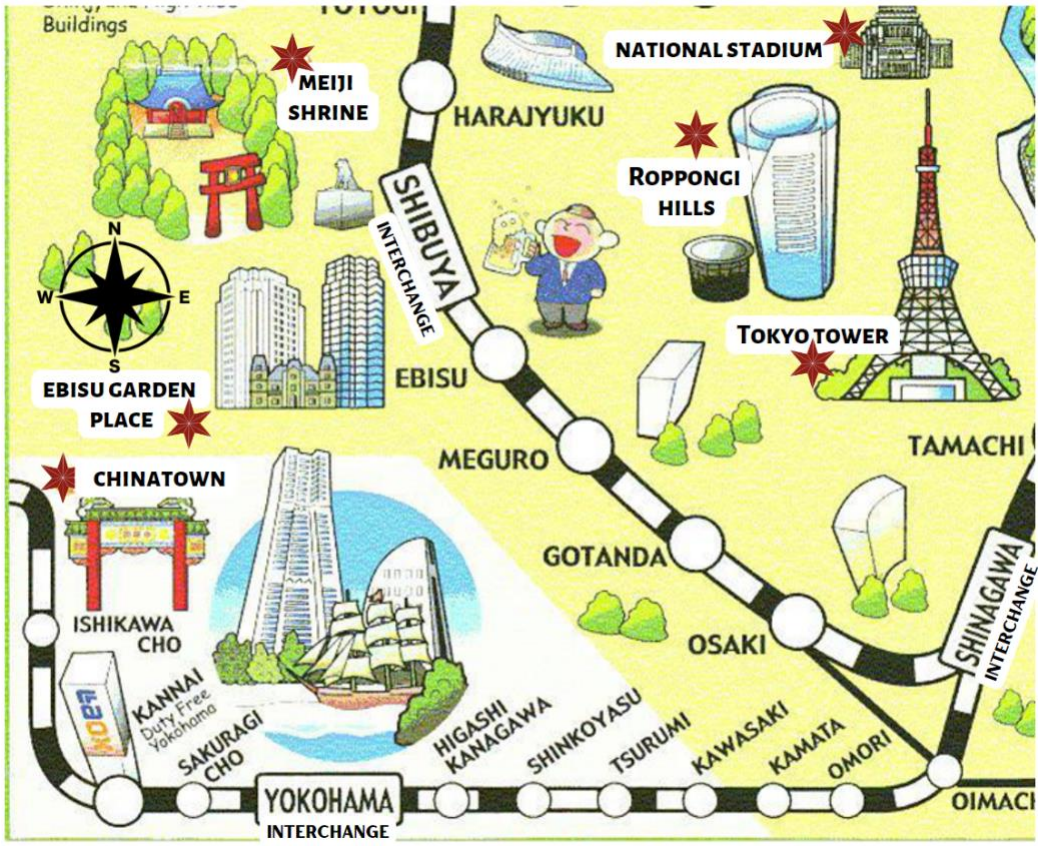

Fig. 4

With reference to Fig. 4, describe and account for the distribution of major transport nodes in Japan. [3m]

- **Pattern:** The major transport nodes in Japan are usually located near tourist sites. **[1m]**
- **Evidence:** For instance, tourists sites such as Tokyo Tower is found Southeast/East of Shibuya interchange and Ebisu Garden Place is located Southwest of Shibuya interchange. **[1m]**
- **Reason:** With major transport nodes located near tourist sites, tourists have convenient access to these places without having to rely on private transport/ boost tourism income as tourists have better easier access to tourist sites. **[1m]**

(c) Study Fig. 5, an infographic showing the benefits of using Pandamart.

**Note: Pandamart is an online service which delivers groceries, health foods, household essentials to Singapore residences.*

Fig. 5

With reference to Fig. 5, explain why there is a need for transportation in cities. [3]

- There is a need for transportation in cities because transport systems supports **economic activities** by transporting **goods and services** from **places of production to place of consumption**. **[1m]**
- With the **rise of e-commerce**, there is an **increased demand** for door-to-door **delivery of goods. [1m]**
- For instance, people are increasingly using online application such as **Pandamart** which offers **fast delivery of groceries for people** in under 30 minutes so there is a need for transportation of goods & services in cities. **[Ev-1m]**

(d) Study Fig. 6, an excerpt of an article explaining the harms of traffic congestion.

> Traffic congestion imposes huge health impact on urban residents. In Mexico City, drivers spend more than 50 hours a year in peak traffic congestion and vehicles move as slowly as 10 km/hr on average during peak hour. Research shows that these may lead to health issues among commuters.
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> Traffic congestion is also a major cause of air pollution, which contributes to chronic respiratory diseases. In 2017, a study was done on the impacts of gas emissions released during traffic congestion periods in Canada. The results showed that the $PM_{2.5}$ emissions during traffic jams has contributed to 119 respiratory-related deaths per year in Greater Toronto and Hamilton Area (GTHA).

Fig. 6

(i) With reference to Fig. 6, describe **two** features of traffic congestion. [2m]

- **Feature 1:** Long vehicular queue/time
- **Evidence:** Drivers spent more than 50 hours a year in peak traffic congestion in Mexico City **[1m]**

- **Feature 2:** Slow travelling speed
- **Evidence:** Vehicles move as slow as 10 km/hr on average during peak hour in Mexico City. **[1m]**

*F+Ev = 1m each

(ii) With reference to Fig. 6, explain how transport systems can have a negative impact on people's health. [3m]

- When **fossil fuel is burnt** to **power motorised transport modes**, **harmful particulate matters** are released into atmosphere → This creates **smog**, a severe type of air pollution (accept: If students write about long vehicular queue → more exhaust fumes released and taken in by people → lead to respiratory problem) **[1m]**
- Smog can lead to **respiratory illnesses** such as **breathing difficulty, lung infection and potentially, lung cancer**. **[1m]**
- For instance, in **Greater Toronto & Hamilton Area in Canada**, the emissions of PM2.5 has led to **119 respiratory-related deaths per year**. **[1m]**

(e) Evaluate the effectiveness of road pricing as a strategy to manage provision of transport in a sustainable manner. [4]

- Elaboration:
  - Road pricing helps manage traffic congestion as road users are required **to pay an additional sum of money** to use **specific roads** such as those **within the city centre/Central Business District**. **[1m]**
  - This is done at **certain times of the day**, especially during **peak hours**. **[1m]**
  - Example: For instance, in Stockholm, Sweden, traffic in and out of city centre was reduced by 20% in 2007 when a road pricing system was implemented in central Stockholm. [other valid examples will be accepted]

  Note: If candidates' elaboration are missing a few key terms but have **met the basic requirement of describing the strategy, marker can consider awarding **1m for example** of the strategy.*

- Advantage **[1m]** – Accept 1 adv
  - (+ve): This policy raises **additional revenue** for the authorities to then **improve** the **public transport system**.
  - (+ve): It is effective because RP allows **faster travel along RP routes**, allowing **smoother traffic around and within CBD**.
  -
- Disadvantage **[1m]** – Accept 1 disadv
  - (-ve): **Overall traffic is not reduced** → just **diverted** to other roads without road pricing
  - (-ve) **Expensive** (for LDCs) → **not financially capable** in putting systems in place to enforce regulations and collect fees.

END OF PAPER