Name: _____ ( ) **Class: _____**

MONTFORT SECONDARY SCHOOL

END-OF-YEAR EXAMINATION 2022

Secondary 2 Express **7 Oct 2022 (Fri)**

Geography **1 hour 15 minutes**

READ THESE INSTRUCTIONS FIRST

Write your name, class and register number in the spaces provided on the cover page, and on all the work that you hand in.
Write in dark blue or black pen.
Write all your answers on the spaces provided.
Do not use paper clips, glue or correction fluid or tape.

Section A
Answer **all** questions.

Section B
Answer **all** 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 **36**.

Candidates should support their answers with the use of relevant examples.

This document consists of **11** printed pages and **1** blank page.

Setter: Ms Karen Leong

[Turn over

Section A

Answer **all** questions

1 Study Fig. 1, which shows the percentage of urbanisation in China from 1980 to 2020.

Percentage of urbanisation in China from 1980 to 2020

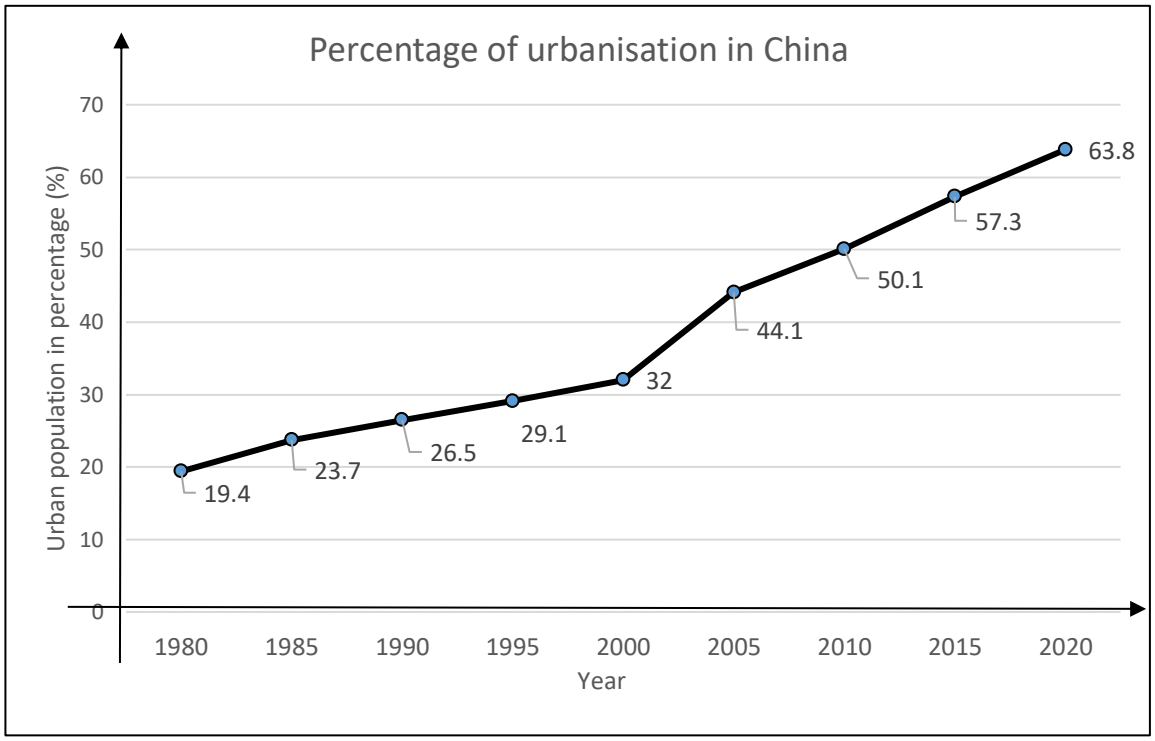

Fig. 1

(a) Describe the trends in the percentage of urbanisation in China from 1980 to 2020.

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…… [3]

(b) Study Fig. 2, which shows a photograph of a slum in New Delhi, India.

Photograph of a slum in New Delhi, India

Fig. 2

With reference to Fig. 2, describe the location of the slum and suggest **two** reasons why it is not a safe shelter for its residents.

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…… [3]

(c) Explain how the expansion of cities can result in negative impacts to forests and water resources.

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(d) Study Figs. 3A and 3B, which show features of sustainable housing in Singapore.

Features of sustainable housing in Singapore

Fig. 3A

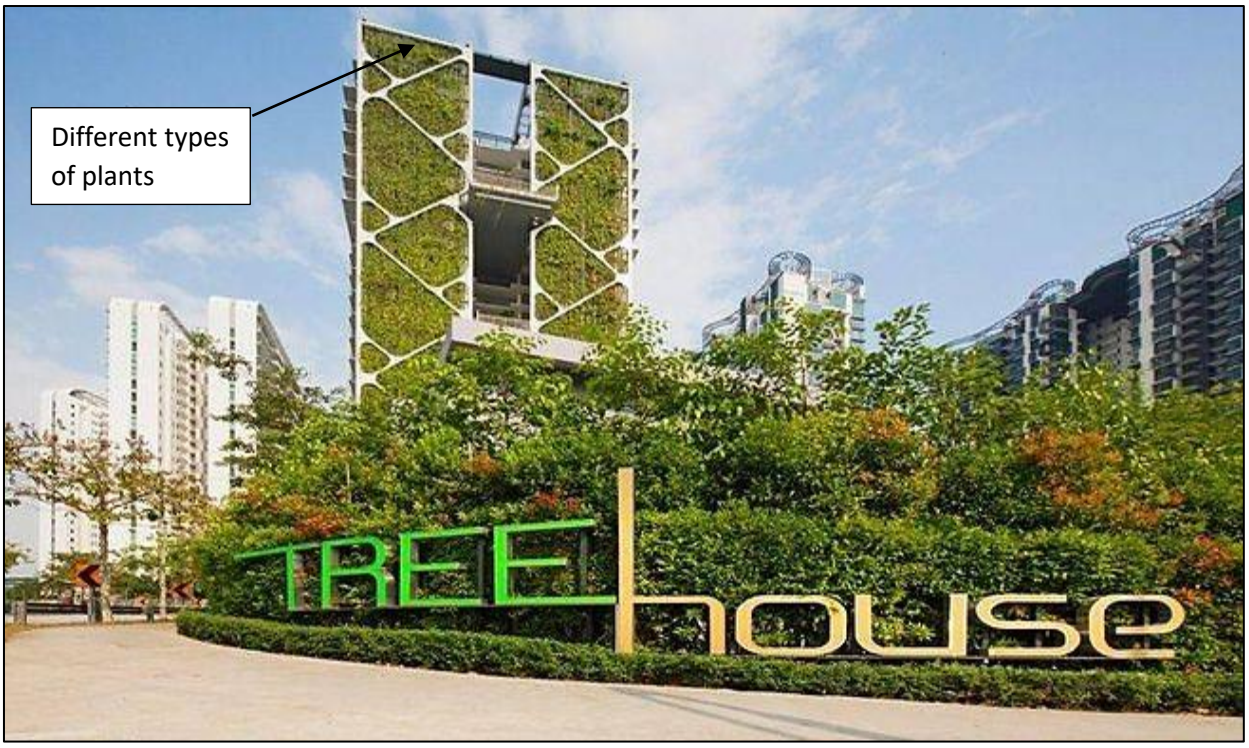

Fig. 3B

Identify and explain how environmentally friendly features of housing seen in Fig. 3A and 3B promote environmental sustainability in Singapore.

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(e) Explain how land-use planning affect the location of formal and informal housing in cities.

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(f) Explain why it is important to make public housing inclusive in cities.

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[Total: 18 marks]

Section B

Answer **all** questions

2(a) Identify and explain **two** reasons for the need of transport systems to be in cities.

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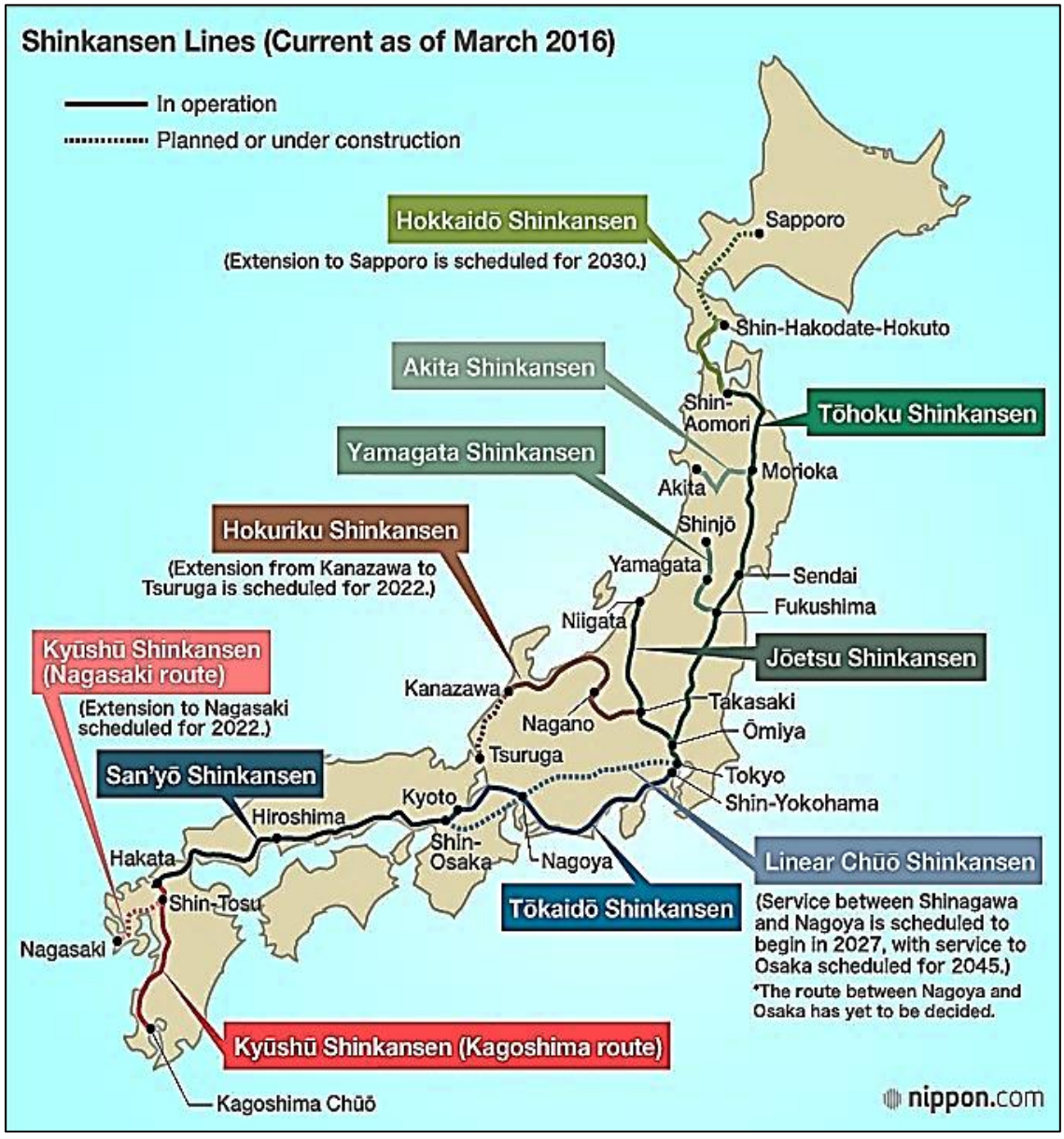
…… [4]

(b) Transport infrastructure is key to moving people and goods. The Shinkansen in Japan is a high-speed rail system which connects people from one place to another efficiently.

Study Fig. 4, which shows a map of the Shinkansen rail system in Japan in 2016.

The Shinkansen rail system in Japan in 2016



High Frequency and Capacity

- Number of train services per day: 373
- Number of passengers per day: 477,000
- Number of seating available: 1323 seats/train

Fig. 4

With reference to Fig. 4, describe **two** indicators which show that the Shinkansen rail system is a form of high-quality transport infrastructure in Japan. Provide evidence from Fig. 4 to support your answer.

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…… [4]

(c) Study Fig. 5, which shows the traffic conditions during morning peak-hour period in Singapore.

Traffic conditions in Singapore

Fig. 5

With reference to Fig. 5 and your own knowledge, identify and describe **two** negative impacts caused by transport systems in cities.

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(d) Compare the difference between a point-to-point and hub-and-spoke network. Give an example of a hub-and spoke network.

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…… [2]

(e)(i) Explain one strategy that cities adopt to manage transport systems sustainably.

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…… [2]

(ii) Evaluate the effectiveness of the strategy explained in 2e(i).

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…… [2]

[Total: 18 marks]

End of paper

Copyrights Acknowledgements:

Q1a Fig. 1	https://www.statista.com/statistics/270162/urbanization-in-china/
Q1b Fig. 2	https://www.hindustantimes.com/delhi-news/shift-slum-dwellers-to-vacant-flats
Q1d Fig. 3A	https://www.straitstimes.com/multimedia/graphics/2022/05/singapore-solar-power-panels/index.html?shell
Q1d Fig. 3B	https://brandsforcanada.com/singapores-vertical-gardens/
Q2b Fig. 4	Adapted from KCPSS MYE 2022
Q2c Fig. 5	https://www.torque.com.sg/advice/traffic-in-singapore-5-possible-causes/

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Name: _____ ( ) Class: _____

MONTFORT SECONDARY SCHOOL

END-OF-YEAR EXAMINATION 2022

Secondary 2 Express **7 Oct 2022 (Fri)**

Geography **1 hour 15 minutes**

Marking Scheme

This document consists of **10** printed pages.

Setter: Ms Karen Leong

Section A

Answer **all** questions

1

(a) Study Fig. 1, which shows the percentage of urbanisation in China from 1980 to 2020.

Describe the trends in the percentage of urbanisation in China from 1980 to 2020. [3]

Award 1m for overall trend, 2m for significant. 1m will be deducted if no unit given.

O: In general, the urban population in China **increased** from **19.4% in 1980** to **63.8% in 2020.** [1]

S: The **highest increase** of urban population in China is **from 32% in 2000** to **44.1% in 2005**./(or **increased by 12.1% from 2000 to 2005**). [1]

S: The **lowest increase** of urban population in China is **from 26.5% in 1990** to **29.1% in 1995**./(or **increased by 2.6% from 1990 to 1995**). [1]

Strength	
Weakness	
Suggestion for improvement	

(b) Study Fig. 2, which shows a photograph of a slum in New Delhi, India.

With reference to Fig. 2, describe the location of the slum and suggest **two** reasons why it is not a safe shelter for its residents. [3]

Award 1m for describing the location of the slum shown in Fig. 2.
Award 1m for any two of the detailed reasons with reference to the figure, max 2m for the explanation.

The slum is located **next to railway tracks**, which is **locally unwanted land use** since there is likely to be noise and air pollution from passing trains. [D][1]

The slum houses are not safe shelters as the **roof of the houses are made of poor-quality canvas/plastic sheets** which can be **easily blown off** and **cannot protect its inhabitants** from the weather elements such as **strong winds or rain**. [R][1]

The houses are also **not built using proper building materials**; they are built using wooden sticks and corrugated metal, which are **not strong structures** and can **easily collapse**, **causing injuries or death to the inhabitants**. [R][1]

The houses are built using **makeshift materials such as canvas/plastic sheets and wooden sticks** which **increases the risk of fires**, as these **materials are easily flammable**. [R][1]

The houses are built **close to one another** with a cramped layout and **unhygienic conditions**, which may lead to a **rapid spread of disease**. [R][1]

Accept other plausible answers.

Strength	
Weakness	
Suggestion for improvement	

(c) Explain how the expansion of cities can result in negative impacts to forests and water resources. [4]

Award 1m for each explanation on negative impacts to forest resources, max 2m.
Award 1m for each explanation on negative impacts to water resources, max 2m.

Forest resources

To **make space for the building of houses and transport infrastructure**, **land needs to be cleared**, which results in the **depletion of forests**. [1]

As populations within cities grow, **more resources such as building materials and fuel for cooking and warmth are needed**. Hence, **more resources are extracted and depleted from forests**, such as wood for furniture and construction purposes. [1]

Water resources

With a larger population in cities, there is also **greater demand for clean water to meet the needs of people and businesses**, which can **lead to depletion of surface and ground water resources**. However, this is compromised by **competition for land**, which **limits the construction or expansion of reservoirs**. [1]

The **improper management of household and industrial waste** can lead to the **disposal of waste directly or leakage into waterways**, resulting in **water pollution**, which further **threatens water resources**. [1]

Accept other plausible answers.

Strength	
Weakness	
Suggestion for improvement	

(d) Study Figs. 3A and 3B, which show features of sustainable housing in Singapore.

Identify and explain how environmentally friendly features of housing seen in Fig. 3A and 3B promote environmental sustainability in Singapore. [4]

Award 1m for identifying and brief description of environmentally friendly technologies, max 2m.
Award 1m for detailed corresponding explanation, max 2m.

1. **Solar Panels** – mounted at the **top of HDB flats**/ top floor of flats or **buildings** to **tap on** Singapore's **abundant sunlight to convert to electricity**. [I & D] [1]
- The use of solar panels to **offset the electrical consumption of common lighting** as **cleaner and greener technologies** will ensure long-term sustainability. [E][1]

2. **Green roofs and walls** – as shown in Fig. 3B, **plants** are planted **on the walls of buildings** and its surroundings. [I&D][1]
- The use of green roofs and walls to **reduce surrounding temperatures** therefore the inhabitants in the buildings will require **less air conditioning to cool down temperature in the buildings**. This will help to ensure long-term sustainability. [E][1]

Strength	
Weakness	
Suggestion for improvement	

(e) Explain how land-use planning affect the location of formal and informal housing in cities. [2]

Award 1m for description of factor, 1m for an explanation of how the factor affects the locations of both formal and informal housing.

<u>*Land use planning*</u> includes **guidelines drawn by planning authorities** who typically practise **zoning** as a planning tool for ensuring that the **built environment is well developed**. [D][1]
- As zoning **restricts the type of activities and land-use permitted on specific sites** to shape the layout of cities, **formal housing will occupy zones and areas that are designed for housing development** and **informal housing can occur anywhere** regardless of land-use planning guidelines. [E][1]

Strength	
Weakness	
Suggestion for improvement	

(f) Explain why it is important to make public housing inclusive in cities. [2]

Award 1m for each explanation.

1. Need to be inclusive because to ensure housing developments can **cater to people of all ages and physical conditions.**
2. Therefore, all residents, **regardless of their age and physical abilities to feel at ease in their housing estates.**
3. Important to **provide a range of housing to cater for different groups, meets their varying needs.**

Strength	
Weakness	
Suggestion for improvement	

2(a) Identify and explain **two** reasons for the need of transport systems to be in cities. [4]

Award 1m for identifying and description of each reason, 1m for each corresponding explanation. Max 2m for each reason.

1. **Movement of people** – an **individual's place of residence** and his **workplace/school** is **usually in separate locations**, so **people need to commute regularly**. [I&D][1]
- Transport systems **allow people to commute to work**, **school** or **access to social activities and amenities**. [E]

2. **Movement of goods and services** from **businesses/service providers to consumers** and **consumers who commute to obtain goods and services**. [I&D][1]
- Transport systems help to **facilitates these economic activities between businesses and consumers.** [E][1]
- The **rise in e-commerce** also resulted in a **greater movement of goods** that are **delivered from door to door**. [E][1]
- Transport systems also **allow essential services to be delivered to communities** that **lack access**, for example, **water trucks deliver water to household with no access to water** in Mexico City. [E][1]

3. **Connecting different transport modes** – journeys made from one location to another can be **unimodal or intermodal**. [I&D][1]
- Cities have different modes of transport; thus, transport networks **need to be efficient and have good intermodal connectivity** to make sure passengers are not lost and goods arrive safety. [E][1]

4. **Connecting cities** – Different cities **need transport systems to connect them together** for **economic and social activities**. [I&D][1]
- Connection between cities can be direct or indirect. Transport systems make sure cities are **connected efficiently and with less duplication of services**, usually with the **hub and spoke network** instead of **point-to-point network**. [E][1]

Strength	
Weakness	
Suggestion for improvement	

(b) Transport infrastructure is key to moving people and goods. The Shinkansen in Japan is a high-speed rail system which connects people from one place to another efficiently.

Study Fig. 4, which shows a map of the Shinkansen rail system in Japan in 2016.

With reference to Fig. 4, describe two indicators which show that the Shinkansen rail system is a form of high-quality transport infrastructure in Japan. Provide evidence from Fig. 4 for your answer. [4]

Award 1m for identifying and description of each correct indicator, 1m for using evidence in Fig. 4 to show that the indicator is of high-quality. Max 2m for each indicator. No evidence provided, max 2m.

1. **Coverage** is the **availability and reach of infrastructure**, **high coverage** indicates **high quality transport infrastructure**. [I&D] [1]
- With reference to Fig. 4, the Shinkansen rail system is **widely connected to many different parts of Japan** such as **Kagoshima Chuo in the southeast of Japan**, and **Shin Aomori in the northeast of Japan**. [D with evidence][1]

2. **Capacity** is the **number of people or amount of goods that can be moved**, **high capacity** indicates **high quality transport infrastructure**. [I&D][1]
- There is a **high capacity in the Shinkansen rail system** as **each train can carry 1,323 passengers.** This will be a **total carrying capacity of 493,479 passengers in a day.** [D with evidence][1]
- There is **a high capacity in the Shinkansen rail system** as there are **477,000 passengers per day.** [D with evidence][1]

3. **Frequency** is the **number of occurrences of a service**, **high frequency** indicates **high quality transport infrastructure**. [I&D] [1]
- The **frequency of the Shinkansen rail system is high** at **373 train services per day**. [D with evidence][1]

Strength	
Weakness	
Suggestion for improvement	

(c) Study Fig. 5, which shows the traffic conditions during morning peak-hour period in Singapore.

With reference to Fig. 5 and your own knowledge, describe **two** negative impacts caused by transport systems in cities.

Award 1m for identifying of impact, 1m for describing the impact. Max 2m for each impact.

1. **Traffic congestion** occurs when **road usage approaches or exceeds road capacity**. [I][1]
- Traffic congestions **affect the physical and emotional well-being** of those caught in traffic, **long travelling time may tire them out**. [D][1]
- Drivers may **become frustrated** and **display aggressive behaviour** or **lose concentration**, **increasing the risk of traffic accidents**. [D][1]
- In a traffic congestion, **vehicles remain stationary or constantly start and stop**, **more fuel is burnt and wasted**. This translates to **higher carbon emissions**, **increased carbon footprint** and **worsen air quality**. [D][1]

2. **Health & safety risks** – **respiratory problems** such as **breathing difficulty**, asthma, **eye irritation**, lung infection, **a higher risk of lung cancer** and **safety while travelling**. [I][1]
- When fuel is burnt to power transport modes, **harmful air pollutants** and particulate matter **released into the atmosphere**. It **causes air pollution** and **increases health risks.** [D][1]
- A **severe type of air pollution** produced by **vehicle exhaust**, **power plants and factories is smog.** This also **increases health risks**. [D][1]
- **Traffic noise** is becoming an increasingly **serious problem** which can **cause mental stress, hearing impairment and even trigger heart-related illness**. [D][1]
- Need to ensure **road safety** while travelling as **road accidents** tend to occur if there are **more traffic and safety measures are not in placed**. [D][1]
- As **traffic volume increases**, some **transport modes may be deemed to be less safe** especially **during peak hours**. **Large crowds increase the risk of crimes** such as **theft**, **outrage of modesty or terrorism**.

3. **Increased carbon footprint** – **carbon footprint** is the **measure of greenhouse gases emitted to support human activities**. [I][1]
- **Excessive concentrations of greenhouse gases** because of **human activities** leads to **enhanced greenhouse effect** and **global warming**. [D][1]
- **Transport activities** account for **25 to 30 percent** of **all greenhouse gas emissions**. [D][1]
- As **cities continue to grow**, **transport systems are set to expand** and people become **more reliant on transport systems for their daily commute**, **increasing** their **carbon footprint**. [D][1]

Strength	
Weakness	
Suggestion for improvement	

(d) Compare the difference between a point-to-point and hub-and-spoke network. Give an example of a hub-and spoke network. [2]

Award 1m for comparing the difference, no mark will be awarded if there is no comparison. Award 1m for the example.

A point-to-point network connects a set of locations directly without any interruption of services while a hub-and-spoke network connects every location through one intermediary location called a hub. [C][1]

Example: Singapore Changi airport, Beijing Daxing International airport, etc.

Accept any possible example.

Strength	
Weakness	
Suggestion for improvement	

(e)(i) Explain one strategy that cities adopt to manage transport systems sustainably. [2]

Award 1m for describing any one of the strategies, 1m for explanation. Max 2m.

1. **Laws and policies on transport** – there are **various laws and policies** that can be **implemented to manage people's demand for transport** or **provision of transport**. [D][1]

- **Discouraging the ownership of private vehicles** – **car-lite policies** by **controlling the number of private vehicles**, for example, the certificate of entitlement (COE) vehicle quota system. This will lead to less vehicles on the road. [E][1]
- **Encouraging commuters to walk and cycle** or **encouraging the use of public transport**. This will lead to less vehicles on the road. [E][1]
- The **imposition of congestion pricing to manage traffic congestion** and **shape travel behaviour**, for example, road users **pay an additional sum of money to use a specific stretch of road at certain times of the day**. (Electronic Road Pricing in Singapore) This will discourage people from driving. [E][1]

2. **Integrated land Use and transport planning** – good integrated land use planning and transport planning allows for a **better accessibility to different places or reduce the need to travel**. [D][1]

- **Land use planning** is important in **shaping the demand for travel and distance needed to travel for employment or services.** For example, Punggol Digital District, when business parks and commercial centres offering employment opportunities are planned near residential areas, **the need for long distance commutes is reduced**. [E][1]
- **Transport planning** refers to the **process of looking at the current state of transport**, then **predicting and designing the operation**, **provision and management of transport infrastructure** and **services for current and future needs**, this will **make future transport safer, smarter, faster and more convenient for commuters**. [E][1]

Strength	
Weakness	
Suggestion for improvement	

(ii) Evaluate the effectiveness of the strategy explained in 2e(i). [2]

Award 1m for benefit and 1m for challenge for the same strategy.

Laws and policies on transport

Benefits:

- Road users pay an additional sum of money to use a specific stretch of road at certain times of the day, hence there will be lesser traffic at these roads. [1]
- More expensive to use private transport compared to public transport, encouraging people to take public transport. [1]
- Raises additional revenue for the authorities to finance and/or enhance public transport system. [1]

Challenges:

- The overall flow of traffic is not reduced, just diverted to other roads without congestion pricing. [1]
- Systems need to be in place to enforce regulations and collect fees. [1]
- Unhappiness may arise over additional charges. [1]

Integrated Land Use and Transport Planning

Benefits:

- Reduces travel time. [1]
- Makes travelling safe. [1]
- Makes travelling affordable. [1]
- Makes travelling convenient. [1]
- Is environmentally friendly. [1]

Challenges:

- Need to have good coordination and communication between different stakeholders. [1]
- Need to strike a balance between social, economic and transport needs. [1]
- Commit to investing time and large amounts of capital to design and develop infrastructure. [1]

Strength	
Weakness	
Suggestion for improvement	

Table of Specifications
Sec 2 Geography Express
End-of-Examinations 2022

QUESTION	AO1 + AO2	AO1 + AO3
Housing		
1(a)		3
1(b)		3
1(c)	4	
1(d)		4
1(e)	2	
1(f)	2	
Transport		
2a	4	
2b		4
2c		4
2d	2	
2e(i)	2	
2e(ii)	2	
TOTAL	18	18
	36	