

ANDERSON SECONDARY SCHOOL
Preliminary Examinations 2026
Secondary Four Express



CANDIDATE NAME:

CLASS:

INDEX NUMBER:

GEOGRAPHY

2279/02

Paper 2

31 August 2026

MARK SCHEME

1 hour 45 minutes

0800 - 0945

Additional Materials: Insert

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.

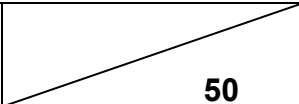
You may use an HB pencil for any diagrams or graphs.

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.

Total Marks	
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This document consists of **15** printed pages.

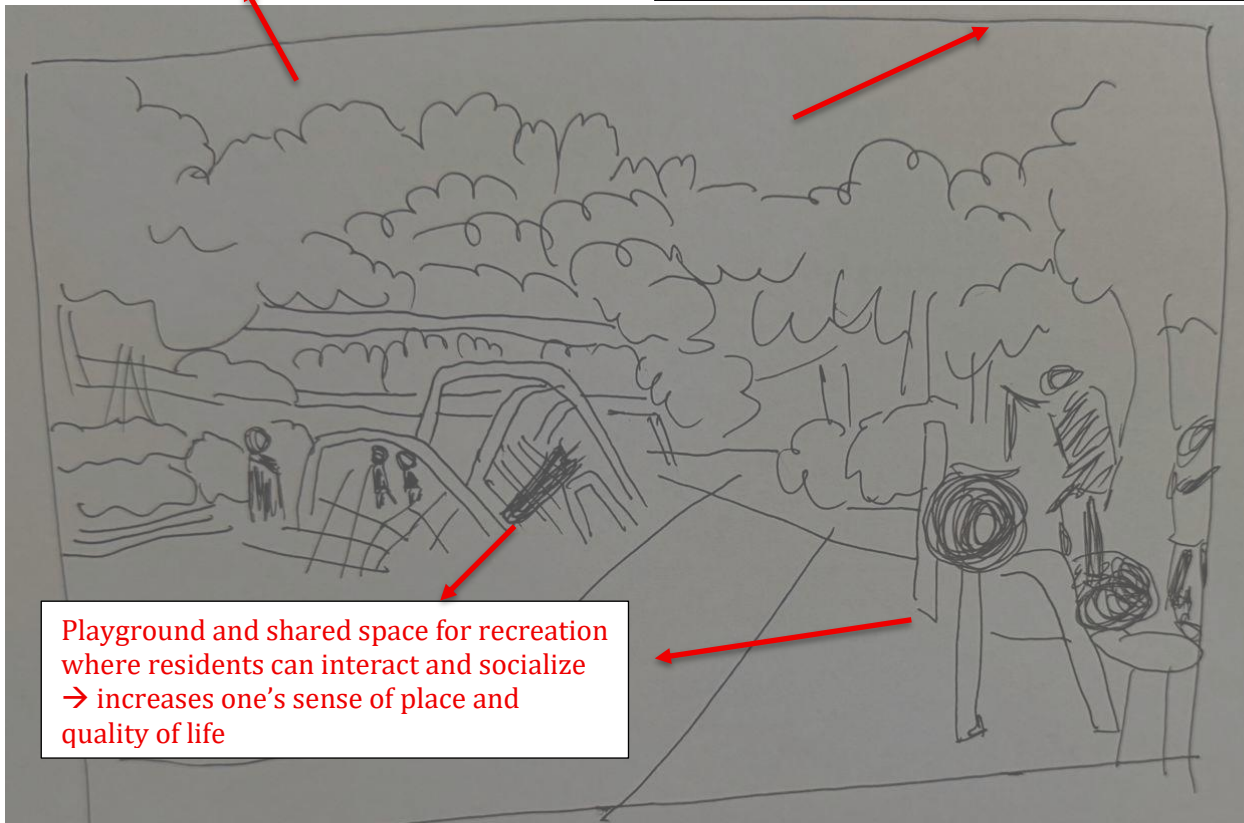
Setter: Miss Jess Neo

1 Cluster 1: Geography in Everyday Life

(a)	Study Fig. 1.1 (Insert), which shows two different murals found in Tiong Bahru, a neighbourhood in Singapore. With reference to Fig. 1.1, describe how the murals can affect Singaporeans' sense of place. [3]
	Award 1 mark for each description of how the murals could affect Singaporeans' sense of place, to a maximum of 2 marks Award a maximum of 1 additional mark for further development of each description where applicable. Possible responses include: • The murals can strengthen Singaporeans' sense of place by <u>reflecting the area's history and heritage</u>. [1 mark] • The murals can help residents <u>appreciate the unique identity and culture of Tiong Bahru</u>. [1 mark] ◦ By depicting <u>traditional trades and daily activities from the past</u>, the murals may <u>evoke memories and nostalgia</u> among the elderly residents. [1 additional mark] • The murals can also create <u>feelings of attachment and pride</u> among Singaporeans, as they preserve memories and stories associated with the neighbourhood. [1 mark] • Due to their <u>unique design</u>, the murals are also <u>highly visible and symbolic</u>, / easy for most people to remember. [1 mark] • Singaporeans may take photos there, thereby <u>creating memories</u> and acquiring sense of place. [1 mark]
(b)	Study Fig. 1.2 (Insert), which highlights the features of Kampung Admiralty, Singapore's first development to integrate a range of public facilities and services under one roof. Sketch the building and features shown in Fig. 1.2. Annotate the sketch to describe two features that contribute to the sustainability of the development. [3]
	Award 1 mark for a sketch of the building, greenery and playground. Award 1 mark for each annotation of each feature that contributes to sustainability.

Plants on exterior of buildings —> cool down surroundings —> ensures environmental sustainability

Different plant species grown —> suggests theres ample space for biodiversity to thrive —> promoting environmental sustainability



Playground and shared space for recreation where residents can interact and socialize —> increases one's sense of place and quality of life

[3]

- (c) Study Fig. 1.3, which shows information about SG Alert, a disaster risk management strategy in Singapore

Information about SG Alert

SG Alert

- SG Alert is a mass emergency alert system implemented by the Singapore Civil Defence Force (SCDF) to quickly alert members of the public during emergencies such as major fires, chemical incidents and terror attacks.
- SG Alert sends emergency messages directly to mobile phones within seconds through cell broadcast technology.
- Alerts can be sent islandwide or to specific geographical areas affected by the emergency.
- The alert provides information about the nature of the emergency, the affected location(s), protective actions to take, and official sources for more information.
- SG Alert can override a phone's silent or "Do Not Disturb" mode to ensure that emergency information is received promptly.
- No mobile application or internet connection is required to receive SG Alert message

Fig 1.3

	With reference to Fig. 1.3, explain how community resilience can be strengthened through this disaster risk management strategy. [3]
	Award 1 mark for each explanation of community resilience being strengthened, to a maximum of 2 marks Award a maximum of 1 mark for further development of each explanation where applicable • SG Alert strengthens community resilience <u>by raising awareness of potential hazards</u>. [1 mark] ◦ This also complements existing monitoring and warning systems – public warning sirens [1 additional mark] • It allow residents <u>to take protective actions such as evacuating or avoiding affected areas</u>. [1 mark] • As SG Alert can be sent "islandwide or to specific geographical areas", it ensures that the communities in the affected area could thereafter <u>organize themselves and respond uniformly to the crisis</u>. [1 mark] • By <u>receiving timely and reliable information</u> from official sources, there would be <u>less panic</u> due to spreading of misinformation [1 mark]
(d)	Study Fig. 1.4 (Insert), which shows Bundang Central Park in South Korea. With reference to Fig. 1.4, explain how nature areas in Bundang Central Park provide regulating ecosystem services. [3]
	Award 1 mark for each explanation of how nature areas provide a regulating ecosystem service, up to a maximum of 2 marks Award a maximum of 1 mark for further development of each explanation, where applicable • The natural vegetation cover in Central Park can <u>reduce surface runoff by promoting the infiltration of water</u>, [1 mark] ◦ OR promoting <u>flood mitigation</u> [1 additional mark] • Large tree cover can <u>lower surface and air temperatures</u> by <u>providing shade</u> to residents, [1 mark] ◦ <u>reducing the amount of solar radiation</u> reaching surface (regulating local microclimate) [1 additional mark] • Vegetation <u>cools surrounding air through evapotranspiration</u> as the water that leaves absorb through their roots is released into the air as water vapour [1 mark]
(e)	Study Fig. 1.5, which shows some causes of traffic accidents in Singapore between 2019 to 2023.

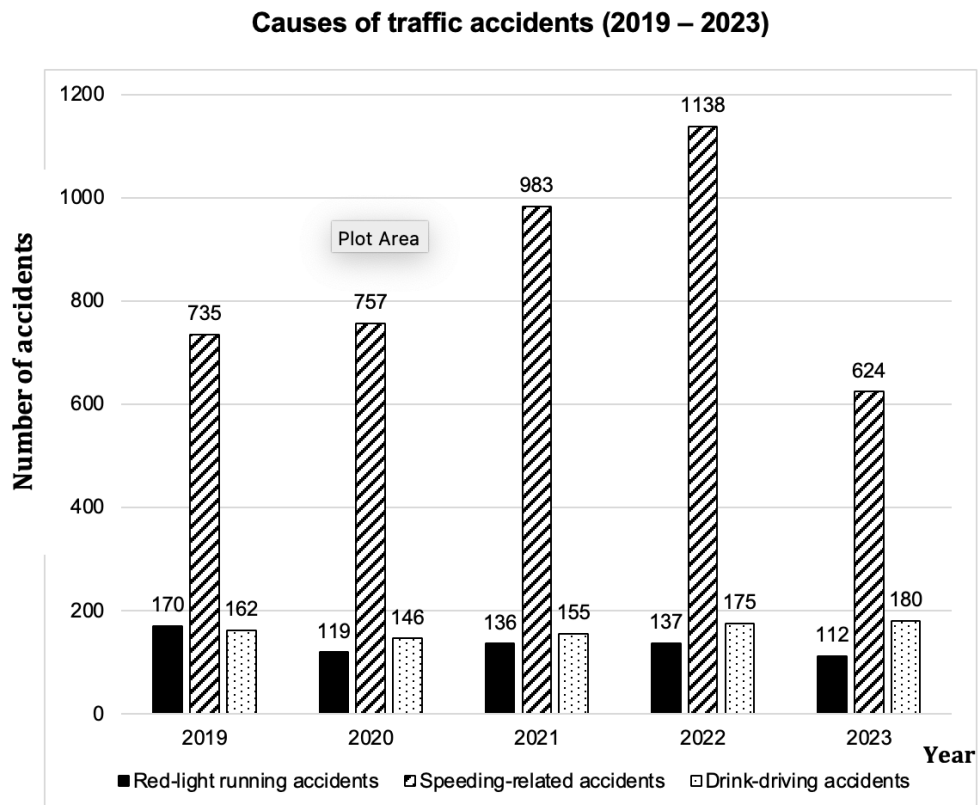


Fig. 1.5

Using Fig. 1.5, compare the causes of traffic accidents in Singapore between 2019 to 2023. [3]

Award 1 mark for each comparison of causes of accidents, to a maximum of 2 marks. Award a maximum of 1 mark for further development of each comparison, where applicable

Accept other possible comparisons.

- Speeding is the most significant cause for accidents compared to the other causes despite dropping to its lowest level in 2023. [1 mark]
 - Its lowest is 624 in terms of cause of accidents compared to the lowest of 112 for red-light running accidents in 2023 and the lowest of 146 for drink-driving related accidents in 2020 [1 additional mark].
- While accidents caused by red-light running and speeding-related accidents dropped between 2019 and 2023, accidents caused by drunk driving increased [1 mark]
 - Accidents caused by red-light running dropped by around 34%, and that for speeding-related accidents reduced by around 13%. However, that for drink-driving saw a decline of around 11% [1 additional mark].
- The greatest fall in the cause of accidents was speeding related accidents between 2022 and 2023 [1 mark].
 - Accidents caused by speeding related accidents decreased sharply from 1138 in 2022 to 624 in 2023, a difference of 514 as compared to red-light running accidents, where it decreased by only 25. [1 additional mark].

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[Total: 15 marks]

2 Cluster 4: Tectonics

(a)	Study Fig. 2.1 (Insert), which shows the distribution of earthquakes in and around Taiwan from 1990 to 2019. Using Fig. 2.1, describe the distribution of earthquakes in and around Taiwan. [3]
	Award 1 mark for each description of earthquakes in and around Taiwan, to a maximum of 3 marks. • Many earthquakes occur offshore to the east of Taiwan, extending into the surrounding sea areas. [1 mark] • The western side of Taiwan has fewer earthquakes and they are more scattered [1 mark] • The largest earthquakes (magnitude > 7) are mostly found in the eastern and offshore eastern regions [1 mark] • The area around Taipei in northern Taiwan and along the eastern coast shows a relatively high density of earthquake occurrences compared to the southwest around Kaohsiung. [1 mark]
(b)	Explain how the pattern of magnetic striping on the seafloor supports the plate tectonics theory [3]
	Award 1 mark for explanation of the process of magnetic striping, to a maximum of 2 marks. Award maximum of 1 additional mark for further development • <u>Iron-rich lava</u>, containing magnetic minerals [1 additional mark], erupts from the faults at the divergent oceanic-oceanic plate boundary, • and the <u>magnetic field of the minerals in the lava will point towards Earth's magnetic North, recording evidence of Earth's normal polarity at that time.</u> [1 mark] • The crust is then <u>pushed in both directions away from the centre of the mid-ocean ridge</u>, as the oceanic crusts continue to diverge from each other. [1 mark] • When Earth's polarity reverses, the subsequent rocks formed at the centre of the mid-ocean ridge record these magnetic reversals since they have iron-rich minerals. [1 mark] Overtime, a <u>symmetrical zebra-like magnetic striping pattern</u> forms [1 additional mark], which shows how plates are moving apart from each other over time • and not a random or isolated occurrence [1 mark], supporting the plate tectonics theory that tectonic plates are constantly moving
(c)	Study Fig. 2.2, which shows the death rates from tsunamis in Indonesia between 1907 to 2010 Death rates from tsunamis in Indonesia between 1907 to 2010

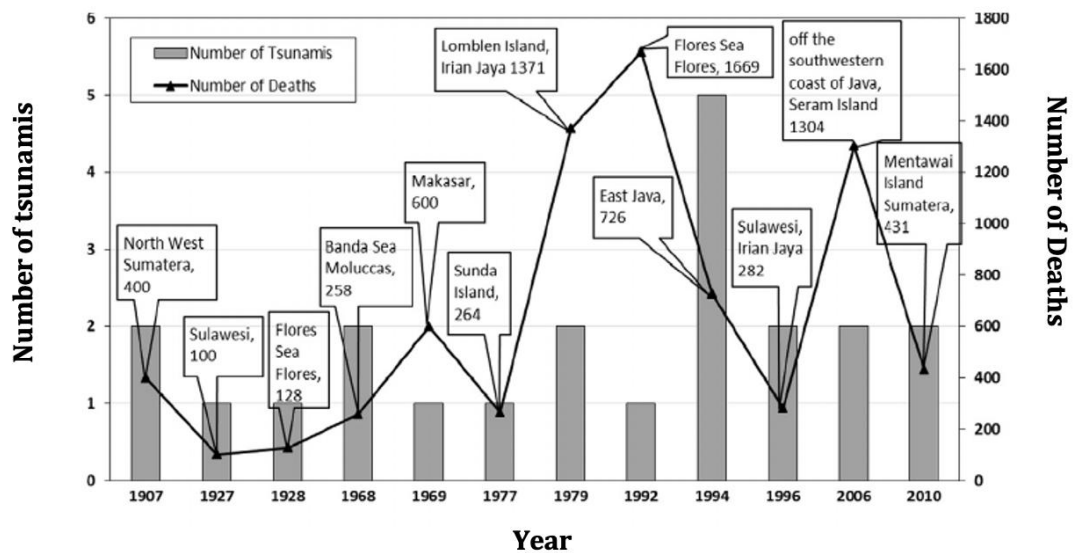


Fig. 2.2

Using Fig. 2.2, comment on the relationship between the number of tsunamis in Indonesia and the number of deaths from the tsunamis from 1907 to 2010. [3]

Award 1 mark for each comment, to a maximum of 2 marks

Award a maximum of 1 mark for further development of each comment on the relationship, where applicable

- There is no clear relationship between the number of tsunamis and the number of deaths. [1 mark]
- Years with a higher number of tsunamis do not always have more deaths
 - e.g. 1994 had 5 tsunamis but fewer deaths (726 deaths) than 1992, which had only 1 tsunami but 1669 deaths). [1 additional mark]
- Years with a similar number of tsunamis can have very different death tolls [1 mark]
 - e.g. 1996, 2006 and 2010 had 2 tsunamis but very different numbers of deaths – where 1996 there was 282 deaths, 2006 there were higher deaths at 1304, and 2010 had 431 deaths. [1 additional mark]

(d) Study Fig. 2.3 (Insert), which shows information about earthquakes in Japan.

Using the information in Fig. 2.3, assess the extent to which the exposure to hazard is the main factor influencing disaster risk from earthquakes in Japan. [6]

Award up to 2 marks for points related to each main factor (exposure, nature and vulnerable conditions)

Award 1 mark for each evaluation, up to a maximum of 3 marks.

Award a maximum of 1 additional mark for further development of each point.

Exposure to hazard: Population density, distance from epicentre

Vulnerable conditions: quality of building design, soil and rock properties

Nature of hazard: duration and time of shaking

Exposure to Hazard is an important factor one influencing disaster risk from earthquakes in Japan.

1) Population density

- The higher the population density, the greater the number of people and buildings that are exposed to earthquakes. [1 mark]
- When large numbers of people are located within buildings, more people will be trapped when the buildings collapse, causing more injuries and loss of lives [1 mark]
 - For example, the Kobe (1995) earthquake affected a densely populated area (2700 people/km²) and resulted in about 6400 deaths. Niigata (2004) earthquake affected a less densely populated area (500 people/km²) and resulted in 100 deaths. This suggests that greater exposure can increase disaster risk. [1 additional mark]

2) Distance from epicentre.

- The nearer the city is to the epicentre, the greater the number of people and buildings exposed to the hazard, hence the greater the disaster risks. [1 mark]
- When the city is nearer to the epicentre, less energy is absorbed by the rocks before the seismic waves reach the city. [1 mark]
- The seismic waves reaching the city will be stronger, causing more violent shaking. [1 mark]
- As a result, buildings and bridges are more likely to collapse, and people will more likely be trapped, leading to more injuries and loss of lives.
 - Kobe's – 20km and resulted in about 6400 deaths vs Niigata's 50km - resulted in 100 deaths [1 additional mark]
 - However Tohoku's distance from epicentre was much further at 130km but it has a much higher death toll than the other two EQ, suggested that there are other factors influencing disaster risk. [1 additional mark]

Nature of hazard is another factor influencing disaster risks:

1) Duration of shaking.

- The length of time of ground shaking can influence the extent of disaster risks.
- The longer the duration of ground shaking, the more damaging an earthquake will be. [1 mark]
- Structures such as buildings and bridges subjected to a long period of stress are more likely to collapse. [1 mark]
- People will more likely be trapped in collapsed infrastructure, leading to more injuries and loss of lives. [1 mark]
 - Example: The 2011 Tohoku, Japan earthquake (Mw 9.1) lasted for 6 minutes, causing massive death toll of 28 000 as compared to Kobe's and Niigata's (6400 and 100 deaths respectively) [1 additional mark]

2) Time of shaking.

- The time of day influences the activities carried out by people and how they respond when the earthquake strikes. [1 mark]
- If people are asleep at night, they will be less alert and are unable to evacuate quickly. [1 mark]

- On the other hand, as people are at work or school during the day. they are more alert and able to evacuate quickly. [1 mark]
- Hence, they will less likely be trapped, leading to less injuries and loss of lives.

Example: The 1995 Kobe, Japan earthquake (Mw 6.9) occurred in the early morning at around 6am. As many people were asleep, they were trapped at home, leading to more than 6,000 lives lost as compared to Niigata's which happened in the evening 17:56 where people may have just ended work and are alert to evacuate quickly [1 additional mark]

Vulnerable conditions is another factor influencing disaster risk:

1) Quality of building design and construction.

- The poorer the quality of building design and construction, the more vulnerable the buildings are to collapsing, leading to more trapped people, injuries and loss of lives. Hence, the disaster risks are higher. [1 mark]
 - Buildings and infrastructure are more vulnerable to collapsing when they are poorly built with low quality materials such as zinc sheets or materials that are rigid that are unable to withstand the shaking [1 additional mark]
 - When buildings do not follow building codes set by the authorities or when there is a lack of earthquake-resistant features such as reinforced steel walls. [1 additional mark]
- Example: Kobe's building resilience index was only 55% as compared to Niigata's at 80%, hence more death tolls in Kobe (6400 than Niigata's 100 deaths)
- However this may not be true for Tohoku's as despite having 95% building resilience it still experiences a higher death toll of 28 000 [1 additional mark]

2) Soil and rock properties

- When the soil is saturated and loose, shaking may result in liquefaction. [1 mark]
- Buildings may be more vulnerable to collapse as they may sink into the liquefied soil and tip over. [1 mark]
- The softer soil, the higher the disaster risks. [1 mark]
- Soft, loose soil will shake more intensely than hard rock, increasing the likelihood of buildings and bridges collapsing. [1 mark]
- On the other hand, solid rock is much more compact and will shake less intensely. [1 mark]
- As seismic waves travel from hard rocks to soft soil, the waves get amplified. [1 mark]
 - Passing from rock to soil, the waves slow down but become bigger. [1 additional mark]
- People will more likely be trapped in buildings, leading to more injuries and loss of lives.
- Example: Kobe and Tohoku's land comprised of a mix of hard rock and soft soils, which may caused the waves to get amplified and thereby resulting in a higher number of deaths than Niigata's earthquake [1 additional mark]

[Total: 15 marks]

Cluster 5: Singapore

(a)	Study Fig. 3.1 and Fig. 3.2 (Insert), which show a cartoon on the temporary closure and subsequent re-opening of the Strait of Hormuz during the 2026 Iran war, and an article on the potential impacts of the crisis on Singapore. With reference to Fig. 3.1 and Fig. 3.2, suggest how Singapore may be affected by the external shock and global uncertainty arising from the 2026 Iran war. [4]
	Award 1 mark for each suggestion, up to 3 marks. Award a maximum of 1 mark for further development of each suggestion where applicable Possible responses include: - As seen in Fig. 3.2, there would be higher oil and natural gas prices (US\$97.46), leading to <u>increased electricity and transport costs</u>. [1 mark] This could mean <u>higher cost of living businesses pass on increased production and transport costs to consumers</u>. [1 additional mark] - There would also be <u>slower economic growth</u> due to <u>reduced business confidence and uncertainty</u>. [1 mark] - As Singapore is a major global trading hub, this could also mean <u>lower trade volume/port activity</u> in Singapore, affecting its maritime sectors. [1 mark] - Singapore could also face <u>energy insecurity</u> as we are highly exposed to the fluctuations in oil and natural gas prices [1 mark]
(b)	Study Fig. 3.3 (Insert), which shows the number of live births and deaths in Singapore from 2020 to 2024.
(i)	Using Fig. 3.3, compare the number of live births and deaths in Singapore from 2020 to 2024. [4]
	Award 1 mark for each comparison, up to 3 marks. Award a maximum of 1 mark for further development of each comparison where applicable - Generally, live births decreased every year while deaths increased every year [1 mark] - Live births decreased greatly from 38 590 births in 2020 to 33 703 births in 2024, while deaths increased greatly every year from 22 054 deaths in 2020 to 26 442 deaths in 2024 [1 additional mark] - The highest number of live births was in 2021, while the highest number of deaths was in 2022 [1 mark] - Live births at 38 672 in 2021, deaths were at 26 891 in 2022 [1 additional mark] - The lowest number of live births was in 2023, while the lowest number of deaths was in 2020 [1 mark] - Live births at 33 541 in 2023, deaths at 22 054 in 2020 [1 additional mark] - The smallest difference between live births and deaths was in 2023 while the Largest difference was in 2020 [1 mark] - Smallest difference in 2023 – 6653, largest difference in 2020, 16 536 [1 additional mark]
(ii)	Explain the economic issues Singapore would face due to changing demographics [3]

Award 1 mark for each explanation of the economic issues Singapore faces due to changing demographics, up to 2 marks
Award a maximum of 1 additional mark where applicable

- When birth rates in Singapore are decreasing, our local population would decrease, and we would become more reliant on people from other countries for manpower in Singapore [1 mark]
 - Due to our small population, Singapore is unable to fully meet the demands of our growing economy, particularly in healthcare and technology without the foreign workers [1 additional mark]

OR

- The reliance on foreign workers during economic slowdowns can result in a long recovery time due to the lack of local workers to aid the recovery [1 additional mark]

OR

- Companies and investors may lose interest in Singapore as it is unable to provide sufficient labour after an economic slowdown as many foreign workers which we are reliant on would have left Singapore when they lost their jobs during crisis. [1 additional mark]
- Ageing population with a higher proportion of elderly residents [1 mark]
 - Greater demand for healthcare services and elderly support facilities [1 additional mark]

(c) “Building resilience in Singapore is more important than having a dynamic urban governance approach in achieving sustainable development”

How far do you agree with the statement? Explain your answer. [9]

Level	Marks	Generic Level Descriptors for 9-Mark AO3 Questions
3	7 - 9	Develops arguments that supports both sides of the discussion clearly using a range of points with <u>good elaboration</u> . <i>Examples</i> used demonstrate a comprehensive understanding of the issue or phenomenon. Evaluation is derived from a well-reasoned consideration of the arguments.
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

Building resilience

- Building resilience is an on- going process, where resilience efforts are past and present actions, which future actions can continue to build upon to handle current and future challenges.
 - Example: Despite addressing water scarcity in the past by harvesting rainwater, Singapore continued to search for other sources of water till present day.
 - After many years of research and development, together with advancement in membrane technology, Singapore introduced reclaimed water in 2003 called the **NEWater**.

- Today, Singapore continues to explore beyond our current sources to secure our future water supply.
- Building resilience is about emergency preparedness and the ability to recover after crises.
 - Example: Shortly after independence, Singapore established the **Ministry of Foreign Affairs and People's Defence Force** to secure our borders.
 - We also expanded the **Singapore Armed Forces** through mandatory conscription of male citizens through **National Service in 1967**.
 - Without a hinterland or natural resources, Singapore's plan was to rapidly industrialise the economy by attracting foreign investors and focusing on education and training to stay relevant.
 - Today, Singapore is a secured, thriving, liveable and sustainable city-state that offers its residents a high quality of life.

Dynamic urban governance

- Singapore adopts a comprehensive approach to coordinate policy planning and implementation, which involves different stakeholders.
- Political leadership sets clear direction for different government agencies
 - Example: **Singapore Green Plan (SGP) 2030**, which is a nation-wide movement to support sustainable development, is jointly led by 5 government agencies.
 - Doing so helps to reap synergies as people and resources from these agencies combine to achieve a common goal.
 - Example: There are nation-wide engagement platforms such as '**Our Singapore Conversation**', which invites people to share their hopes for the future.
 - At such platforms, key issues such as job security, healthcare and housing are discussed.
 - The feedback gathered enables government agencies to implement policies that improve people's lives.
- Detailed, thorough systems and processes from public service and governmental institutions
 - Example: The Singapore public service has well thought-out systems and processes based on accountability, transparency, and incorruptibility.
 - The **Public Service Division (PSD)** leads the way in promoting good governance, running public organisations, and meeting citizens' needs.
 - The emphasis on good governance and upholding Public Service values has helped Singapore maintain a high level of trust and confidence in its government, both domestically and internationally.

Possible evaluation points:

- Dynamic urban governance is important because it facilitates resilience-building efforts
- OR
- Building resilience is important because it directly enables Singapore to withstand, adapt to and recover from challenges. Without resilience, sustainable development cannot be maintained in the long term.

[Total: 20 marks]

Assessment Specification Grid

Question	Max Mark	Question Part	AO1	AO2	AO3
1	15	(a)	3		
		(b)		3	
		(c)	3		
		(d)	3		
		(e)		3	
		TOTAL	9	6	0
2	15	(a)		3	
		(b)	3		
		(c)		3	
		(d)			6
		TOTAL	3	6	6
3	20	(a)		4	
		(bi)		4	
		(bii)	3		
		(c)			9
		TOTAL	3	8	9

AO1: 9 + 3 + 3 = 15

AO2: 6 + 6 + 8 = 20

AO3: 6 + 9 = 15

Acknowledgements:

- Fig. 1.1 <https://yipyc.com/blog/2016/11/11/the-story-of-yys-tiong-bahru-murals/>
 Fig. 1.2 <https://landezine-award.com/kampung-admiralty/>
 Fig. 1.3 [https://www.scdf.gov.sg/home/civil-defence-shelter/emergency-alert-\(sg-alert\)](https://www.scdf.gov.sg/home/civil-defence-shelter/emergency-alert-(sg-alert))
 Fig. 1.4 https://en.wikipedia.org/wiki/Bundang_Central_Park#/media/File:Bundang_Central_Park.JPG
 Fig. 1.5 <https://www.channelnewsasia.com/singapore/road-traffic-deaths-2023-fatal-accidents-5593781>
 Fig. 2.1 https://www.researchgate.net/figure/The-epicenters-of-the-earthquakes-around-Taiwan-from-1980-to-2021_fig2_372563604
 Fig. 2.2 https://www.researchgate.net/figure/Tsunamis-that-caused-more-than-100-deaths-by-year-in-Indonesia_fig7_259172075
 Fig. 2.3 Adapted from <https://earthquakelist.org/japan/>
 Fig. 3.1 https://x.com/steve_hanke/status/2042693599616471075
 Fig. 3.2 Adapted from <https://go.gov.sg/sqmiddleeastconflict2>
 Fig. 3.3 <https://go.gov.sg/sqmiddleeastconflict>
 Fig. 3.3 <https://www.straitstimes.com/singapore/singapore-s-birth-rates-hit-record-low-in-2022-along-with-most-yearly-deaths-since-1960>