PRELIMINARY EXAMINATION 2025
GENERAL CERTIFICATE OF EDUCATION ORDINARY LEVEL

ANSWER KEY

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# GEOGRAPHY 2279/02

Paper 2

| | | |
|---|---|---|
| • AO1 (Content)- 30% (15 marks) | • AO2(Skill) - 40% (20 marks) | • AO3 (Judgment/Decision making) - 30% (15 marks) |

| | Qns | AO1 | AO2 | AO3 |
|---|---|---|---|---|
| **GEL (15 marks)** | 1a | 3 | | |
| | b | 4 | | |
| | c | | 3 | |
| | d(i) | | 3 | |
| | d(ii) | | 2 | |
| | **Total** | **7** | **8** | **0** |
| **Tectonics (15 marks)** | 2a | 3 | | |
| | b | | 3 | |
| | c | | | 9 |
| | **Total** | **3** | **3** | **9** |
| **Singapore (20 marks)** | **3a** | | 2 | |
| | **b** | | 4 | |
| | **c** | | 4 | |
| | **d** | 4 | | |
| | **e** | | | 6 |
| | **Total** | **4** | **~~10~~** | **~~6~~** |
| | | **14** | **21** | **15** |

For markers to note:
For questions which do not require examples - marks can be awarded for **good use of relevant examples** to illustrate a point.

Answer **all** questions.

## 1 Cluster 1: Geography in Everyday Life

**(a)** Study Fig. 1.1 (Insert), which shows people gathering near a temple to celebrate Diwali festival in Ayodhya, India.

With reference to Fig. 1.1, describe how a sense of place is acquired. [3]

**Award 1m per point**

- Memorable events that happen, such as the Diwali festival, give residents a sense of belonging as they participate in a shared activity [1]
- Landmarks such as the temple in the background are highly visible and makes it easy for people to remember [1]
- Doing a meaningful activity that has cultural / religious significance can help people associate the place positively [1]
- Community events like this where many people gather to celebrate a festival allow them to bond and interact with each other [1]

*Accept other plausible answers.*

**(b)** Explain the benefits that supporting ecosystem services provide for the urban neighbourhoods. [4]

**Award 1m per point and 1 additional mark for further elaboration**

- Soil formation: Organic matter in the environment is broken down and decomposed to smaller particles and form soil providing a habitat for plants to grow on and small organisms to live in, contributing to biodiversity [1]
- Pollination: Animals in the environment like wild bees can help to pollinate crops in turn this ensures the reproduction of crops and that they can provide food [1]
- Photosynthesis: Plants in the environment absorb carbon dioxide and give out oxygen during photosynthesis this maintains the oxygen content of the earth's atmosphere so animals can live. [1]

*Accept other plausible answers.*

**(c)** Study Fig. 1.2, which shows the number and causes of traffic accidents in Singapore in 2022 and 2023.

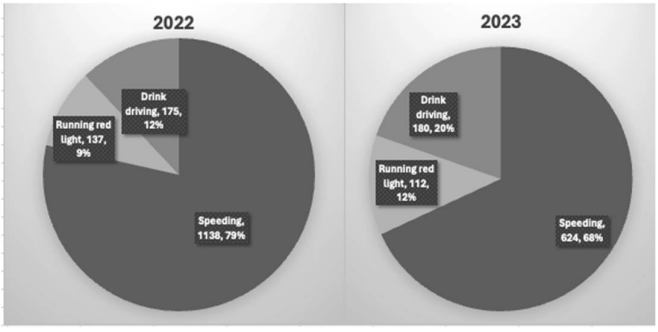



**Fig. 1.2**

[3]

Using Fig. 1.2, describe the occurrences of traffic accidents in 2022 and 2023.

**Award 1m per description. Students are not required to compare across years. Failure to give data will result in marks being capped at 2m.**

General: [compulsory]
Traffic accidents have decreased
Data there are fewer accidents in 2023 compared to 2022, from 1450 in 2022 to 916 in 2023. (1m)

Any other data observation:

- The biggest cause of traffic accidents is speeding, with 1138/79% in 2022 and 624/68% in 2023. [1]
- Speeding incidents have shown the largest decrease from 1138 to 624 – almost half [1]
- The smallest/least significant cause of traffic accidents is running red light, which has also shown a slight decrease, from 137 in 2022 to 112 in 2023. [1]
- However, drink driving incidents have slightly increased, from 175 in 2022 to 180 in 2023 [1]

*Accept other plausible answers*

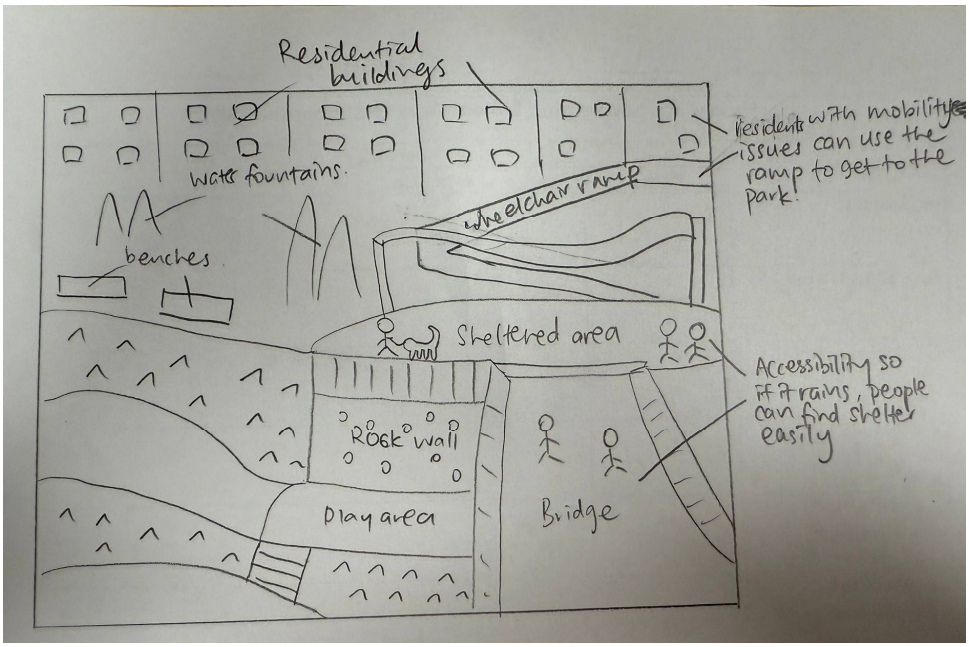
**(d)** Study Fig. 1.3 (Insert), which shows a community park in an urban area in the USA.

**(i)** Sketch the community park shown in Fig. 1.3. Annotate the sketch by identifying **two pairs** of spatial associations in the area. [3]

**Award 1m for sketch with accurate perspective.**
**Award 1m for each annotation showing spatial associations.**

- The rock-climbing wall and children's play area are close to each other so children can play within the same area [1]
- The residential building and ramp are close to each other so people with mobility challenges can easily get home/get around the park [1]
- The bridge and sheltered pavilion are next to each other for accessibility so if it rains, people can find shelter easily [1]
- The benches are near the water fountains so people can sit down, relax and watch the fountains [1]

*Accept any plausible answers – as long as reasons are given that can **enhance everyday living***




**(ii)** With reference to Fig. 1.3, explain how people using the community park may bring problems to nature. [2]

**Award 1m per point**

- People may disturb wildlife by disturbing their habitats, or feed them, thus they may have to seek shelter elsewhere or may have health issues [1]
- People may litter and pollute the environment, which may give off unpleasant smells or cause an eyesore [1]
- People may trample on vegetation when the walk on the grass, this causes soil compaction and erosion [1]

*Accept other plausible answers.*

**[Total: 15]**

## 2 Cluster 4: Tectonics

**(a)** Study Fig. 2.1, which shows a mid-ocean ridge.

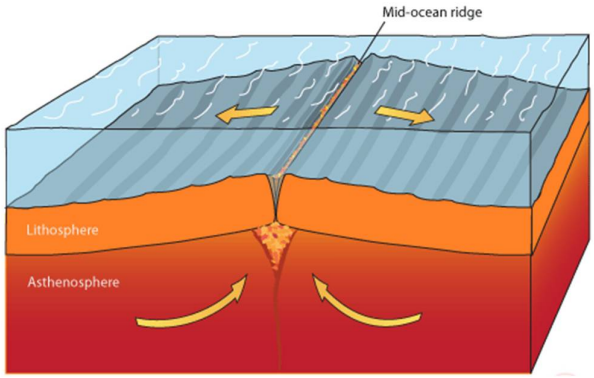



**Fig. 2.1**

With reference to Fig. 2.1, account for the change in the age of oceanic rocks with increasing distance from the mid-ocean ridge. [3]

**Award 1m for correct identification of seafloor spreading and rocks are younger closer to the centre of the ridge.**
**Award 1m each for explanation of the process of seafloor spreading**

- Seafloor spreading results in rocks closer to the centre of the mid ocean ridge to be younger / rocks are older the further away from the ridge. [1]
- At divergent plate boundaries when two plates move away from each other, magma from deep within the earth's crust rises to the surface through the mid ocean ridge [1]
- Lava cools, solidifies and forms new oceanic crust. As divergence continues, the new crusts formed continue to spread out laterally from the mid-ocean ridge [1]

**(b)** Study Fig. 2.2 (Insert), which shows Mount St Helens before and after an eruption in 1982.
With reference to Fig. 2.2, explain how volcanic eruptions may cause damage to natural ecosystems. [3]

**Award 1m for each response, the hazards associated with volcanic eruptions (lahars, pyroclastic flows etc) must be written, otherwise award a maximum of 2m.**

- Lahars: mudflows of volcanic ash and water cover forests with thick mud and destroy them, pollute rivers, killing aquatic life [1]
- Pyroclastic flows: Cloud of hot gases and ash travels down the slope of the volcano at high speeds, burning forests and cause biodiversity loss [1]
- Ash/tephra: Ash is dispersed many kilometres away from the site of eruption, which causes air pollution and suffocate wildlife [1]
- Volcanic gases: contain acidic sulfur dioxide that causes acid rain, damage vegetation and crops and kill wildlife [1]

*Accept other plausible answers.*

**(c)** Study Figs. 2.3 and 2.4 (Insert), which show some information about earthquakes that happened in different places. [9]

"The disaster risk caused by an earthquake at a place is most affected by its distance from the earthquake epicentre."

With reference to Figs. 2.3 and 2.4, to what extent do you consider the above statement to be true? Support your answer with relevant examples.

| | |
|---|---|
| **Level 1 (1 – 3 marks)** | • Brief description of the factors that may not necessarily be accurate<br>• No evaluation / limitations given<br>• No location-specific examples provided |
| **Level 2 (4 – 6 marks)** | • Clearly state/identify at least two factors<br>• Describes factors but description may lack details / describes one factor in detail but description for the other method may be vague or lacking in details<br>• Attempted at evaluating the extent of disaster risk<br>• General examples provided<br>• Evidence of incoherent answer or misconception |
| **Level 3 (7 – 8 marks)** | • Clearly identify at least three factors<br>• Balanced response: describes a mix of nature of nature of hazard, vulnerable conditions and exposure<br>• Evaluate all factors and form a logical conclusion<br>• Specific examples provided<br>• Well-organised and coherent answer<br>• Incl overall conclusion, with an insightful analysis. Demonstrate clear link between points discussed and key question. |

Suggested answer, sample essay

Given factor: **Distance from epicentre**
The distance from the epicentre of the earthquake will greatly determine the amount of ground shaking felt and the damage to infrastructure as a result. From Fig. 2.3, the most severe ground shaking felt after the Sichuan earthquake was close to the epicentre, and from about 100km away from the epicenter, it was only "moderate". Seismic waves which cause the ground shaking radiate out from the epicentre. Generally, exposure is lesser the further away from the epicentre as seismic waves are absorbed by the rocks before they reach the place. Infrastructure is thus less likely to collapse, leading to fewer injuries and fatalities.

**Level of preparedness of a place**
However, there are also other factors that affect disaster risk, such as the level of preparedness of a place. Countries who frequently experience earthquakes can increase preparedness through ways such as earthquake resistant building designs, and installing earthquake monitoring and warning systems to reduce their vulnerability to earthquakes. Buildings can be reinforced with shock absorbers and cross bracers to prevent too much swaying and collapse, so people are less likely to get trapped in collapsed buildings and die. Earthquake Early Warning (EEW) systems can be used to detect seismic waves and provide

advance warning for evacuation. For example, even though Japan has the 4th highest number of earthquakes in the world (2.4), there are few loss of lives even in a major earthquake like the magnitude 9.0 Tohoku Earthquake in 2011. This is because monitoring and warning systems detected strong tremors and a signal was sent out to stop their bullet trains, saving thousands of lives. Buildings in major Japanese cities are also reinforced with shock absorbers so there was little collapse.

**Time of shaking**

Another factor that can affect disaster risk is the time of occurrence of the earthquake. This affects the activities people are carrying out and how they respond when the earthquake strikes. If people are at work or school during the day, they are more alert and would be better equipped to evacuate, hence saving precious lives. For instance, the Kobe earthquake in 1995 was only a magnitude 6.9 and Japan being an earthquake-prone country had reinforcements like warning systems, and seawalls to counter tsunamis in place. However, as the earthquake hit at 6am in the morning, many people were still asleep and evacuation was slow. They were trapped at home and this led to more than 6000 lives lost.

**Soil and rock properties**

Another factor that affects disaster risk is the soil and rock properties of the area. The softer the soil of the place, the higher the disaster risk as seismic waves are amplified and shaking is more intense, which increases the likelihood of more infrastructure collapsing. Loose soil is also more vulnerable to liquefaction, as buildings may sink into liquefied soil and tip over. For example, the Haiti earthquake in 2010 had a magnitude of 7.0 but the ground shaking was perceived as much worse due to the soft soil in the capital Port-au-Prince. The seismic waves were amplified and led to the collapse of many buildings and more than 200000 lives lost. From Fig. 2.3, it can also be seen that during the Sichuan earthquake, Chengdu, about 80km from the epicentre had moderate ground shaking but Mianyang, about 150km from the epicentre had more severe ground shaking. This is likely due to the different soil and rock properties of the area.

**Reasoned conclusion**

In conclusion, there are many different factors that can affect the disaster risk of an earthquake, in addition to just the distance from the epicentre. The distance from the epicentre is generally a good gauge of where the most intense ground shaking would be. However, to determine if a place would suffer injuries, fatalities and cost of rebuilding infrastructure, other factors like the level of preparedness would affect disaster risk more. Level of preparedness helps to reduce vulnerability and exposure to disaster risk of an area, and it is necessary to put in place such measures especially for countries along tectonic boundaries that are very exposed to earthquakes. They can counter the damage done by an earthquake, hence I do not agree with the statement.

**[Total: 15]**

## 3 Cluster 5: Singapore

**(a)** Study Fig. 3.1 (Insert), which shows a map of some of Singapore's coastal ecosystems.

Using Fig. 3.1, describe the distribution of mangroves and corals. [2]

**Award 1m per description of mangroves and corals each.**

- Corals are found mainly in the waters of offshore islands south of Singapore eg P Hantu, Semakau [1]
- Mangroves are found at the coastal areas northwest of Singapore in Lim Chu Kang and Sungeu Buloh and the offshore islands of P Ubin and Tekong Island [1]

*Accept other plausible answers.*

**(b)** Study Fig. 3.2, which shows a population pyramid of Singapore in 2024.

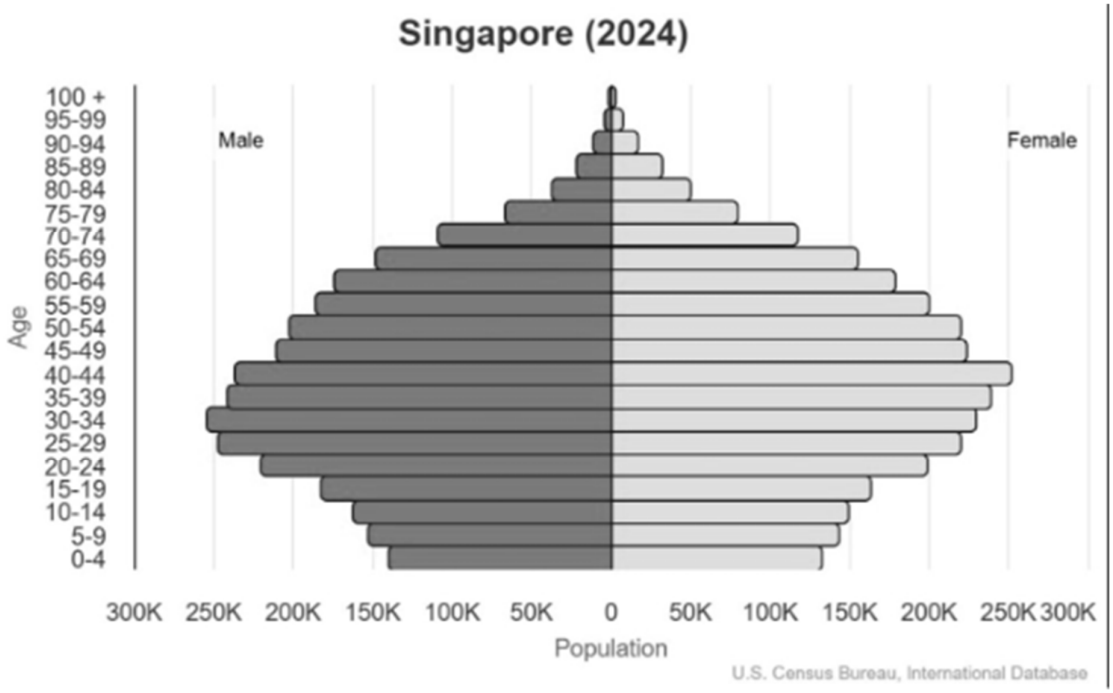



**Fig. 3.2**

With reference to Fig 3.2 only, identify a possible demographic challenge and explain its impact on the economic viability of Singapore. [4]

**Award 1m for identification**
**Award 1m for each explanation of impact**

- Identification - Declining BR ( Base of the pop pyramid are narrower) and ageing population (more are living longer, up to even a 100) [1]

Explanation of impact
- Fewer people in the workforce leading to foreign investors losing interest in Singapore [1]
- Due to the small workforce Singapore become expensive and loses its competitiveness [1]

- Heavy reliance of migrant workers/foreign talent can lead to greater vulnerability to labour shortages when there is a lack of foreign workers, making us less competitive. [1]
- Increase foregen workers may lead to increase diversity and may increase conflict in the society → less cohesive society. [1]

*Accept other plausible answers.*

**(c)** Study Fig. 3.3, which shows the SkillsFuture scheme introduced by the Singapore government.

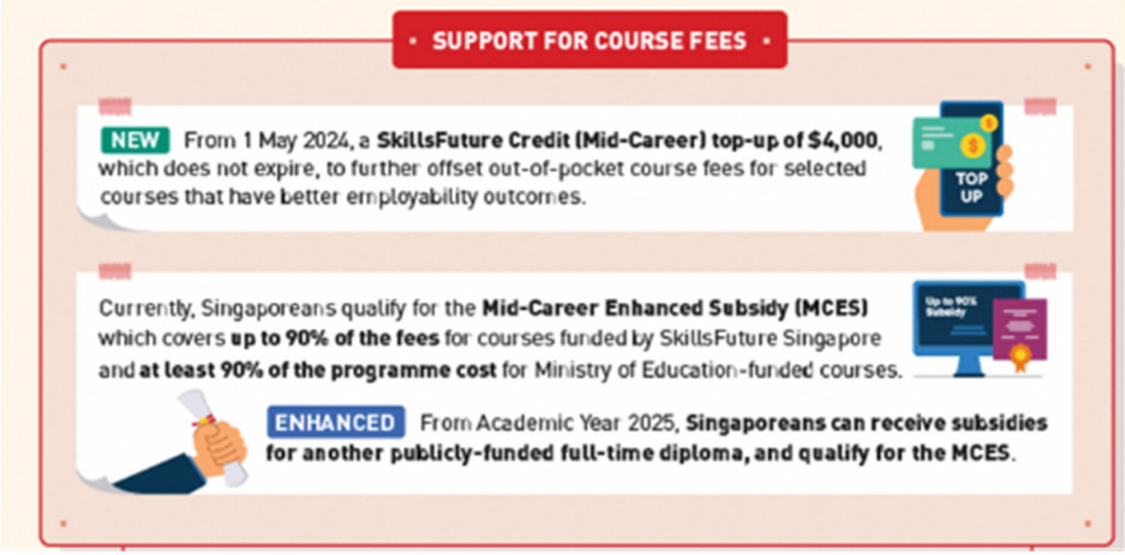



**Fig. 3.3**

With reference to Fig. 3.3, explain how schemes like SkillsFuture help in building social resilience in Singapore. [4]

**Award 1m per explanation**

- All sectors of society play an integral role in Singapore's resilience efforts as the population ages and becomes increasingly diverse. [1]
- With the rapid pace of technological development, Singaporeans need to go beyond their academic qualifications acquired during their schooling years and focus on lifelong development of knowledge and skills. To stay relevant amidst changes. [1]
- For example, the SkillsFuture national movement provides every Singaporean the opportunity to develop their potential throughout life. [1]
- As seen in the Fig, SkillsFuture helps mid-career Singaporeans to enable them to reskill and upskill to stay relevant amidst rapid changes [1]

*Accept other plausible answers.*

**(d)** Study Fig. 3.4 (Insert), which shows some tectonic information in Southeast Asia.

With the help of Fig. 3.4, explain the potential tectonic threats to Singapore and how Singapore has managed to turn it into opportunities. [4]

**2m for potential threats based on Fig. 3.4 and 2m for opportunities**
**Award 1m per explanation**

**Potential Threats**

- Earthquakes – Any movement of the faults could lead to earthquakes forming, if they are higher in magnitudes, the seismic waves could bring devastation to Singapore / Earthquakes resulting from faults closer to Singapore like the East Vietnam Fault could lead to seismic waves reaching Singapore, resulting in possible destruction. [1]
- Tsunami-Undersea volcanoes eruption may lead to tsunami that may affect Singapore especially those in the South China Sea [1]
- Volcanic ash-Undersea volcanoes eruption could also lead to volcanic ash forming that could be carried by wind to Singapore [1]

**Opportunities**

- To reduce risks, Singapore has implemented stricter building codes and conducted seismic risk studies. [1]
- These preparedness efforts have also led to economic opportunities in engineering consultancy and disaster risk management services regionally.[1]

*Accept other plausible answers.*

**(e)** Evaluate Singapore's effort in building food resilience to mitigate the impact of climate change. Support your answer with relevant examples. [6]

**Award up to 4m for explaining the 3 aspects of successes of building food resilience with examples. Award up to 6m for explaining 3 aspects of successes of building food resilience with examples and at least 2 limitations**
**Cap at 4m if there are no examples**

Singapore puts in place robust infrastructure and systems to tackle emerging challenges such as food security and sea level rise by looking at 3 areas :

- Diversify, Grow Local 30 by 30 and Growing overseas [1]
- Diversify : Importing food from many different countries reduces the risk of over-reliance on a single supply source. This allows importers to ramp up supply from other sources if the supply from any source country is disrupted. [1]
    - Today, we have diversified our food sources to over 170 countries and regions.
    - For importers of key food items, the SFA has also introduced a requirement to adopt business continuity plans, which may include import source diversification to mitigate the impact of food supply disruptions. [1]
- Local food production mitigates our reliance on imports and provides a critical buffer during supply disruptions.[1]
- Grow Local 30 by 30 : We are working to build up the capability and capacity of our agri-food industry to produce 30% of our nutritional needs locally and sustainably by 2030. [1]
    - For example local fisheries such as Eco-Ark and The Fish Farmer rear fish that supplement those that are imported for our consumption.

**Limitations:**

With global warming, there may be greater incidence of both droughts as well as heavy, intense storms, which could affect local food production and food imports. For instance, thousands of fish died in 2015 in the Lim Chu Kang fish farms that can potentially affect local aquaculture production

- Growing overseas: Singapore is also supporting local food production companies to set up overseas and export their produce back to Singapore, contributing to our food security. By venturing overseas, companies can overcome land and manpower

constraints, and access new and bigger markets. [1]

- This strategy helps Singapore build strategic relations with key partners and helps local companies export their urban food solutions. [1]
- Eg : Barramundi Asia in Australia
- Sky Greens in Thailand: vegetables are grown overseas in Thailand that are meant for Singapore consumers

Limitations:
Climate change may affect Singapore's imports. Vegetables and fruits production could be affected as the growing season may be lengthened or shortened, which affect the crop yield. [1]

*Accept other plausible answers.*

**[Total: 20]**

**END OF PAPER**