

ANDERSON SECONDARY SCHOOL
Preliminary Examinations 2025
Secondary Four Express



CANDIDATE NAME:

CLASS:

INDEX NUMBER:

GEOGRAPHY

2279/02

Paper 2

01 September 2025

1 hour 45 minutes

0800 – 0945

MARK SCHEME

Answer **all** questions.

1 Cluster 1: Geography in Everyday Life

(a)	Study Fig. 1.1 [Insert], which shows a map of existing and new developments in and around Bedok.
(i)	Using Fig 1.1, describe how spatial associations in the Bedok South neighbourhood can help enhance the everyday life of residents. [4]
	<i>Award 1 mark for description of each set spatial associations and enhancement, to a maximum of 2 marks.</i> <i>Award 1 additional mark for elaboration of each description.</i> • Integrated development + integrated transport hub [1m] ○ people can travel from other parts of Bedok South to access the services at the integrated devpt [1 additional mark] • School & housing precinct [1m] ○ within walking distance, can commute easily to & from school [1 additional mark] • Sports & recreation next to Bedok MRT and integrated transport hub [1m] ○ so people can go there easily for sporting events, grab a bite [1 additional mark] • CC & residential development [1m] ○ so people can gather at the CC for events, attend classes etc. (social gatherings also accepted) [1 additional mark] <i>Any other plausible answers accepted.</i> AO2
(ii)	With reference to Fig. 1.1, explain how the new developments can help the Bedok South neighbourhood achieve economic and social sustainability. [4]
	<i>Award 1 mark for each explanation of economic and social sustainability, to a maximum of 4 marks.</i> <i>Award 1 additional mark for elaboration of each explanation.</i> Economic: • School next to housing estate, reduce transport costs for students [1m] • Integrated transport hub means no need to build additional infrastructure to connect the transport modes [1m] • Integrated development can provide employment for residents, earn income & increase SoL [1m] Social: • Siglap CC provides shared community space for residents of Bedok South Horizon to have regular social interaction [1m]

	• New sports & recreation facility/more parks/Outdoor Play Corridor allows residents to gather for recreational activities [1m] <i>Note: question specifies new developments so existing developments are not accepted.</i> <i>Any other plausible answers accepted.</i> AO2
(b)	Study Fig. 1.2, which shows a volunteer taking visitors on a tour of the Botanic Gardens in Singapore, and Fig. 1.3, which shows people tending to an edible garden at Jurong Lake Gardens. Volunteer taking visitors on a tour of the Botanic Gardens  Fig. 1.2 People tending to an edible garden at Jurong Lake Gardens



Fig. 1.3

With reference to Fig. 1.2 and 1.3, describe how urban parks in Singapore may provide ecosystem services to local communities. [3]

Award 1 mark for each description of ecosystem services, to a maximum of 3 marks.

Award a maximum of 1 additional mark for further development of each explanation, where applicable.

- **Provisioning** ecosystem services: **edible garden can provide food** [1m]
- **Regulating** ecosystem services: **trees lower surface & air temp, provide shade** [1m];
 - **regulate water flow so less flooding** [1 additional mark]
 - **improve air quality** [1 additional mark]
- **Cultural** ecosystem services: **improve mental & physical health** [1m]
 - **foster social belonging & group identity** [1 additional mark]
 - **space for educational opportunities** [1 additional mark]

AO1

(c) Using an example, explain how the strengthening of relationships among residents can help to manage the risk of disasters in neighbourhoods. [4]

Award 1 mark for each point on how strengthening relationships can manage disaster risk, to a maximum of 4 marks.

Award a maximum of 1 additional mark for further development of each explanation, where applicable.

	<i>Reserve 1 mark for example.</i> - Disaster risk management plans in neighbourhoods may only be effective and sustainable if there is widespread support and long-term participation from the residents. [1m] - Strengthening relationships among residents is one such way of building community resilience so that they can resist, adapt to and recover from the impact of disasters. [1m] - Residents are encouraged to get to know their neighbours so that they can depend on one another during an emergency. [1m] - E.g. The People's Association (PA) builds community resilience by organising a wide range of community activities aimed at fostering positive relationships/ bringing people of different ages and backgrounds together. [1m] - The community's resilience was shown during the COVID-19 pandemic as residents came together to provide assistance to others in need (e.g. mask and food distribution). [1 additional mark] AO1
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[Total: 15 marks]

2 Cluster 4: Tectonics

(a)	Study Fig. 2.1 [Insert], which is a map showing the epicentre of a 2016 earthquake off the coast of Sumatra, Indonesia.
(i)	With reference to Fig. 2.1, explain how the earthquake may have occurred. [4]
	<i>Award 1 mark for each point on the formation of the earthquake, to a maximum of 4m.</i> <i>Award a maximum of 1 additional mark for further development of each point, where applicable.</i> - The plate boundary between the Indo-Australian plate and the Eurasian plate contains systems of deep fractures called faults. [1m] - The earthquake may have occurred when rock masses on either side of a fault are pushed by the convergent tectonic forces, [1m] - due to the convergence of the Indo-Australian plate and the Eurasian plate [1 additional mark] Friction causes them to get locked, and stress builds up. [1m] - When the stress exceeds the strength of the fault (or rock), the rocks snap/jerk/suddenly move to a new position. [1m] - This sudden movement causes seismic waves to be released, resulting in ground shaking/earthquakes. [1m]

	AO1
(ii)	The earthquake, measuring 7.8M_w, struck on 2 March 2016 at 11.00pm. It was expected to affect places such as Padang (population 833,562) and Aceh (population 5.5 million). Using Fig. 2.1 and the given information, compare factors that may affect the disaster risks faced by places such as Padang & Aceh due to the earthquake. [5]
	<i>Award 1 mark for each comparison, to a maximum of 5m. Award a maximum of 1 additional mark for further development of each point, where applicable.</i> Similarities: • Time of shaking - EQ struck at 11pm local time, when many people in both Padang and Aceh would be at home either asleep or getting ready for sleep [1m] ○ Hence would be less alert and unable to evacuate quickly [1 additional mark] ○ They would be likely to be trapped if buildings were to collapse, causing injuries and loss of lives [1 additional mark] • Exposure to tsunami hazard – both are located on the western coast of Sumatra, where the epicentre is located, therefore both places may experience tsunami triggered by the EQ [1m] Differences: • Distance from epicentre – Aceh is located farther from epicentre (>1000km) than Padang (about 700km) [1m] • Seismic waves will be weaker by the time they reach Aceh, compared to Padang [1m] ○ as more energy is absorbed by the rocks before the seismic waves reach Aceh [1 additional mark] ○ Buildings and bridges are less likely to collapse in Aceh due to the ground shaking [1 additional mark] • Population – Aceh has higher population of 5.5 million compared to Padang's lower population of 833,562. [1m] • Therefore there is a greater number of people and buildings exposed to hazards like ground shaking or tsunami [1m] ○ More people would be trapped if buildings were to collapse, causing more injuries and loss of lives AO2
(b)	Study Fig. 2.2, which shows a volcano safety poster by the University of the West Indies Seismic Research Centre (UWI-SRC). The UWI-SRC monitors earthquakes, volcanoes and tsunamis in the English-speaking Eastern Caribbean. Volcano safety poster by the UWI-SRC

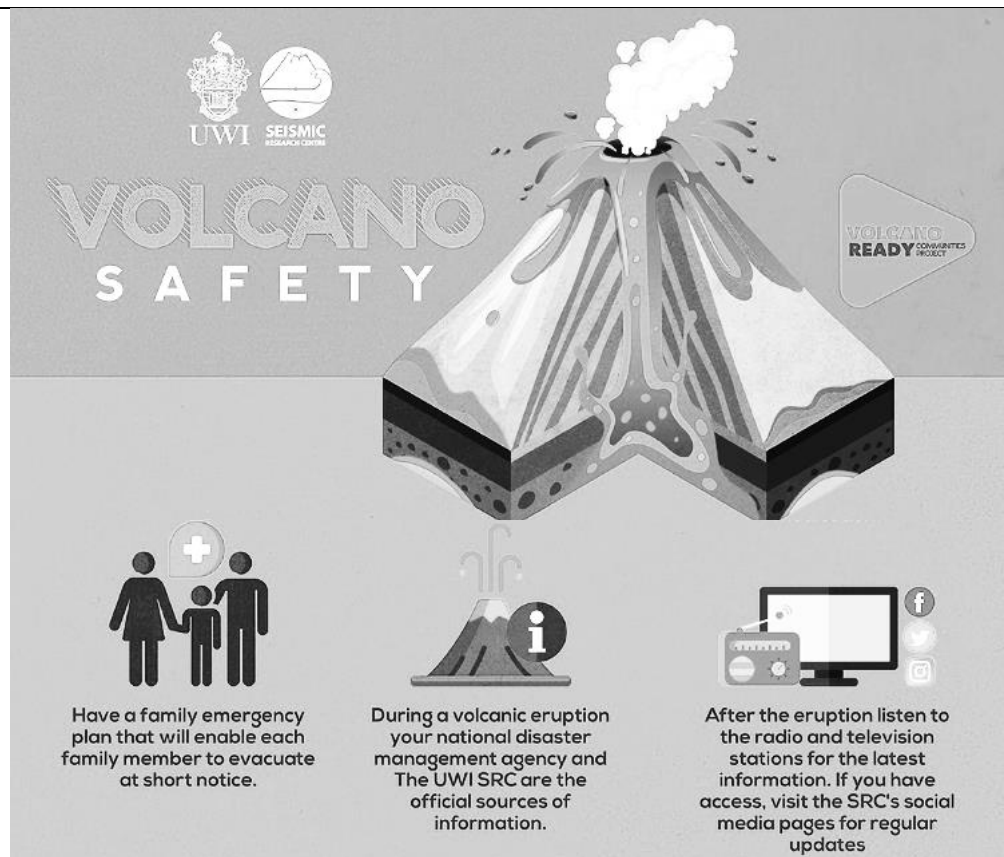


Fig. 2.2

With reference to Fig. 2.2, evaluate the disaster management strategies shown. [6]

Award 1 mark for each evaluation of the strategies, to a maximum of 6 marks. Award a maximum of 1 mark for further development of each evaluation, where applicable.

Reducing vulnerability through monitoring and warning systems:

- The UWI SRC uses **monitoring and warning systems** to detect seismic waves and ground deformation. [1m]
 - This data is used to **make predictions and send warnings** about potential hazards. [1 additional mark]
- The warnings **enable people to evacuate to a safer place, reducing their vulnerability** to volcanic hazards. [1m]
- However, the **lack of resources**, including **technological and financial** resources, may cause challenges in building community resilience in this way. [1m]
- The governments of developing countries such as those in the Eastern Caribbean may **choose to prioritise economic development** instead of investing in such systems. [1m]
 - Thus, it may **limit the ability of the UWI SRC to give accurate warnings** and allow people to evacuate in time. [1 additional mark]

Raising public awareness through education:

	- Posters such as the one shown provides people with the knowledge of how to respond to volcanic hazards, by ensuring that they have a family emergency plan for evacuation, and know which authorities to turn to for information and how. [1m] - This allows them to respond quickly and evacuate smoothly. [1 additional mark] - However, a lack of capability of the community to organise itself may limit the community's ability to respond to volcanic disasters [1m] - There could be a lack of effort to educate and train the community to respond, such as through regular evacuation drills. [1 additional mark] Political instability, such as civil unrest, could limit how well families could form an evacuation plan. [1m] Corruption could also lead to loss of funding meant to build community preparedness. [1m] AO3
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[Total: 15]

3 Cluster 5: Singapore

(a)	Study Fig. 3.1 [Insert], which shows local production figures for selected food products, 2021-2023, and Fig. 3.2 [Insert], which shows information about Apollo Aquaculture's fish farms in Singapore and Brunei.
(i)	Describe the changes in food production from 2021 to 2023. [3]
	<i>Award 1 mark for each description, to a maximum of 3 marks. Award a maximum of 1 mark for further development of each description, where applicable.</i> Overall: Production has decreased for all food products except for eggs which have increased [1m] - from total of 643.6 million in 2021 to 685 million in 2023 [1 additional mark] Largest decrease in vegetable production which fell [1m] - from a total of 23.5 tonnes (or average 5.9 tonnes per quarter) in 2021 to 16.9 tonnes (or 4 tonnes per quarter) in 2023 [1 additional mark] Slight decrease in seafood production which fell [1m] - from a total of 5.1 tonnes (1.23 tonnes per quarter) in 2021 to 4.1 tonnes (1 tonne per quarter) in 2023 [1 additional mark] AO2

(ii)	With reference to Fig. 3.1 and Fig. 3.2, explain how Singapore builds resilience in food security. [4]
	<i>Award 1 mark for each explanation, to a maximum of 3 marks. Award a maximum of 1 mark for further development of each explanation, where applicable.</i> • When there are disruptions in regional and global food supplies, local produce can serve as a critical supply source [1m] ◦ E.g. increase in local egg production means that Singapore can rely on local eggs during times of disruption in external egg supply [1 additional mark] • This can be achieved through innovation in local farming [1m] ◦ E.g. Apollo Aquaculture's high-tech, 3-storey fish farm allows farming to take place in smaller areas to overcome land constraints [1 additional mark] • Singapore supports local companies to expand overseas so that they can overcome land, water and manpower constraints in Singapore [1m] ◦ E.g. Apollo Aquaculture is building a fish farm in Brunei, to rear fish which then can be imported back to Singapore [1 additional mark] <i>Any other plausible answers accepted.</i> AO2
(b)	Describe two challenges to Singapore that may arise from climate change. [4]
	<i>Award 1 mark for each description, to a maximum of 2m. Award a maximum of 1 additional mark for further development of each description, where applicable.</i> Any 2 of the following: • Floods: Singapore's drainage system may not be able to cope with the more intense rainfall that arises due to climate change [1m]. ◦ Flash floods could cause more severe damage as there is very little response time [1 additional mark] • Urban heat island effect: Climate change can worsen the UHI effect as more heat can be retained by urban surfaces [1m]. ◦ Additionally, the use of air conditioning, cars and factories emit heat and raise the surface temperature. [1 additional mark] ◦ Higher humidity levels also worsen the situation as sweat cannot evaporate easily, making us more vulnerable to heat exhaustion and heat stroke [1 additional mark] • Vector-borne diseases: Higher temperatures can cause cases of vector-borne disease to increase [1m] ◦ E.g. warmer temperatures could shorten egg incubation of Aedes mosquito, resulting in a larger mosquito population and more cases of dengue [1 additional mark] • Threat to biodiversity: warmer temperatures can reduce biodiversity in Singapore as habitats can be harmed by warmer and drier conditions [1m]

	○ E.g. increase in sea temperatures in 2010 led to a loss of 10% of Singapore's coral reefs [1 additional mark] • Water insecurity: due to Singapore's lack of water sources, extended periods of drought across the world can affect the reliability of Singapore's water supply [1m] ○ E.g. in 2016 and 2019, water levels fell in Johor's Linggiu Reservoir due to climate change, affecting Singapore's water supply [1 additional mark]
(c)	Study Fig. 3.3 [Insert], an infographic about Singapore Changi Airport's proposed Terminal 5, and Fig. 3.4 [Insert], which shows annual international tourist arrivals in Singapore, 2014-2024. With reference to Fig. 3.3 and Fig 3.4, to what extent may Singapore's efforts to overcome the challenges of tourism development be considered sustainable? Explain your answer.
	Define Singapore's efforts to overcome challenges: opportunities to mitigate and adapt • Challenges: global uncertainty (Covid-19's impact on tourist arrivals from 2020 onwards), regional competition (more price-competitive neighbours), discerning visitors (who are looking for individualised experiences), ageing population (manpower constraints & reliance on foreign workers), resource constraints (land for further development of infrastructure like T5) • Efforts to mitigate & adapt: benefits from regional growth (strongest growth for air travel in Asia-Pacific), partnership with stakeholders, trialling sustainability solutions, developing skilled workers Evaluation: Scale - space limits scale of development? Timescale - Aging pop limits long term growth due to lack of manpower? Or perhaps with good governance/commitment, can continue to be sustainable & reap benefits (see: Singapore's considerations for sustainable development) AO3

Generic level descriptors for 9m AO3 questions		
Level	Marks	Descriptors
3	7-9	Develops arguments that support both sides of the discussion clearly, using a range of points with good elaboration . Examples 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.

[Total: 20 marks]

Acknowledgements:

Adapted from <https://www.ura.gov.sg/-/media/Corporate/Planning/DMP19/Regional-Resources/East-Flyers/Bedok.pdf>

<https://www.nparks.gov.sg/images/default-source/events/sbg/sbg-edu/june-2024/june-prog-photo.jpg>

<https://www.nparks.gov.sg/get-involved/volunteer/volunteer-with-us>

Adapted from <https://www.scmp.com/news/asia/article/1919972/indonesia-issues-tsunami-warning-after-massive-7.9-magnitude-quake-sumatra>

Adapted from <https://www.instagram.com/uwiseismic/p/C640O2thpmB/>

Adapted from <https://www.sfa.gov.sg/docs/default-source/publication/sq-food-statistics/singapore-food-statistics-2023.pdf>

Adapted from https://static1.straitstimes.com.sg/s3fs-public/attachments/2017/02/14/ST_20170214_APOLLO14A_2939849.pdf

Adapted from <https://www.businesstimes.com.sg/singapore/singapore-airlines-operate-out-changi-airports-terminal-5-internal-train-cover-2-km-distance> and https://www.instagram.com/p/DJoQT4fSboW/?img_index=2
<https://roadgenius.com/statistics/tourism/singapore/>

Assessment Specification Grid

Question	Max Mark	Question part	AO1	AO2	AO3
1	15	(a)(i)		4	
		(a)(ii)		4	
		(b)	3		
		(c)	4		
		Total	7	8	0
2	15	(a)(i)	4		
		(a)(iii)		5	
		(b)			6
		Total	4	5	6
3	15	(a)(i)		3	
		(a)(ii)		4	
		(b)	4		
		(c)			9
		Total	4	7	9
			15	20	15

AO1: $7 + 4 + 4 = 15$

AO2: $8 + 5 + 7 = 20$

AO3: $6 + 9 = 15$