Section A

Answer **all** questions in this section.

1 A group of students were interested to investigate whether there is a sense of belonging among the residents living at Kampung Admiralty. Kampung Admiralty is the first-of-its-kind development in Singapore, which integrates housing for the elderly with a wide range of social, healthcare, communal, commercial, and retail facilities.

The students conducted a questionnaire survey with 50 elderly residents. Fig. 1 shows the questionnaire for the residents living in the neighbourhood.

ANSWER OUR QUESTIONS!!!						
1	Gender	male female	(())		
2	Do you participate in any community activities such as morning mass exercises and festive celebrations organised at Kampung Admiralty?					
		yes	()		
		no	()		
3	If your answer to Q2 is a 'yes', please proceed to Q4 and Q5. How often do you participate in the community activities organised at Kampung Admiralty?					
		seldom	()		
		sometimes	()		
		frequently	()		
4	Do you think these community activities allow residents to develop a sense of belonging to the neighbourhood?					
		yes	()		
		maybe	()		
		no	()		

Questionnaire for residents living at Kampung Admiralty

The students conducted the questionnaire survey at the entrance to the hawker centre and the community plaza of Kampung Admiralty on a weekday between 11.00 am and 1.00 pm. They approached every fifth elderly person that was leaving the hawker centre or the community plaza to take part in the survey.

- (a) Identify the sampling method used and explain why the students selected their respondents this way.
 - [2]
- (b) Suggest **one** strength and **one** weakness about the way the survey was conducted other than the sampling method considered.



Out of the 50 elderly residents who took part in the survey, 30 of them indicated that they had participated in the community activities organised at Kampung Admiralty. The results of Q3 and Q4 in the questionnaire are shown in Table 1.

Table 1

Results for Q3 and Q4 in the questionnaire

Question	Options				
\cap	seldom	sometimes	frequently		
QS	6	9	15		
01	yes	maybe	no		
Q4	9	18	3		

The students constructed two pie charts to represent the results for Q3 and Q4 in the questionnaire in Figs. 2 and 3.



Fig. 2

Likelihood of community activities developing a sense of belonging



Fig. 3

- (c) Use the results for Q4 in Table 1 to complete the pie chart in Fig. 3 on the previous page. [2]
- (d) The students concluded that more time spent by the elderly residents participating in community activities will help to build a sense of belonging to the neighbourhood.

Suggest how far the results in Table 1, Figs. 2 and 3 support the students' conclusion.

(e) One student thought that the questionnaire could be better designed.

Suggest **two** improvements to the design of the questionnaire shown in Fig. 1.

[2]

[3]

(f) The students decided to extend their investigation to find out whether the number of years living at Kampung Admiralty for the elderly residents will affect their sense of belonging to the neighbourhood.

State a hypothesis and suggest **one** suitable closed ended question the students may ask the elderly residents for this investigation.

_____[2]

Section B

Answer **all** questions in this section.

2 (a) Compare two characteristics of formal and informal housing.

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-		
-		
_		
-		
-		[4]
_		
(b)	(i)	Suggest one possible location in a city where informal housing can be found.
		[1]
	-	
	(ii)	Describe one advantage and one disadvantage of living in the location mentioned in (b)(i) .
	-	
	-	
	-	[2]

(c) Study Fig. 4, which shows the total number of HDB flats sold in Singapore from 2012 to 2020.



HDB flats sold in Singapore

With reference to Fig. 4, describe the changes in the sales of HDB flat from 2012 to 2020.



Fig. 4

(d) Study Fig. 5, which shows the environmental features of a HDB block.

Environmental features of a HDB block



Fig. 5

Use information from Fig. 5 to explain how the environmental features promote sustainable housing.



3 (a) Explain how traffic congestion can have a negative impact on road users.



(b) Study Fig. 6, which shows the proportion of Singapore's total public transport ridership for two years, 2007 and 2016.



Proportion of public transport ridership



Using information for Fig. 6, describe the changes in proportion of public transport ridership between 2007 and 2016.

[2]

(c) Study Fig. 7, which shows features of a Silver Zone. Silver Zones are often found in areas with a high proportion of elderly residents.



Road crossing at a Silver Zone

Fig. 7

Using information from Fig. 7, explain how features **A** and **B** enhance road safety for the elderly.



(d) Study Fig. 8, which shows a mobile application providing information to get from Woodgrove Secondary School to City Hall.

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Information provided by mobile application



With reference to Fig. 8, explain how the mobile application can allow commuters to better plan their trip.

[2]

(e) Using a named example(s), evaluate the effectiveness of laws and policies to manage transport systems sustainably.



End of Paper

Woodgrove Secondary School End-of-Year Examination 2022 Lower Secondary Geography Secondary 2 Express

Mark Scheme

1 (a) Identify the sampling method used and explain why the students selected their respondents this way.

systematic (sampling) =1

easier to use (compare to random sampling) avoid bias when choosing respondents

Any 1 @ 1 for explanation Accept 'less time consuming and more convenient (compared to random sampling)'

Common mistake(s)

described how to carry out sampling method

[AO 1 + 2, 2]

(b) Suggest one strength and one weakness about the way the survey was conducted other than the sampling method considered.

strength

both locations considered are likely frequent by elderly residents living at Kampung Admiralty

time considered for conducting survey is during lunch hour so easy to find elderly people to take part

weakness

may miss out on elderly residents who do not visit hawker centre and/or community plaza

not all elderly residents will be performing their daily activities between 11.00 am and 1.00 pm

Reserve 1 for strength/ weakness Accept other plausible suggestions

Common mistake(s)

- described what was good and not good about questionnaire
- described strengths and weaknesses of sampling method
- suggested incomplete/ inappropriate/ irrelevant reason(s) e.g. 'on weekday, people are working so is it good', children are in school between 11.00 and 1.00 pm'

[AO 1 + 2, 2]

(c) Use the results for Q4 in Table 1 to complete the pie chart in Fig. 3 on the previous page.

30% for 'yes'/ 10% for 'no' =1

correct shading for respective sector =1

Accept completion of pie chart without arranging sectors in descending order

Common mistake(s)

- draw entire pie chart (instead of completing remaining sectors) thereby having more than 3 sectors in pie chart
- not following shading based on legend provided
- calculated(?) and plotted sectors wrongly

[AO 1 + 3, 2]

(d) Suggest how far the results in Table 1, Figs. 2 and 3 support the students' conclusion.

results support conclusion to a small extent/ do not support conclusion =1

15 elderly residents frequently participated in community activities but only 9 felt that the activities develop a sense of belonging a large % (60%) seemed uncertain about whether frequent participation in community activities will build sense of belonging however, only 3 out of 30 elderly residents felt that activities organised do not promote sense of belonging to neighbourhood

Reserve 1 for conclusion drawn (with relevant support) Reserve 1 for showing how far results support conclusion Max 2 for wrong supported conclusion Max 1 for description of data only

Common mistake(s)

- describe data observed but did not point out plausible relationship between frequency of residents participating and thoughts about developing sense of belonging
- lack clear quotation of data to support descriptions

[AO 1 + 3, 3]

(e) Suggest two improvements to the design of the questionnaire shown in Fig. 1.

wording/ phrasing can be more polite unclear/ wrong instructions given after Q2 options for Q3 can be clearer e.g. everyday, twice a week consider asking some open-ended questions

Any 2 @ 1

Accept other plausible suggestions e.g. specific question(s) to include in questionnaire

Do not accept removal of option 'maybe' from Q4

Common mistake(s)

- suggested ways to beautify questionnaire
- suggested how to conduct the survey
- vague suggestions on modification to questions e.g. 'add more options to the questions'

[AO 1 + 3, 2]

(f) State a hypothesis and suggest one suitable closed ended question the students may ask the elderly residents for this investigation.

e.g. 'longer years of living at Kampung Admiralty will build stronger sense of belonging to the neighbourhood' or equivalent =1

e.g. 'How long have you been living in Kampung Admiralty?' with options 'less than a year', 1 – 2 years, 'more than 2 years'

Accept other plausible closed ended questions suggested

Common mistake(s)

- proposed a guiding question instead of a hypothesis
- crafted a hypothesis that did not include the required variable(s)
- suggested a question not directly relevant to the hypothesis
- interpreted length of living in the estate as life expectancy of the residents
- provided an open-ended question

[AO 1 + 2, 2]

2022 Secondary 2E Geography EOY

Question 2

(a) Compare two characteristics of formal and informal houses.

Common criteria should be clear and should be elaborated upon

- Quality of material -
 - F: Strong and durable materials such as steel and concrete that allows it to withstand the elements.
 - IF: Weak, recycled or used materials such as scaped wood, cardboard or zinc that are easily destroyed by rain or wind.
- Who built these housing?
 - F: Developers build these houses with adherence to government codes and practices (laws and regulations)
 - IF: Self-built by families or individuals which are unofficial
- Location of houses
 - F: They are found in desirable places with access to various services such as water and electricity and amenities: supermarkets/parks
- Rights to occupy land
 - F: Possess the rights to own and develop the land from the government
 - IF: No rights to occupy land and often build their houses illegal on land that is owned privately or the state.

No marks given if students

- Only write good quality/weak quality material. Students need to write about the material and/or its function.
- Only write amenities or services. Students need to elaborate. Services refer to water, electricity, and sanitation whereas amenities refers to the hawker centre. If confused, no marks given.
- Houses do not possess legal right to own land. Only people possess legal right to own the land

Marks are deducted

- Lack of conjunction: 'while, however, on the other hand, whereas, but'.
- There is no point-to-point comparison between the two characteristics.

Exemplar answer for correction:

Formal and informal housings are different in terms of the materials that are used. Formal houses are often built with good quality materials such as concrete, bricks, and steel bars to ensure that the house can withstand natural elements such as heavy rain and winds. **On the other hand** (Conjunction), informal houses are often built with poor quality materials such as recycled wood, zinc or cardboard which can be easily destroyed by heavy rain and winds.

Formal and informal housings are different in terms of who builds and develop them. Formal houses are often built by the government or private develop who hold the legal right to develop the piece of land. **However** (conjunction), informal houses are often built by individuals and families illegally on land and do not have the legal right to develop the piece of land.

Accept any possible common criteria answer. Max 3 mark if no/insufficient elaboration/comparisons are unclear

(b)

(i) State one possible location in a city where informal housing may be found Rivers/Rubbish dumps/Expressways/train tracks

Rejected answers: outskirts/centre/outside of city – answers need to be specific to a location (not a generic area)

(ii) Describe one advantage and one disadvantage of living in the location mentioned in (b)(i).

Advantage – Close access to their workplaces/access to water and materials that they need for housing/work.

Disadvantage – Health hazard due to the natural environment due to unsanitary, unclean living conditions, noisy

Answers provided in (ii) must be related to the location mentioned and should relate to the environment that they are in when elaborating on advantages and disadvantage.

Max 1 mark for (ii) if disadvantage is related to the characteristics of informal housing (NAQ).

Accept any relevant answers

- (c) With reference to Fig. 4, describe the changes in the sales of HDB flat from 2012 to 2020.
 - During the period from 2012 to 2020, there is a *general increase* in HDB sales from 2013 to 2020 from 18,100 to 24,748.
 - HDB flat sales *decreases sharply* from 17318 in 2012 to 17,318 in 2014.
 - Subsequently, from 2014 to 2020, HDB flat sales *increased gradually* from 17318 to 24748

Max 2 marks if data is not provided / incorrectly given, no units given. Note:

- Most students did not provide the general change in HDB sales before zooming in to the specific parts of the graph.
- Students were penalised if they mentioned that there an increase of HDB sales from 2013 to 2020 because they ignored that it decreased in 2014.
- (d) Use information from Fig. 5 to explain how the environmental features promote sustainable housing.
 - As solar panels absorb solar energy from the Sun to produce electricity to power HDB estates/neighbourhood, there is a reduce dependence on the use of fossil fuels to generate electricity.

- As the Smart LED lighting uses sensors that activate and turn on the lights when people walk past and switch off when there is no one, electricity is saved/not wasted.
- As the use of fossil fuels to generate electricity is reduced, the emissions of carbon dioxide and CO2 is reduced. (Alternative answer: Ensures that fossil fuels which are a non-renewable resource can be used for a longer period of time in the future.)

Max 2 marks if no explanation for promotion of sustainable housing. Note:

- Many students could not relate the environmental features to the idea that when fossil fuels are not used, the production of greenhouse gases would decline resulting in lower CO2 emissions.
- It is a mistake to associate cost-saving as environmental sustainability as that is economic sustainability, e.g. 'people save on electrical bills'.
- No marks were given for students who wrote that LED lights use lesser energy than regular bulb because they did not refer to the question.

Question 3

- a) Explain how traffic congestion can have a negative impact on road users.
- Traffic congestion often result in slow-moving traffic or is a result when the capacity of the road is exceeded.
- The slow-moving traffic often results in anger and frustrate amongst some of the drivers.
- This may result in road rage and reckless driving that may result in additional road accidents where pedestrians may be knocked down or collision between vehicles.
- Drivers may also be late for work or dropping their children of for school.

Max 1 mark if negative impact on road users (vehicular/pedestrian) Note

- Many students did not elaborate on what is traffic congestion but instead elaborated on the impacts of road user
- There were students who left it as 'noisy due to loud noises and honking' and did not elaborate about how it affected road users.
 - b) Using information for Fig. 6, describe the changes in proportion of public transport ridership between 2007 and 2016.
 - The percentage of people who take the taxi decreased from 17% in 2007 to 12% in 2016.
 - The percentage of people who take the MRT increased from 28% in 2007 to 39% in 2016.
 - The percentage of people who take the bus decrease from 54% in 2007 to 49% in 2016.

Max 1 mark if only 2 groups are described / no/incorrect data is used. Note

- 1 mark awarded if only 2 descriptors were given / all 3 descriptors were given without any data.
 - If 2 descriptors with 1 or no data = 0 marks.
- Some students combined the bus and train thinking that it is public transport. No marks given.
- Students have a misconception that taxi is private transport. Students tricked themselves into thinking that it was a trick question.
- c) Using information from Fig. 7, explain how Features A and B enhance road safety for the elderly.
- Feature A refers to the central island refuge that is found between road dividers that provides a safe place for the allows the elderly to rest
 - Exp: As they do not have to cross the road in one go, this prevents from rushing which may result in injuries if they fall given their frail body.
 - The main purpose of it is for the elderly to rest and not have to cross a wide stretch of road at a go. Its purpose is not for the elderly to look left and right.

- Feature B is a speed limit sign that signals to cars to slow down and keep within the prescribed speed limit of 40 km/h.
 - By making them slow down, drivers become more conscious of their surrounding which allows them to avoid or give way to the elderly
 - **Exp:** As the cars are moving at a slower speed, the elderly will have more response time to avoid any incoming vehicles to avoid any collisions or car accidents.

Max 2 marks if there is no / weak explanation on how these features enhance safety for elderly.

- Notes:
 - Many students did not explain how it enhanced safety for the elderly how it prevents accidents from occurring.
 - d) With reference to Fig. 8, explain how the information provided allow commuters using the mobile application to better plan for their trip.
 - Time taken by each mode: The application allows users to be aware of the amount of time each mode of transport would take to reach the destination. Knowing the time would enable them to more easily plan what time they would need to leave to reach their destination if they want to take a certain mode of transport. This prevents them from being late for any appointments that they may have.
 - Cost: The application also provides users with information about the cost of each mode of transport. As commuters often make decisions based on the cost of the trip, they may choose the mode of transportation that is the cheapest. This also help them ensure that they have sufficient money to take the relevant transportation.

Notes

- Students who wrote 'shows the time or price' did not answer the question. Students need to show how it compares between the options which enables user to make a choice.
 - e) With the help of a named example(s), evaluate the effectiveness of laws and policies in promoting sustainable transport system.
 - Car-lite policies are plans made by the government to reduce the usage of cars within a city or a country. These policies encourage citizens to make use of public transportation modes to reduce private vehicles.
 - Cities achieve this by building more public transport infrastructure as well as reduce demand by constraining vehicle ownership and road usage.
 - In Singapore, one of the initiatives organised is Car-free Sunday where cars are not allowed to be driven in the Central Business District on Sundays.
 - When more people travel by public transport and reduce usage of private vehicles, the amount of carbon emissions per person produced from transport system is reduced.

• **However**, such policies require time to be successful as people may need to adjust their travelling habits. In addition, rising affluence may make it more affordable for people to own private vehicles.

Reserve 1 mark for example Reserve 1 mark for limitation/disadvantage Max 4 marks if students did not link laws and policies to the promotion of

Max 4 marks if students did not link laws and policies to the promotion of sustainable transport system.

As cities around the world continue to grow and attract people with its numerous opportunities, there is a need for governments to create laws and policies to ensure that transport systems remain safe for all users, vehicular and pedestrian. This is often achieved through the organisation of roadshows and campaigns to educate the public about good road safety practices and raise awareness about the dangers of certain misbehaviours such as drink-driving, speeding, or using mobile devices while driving.

Through these public education programmes, all road users become more aware of their road habits and take action to better safer roads users. This helps to reduce the occurrences of road accidents. This ensures that roads and traffic-related infrastructures and vehicles will not be damaged over time so that people and goods can continue to be transported safely and quickly around cities.

The Singapore Road Safety Council (SRSC) and the Traffic Police (TP) launched the Singapore Ride Safe 2020. It targeted motorcyclist as motorcycle-related accidents accounted for 60% of all traffic accidents. The "Reward the Rider" initiative was introduced to reward motorcyclists for wearing protective riding gear and practising good road sense and riding behaviour. These motorist were rewarded with road safety collaterals.

However, it may take a long time before such public education campaign show an increase in road safety awareness as more time is required for people to change their habits or routines.

Electronic Road Pricing

Another policy to make cities more car-lite is the use of road pricing to reduce road congestion. Road pricing is a strategy where vehicle users are charged a premium when they use certain popular roads at specific timings

The timings are usually during the morning and evening peak periods where many vehicles and people are on the road system to travel between workplaces and homes.

The road pricing changes the travelling behaviour of some drivers as they may choose other modes of transports or avoid these roads to avoid additional charges. This reduces road congestion especially during the peak periods to allow people to leave and enter the city centre quickly and safely.

In Singapore, the Electronic Road Pricing (ERP) system imposes a fee on drivers who drive through ERP gantries during certain time periods. These ERP gantries are often found close to the Central Business District (CBD) and are usually operational during peak periods, 7-10am and 5.30- 7pm. The additional fees aims to discourage some vehicle users from driving to the Central Business District and reduce the likelihood of traffic congestion.

In Stockholm, Sweden, 318,000 commute to the city centre for work daily which caused severe traffic congestion. In 2007, a congestion pricing system was introduced and reduced overall traffic by 20%. This also reduced the occurrence of traffic congestion by 30-50%.

Though road pricing can alleviate road congestion by diverting cars away from busy roads, it may result in congestion along other smaller road as some people may attempt to use routes to get to reach their destination. Furthermore, in developed countries, people may be willing to pay the additional fee to use certain road to reach their destination as they can afford it.

Accept any relevant answers and example (Road pricing/quotas – ERP/COE)