CEDAR GIRLS' SECONDARY SCHOOL
Preliminary Examination 2024
Secondary Four

CANDIDATE NAME

CLASS

INDEX NUMBER

HUMANITIES

2260/02

Paper 2 Geography

20 August 2024

INSERT

1 hour 45 minutes

READ THESE INSTRUCTIONS FIRST

This Insert contains additional resources referred to in the questions.

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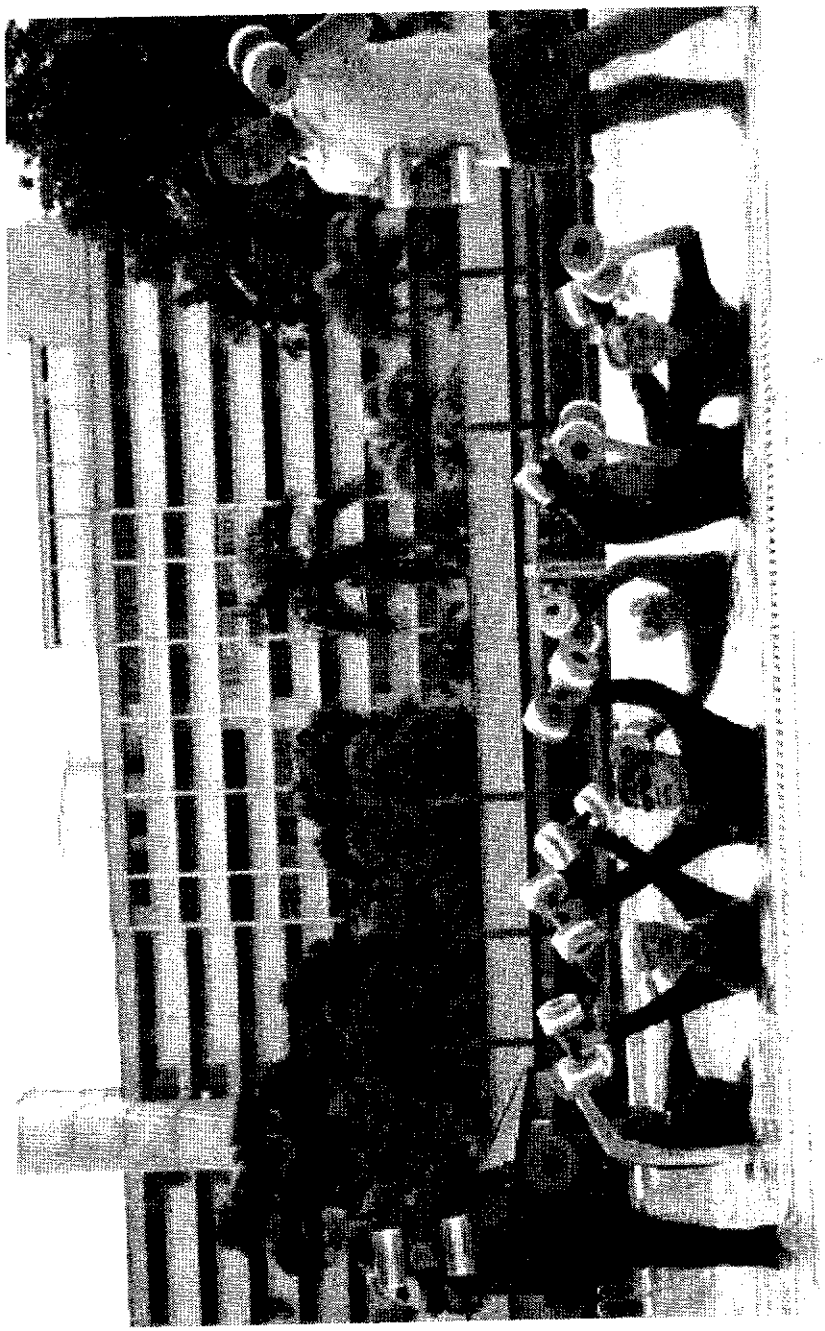
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Fig. 1.1 for Question 1

Activity for senior citizens



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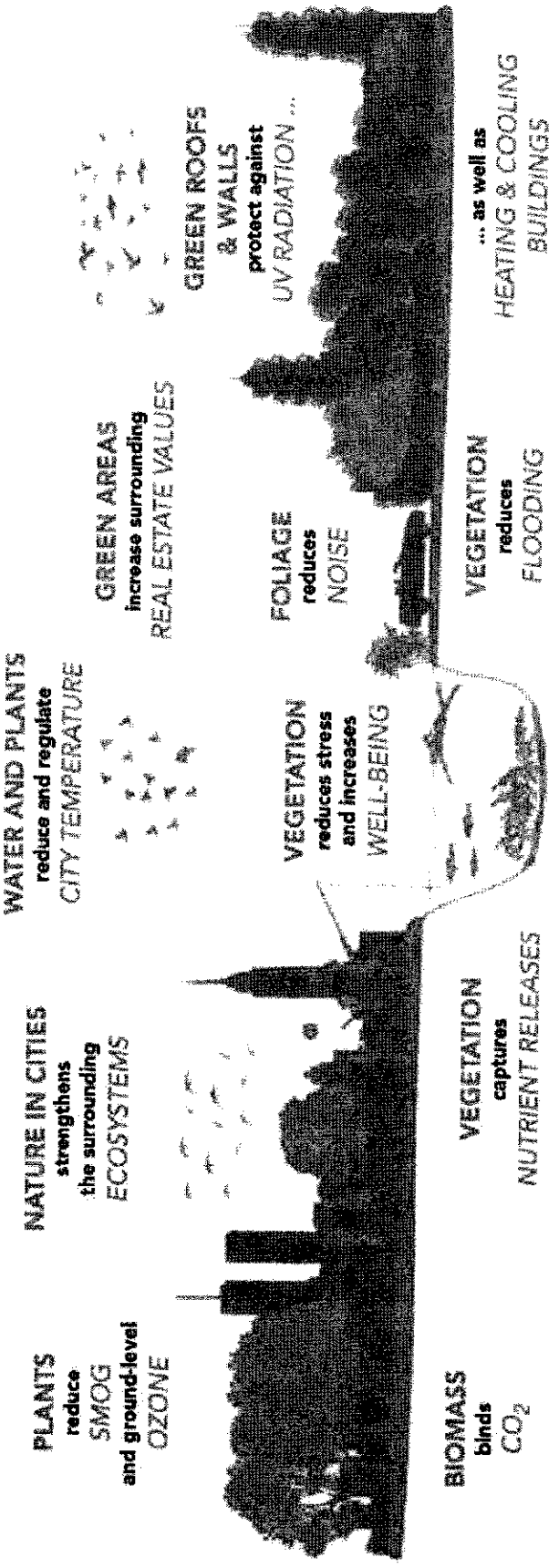
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Fig. 1.2 for Question 1

Nature in an urban environment

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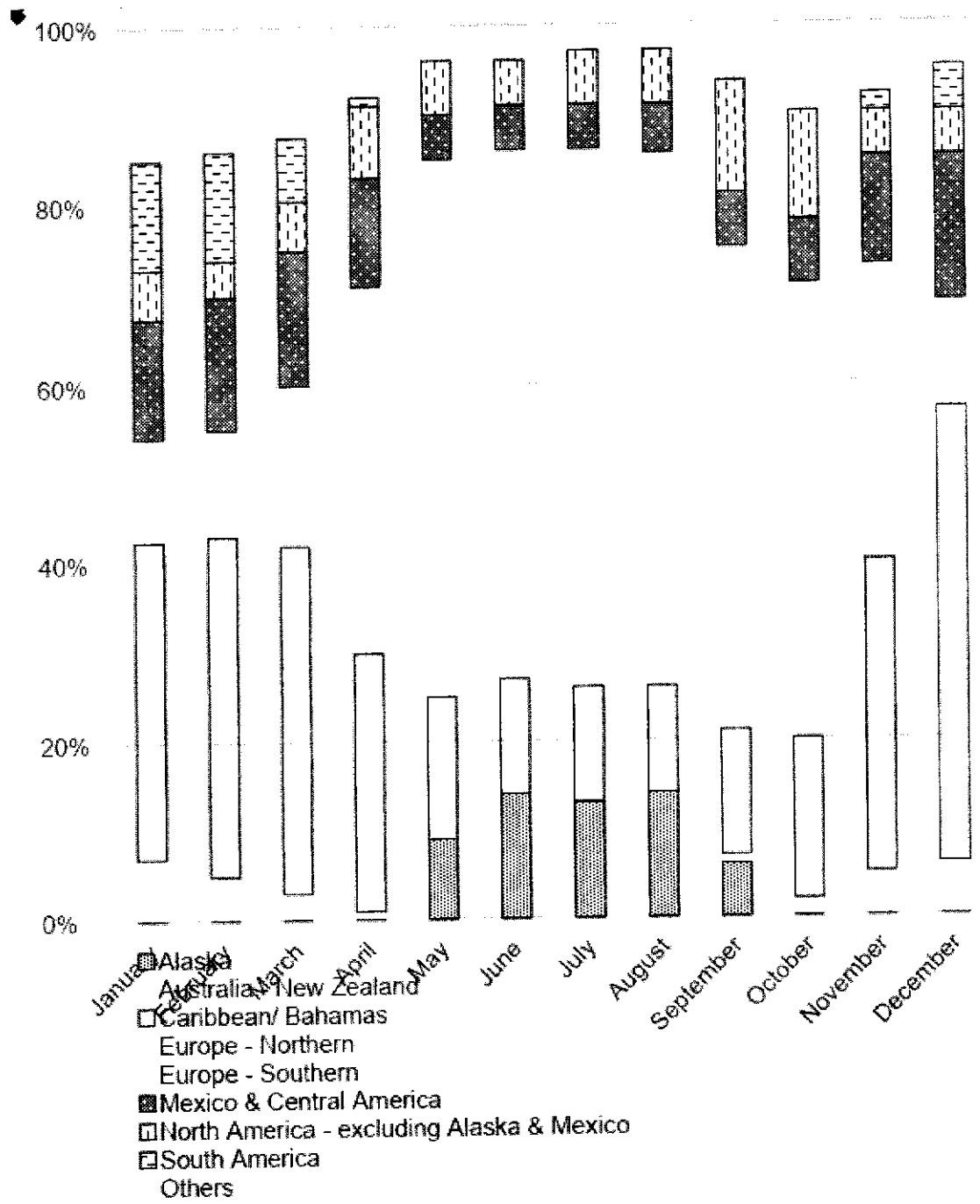


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Fig. 2.1 for Question 2

Monthly cruise passengers by region of destination in 2012



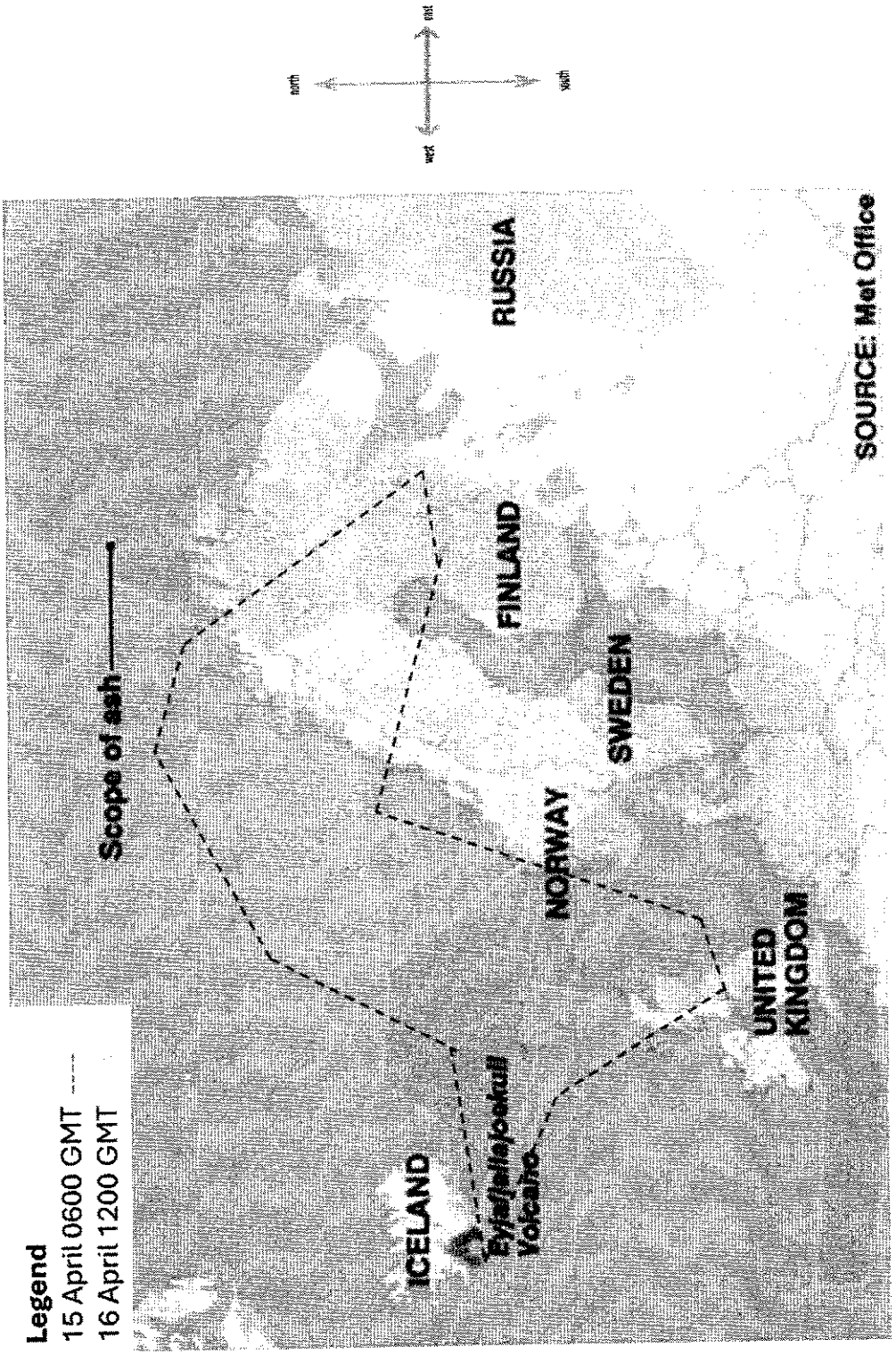
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Fig. 4.2 for Question 2

Extent of ash cloud after a volcanic eruption in Iceland



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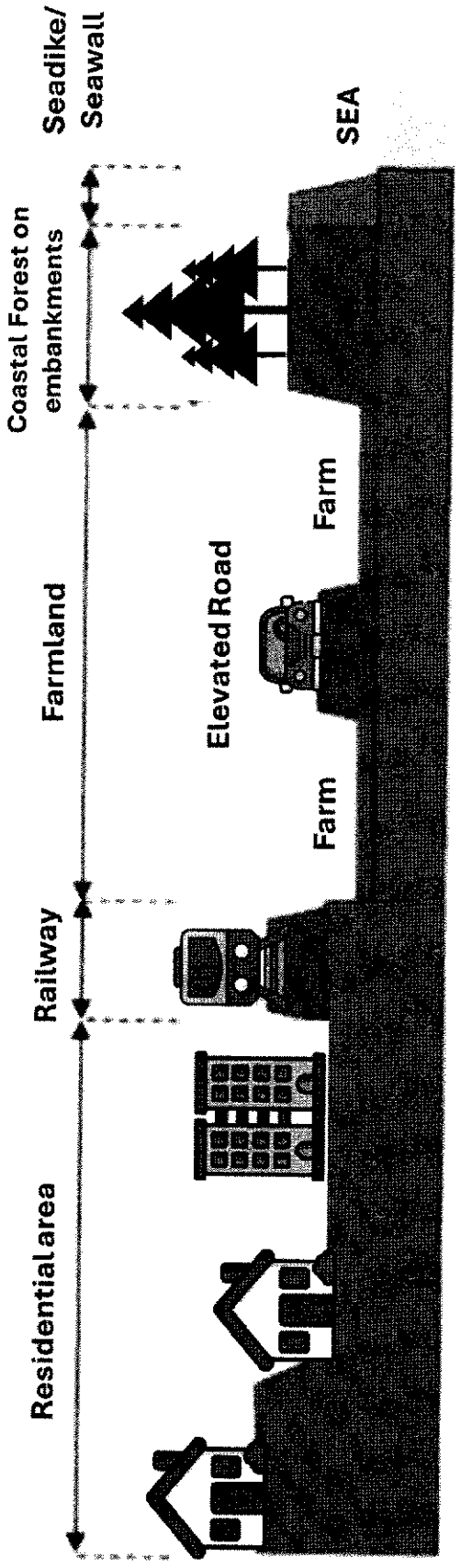
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Fig. 4.4 for Question 4

Efforts to mitigate the effects of tsunami

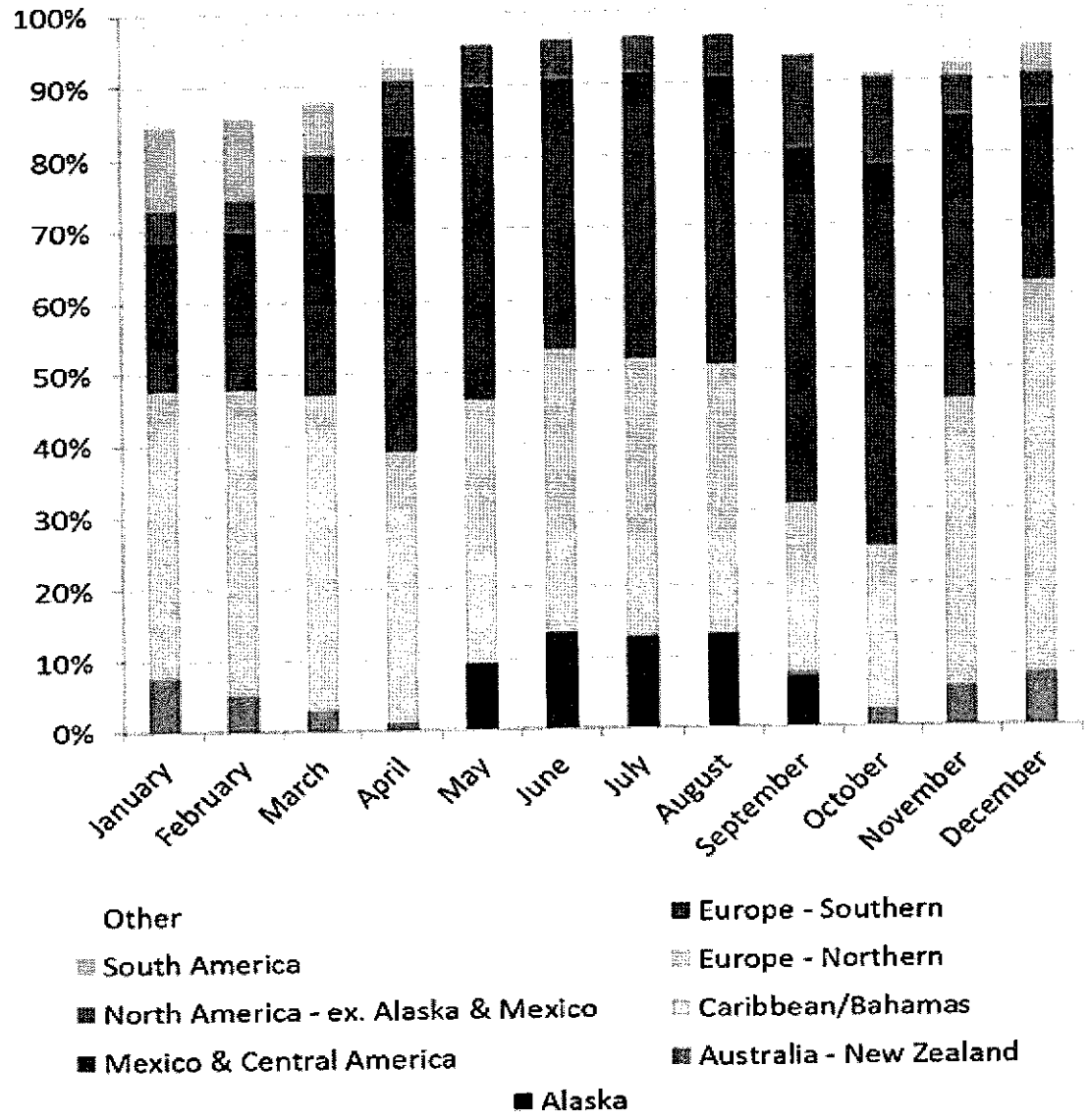
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(Original image)



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CEDAR GIRLS' SECONDARY SCHOOL
Preliminary Examination 2024
Secondary Four

CANDIDATE NAME

CLASS

INDEX NUMBER

HUMANITIES

2260/02

Paper 2 Geography

20 August 2024

1 hour 45 minutes

Candidates answer on the Question Paper

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 or correction fluid.

Answer **three** questions in total:
Section A
Answer Question 1 **and** Question 2.
Section B
Answer **either** Question 3 **or** Question 4.

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.

Question	Marks
1	14
2	18
3 / 4	18
Total	50

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This document consists of **20** printed pages and **1** Insert.

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Section A

Answer Question 1 **and** Question 2.

1 Cluster 1: Geography in Everyday Life

(a) Study Fig. 1.1 (Insert) which shows an activity for senior citizens.

Explain how the activity in Fig. 1.1 helps enhance the senior citizens' sense of place.

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[3]

(b) Study Fig.1.2 (Insert), which shows nature in an urban environment.

Using Fig. 1.2, explain how regulating ecosystem services are provided by nature.

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(c) Study Fig. 1.3, which shows one of the six pillars of Total Defence.

Civil Defence



A vigilant and prepared society, with a crisis-ready mindset.

Fig. 1.3

With reference to Fig. 1.3, suggest how the role of Civil Defence strengthens a community's resilience to resist, adapt, and recover from a disaster.

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(d) A group of students were investigating the popularity of Singapore Botanical Gardens (SBG) among the locals, especially senior citizens. Their hypothesis was "*The Singapore Botanical Gardens is popular with senior citizens, mainly for its orchid display.*"

They counted the number of visitors at all the 3 gateways of the Singapore Botanical Gardens from 9.00 am to 10.00 am one weekday morning. The results are collated in Table 1.1.

Table 1.1

Number of visitors

Venue	Young people	Adults	Senior Citizens
Gate 1 (Tanglin)	5	29	34
Gate 2 (Nassim)	17	61	40
Gate 3 (Bukit Timah)	2	42	39

The students also interviewed 30 senior citizens (10 at each gate) to find out if they visited the Singapore Botanical Gardens that day for the orchid displays at the National Orchid Garden. The results are collated in Table 1.2.

Table 1.2

Main reason to visit that day

Main reason for visit that day	No. of senior citizens
Admire the orchid display at National Orchid Garden	16
Brisk walk at Symphony Lake and its surrounding gardens	1
Breakfast at restaurants located within the Botanical Gardens	10
Others: accompany grandchildren at the Jacob Ballas playground	3

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Using Tables 1.1 and 1.2, evaluate the validity of the students' findings regarding their hypothesis.

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[Total: 14]

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2 Cluster 2: Tourism

(a) Study Fig. 2.1 (Insert), which shows the percentage share of monthly cruise passengers by region of destination in 2012.

Compare the trends shown in Fig. 2.1.

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[5]

(b) Explain how mobility in travel can lead to growth of tourism.

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(c) "The places that are attractive to tourists are often damaged by their presence."

To what extent do you agree with this statement? Explain your answer.

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Section B

Answer **either** Question 3 **or** Question 4.

3 Cluster 3: Climate

(a) In Fig. 3.1 (below), complete the diagram with annotations to illustrate how a local breeze is formed. [1]

Formation of a local breeze

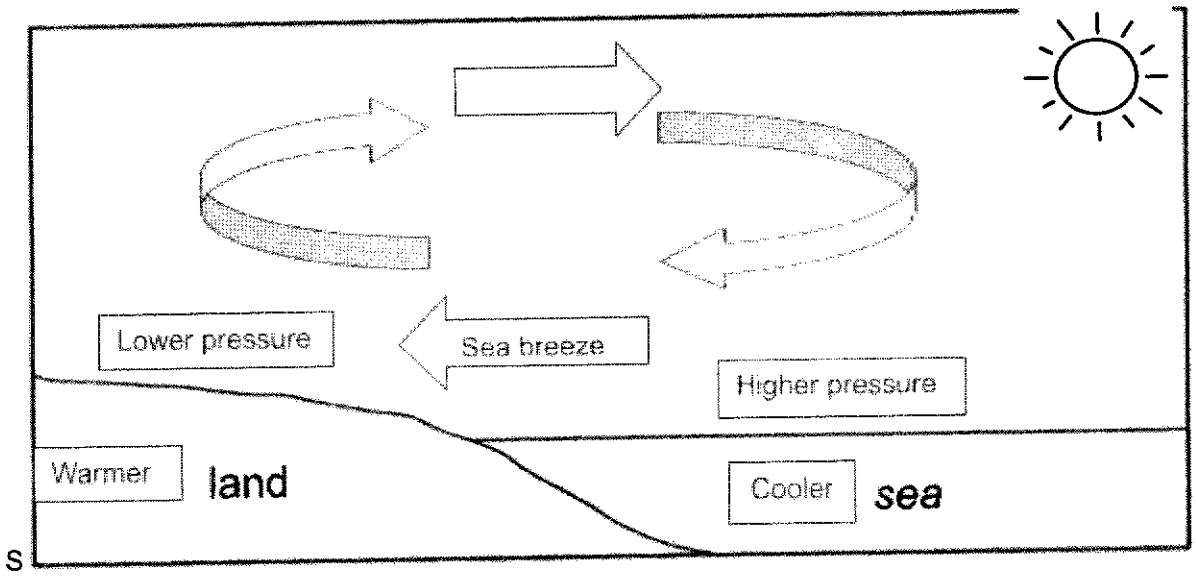


Fig. 3.1

(b) Explain how rising world population contributes to the enhanced greenhouse effect. [5]

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(c) Study Fig. 3.2, which shows rainfall over Singapore in January 2020.

Rainfall over Singapore in January 2020

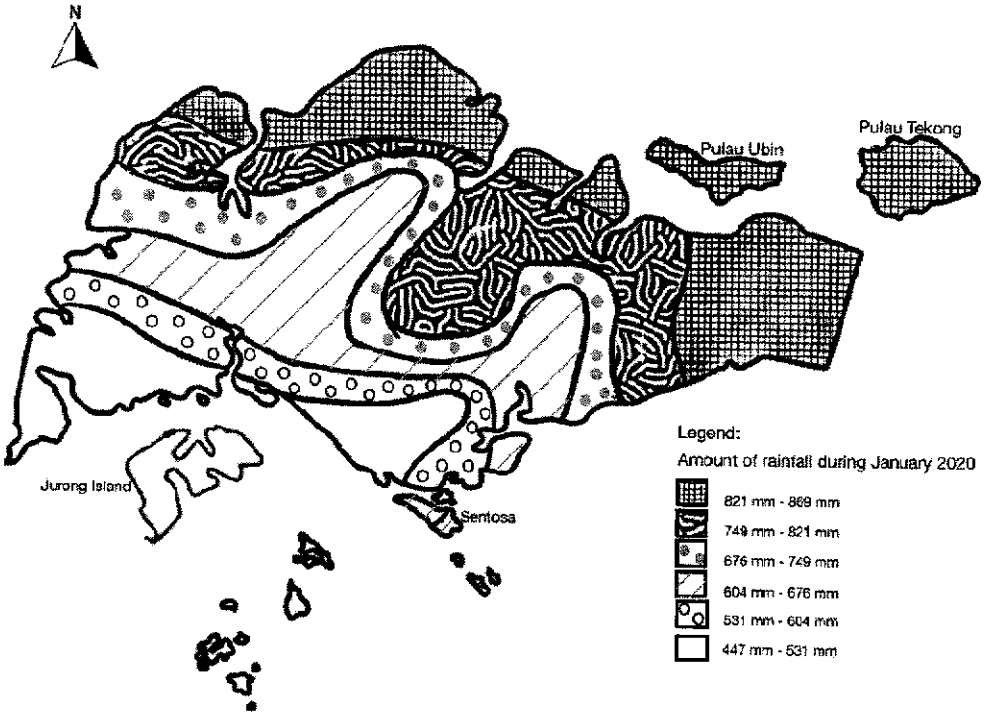


Fig. 3.2

Using Fig. 3.2, compare the rainfall pattern over Singapore in January 2020. [2]

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(d) Study Fig. 3.3, which shows diurnal temperature changes on different types of surfaces.

Diurnal temperature changes

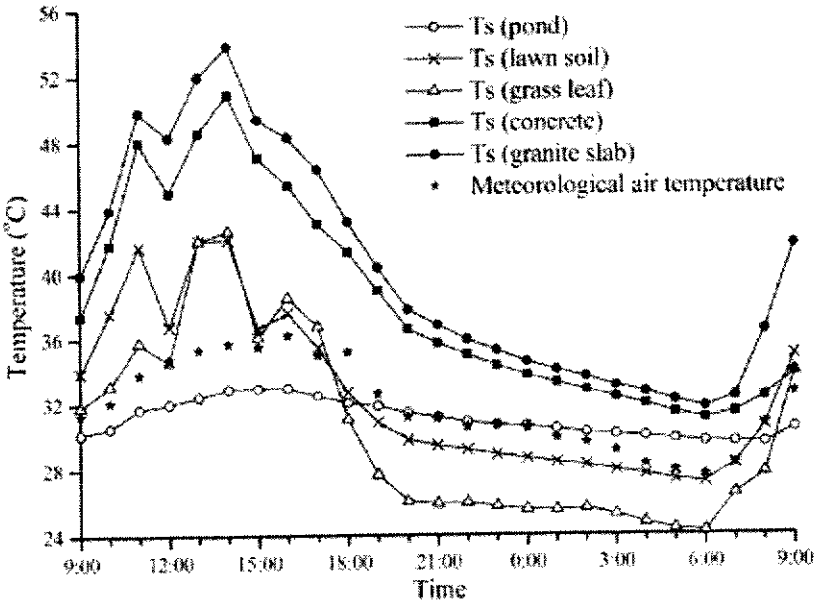


Fig. 3.3

Explain the differences in diurnal temperature changes between concrete, grass leaf and pond surfaces shown in Fig. 3.3. [4]

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(e) Study Fig. 3.4, which shows the climograph of Ernakulam, India

Ernakulam, India

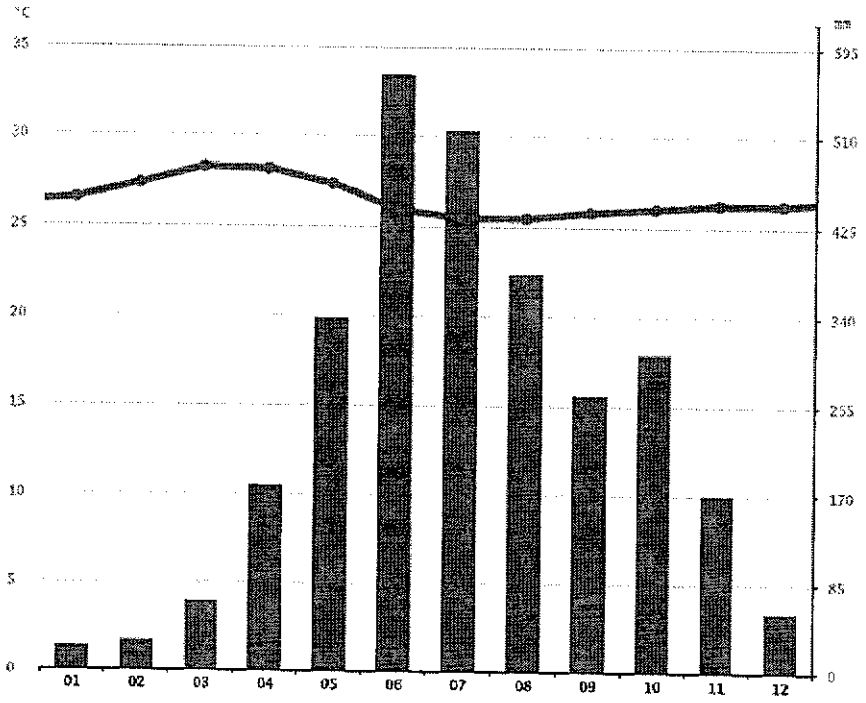


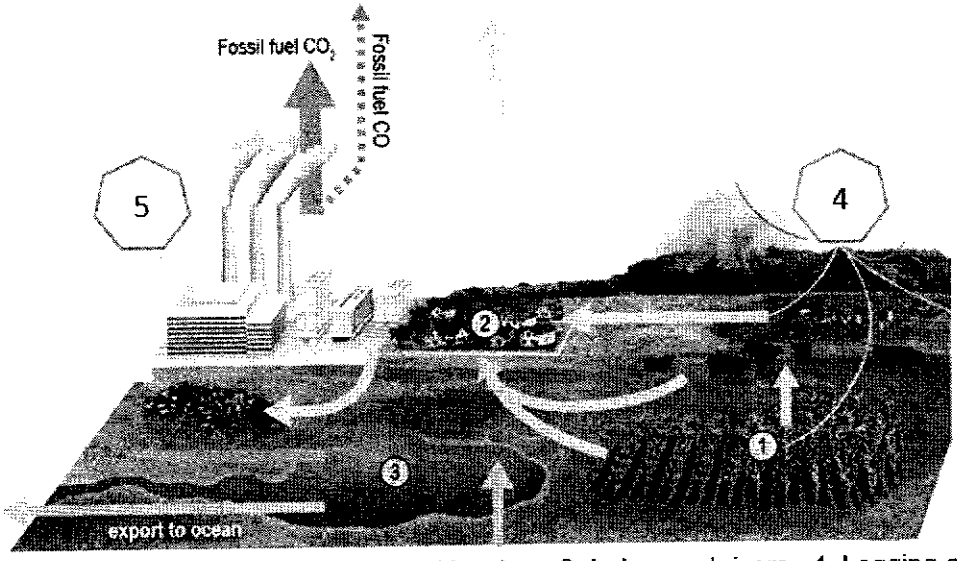
Fig. 3.4

Explain how information from Fig. 3.4 can be used to identify the climate type of Ernakulam, India. [3]

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(f) Study Fig. 3.5, which shows the landuse of a city.

Landuse of a city



1. Agriculture and rearing animals 2. Housing 3. Lakes and rivers 4. Logging and land clearance 5. Industries

Fig. 3.5

Explain how climate change can hinder the sustainable development of the city shown in Fig. 3.5. [3]

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4 Cluster 4: Tectonics

(a) Study Fig. 4.1, which shows the cross-section of magnetic fields of the oceanic crust east of the Mid-Atlantic Ridge.

A cross-section of the Mid-Atlantic Ridge

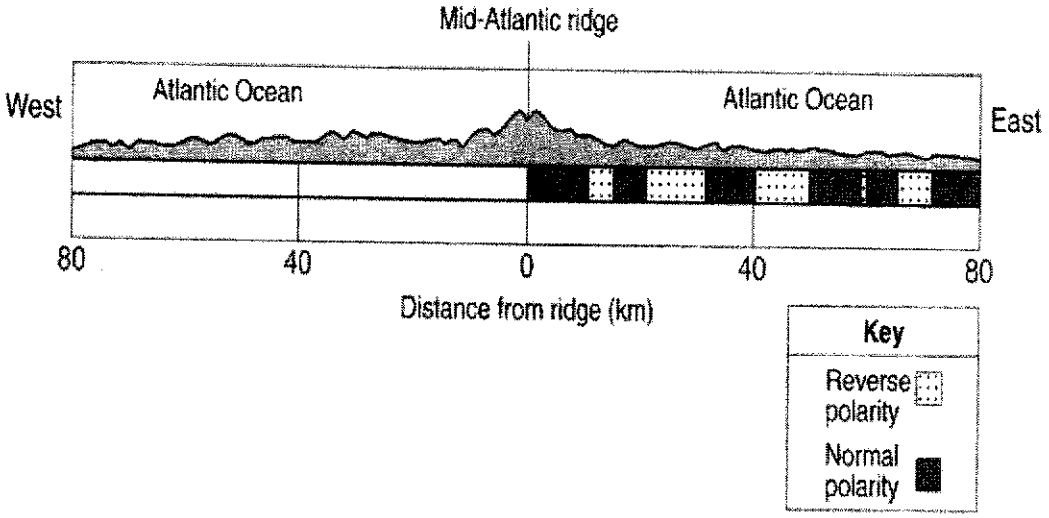


Fig. 4.1

(i) Complete the magnetic field pattern of the oceanic crust located west of the Mid-Atlantic Ridge in Fig. 4.1 (above).

[1]

(ii) Using Fig. 4.1, outline how magnetic striping supports the plate tectonic theory.

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(b) Using a named example, explain the processes and resultant landforms associated with oceanic-continental convergent plate boundaries.

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(c) **(i)** Study Fig. 4.2 (Insert), which shows the extent of ash cloud after the eruption of a volcano in Iceland in 2010.

Describe the distribution of area covered by the ash cloud shown in Fig 4.2.

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(ii) Study Fig. 4.3, which shows a news clipping of the volcanic eruption in Fig. 4.2 (Insert).

Impact of volcanic eruption in the European region

"Volcanic ash represents a significant safety threat to aircraft. Oslo airport, which is Norway's largest, was closed on Thursday morning, meaning Norwegian airspace was completely closed.
"Flights will be cancelled probably all day with the current prognosis," said Jo Kobro, information manager at Oslo Airport. "Then we have to wait and see what the new weather forecasts will say about the wind direction, and if we are lucky the eruption diminishes in strength."
Tim Farish, who had been planning to fly from Oslo to London on business, said he had been told by the airline SAS to stay at home and not bother calling for updates. "We can actually smell sulphur in the air here now from the volcano cloud," he told the BBC from his home in the Norwegian capital. "This could last for a few days apparently, so all I can do, like anyone else, is sit and wait."

Fig. 4.3

With reference to Fig. 4.2 and Fig. 4.3, explain the consequences of the eruption of the volcano on the economy and people in the region.

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(d) Study Fig. 4.4 (Insert), which shows a town that has been reinforced to be tsunami-resistant.

Using Fig. 4.4, explain how the measures implemented by the government protects the town from the impacts of tsunamis.

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[Total: 18]

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Question 1a	Fig. 1.1	©https://sunlove.org.sg/senior-activity-centre-sac/
Question 1b	Fig. 1.2	©https://www.cocity.se/om-oss/urban-ecosystem-services/
Question 1c	Fig. 1.3	©https://www.scdf.gov.sg/images/default-source
Question 2a	Fig. 2.1	©https://www.researchgate.net/figure/Share-of-monthly-cruise-passengers-by-region-of-destination-2012-Source-own_fig4_256972452
Question 3c	Fig. 3.2	©https://www.sciencedirect.com/science/article/pii/S2095633917300059
Question 3d	Fig. 3.3	©https://www.researchgate.net/figure/Surface-temperature-Ts-variations-for-the-studied-surface-types-during-the-period-For_fig3_288073133
Question 3e	Fig. 3.4	©https://en.climate-data.org/asia/india/kerala/ernakulam-764254/#climate-graph
Question 4c	Fig. 4.2	©http://news.bbc.co.uk/2/hi/8622978.stm

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Question 4d Fig. 4.4 ©https://www.sciencedirect.com/science/article/abs/pii/S221242092200173X

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CEDAR GIRLS' SECONDARY SCHOOL
Preliminary Examination 2024
Secondary Four

CANDIDATE NAME

CLASS

INDEX NUMBER

Suggested Answer Scheme

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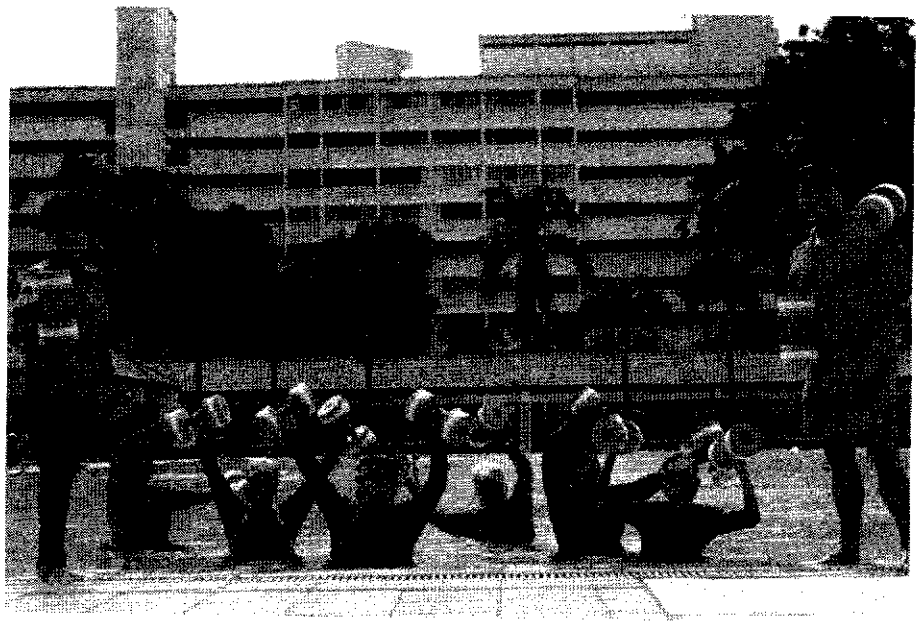
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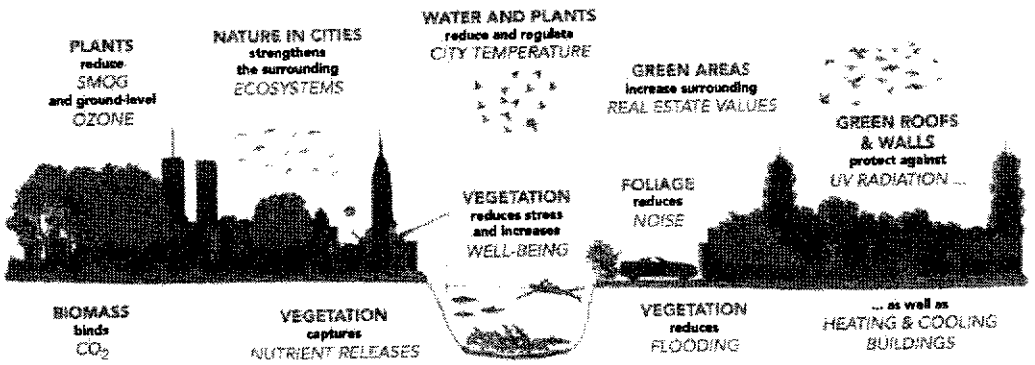
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Section A

Answer Question 1 **and** Question 2.

1	**Cluster 1: Geography in Everyday Life**	
	(a)	Study Fig. 1.1 (Insert) which shows an activity for senior citizens. Explain how the activity in Fig. 1.1 helps enhance the senior citizens' sense of place. [3] **Activity for senior citizens**  Fig. 1.1
		Award 1m for each explanation of how the activity leads to a sense of place. Possible responses include: ▪ repeated encounters at the swimming pool helps senior citizens recall the character and features there and create meanings and memories of the place [1] ▪ repeated encounters with other senior citizens and the trainers helps senior citizens develop fond memories that took place at the swimming pool to create meanings and memories of the place [1] ▪ swimming pool is a landmark in the neighbourhood which is highly visible and easy for senior citizens to remember [1] ▪ swimming pool is the only place in the neighbourhood where this activity can take place at [1]

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	(b)	Study Fig.1.2 (Insert), which shows nature in an urban environment.
		Nature in an urban environment  **Fig. 1.2**
		Using Fig. 1.2, explain how regulating ecosystem services are provided by nature. [3]
		Award 1 mark explaining how nature serves as a regulating ecosystem service in an urban environment, up to a maximum of 2 marks. Award a max. of 1 additional mark for further development of each explanation, where applicable. Possible responses include: Nature regulates **temperature** by [1 each] • during photosynthesis, plants take in CO_2 and release O_2 which lowers temperature of surrounding environment • in carbon sequestration, plants absorb CO_2 from the air as they grow and bind it into the biomass. This lowers the concentration of CO_2 in the atmosphere to lower temperature • trees and other large plants provide shade, which reduces the amount of direct sunlight reaching the ground and buildings to lower temperature • shading reduces the urban heat island effect, a phenomenon where cities tend to be warmer than surrounding rural areas due to due to human activities and heat-absorbing materials like concrete surfaces • buildings with green roofs & walls absorb UV radiation & to cool down interior temperature of buildings Nature regulates **flooding** by [1 each] • root systems of plants, especially trees, bind the soil to reduce soil erosion. Lower rates of soil particles collected on reservoir/ river beds slows down rate of water level rising to minimise flooding • leaves and branches soften impact of precipitation falling on ground to aid higher infiltration, hence lowers surface runoff and regulates flooding • roots of plants and trees absorb water from the soil, which reduces the amount of surface runoff during heavy rainfall, decreasing flooding Nature regulates **air quality** by [1] • trees & other plants remove pollutants like smog & ground-level ozone, contributing to better air quality

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	(c)	Study Fig. 1.3, which shows one of the six pillars of Total Defence. **Civil Defence**  A vigilant and prepared society, with a crisis-ready mindset. **Fig. 1.3**	
			With reference to Fig. 1.3, suggest how the role of Civil Defence strengthens a community's resilience to resist, adapt and recover from a disaster. [2]
			Award 1 mark for describing each factor. Possible responses include: [1 each] ▪ resist: people attend preparedness training eg fire drills, first aid which helps individuals and groups know what to do in the event of a disaster, reducing panic and increasing the community's ability to resist the immediate impacts. Other factors: public warning system, education… ▪ adapt: during a disaster, people can mitigate the problem before the professionals arrive eg put out fires, do CPR/provide first aid ▪ recover: after a disaster, Civil Defence can coordinate the response efforts, ensuring that resources and assistance are distributed efficiently and effectively. This coordination helps to minimize chaos and ensures that the recovery process begins promptly

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(d) A group of students were investigating the popularity of Singapore Botanical Gardens among the locals, especially senior citizens. Their hypothesis was "The Singapore Botanical Gardens is popular with senior citizens, mainly for its orchid display."

They counted the number of visitors at all the 3 gateways of the Botanical Gardens from 9.00 am to 10.00 am on one weekday morning. The results are collated in Table 1.1.

Table 1.1

No. of visitors at the Singapore Botanical Gardens on a weekday from 9.00-10.00 am

Venue	Young people	Adults	Senior Citizens
Gate 1 (Tanglin)	5	29	34
Gate 2 (Nassim)	17	61	40
Gate 3 (Bukit Timah)	2	42	39

The students also did an interview with 30 senior citizens (10 at each gate) to find out if they visited the Botanical Gardens for the orchid displays at the National Orchid Garden. The results are collated in Table 1.2.

Table 1.2

Activities that senior citizens participated at the Botanical Gardens

Activities at places visited by senior citizens	No. of senior citizens
Admiring the orchid display at National Orchid Garden	16
Brisk walking at Symphony Lake and its surrounding gardens	1
Breakfast at restaurants located within the Botanical Gardens	10
Others: accompany grandchildren at the Jacob Ballas playground	3

Using Tables 1.1 and 1.2, evaluate the validity of the students' findings regarding their hypothesis. [6]

Award 1 mark for each evaluation of the validity of the students' findings, to a max. of 4 marks.
Award 1 mark for use of data, to a max. of 2 marks.
Award a max. 1 additional mark for further development of each evaluation, where applicable.

Possible responses include:
- (V) The findings are valid because the data collected addresses the investigation question, looking at whether there is a higher number of senior citizens at the Botanical Gardens, and are there mainly for the orchid displays. [1]

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		- (V) They also checked the number of visitors by doing a count over a specific time at all 3 gateways for fairness in the collection of sample size, for fairness. [1] - (V/NV) The findings are not valid because part of the hypothesis is rejected. The data collected, highlights that the highest number of visitors to the Botanical Gardens are adults as there were 132 of them while the senior citizens are 113. The findings for senior citizens' interests are valid as 16 senior citizens (slightly above 50%) did visit the National Orchid Garden. [1] [1 m for hypothesis analysis & 1 m for evidence]. - (V) There was an option for 'other reasons' given hence making the questionnaire meaningful and students can investigate futher. [1] - (NV) The findings may not be valid as it is a weekday from 9.00am - 10.00am hence more children may be at school; not representative of the population size/type of visitors. [1] (other factors) - [NV] The students may make an assumption based on their observations in terms of age group e.g. some senior citizens may look younger. [1] - [NV] However, there is an exception as 10 elderly (33%) did go to Botanical Gardens for breakfast, as the number is high too and coincided with the timing (morning for breakfast). Need for further investigation (e.g. ask additional questions) [1] - [NV] Students should consider those who visited Botanic Gardens as a family – should they have counted them in different age groups or have a separate category? [1]

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2	**Cluster 2: Tourism**	
	(a)	Study Fig. 2.1 (Insert), which shows the percentage share of monthly cruise passengers by region of destination in 2012. Compare the trends shown in Fig. 2.1. [5]

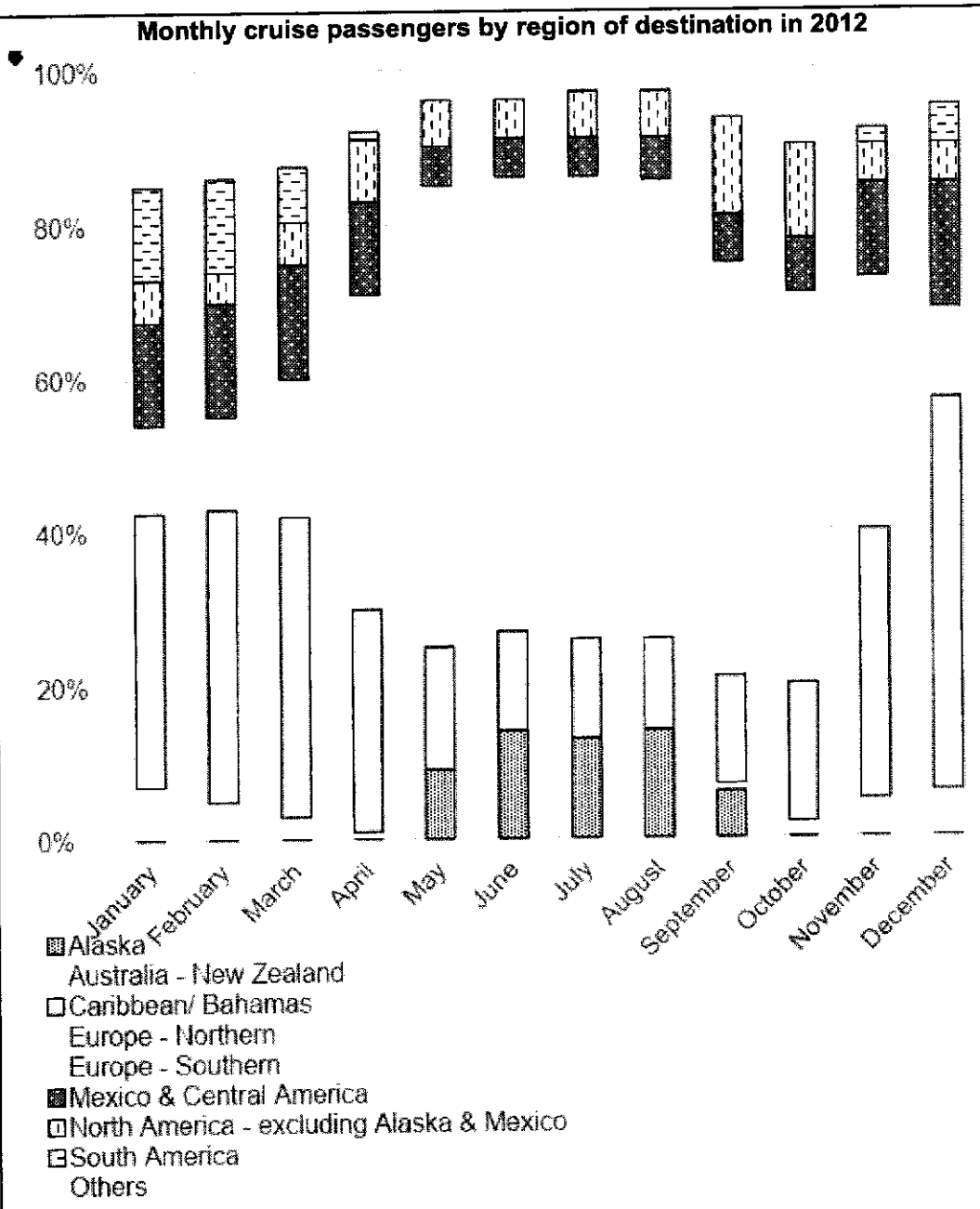


Fig. 2.1

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		Award 1 mark for identifying a change, to a max. of 4 marks. Award a maximum of 1 additional mark for supporting evidence. Award a maximum of 1 additional mark for development of the points. Possible responses include: Similarity • Alaska& Australia-New Zealand: popularity of cruise only in specific months (seasonal) e.g. Alaska for months of May to September only. [1] May 9% and peaked in June at 13%, and dip to 7% in September. [1 add'l m] For Australia, it is the same. • Alaska's cruise trend is similar to Northern Europe's [1] except that in Alaska, in other months, no trips, while Northen Europe, in other months, while there are trips, but it is fewer. [1] • Caribbean & Mexico and Central America: has cruises going on throughout the year – middle of the year, cruise is the least, far greater in the end to beginning of the year. Difference • Europe: South Europe has a larger cruise market than North Europe throughout the year. [1]
	(b)	Explain how mobility in travel can lead to growth of tourism. [4]
		Award 1 mark for explanation of growth of tourism because of mobility, to a maximum of 3 marks. Award a maximum of 1 additional mark for further development of each reason, where applicable. Possible responses include: - Expansion of public transport services and infrastructure where countries construct roads, railways and airports leading to connectivity within and between countries [1] hence travellers from the west have more flights to travel to Asia [1 add'l m] - With improved public transportation infrastructure and different modes of transportation available such as DTL MRT line connecting to places of interest [1], tourists are keen to visit such places and this leads to tourism growth. [1 add'l m] - Introduction of new modes of travel such as Shinkansen instead of conventional trains, tourists can travel faster and longer [1] leading to longer average length of stay for tourists and increased tourism receipts [1 add'l m] - Increased private car ownership allows families to travel comfortable to places of attraction [1] allowing domestic tourism to grow and other related industries such as motels too. [1 add'l m]

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(c) "The places that are attractive to tourists are often damaged by their presence."

To what extent do you agree with this statement? Explain your answer. [9]

Generic Level Descriptors for 9-mark AO3 Questions		
Level	Marks	Descriptors
3	7-9	Develops arguments that supports 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.

Relevant content:
- positive economic / social / environmental impact of tourism
- negative economic / social / environmental impact of tourism

A possible approach:
The answer could first highlight that the popularity of attractions will lead to positive benefits to the locals, economy and environment, which may drive more tourists to the area; leading to further growth and development, with reference to selected relevant examples. However, this may lead to negative effects, leading to the need to take on a balanced approach to ensure sustainability. This could be in the form of policies, regulatory practices, campaigns etc. Finally evaluate which strategy is more suitable depending on the capability of the government and other stakeholders.

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Section B

Answer **either** Question 3 or Question 4.

4 **Cluster 4: Tectonics**

(a) Study Fig. 4.1, which shows the cross section of magnetic fields of the oceanic crust east of the Mid-Atlantic ridge.

A cross-section of the Mid-Atlantic Ridge

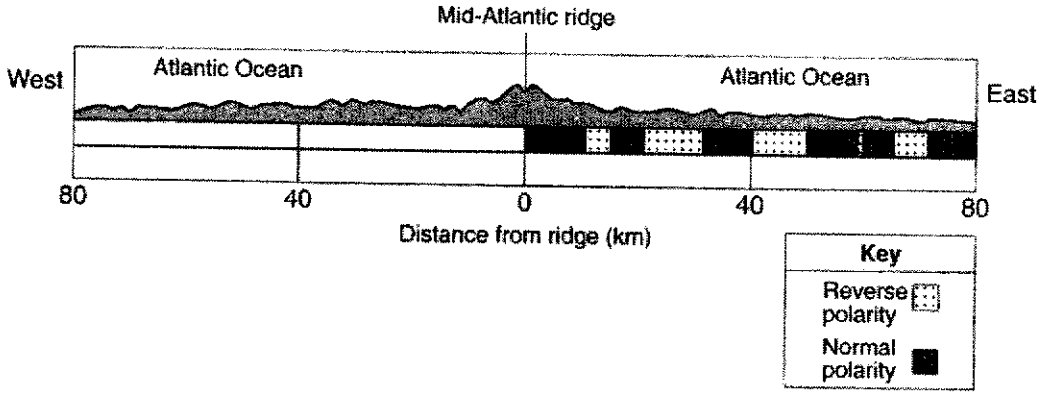
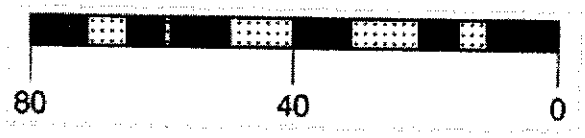


Fig. 4.1

(i) Complete the magnetic field pattern of the oceanic crust located west of the Mid-Atlantic ridge in Fig. 4.1 (above). [1]

Award 1 mark for correct tracing of the polarity and size of magnetic fields.

Possible responses include: [1m]



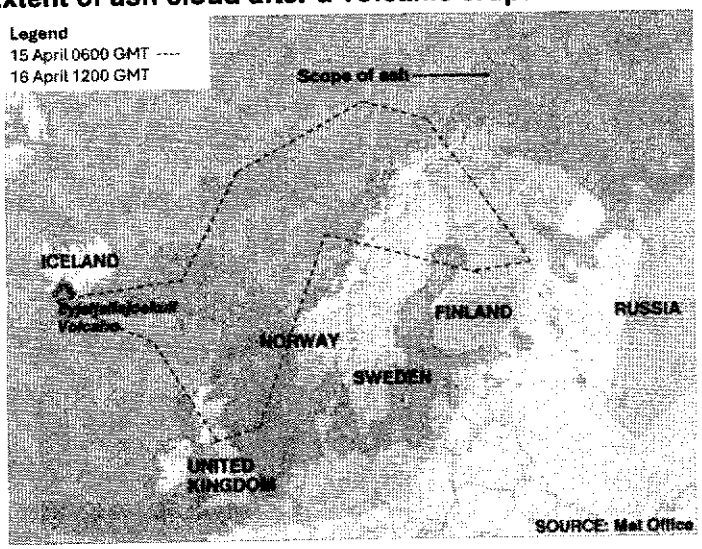
(ii) Using Fig. 4.1, outline how magnetic striping supports the plate tectonic theory. [4]

Award 1 mark for explanation of how magnetic striping supporting the plate tectonic theory.
Award a maximum of 1 additional mark for further development of each reason, where applicable.

- as oceanic plates move away from each other, iron-rich lava erupts from the centre of the mid-oceanic ridge. Lava cools, solidifies and forms new oceanic crust. [1]
- crust is then pushed in both directions away from the ridge when new lava erupts and solidifies as plates move apart. [1]
- as iron-rich lava solidifies, it records the magnetic polarity. When Earth's polarity reverses, the rocks also record the polarity reversals. [1]

over time, as more lava moves away from the ridge due to plate divergence, a symmetrical zebra-like pattern called magnetic stripping forms. [1]

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		- this is seen between 0-40km away from the ridge where there were 2 reversals of magnetic polarity.
	(b)	Using a named example, explain the processes and resultant landforms associated with oceanic-continental convergent plate boundaries. [5]
		Award 1 mark for each description of a formation of landform, up to a maximum of 3 marks. Award a max. of 1 additional mark for further development of each description, where applicable. - The Nazca plate collides with the South America plate due to convectional currents. [1] - During the collision, the Nazca plate which has denser oceanic crust subducts beneath the continental crust of the South American plate hence resulting in the deep Peru-Chile oceanic trench. [1] - The subducted Nazca plate melts in the mantle and magma rises through fractures in the continental crust of the South American plate. [1 add'l m] - As the magma rises out of the surface as lava, the lava cools and solidifies forming volcanoes such as Cotopaxi. [1] - The compressional force causes the continental crust of the South American plate to buckle and fold forming the fold mountain range known as the Andes Mountain Range. [1]
	(c)	Study Fig. 4.2 (Insert), which shows the extent of ash cloud after the eruption of a volcano in Iceland in 2010. **Extent of ash cloud after a volcanic eruption in Iceland**  Fig. 4.2
		(i) Describe the distribution of area covered by the ash cloud shown in Fig. 4.2. [2]
		Award 1 mark for description of distribution of area covered by ash cloud, to a maximum of 3 marks. - Uneven distribution, mainly east of Iceland. [1] - Within a day, the ash cloud has spread to a wider area. [1] - In the north/northeast of Iceland, the ash cloud blankets countries such as Norway, Sweden, Finland. [1] Moving further inland to Russia. [1]

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		- In the south/southeast, UK is affected. [1]	
		(ii)	With reference to Fig. 4.2 and Fig. 4.3, explain the consequences of the eruption of the volcano on the economy and people in the region. [2] **News article of the same volcanic eruption** "Volcanic ash represents a significant safety threat to aircraft. Oslo airport, which is Norway's largest, was closed on Thursday morning, meaning Norwegian airspace was completely closed. "Flights will be cancelled probably all day with the current prognosis," said Jo Kobro, information manager at Oslo Airport. "Then we have to wait and see what the new weather forecasts will say about the wind direction, and if we are lucky the eruption diminishes in strength." Tim Farish, who had been planning to fly from Oslo to London on business, said he had been told by the airline SAS to stay at home and not bother calling for updates. "We can actually smell sulphur in the air here now from the volcano cloud," he told the BBC from his home in the Norwegian capital. "This could last for a few days apparently, so all I can do, like anyone else, is sit and wait." Fig. 4.3
		Award 1 mark for each description of the consequence of the ash cloud, up to a maximum of 2 marks. Award a maximum of 1 additional mark for further development. - Due to the destruction caused by the ash particles and poor visibility, regional and domestic flights were halted, causing losses of millions of dollars to the aviation industry. [1] As the ash cloud will take several days or weeks to dissipate, it may cause transport woes in Europe (e.g. flight passengers opt for train rides) [1 add'l m] - As people were limited in their air travels, some may be forced to take other modes of transportation or delay their flights, causing inconveniences. [1]	

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	(d)	Study Fig. 4.4 (Insert), which shows a town that has been reinforced to be tsunami resistant. Using Fig. 4.4, explain how the measures implemented by the government protects the town from the impacts of tsunamis. [4]

Efforts to mitigate the effects of tsunami

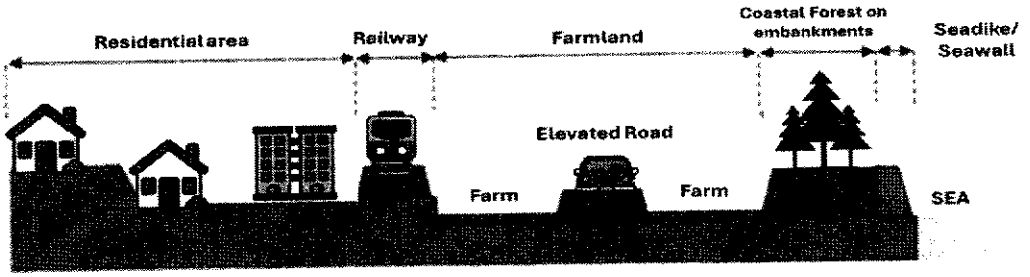


Fig. 4.4

Award 1 mark for an explanation of a protection measure against tsunamis.
Award a max. of 1 additional mark for further development of each explanation, where applicable.

- Building of sea-dike or seawall to raise the level of coasts, to stop the tsunamis from travelling inland. [1] The wall also reduces the energy of waves in such that if it moves inland, the level of impact will not be as destructive. [1 add'l m]
- Coastal forests on embankments so that the trees could absorb the energy of the waves from wreaking havoc further inland. [1]
- Roads are elevated so that traffic could move smoothly in case of floods. This is useful in preventing traffic jams during evacuations and for accessibility. [1] Floods will affect cropland but contained within the area. With fewer buildings in the lowlands, minimal damage caused to the area. [1 add'l m]
- Allocate residential areas to higher grounds so that people are kept safe. [1]

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