

CEDAR GIRLS' SECONDARY SCHOOL Preliminary Examination 2024 Secondary Four

CANDIDATE NAME		
CLASS	INDEX NUMBER	

Suggested Answer Scheme

This document consists of **13** printed pages.





Section A

Answer Question 1 and Question 2.

1	Clus	ster 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
		<image/> <image/>
		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]

(b)	Study Fig.1.2 (Insert), which shows nature in an urban environment.
	Nature in an urban environment
	PLANTS reduce SMOG and ground-level OZONE NATURE IN CITIES strengthens the surrounding ECOSYSTEMS WATER AND PLANTS reduce and regulate CITY TEMPERATURE VEGETATION binds CO2 NATURE IN CITIES strengthens the surrounding ECOSYSTEMS NATER AND PLANTS reduce and regulate CITY TEMPERATURE VEGETATION binds CO2 NEGETATION captures NUTRIENT RELEASES NEGETATION CO2
	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 CO₂ and release O₂ which lowers temperature of surrounding environment in carbon sequestration, plants absorb CO₂ from the air as they grow and bind it into the biomass. This lowers the concentration of CO₂ 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,

(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

(d)	A group of students were investig among the locals, especially ser Botanical Gardens is popular with They counted the number of visi from 9.00 am to 10.00 am on one 1.1.	pating the popu- nior citizens. senior citizens tors at all the e weekday mo	ularity of S Their hypo s, mainly f 3 gatewa rning. The	Singapore E othesis was or its orchic ys of the E e results are	Botanical Gardens s "The Singapore d display." Botanical Gardens e collated in Table
		Table 1.1			
	No. of visitors at the Singa	apore Botanic 9.00-10.00 a	al Garder am	ns on a we	ekday from
	Venue	Young	Adults	s Se Citi	enior
	Gate 1 (Tanglin)	5	29		34
	Gate 2 (Nassim)	17	61	4	40
	Gate 3 (Bukit Timah)	2	42	3	39
	Activities that senior citi	Table 1.2 Table 1.2 zens participa	ated at the	e Botanica	l Gardens
	Activities at pl	aces visited by citizens	senior	No. of senior citizens	
	Admiring the or National Orchid	chid display at I Garden		16	
	Brisk walking at its surrounding	t Symphony La gardens	ake and	1	
	Breakfast at res within the Botar	staurants locate	ed	10	
	Others: accomp the Jacob Balla	oany grandchil s playground	dren at	3	
	Using Tables 1.1 and 1.2, evaluat hypothesis. [6]	te the validity o	of the stuc	lents' findin	ngs regarding their
	Award 1 mark for each evaluation 4 marks. Award 1 mark for use of data, to a Award a max. 1 additional mark applicable.	n of the validity a max. of 2 mar a for further de	y of the st rks. evelopmer	udents' find	dings, to a max. of evaluation, where
	 Possible responses include: (V) The findings are valid beca question, looking at whether th Botanical Gardens, and are th 	ause the data o here is a highe ere mainly for	collected a r number (the orchid	nddresses t of senior cit displays. [he investigation tizens at the 1]

	 (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 Oregid Garden [1] [1 m for hypothesis analysis 2
	 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]



	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
	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.

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]						
		Ge	eneric 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 - positive - negative - negative A possibl The ansy benefits t area; lea examples balanced regulator dependin	<u>content</u> : economic e economi e approac wer could to the loca ding to fu s. Howeve approach y practice ig on the c	 c / social / environmental impact of tourism c / social / environmental impact of tourism ch: first highlight that the popularity of attractions will lead to positive als, economy and environment, which may drive more tourists to the rther growth and development, with reference to selected relevant or, this may lead to negative effects, leading to the need to take on a in to ensure sustainability. This could be in the form of policies, s, campaigns etc. Finally evaluate which strategy is more suitable apability of the government and other stakeholders. 				
		 The plate To what end To what end Level 3 2 1 0 Relevant positive negative negative A possible The answer benefits area; leader examples balancedor regulator dependir 	 The places that a To what extent do y To what extent do y Ge Level Marks 3 7-9 2 4-6 1 1-3 0 0 Relevant content: positive economic negative economic negative economic negative economic masser could benefits to the loca area; leading to fu examples. Howeve balanced approach regulatory practice depending on the context 				

Section B

Answer either Question 3 or Question 4.

4		Clust	er 4: Tec	tonics						
	(a)	Study Fig. 4.1, which shows the cross section of magnetic fields of the oceanic crust east of the Mid-Atlantic ridge.								
				Ас	ross-sec	tion of the	e Mid-Atlant	ic Ridae	9	
						Mid-Atlan	tic ridae			
			Δ	tlantic Occar				Atlanti	00000	
		Wes	t		·		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			East
			80	4	0	0		40		80
						Distance fror	n ridge (km)		Key	
									Reverse 🗄 polarity	:
									Normal polarity	
						Fig.	4.1			
			Complete	a the mag	notic fiel	ld nattern	of the ocea		t located w	est of the
			Mid-Atlar	ntic ridge in	n Fig. 4.1	(above). [1]			
		Award	d 1 mark	for correct	tracing o	of the polari	ty and size c	of magne	etic fields.	
		Possi	ble respo	nses inclu	de: [1m]					
			•				-			
			:::: i							
		80		40						
		(ii)	Using Fig [4]	g. 4.1, out	line how	magnetic	striping supp	orts the	plate tector	nic theory.
		Award	d 1 mark	for explan	nation of	how mag	netic striping	suppor	ting the plat	te tectonic
		theory	/. 1 a maxir	num of 1 a	additional	l mark for f	urther develo	nment (of each reas	on where
		applic	able.					, prinorite (ion, more
		- as o	ceanic pl	ates move	away fro	om each ot	ner, iron-rich	lava eru	pts from the	e centre of
		the m	id-oceani	c ridge. La	va cools	, solidifies	and forms ne	ew oceai	nic crust. [1]	
		- Crus	t is then p	bushed in t	ooth dired	ctions away	y from the ric	lge whei	n new lava e	erupts and
		- as i	ron-rich	lava solidif	apart.[1] fies, it re	ecords the	magnetic p	olaritv. N	When Earth	's polarity
		revers	ses, the r	ocks also r	ecord the	e polarity re	eversals. [1]			
		over symm	time, as ietrical ze	more lava bra-like pa	a moves attern call	away fro led magne	m the ridge tic stripping f	due to orms. [1	plate dive]	rgence, a

	- this is seen between 0-40km away from the ridge where there were 2 reversals of
(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
	Legend 16 April 1000 GMT 16 April 1200 GMT Scope of ash Image: CELAND EXPLORE AND EXPLORE AND
	(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]

	- In t	he 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
	Awa maxi Awa	rd 1 mark for each description of the consequence of the ash cloud, up to a mum of 2 marks. rd a maximum of 1 additional mark for further development.
	- Due dome indus trans - As trans	e to the destruction caused by the ash particles and poor visibility, regional and estic flights were halted, causing losses of millions of dollars to the aviation stry. [1] As the ash cloud will take several days or weeks to dissipate, it may cause sport woes in Europe (e.g. flight passengers opt for train rides) [1 add'1 m] people were limited in their air travels, some may be forced to take other modes of sportation or delay their flights, causing inconveniences. [1]

