Name	Class	Index

Anglo-Chinese School (Barker Road)

END-OF-YEAR EXAMINATION 2022

SECONDARY ONE
EXPRESS

GEOGRAPHY

1 HOUR 15 MINUTES

READ THESE INSTRUCTIONS FIRST

Write your Name, Class and Index Number in the box provided at the top of this page.
Write in dark blue or black pen.
You should use a 2B pencil for any diagrams or graphs.
The use of an approved scientific calculator is expected, where appropriate.
Write all answers in the spaces provided.

Candidates should support their answers with the use of relevant examples. Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

For Examiner's Use	
Section A:	
Section B:	
	36

The number of marks is given in brackets [ ] at the end of each question or part question.

*This question paper consists of **7** printed pages, including this cover page.*

Section A

1 (a) Study Fig. 1, which shows the global distribution of freshwater systems with high fish diversity.

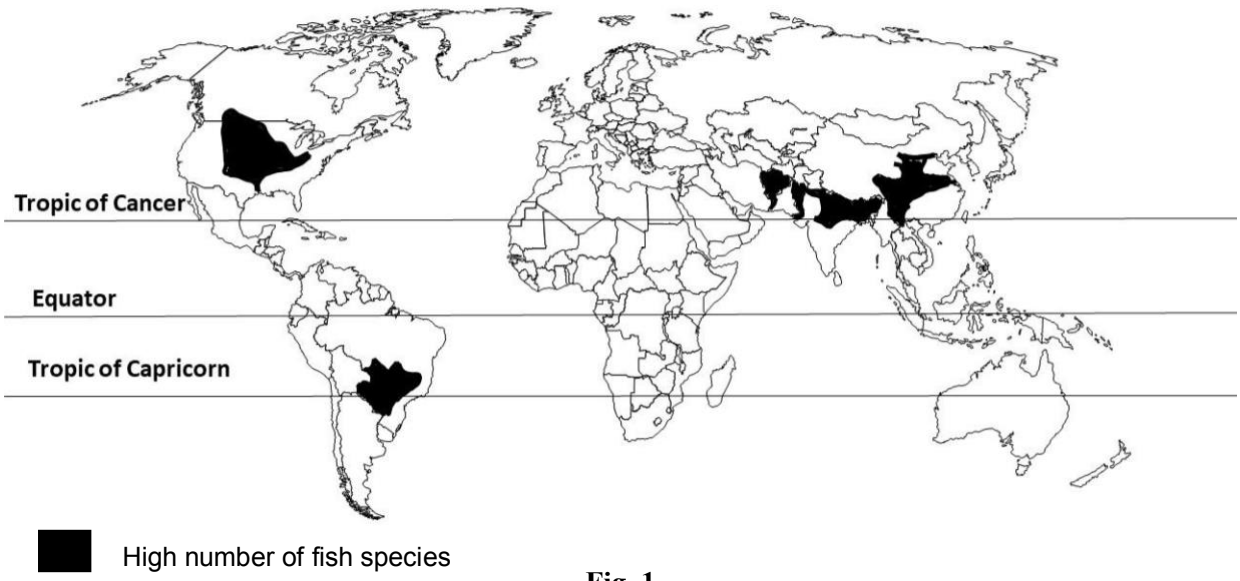

Fig. 1

With ref ribution of freshwater systems with highest fish diversity.

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[3]

(b) Using your knowledge on water budget, give **ONE** example of input and **ONE** example of output.

.....

[2]

.....

(c) 'Freshwater is unevenly distributed on the Earth's surface.' Do you agree with this statement? Explain your answer.

.....

.....

[2]

.....

(d)

Since 2010, U.S newspapers have reported contamination of drinking water with nitrate, animal waste, pesticides or disinfection by-products, all of which are often associated with runoff from farm fields. People in agricultural areas who get their drinking water from private wells may have animal waste and associated pathogens* in their water.

Study Fig. 2, which shows an extract from a report on water pollution in United States by Environmental Working Group.

*** Pathogens are bacteria or virus that can cause disease.**

Fig. 2

(i) With reference to Fig. 2, explain **ONE** solution the government can implement to reduce contamination of drinking water.

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[3]

(ii) Study Fig. 3, which shows the annual number of news reports of agricultural pollution contaminating drinking water in the United States of America.

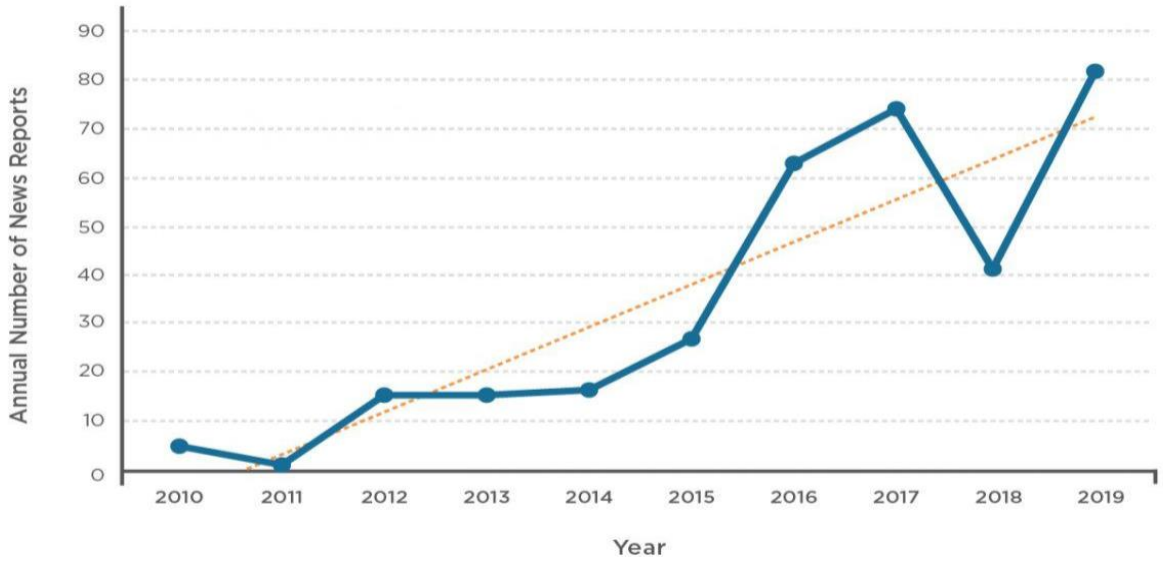


Fig. 3

With reference to Fig. 3, describe the trend of the annual number of news reports of agricultural pollution contaminating drinking water from 2010 to 2019.

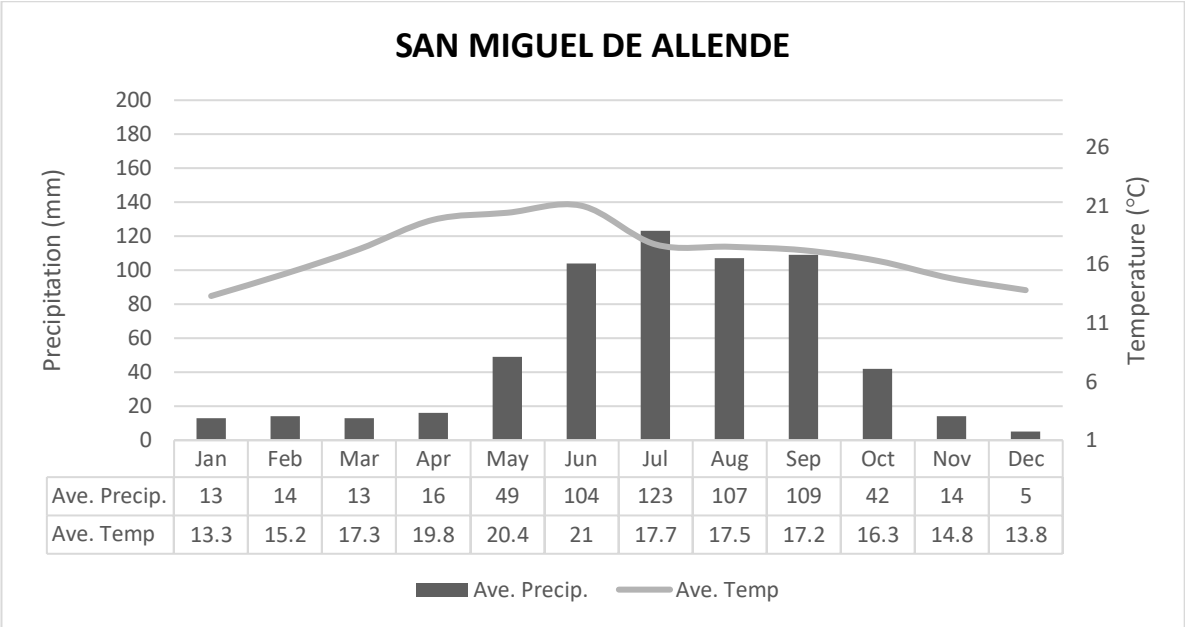
[3]

(e) Evaluate the effectiveness of **importing water** to manage water supply sustainably.

[5]

Section B

2 (a) Study Fig. 4, which shows the climograph of San Miguel De Allende, Mexico.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Ave. Precip.	13	14	13	16	49	104	123	107	109	42	14	5
Ave. Temp	13.3	15.2	17.3	19.8	20.4	21	17.7	17.5	17.2	16.3	14.8	13.8

Fig. 4

(i) With reference to Fig. 4, describe the rainfall pattern of San Miguel De Allende.

[2]

(ii) With reference to Fig. 4, describe the temperature pattern of San Miguel De Allende.

[3]

(iii) With reference to Fig. 4 and your knowledge, do you think tropical rainforest can survive in the climatic conditions of San Miguel De Allende? Explain your answer.

[2]

(b) Explain how tide levels result in horizontal zonation of mangroves.

[3]

(c) Using the space provided below, draw and annotate a drip tip leaf.

[3]

(d) Study Fig. 5, which shows an adaptation of mangroves.

Fig. 5

With reference to Fig. 5, identify **X** and describe how it is a useful adaptive feature for mangroves.

[2]

(e) 'Mangrove loss is high in southwest of Singapore due to harbour developments.' Do you support the removal of mangroves? Explain your answer.

[3]

End of Paper

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ANSWERS

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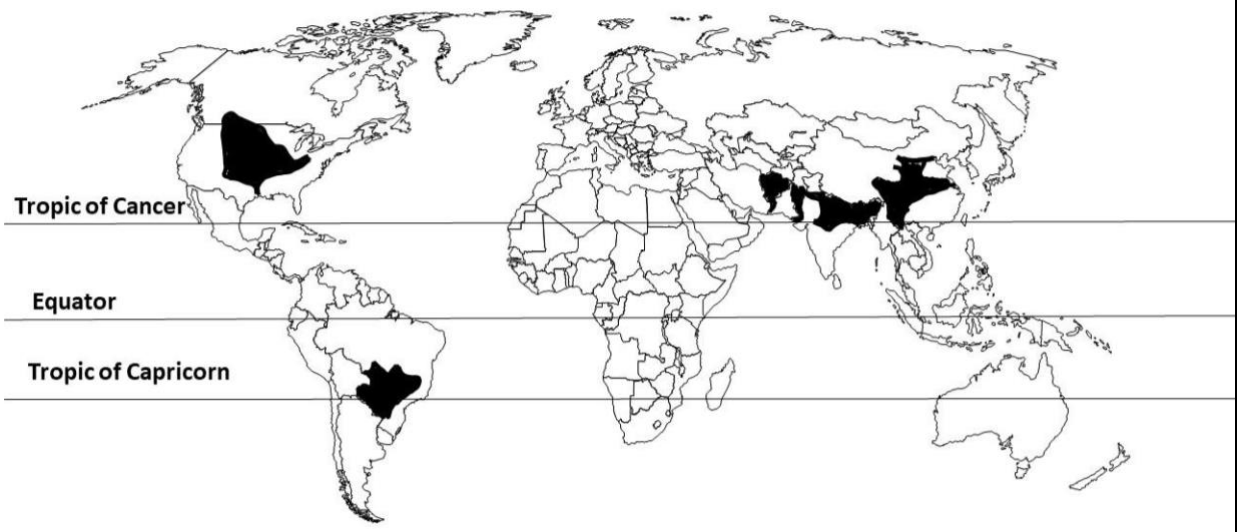
Section A

1 (a)	Study Fig. 1, which shows the global distribution of freshwater systems with high fish diversity.	**AO 1+2**	**AO 1+3**
	 **Fig. 1** High number of fish species		
	With re tribution of freshwater systems with high fish diversity.		**[3]**
	Genera er systems with high fish diversity found near the Tropic of Cancer. [1m] — *Accept: around/along/at tropic of cancer* Evidence [1m] — For example, At Northern part of India and Central North America. *Accept: southern part of Asia/ South Asia* Anomaly[1m] — However, it is also found away from Tropic of cancer at Central South America.		
(b)	Using your knowledge on water budget, give **ONE** example of input and **ONE** example of output.	**[2]**	
	1m for example of input and 1m for output Input: Precipitation, Glacial melt *Accept rain, snow, hail* Output: Surface runoff, evaporation, transpiration, extraction of water by people.		
(c)	'Freshwater is unevenly distributed on the Earth's surface.' Do you agree with the statement? Explain your answer.	**[2]**	
	• Yes I agree. **[1m]** • Only 3% of water on the surface is fresh. And this is unevenly distributed in various water sources in different physical environment. **[1m]** Of freshwater, 69% resides in glaciers, 30% underground, and less than 1% is located in lakes, rivers, and swamps.		

Accept: Certain areas receive more rain than other areas which results in certain area having rainfall infiltrating into soil contributing to groundwater. Thus, resulting in uneven distribution of freshwater.

Students need to link to freshwater store.

(e) Study Fig. 2, which shows an extract from a report on water pollution in United States by Environmental Working Group.

*** Pathogens are bacteria or virus that can cause disease.**

> Since 2010, U.S newspapers have reported contamination of drinking water with nitrate, animal waste, pesticides or disinfection by-products, all of which are often associated with runoff from farm fields. People in agricultural areas who get their drinking water from private wells may have animal waste and associated pathogens* in their water.

Fig. 2

(i) With reference to Fig. 2, explain **ONE** solution the government can implement to reduce contamination of drinking water. **[3]**

[1m for identifying solution, 2m for explaining]

Government can **improve water quality** by implementing rules and regulations for farmers to not use pesticides near waterbodies or to use non-toxic products instead. Government officials can fine farmers who disregard these rules. As such, those who pollute water bodies are held accountable.

Accept other answers such as educating farmers about water pollution.

(ii) Study Fig. 3 which shows the annual number of news reports of agricultural pollution contaminating drinking water.

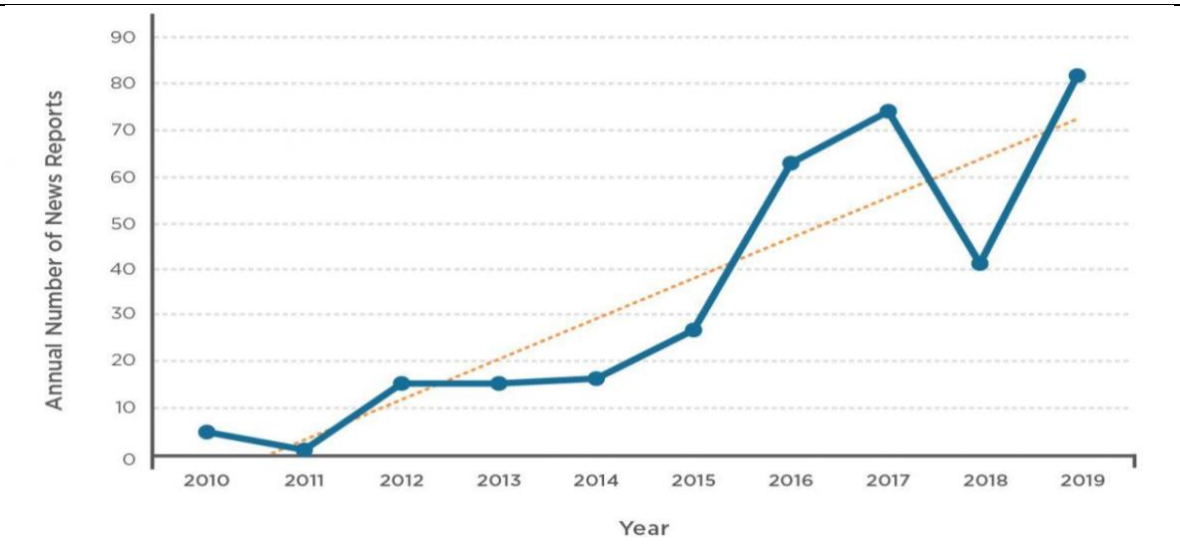
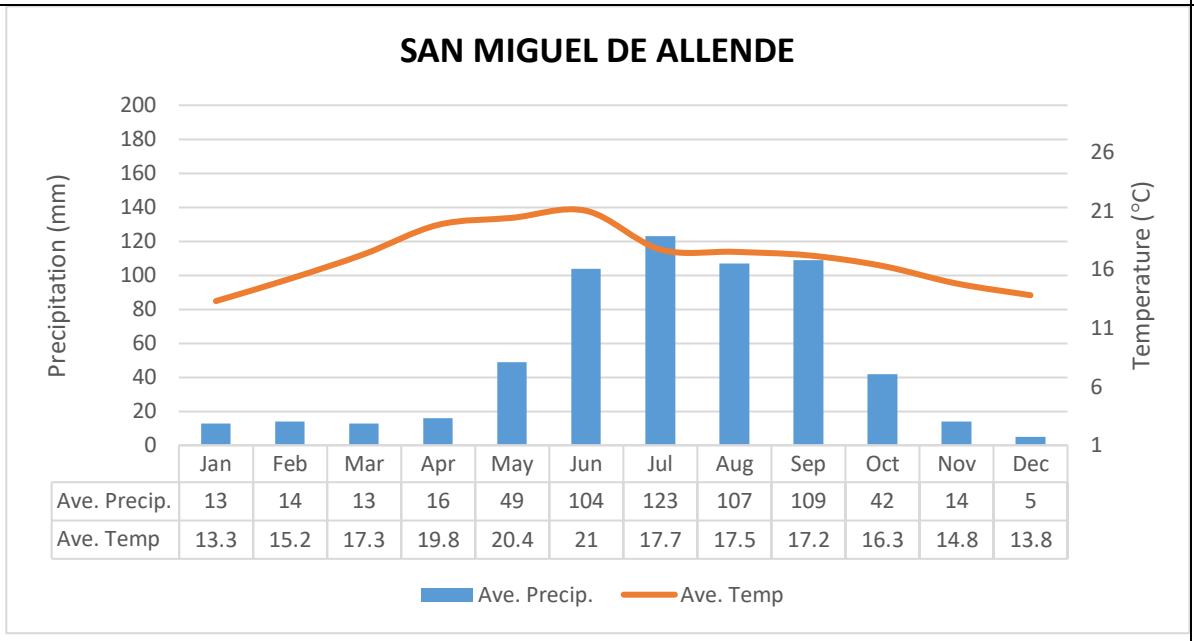
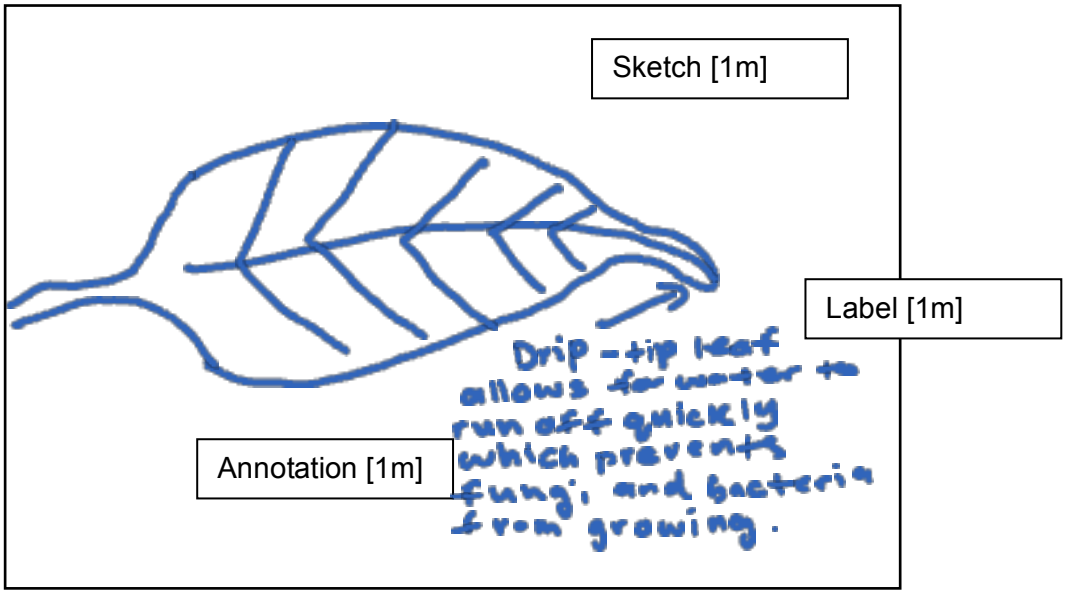


	Fig. 3		
	With reference to Fig. 3, describe the trend of the annual number of news reports of agricultural pollution contaminating drinking water from 2010 to 2019.		**[3]**
	The trend of news reports of agricultural pollution contaminating drinking water steadily **increased** from 2010 to 2019. **[1m]** From about **5 reports in 2010** it increased to about **82 reports in 2019. [1m].** However, there was a **sharp decrease** in reports in **2018** from 74 reports in 2017 to 41 reports in 2018. **[1m]**		
(e)	Evaluate the effectiveness of **importing water** to manage water supply.	**[5]**	
	<table><tr><td>Describe [1m]</td><td>Countries with relatively scarce water can import water from neighbouring countries with relatively abundant water resources.</td></tr><tr><td>Example [1m]</td><td>For example, The State of Johore and the City Council of Singapore signed long-term Water Agreements. 1962 and 1990 agreements expire in 2061.</td></tr><tr><td>Benefit [1m]</td><td>Importing water can reduce demand pressure in the importer country facing water shortages. In addition, this frees up land from reservoirs which can be developed for other purposes, especially for a land-scarce country such as Singapore.</td></tr><tr><td>Challenge [1m]</td><td>Importer country becomes highly dependent on the exporter country.</td></tr><tr><td>Conclusion [1m]</td><td>Importing water effectively manages a country's water sustainably in the short term. However, over time, when the contract expires, the water supply might be disrupted, or the cost required to purchase water from the supplier might be too high for the country to cope, thus affecting its effectiveness.</td></tr></table>		
		9	**9**

Section B

1 (a)	Study Fig. 4, which shows the climograph of San Miguel De Allende, Mexico.	**AO 1+2**	**AO 1+3**
	 **Fig. 4**		
	(i) With reference to Fig. 4, describe the rainfall pattern of San Miguel De Allende.		**[2]**
	1m for each point: • San Miguel De Allende rains all year round with a total annual rainfall of 606mm • and the highest rainfall recorded was in July 123mm and the lowest was in December 5mm.		
	(ii) With reference to Fig. 4, describe the temperature pattern of San Miguel De Allende.		**[3]**
	1m for each point: • San Miguel De Allende temperature increases from January to June and decrease from June to December • with an average temperature is 17°C. • The highest temperature recorded was in Jun, 20°C and lowest in January, 13.3°C.		
	(iii) With reference to Fig. 4 and your knowledge, do you think tropical rainforest can survive in the climatic conditions of San Miguel De Allende? Explain your answer.		**[2]**
	1m for each point: • **No.** Tropical rainforest **requires a high annual rainfall of 1500mm to 2500mm**. However, San Miguel De Allende, annual rainfall is only 606mm which is lower than the requirement. • Tropical rainforest requires **a high temperature on the average of 21°C. to 30°C.** . However, San Miguel De Allende has an average temperature of 17°C.		

(b)	Explain horizontal zonation of mangroves.	**[3]**	
	1m for each point: ● Horizontal zonation is the distribution of mangroves in different tidal zones determined by dominant species. ● Mangrove plant species that are able to **tolerate higher salinity levels** are **found closest to the low tide level.** ● On the other hand, species which are **not as tolerant** of these conditions are found **closer to the high tide level**, where the flooding duration is shorter.		
(c)	Using the space provided below, draw and annotate a drip tip leaf.	**[3]**	
			

(d)	Study Fig. 5, which shows an adaptation of mangroves.		
	 **Fig. 5**		
	Identify **X** and describe how it is a useful adaption feature for mangroves.		**[2]**
	1m for identifying ● Prop Roots 1m for description ● They help the plant breathe and **provide it with support as they form a broader base around it**.		
(e)	'Mangrove loss is high in southwest Singapore due to harbour developments.' Do you support the removal of mangroves?	**[3]**	
	1m for each point: ● No/Yes [Reserve 1 mark for answering qn] ● I do not support this removal of mangroves as mangroves **protect** the **coastal areas [1]** ● from coastlines by **breaking the waves during storm surges. [1]** Or ● I do not support this removal of mangroves as it's a source of food **[1]** and nursing ground for many fish species. **[1]** Or ● I support this removal of mangroves as Singapore is a **land-scarce country [1]** ● and thus land reclamation is important to make space for such developments. **[1]** **End of Paper**		
		9	**9**