

## Marking Schemes

### Paper 1 Section A

Question No.	Key
1.	C (57%)
2.	D (51%)
3.	D (50%)
4.	B (66%)
5.	C (47%)
6.	C (62%)
7.	B (55%)
8.	A (62%)
9.	D (54%)
10.	A (47%)
11.	A (31%)
12.	B (68%)
13.	B (26%)
14.	C (74%)
15.	A (65%)
16.	D (28%)
17.	A (29%)
18.	B (95%)
19.	C (78%)
20.	D (81%)

Note: Figures in brackets indicate the percentages of candidates choosing the correct answers.

<b>Section B Question 1</b>		<b>Marks</b>
(a)	<u>Merits:</u> (Max. 3)	
	- rainy season	1
	- with larger channel flow	1
	- adequate channel flow for data collection/ testing hypothesis	1
	<u>Demerits:</u> (Max. 3)	
	- <u>extreme discharge</u>	1
	- <u>affect the reliability of data/ may collect extreme data</u>	1
	- unstable weather/ heavy rain/ extreme hot weather	1
	- high risk	1 (4)
(b)	(i) <u>Steps of using tools:</u>	
	- Place one ranging pole on river bank and the other one on the river bank directly opposite	
	- Hold the measuring tape at one point, pull it across the river to the other point to measure the width of river channel	
	- Place the ruler into the river bed with an interval of 50 cm, measure the depth from the water surface to the river bed	
	<b>Marking criteria:</b>	
	- Accurate and clear description demonstrating good knowledge and understanding <u>to measure river depth and width respectively</u>	4
	- Appropriate description of 2-3 steps demonstrating basic to adequate knowledge and understanding <u>to measure river depth and/ or width</u>	2-3
	- Brief/ general description demonstrating elementary knowledge <u>to measure river depth / width</u>	1
(ii)	- calculate the <u>mean depth</u> of the river channel at each site	1
	- calculate the cross section area of the river channel at each site	1
	- cross section area = channel width $\times$ mean depth	1
	- calculate the mean velocity from record 1 and 2	1
	- calculate the discharge of each site by using the discharge formula	1
	- discharge = cross section area $\times$ mean velocity	1
	- draw appropriate diagram to show the changes in discharge	1
		1(4)
(c)	<u>Relevant concepts/ arguments:</u>	
	- Merits of the data collection methods: quantitative analysis, systematic sampling	
	- Drawbacks of the data collection methods:	
	• inadequate data such as number of sites, lack of upper course data, reliability of data affected by extreme data	
	• inappropriate sites, e.g. similar in geographical setting or human influence	
	- Improvement in data collection methods:	
	• select sites upstream from site A	
	• using stratified sampling, select appropriate number of sites at upper and lower courses or purposive sampling etc.	
	• select sites less influenced by human activities	
	• take more records	
	<b>Marking criteria:</b>	
	- Demonstrate sound knowledge and understanding of data collection methods	
	- State the merits and drawbacks clearly and in greater detail <u>with reference to the validity and reliability of data collected</u>	5-6
	- Suggest sound improvements	
	- Communicate ideas and express views logically	
	- Demonstrate adequate knowledge and understanding of data collection methods	
	- State some merits and/ or drawbacks appropriately	3-4
	- Make appropriate recommendations for improvement	
	- Communicate ideas and express views clearly	
	- Demonstrate elementary to basic knowledge and understanding of data collection methods	
	- State briefly/ in general the merits and/ or drawbacks	1-2
	- Make general/ brief recommendations for improvement	
	- Communicate simple ideas	

**Question 2** Marks

(a) (i) erosion	1 (1)														
(ii)	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center; background-color: #d3d3d3;"><b>Physical setting</b></th><th style="text-align: center; background-color: #d3d3d3;"><b>Explanation</b></th></tr> </thead> <tbody> <tr> <td>- located at a headland (1)</td><td>- wave refraction (1) - concentration of wave energy on headland (1)</td></tr> <tr> <td>- facing prevailing easterly wind (1)</td><td>- greater wave energy (1)</td></tr> <tr> <td>- long fetch/ open sea (1)</td><td></td></tr> <tr> <td>- steep offshore gradient (1)</td><td>- less energy used to overcome friction (1)</td></tr> <tr> <td>- bonus mark for destructive wave with appropriate explanation (1)</td><td></td></tr> </tbody> </table> <span style="float: right;">(5)</span>	<b>Physical setting</b>	<b>Explanation</b>	- located at a headland (1)	- wave refraction (1) - concentration of wave energy on headland (1)	- facing prevailing easterly wind (1)	- greater wave energy (1)	- long fetch/ open sea (1)		- steep offshore gradient (1)	- less energy used to overcome friction (1)	- bonus mark for destructive wave with appropriate explanation (1)			
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(b) (i)	<table border="1" style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td>- Identification of landform Q: tombolo</td><td style="text-align: right;">1 (1)</td></tr> <tr> <td>- (*either wrote in the answer or labeled in the diagram)</td><td></td></tr> <tr> <td>- Appropriate diagrams showing stages from two separate islands to joining together of two spits</td><td style="text-align: right;">1</td></tr> <tr> <td>Appropriate annotation (max. 2)</td><td></td></tr> <tr> <td>- summer monsoons and winter monsoons</td><td style="text-align: right;">1</td></tr> <tr> <td>- longshore drift</td><td style="text-align: right;">1</td></tr> <tr> <td>- spits</td><td style="text-align: right;">1 (3)</td></tr> </tbody> </table>	- Identification of landform Q: tombolo	1 (1)	- (*either wrote in the answer or labeled in the diagram)		- Appropriate diagrams showing stages from two separate islands to joining together of two spits	1	Appropriate annotation (max. 2)		- summer monsoons and winter monsoons	1	- longshore drift	1	- spits	1 (3)
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<b>Modifications (Max.3)</b>	<b>Explanation</b>														
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- raised above the high tide level (1)	- reduce the risk of inundation (1)														
- building of sea wall/ rock armour (1)	- prevent wave destruction/ reduce wave erosion (1)														
- surfacing with concrete/ construction of infrastructure/ housing etc. (1)	- appropriate explanation (1)														
(iii) <u>Relevant concepts/ arguments:</u>															
- identification of coastal management strategies (breakwater, seawall) and their functions															
- differences in the physical settings: offshore gradient etc.															
- differences in the human settings: land uses at the western side (ferry pier, typhoon shelter) and Tung Wan (recreational land use) etc.															
- cost-effectiveness of the strategies (economic, social and environmental costs)															
<b>Marking criteria:</b>															
- <b>Logical</b> and well-elaborated explanation(s)/ argument(s) with reference to the <b>information</b> provided, demonstrating good <b>knowledge</b> and understanding	4														
- With appropriate <b>judgement</b> by referring to <b>both</b> geographical settings of both the <b>eastern</b> and <b>western</b> coasts															
With reference to the <b>eastern</b> and <b>western</b> coasts															
- A sound explanation/ argument in greater detail with reference to the information provided, demonstrating adequate knowledge and understanding, <i>OR</i>	3														
- Two or more appropriate explanation(s)/ argument(s) demonstrating adequate knowledge and understanding															
- An appropriate explanation/ argument demonstrating basic knowledge and understanding, <i>OR</i>	2														
- Two or more brief explanation(s)/ argument(s) demonstrating basic knowledge and understanding															
- One brief explanation/ argument demonstrating elementary knowledge and understanding	1														

Max. 18



**Question 4**

**Marks**

(a) (i)	Description (Max. 2)	Explanation (Max. 2)	
	- tall trees (1) - straight tree trunks (1) - high branching (1) - broad tree crown (1) - buttress roots (1)	- compete for sunlight (1) - maximize photosynthesis (1)  - support tall trees (1)	(3)
(ii)	<b>Environmental conditions</b>	<b>Explanation</b>	
	<b>Plant P</b> - most of the sunlight <u>blocked</u> (1) - dense trees/ <u>canopy layer/ tree crowns</u> (1)	<b>(Max. 2)</b> - climbers/ lianas (1) - abundant trees for physical support (1) - climb <u>high/ capture more sunlight</u> (1)	(Max. 3)
	<b>Organism Q</b> - little amount of sunlight reaching the rainforest floor/ <u>dark environment</u> (1) - humid (1)	<b>(Max. 2)</b> - fungi/ decomposers (1) - favourable for <u>shade-loving species</u> (1) - abundant litter for decomposition (1)	(Max. 3) (6)
(b)	<u>Changes in vegetation structure</u> - removal of layered structure - low plant density/ total destruction of vegetation		1 1
	<u>Effect on micro-climate</u>		
Description (Max. 2)	Explanation (Max. 3)		
- higher air temperature - higher wind speed - lower relative humidity	- land surface exposed to sunlight/ higher light intensity - intense heating of land surface during the day time - air flow not blocked by dense trees and plants - low transpiration	1 1 1 1 1 (5)	
(c)	<u>Relevant concepts/ arguments:</u> - Effectiveness of restoration in terms of time for restoration, stability and reliability of recovery, degree of original landscapes recovered and native species - Importance of canopy cover to vegetation succession: changes in abiotic environment and biotic environment, habitat for lower layer plants and animals - Costs and inputs involved in strategies M and N: capital, labour, technology (research) and management etc. - The economic and social conditions of tropical rainforest regions		
<b>Marking criteria:</b>			
<ul style="list-style-type: none"> <li>- Logical and well-elaborated explanation(s)/ argument(s) with reference to the <b>information</b> provided, demonstrating good <b>knowledge</b> and understanding</li> <li>- With appropriate <b>judgement</b> by comparing the two strategies</li> </ul>			4
With reference to <u>the ecological/ social/ economic situation in tropical rainforest</u>			
<ul style="list-style-type: none"> <li>- A sound explanation/ argument in greater detail with reference to the information provided, demonstrating adequate knowledge and understanding, OR</li> <li>- Two or more appropriate explanation(s)/ argument(s) demonstrating adequate knowledge and understanding</li> </ul>			3
<ul style="list-style-type: none"> <li>- An appropriate explanation/ argument demonstrating basic knowledge and understanding, OR</li> <li>- Two or more brief explanation(s)/ argument(s) demonstrating basic knowledge and understanding</li> </ul>			2
<ul style="list-style-type: none"> <li>- One brief explanation/ argument demonstrating elementary knowledge and understanding</li> </ul>			1

Max. 18

**Question 5**

**Marks**

(a)	<u>Description</u> (max. 2)	
	- the world temperatures increased between 1950 and 2020	1
	- the world temperature before 1975 about the same as the mean temperature	1
	- more rapid increase since 1975	1
	<u>Explanation</u>	
	<u>Human causes</u> (Max. 2)	
	- <u>global economic development/rising living standard/ population growth</u>	1
	- increase in consumption of goods/ electricity	1
	- global market and production	1
	- increase in movement of goods	1
	- increase in industrial activities/ agricultural activities/ deforestation	1
	- increase in fossil fuel consumption	1
	<u>Mechanism of global warming</u> (Max. 3)	
	- increase in greenhouse gases emission	1
	- absorbing more long wave radiation	1
	- intensifying greenhouse effect	1(6)
(b) (i)	- greater magnitude of temperature changes	1
	- <u>faster rate of increase in temperature than the world</u>	1(2)
(ii)	- <u>both heat island effect and global warming</u>	1
	- rapid urbanisation	1
	- high-density and tall buildings	1
	- retain heat / reduce outgoing longwave radiation	1
	- block air flow/ lower wind speed	1
	- concrete structure absorbs heat	1
	- lack of plants / water bodies/ impervious surface in urban areas	1
	- less evapotranspiration to transfer heat	1
	- air conditioners/ vehicles	1
	- various waste heat sources in the urban areas	1
	- more particulates to absorb heat	1
		1(6)
(c)	<u>Relevant concepts/ arguments:</u>	
	- <b>Negative impact of local temperature changes:</b> extreme hot days, hot nights, health risks, increase in energy consumption etc.	
	- <b>Effectiveness of building design:</b> air ventilation, urban greening (shading effect, transpiration etc.)	
	- <b>cost effectiveness with special consideration of the situation in Hong Kong:</b> compact and dense urban development, land supply, renewal of urban areas (scale, costs, problems and difficulties), opportunities to adopt in new developed areas etc.	
	<b>Marking criteria:</b>	
	- <b>Logical</b> and well-elaborated explanation(s)/ argument(s) with reference to the <b>information</b> provided, demonstrating good <b>knowledge</b> and understanding	4
	- Sound discussion in the <u>effectiveness</u> and <u>feasibility</u> of using the measure in Hong Kong with appropriate <b>judgement</b>	
	With reference to the situation in Hong Kong	
	- A sound explanation/ argument in greater detail with reference to the information provided, demonstrating adequate knowledge and understanding, <i>OR</i>	
	- Two or more appropriate explanation(s)/ argument(s), demonstrating adequate knowledge and understanding	3
	- An appropriate explanation/ argument demonstrating basic knowledge and understanding, <i>OR</i>	
	- Two or more brief explanation(s)/ argument(s), demonstrating basic knowledge and understanding	2
	- One brief explanation/ argument demonstrating elementary knowledge and understanding	1

Max. 18

## Section C

### Question 6

Account for the occurrence of earthquakes and volcanic eruptions along divergent plate boundaries. Explain why the earthquakes and volcanic eruptions that occur along divergent plate boundaries usually bring less socio-economic losses to the local areas when compared with those that occur along convergent plate boundaries.

#### Notes:

1. Award appropriate marks according to the **QUALITY** and **DEPTH** of discussion; **do not count the number of points only.**
2. Max. marks should be given to good quality answers with **well-elaborated arguments** and demonstrating good knowledge on relevant geographical concepts.
3. Award appropriate marks to relevant and reasonable answers not included in this marking scheme.

Marking Guidelines	
<b>Account for the occurrence of earthquakes and volcanic eruptions along divergent plate boundaries</b>	
<u>Relevant concepts:</u>	
<ul style="list-style-type: none"> <li>• Plate movement along divergent plate boundaries</li> <li>• Occurrence of earthquakes: tensional force, stress, energy stored, strength of rock, fracture of rocks, release of energy etc.</li> <li>• Occurrence of volcanic eruptions: tensional force, fissure, release in pressure, rising of magma, cooling of lava etc.</li> </ul>	<b>Performance of Candidates</b>
<ul style="list-style-type: none"> <li>• Comprehensive knowledge and understanding of plate movement and natural hazards along divergent plate boundaries</li> <li>• Systematic and logical description and explanation of the occurrence of earthquakes and volcanic eruptions along divergent plate boundaries</li> </ul>	Marks 6
<ul style="list-style-type: none"> <li>• Adequate to good knowledge and understanding of plate movement and natural hazards along divergent plate boundaries</li> <li>• Appropriate description and explanation of the occurrence of earthquakes and volcanic eruptions along divergent plate boundaries</li> <li>• Award higher marks to answer with more systematic descriptions and/ or more in depth explanations</li> </ul>	3 – 5
<ul style="list-style-type: none"> <li>• Elementary to basic knowledge and understanding of plate movement and natural hazards along divergent plate boundaries</li> <li>• Brief/ general description and explanation of the occurrence of earthquakes and volcanic eruptions along divergent plate boundaries, such as moving apart of plates, release pressure, rising magma</li> </ul>	1 – 2
<b>Explain why the earthquakes and volcanic eruptions that occur along divergent plate boundaries usually bring less socio-economic losses to the local areas when compared with those that occur along convergent plate boundaries</b>	
<u>Relevant concepts:</u>	
<ul style="list-style-type: none"> <li>• Factors affecting socio-economic losses: <ul style="list-style-type: none"> <li>- casualties, destruction of houses and facilities, level of development, population density etc.</li> </ul> </li> <li>• Difference in magnitude of the hazard: <ul style="list-style-type: none"> <li>- violent volcanic eruption along subduction zone, shallow focus of earthquake etc.</li> </ul> </li> <li>• Geographical setting of divergent and convergent plate boundaries: <ul style="list-style-type: none"> <li>- divergent plate boundaries mostly under the sea with some exceptions, e.g. Iceland and the East African Rift</li> <li>- a number of convergent plate boundaries found in areas with higher population density, e.g. the Alpine-Himalayan Belt and the Circum-Pacific Belt</li> </ul> </li> </ul>	<b>Performance of Candidates</b>
<ul style="list-style-type: none"> <li>• Comprehensive knowledge and understanding of the differences in magnitude of the hazards and geographical settings of divergent plate boundaries and convergent plate boundaries</li> <li>• Systematic and logical explanation of the differences in socio-economic losses with relevant examples to illustrate</li> </ul>	Marks 6
<ul style="list-style-type: none"> <li>• Adequate to good knowledge and understanding of the differences in magnitude of the hazards and geographical settings of the divergent plate boundaries and convergent plate boundaries</li> <li>• Appropriate explanation of the differences in socio-economic losses with reference to the geographical setting of plate boundaries and/ or nature of the hazards</li> <li>• Award higher marks to answer with more systematic and/ or more in depth explanation</li> </ul>	3 – 5
<ul style="list-style-type: none"> <li>• Elementary to basic knowledge and understanding of the differences in magnitude of the hazards and geographical settings of divergent plate boundaries and convergent plate boundaries</li> <li>• Brief explanation of the factors affecting socio-economic losses</li> </ul>	1 – 2
Max.12	

### Question 7

Account for the locational factors of the headquarters of the IT industry in the US. Why does the IT industry in the US at present commonly adopt the mode of multi-point production?

#### Notes:

1. Award appropriate marks according to the **QUALITY** and **DEPTH** of discussion; **do not** count the number of points **only**.
2. Max. marks should be given to good quality answers with **well-elaborated arguments** and demonstrating good knowledge on relevant geographical concepts.
3. Award appropriate marks to relevant and reasonable answers not included in this marking scheme.

Marking Guidelines	
<b>Account for the locational factors of the headquarters of the IT industry in the US</b>	
<u>Relevant concepts:</u>	
<ul style="list-style-type: none"> <li>• Nature of IT industries: science and technology based etc.</li> <li>• Locational characteristics of the headquarters: greenfield site to attract professionals and talents (research and development institutes, universities, pleasant environment, suburbs etc.), transport and telecommunication infrastructure, agglomeration economies (services, information flow, linkages etc.), venture capital, other factors (supporting services, innovation culture, government policies etc.)</li> </ul>	
Performance of Candidates	Marks
<ul style="list-style-type: none"> <li>• Comprehensive knowledge and understanding of factors affecting the location of the headquarters of the IT industry in the US</li> <li>• Systematic and logical description and explanation of the factors affecting the location of the headquarters of the IT industry in the US with relevant example(s)</li> </ul>	6
<ul style="list-style-type: none"> <li>• Adequate to good knowledge and understanding of factors affecting the location of the headquarters of the IT industry in the US</li> <li>• Appropriate description and explanation of the factors affecting the location of the headquarters of the IT industry in the US, such as pool of IT professionals, good transport linkages etc.</li> <li>• Award higher marks to answer with more systematic and/ or more in depth description and explanation</li> </ul>	3 – 5
<ul style="list-style-type: none"> <li>• Elementary to basic knowledge and understanding of factors affecting the location of the headquarters of the IT industry in the US</li> <li>• Brief description and explanation of the factors affecting the location of the headquarters of the IT industry in the US</li> </ul>	1 – 2
<b>Why does the IT industry in the US at present commonly adopt the mode of multi-point production</b>	
<u>Relevant concepts:</u>	
<ul style="list-style-type: none"> <li>• Nature of IT production: assembling of various parts, labour intensive in assembling</li> <li>• Multi-point production: geographical separation of different manufacturing activities, research and development in more developed countries, assembling in less developed countries etc.</li> <li>• Merits of multi-point production: specialisation, lowering production costs</li> <li>• Impact of globalisation and technological advances on the mode of multi-point production: global market, improvement in telecommunication and logistics</li> </ul>	
Performance of Candidates	Marks
<ul style="list-style-type: none"> <li>• Comprehensive knowledge and understanding of IT industry and multi-point production</li> <li>• Systematic and logical explanation with reference to both the merits of multi-point production and the impact of globalisation and technological advances</li> </ul>	6
<ul style="list-style-type: none"> <li>• Adequate to good knowledge and understanding of IT industry and multi-point production</li> <li>• Appropriate explanation for the adoption of multi-point production for IT industry, such as global market, lower production cost in less developed countries etc.</li> <li>• Award higher marks to answer to more systematic and/ or more in-depth explanations</li> </ul>	3 – 5
<ul style="list-style-type: none"> <li>• Elementary to basic knowledge and understanding of IT industry and multi-point production</li> <li>• Brief/ general description of some general characteristics/ merits of multi-point production</li> </ul>	1 – 2
Max. 12	

### Question 8

Account for the physical and human factors of low food production in Sahel. Explain how local people may change their farming methods to produce enough food in the long run.

#### Notes:

1. Award appropriate marks according to the **QUALITY** and **DEPTH** of discussion; **do not count the number of points only.**
2. Max. marks should be given to good quality answers with **well-elaborated arguments** and demonstrating good knowledge on relevant geographical concepts.
3. Award appropriate marks to relevant and reasonable answers not included in this marking scheme.

Marking Guidelines		
<b>Account for the physical and human factors of low food production in Sahel</b>		
<b>Performance of Candidates</b>		<b>Marks</b>
• Comprehensive knowledge and understanding of factors causing low food production in Sahel		
• Systematic and logical description and explanation of how the physical and human factors causing low food production in Sahel	6	
• Adequate to good knowledge and understanding of factors causing low food production in Sahel		
• Appropriate description and explanation of how the physical and human factors causing low food production in Sahel such as rainfall characteristics and reliability, socio-economic conditions etc.	3 – 5	
• Award higher marks to answer with more systematic and/or more in-depth description and explanation		
• Elementary to basic knowledge and understanding of factors causing low food production in Sahel		
• Brief/ general description and explanation of farming characteristics and/ or factors affecting farming in Sahel	1 – 2	
<b>Explain how local people may change their farming methods to produce enough food in the long run</b>		
Relevant concepts:		
• Sustainable agricultural development: improve land productivity in the long run		
• Sustainable farming methods:		
- soil and water conservation: planting wind breaks, mulching, multiple cropping, growing drought resistant crops, controlled grazing etc.		
- use of appropriate farming technology: low capital inputs, low impact on land, manageable by local people		
<b>Performance of Candidates</b>		<b>Marks</b>
• Comprehensive knowledge and understanding of sustainable agricultural development		
• Systematic and logical explanation of how sustainable farming methods improve farm productivity in the long run with reference to the physical and human settings in Sahel	6	
• Adequate to good knowledge and understanding of sustainable agricultural development		
• Appropriate explanation of how sustainable farming methods such as controlled grazing, growing of drought resistant crops etc. help improve farm productivity in the long run	3 – 5	
• Award higher marks to answer with more systematic and/ or more in depth explanation		
• Elementary to basic knowledge and understanding of sustainable agricultural development		
• Brief / general description of some farming methods to increase farm production	1 – 2	
		Max. 12

## Section D

### Question 1

		Marks
(a) (i)	- tors	1 (1)
(ii)	- the slope is prone to erosion due to the large amount of loose materials on slope/ thick weathered profile - completely weathered rocks near land surface - washed away by rain/ rainsplash erosion - removal of overlying loose materials on slope surface - rocks incompletely weathered/ corestones in deeper ground exposed	1 1 1 1 1 (4)

(b) (i)	Physical conditions (Max. 2)	Explanation (Max. 3)	
- heavy rain (1)		- <u>increasing stress</u> - adding weight to the slope (1) <u>decreasing strength</u> - increasing pore water pressure (1)	- stress > strength (1)*
- large/ steep slope face (1)		- increasing pull of gravity (1)	
- thick layer of decomposed/ less resistant rock/ deep weathered profile (1)		- more prone to weathering / erosion (1)	

(5)

	Human factors (Max. 2)	Explanation (Max. 3)	
(ii)	- slope modification/ cut slope (1) - lack of/ poor slope maintenance/ drains blocked (1)	- slope is steepened (1) - blocked drain <u>failed</u> to drain away excessive water on slopes (1) - increasing infiltration (1)	- stress > strength (1)*

(4)

(\*Award mark once only to this explanation)

### (c) Relevant concepts/ arguments:

- Use of debris-resisting/ flexible rockfall barrier/ boulder fence as a measure to enhance slope safety
- Relevant factors to consider whether the barrier/ fence should be installed:
  - Cost-effectiveness
  - Environmental concerns
  - Possible types of mass movement/ slope failure
  - Natural factors such as extent and gradient of slopes
  - Level of development nearby

### Marking criteria:

- <b>Logical</b> and well-elaborated explanation(s)/ argument(s) with reference to the <b>information</b> provided, demonstrating good <b>knowledge</b> and understanding of <b>two or more</b> factors when considering whether the barrier/ fence should be installed - <b>With appropriate judgement</b>	4
- A sound explanation/ argument in greater detail with reference to the information provided, demonstrating adequate knowledge and understanding, <i>OR</i> - Two or more appropriate explanation(s)/ argument(s) demonstrating adequate knowledge and understanding	3
- An appropriate explanation/ argument demonstrating basic knowledge and understanding, <i>OR</i> - Two or more brief explanation(s)/ argument(s) demonstrating basic knowledge and understanding	2
- One brief explanation/ argument demonstrating elementary knowledge and understanding	1

Max. 18

Question 2	Marks	
(a) (i)	<ul style="list-style-type: none"> <li>- the ITCZ locates in between the Equator and 5°N to 10°-20°S in January</li> <li>- extends southward across the interior of South America in January</li> <li>- the ITCZ locates at 5°-10°N in July</li> </ul>	1 1 1(2)
(ii)	<ul style="list-style-type: none"> <li>- the angle of the sun is large/ the surface temperature is high, air heats up, and rises to form the ITCZ</li> <li>- the ITCZ shifts according to the location of the overhead sun</li> <li>- the overhead sun locates near 23.5°N in July, the ITCZ shifts northwards</li> <li>- the overhead sun locates near 23.5°S in January, the ITCZ shifts southwards</li> <li>- land heats up quicker than that of the sea in summer</li> <li>- In January, the ITCZ bends towards interior of South America where it is hotter</li> </ul>	1 1 1 1 1 1(4)
(b) (i)	<ul style="list-style-type: none"> <li>- high annual rainfall/ rainfall unevenly distributed</li> <li>- lower rainfall between December and February/ minimum at January</li> <li>- higher rainfall occurs between May and August/ maximum at June</li> </ul>	1 1 1(2)
(ii)	<ul style="list-style-type: none"> <li>- area P is located nearby the ITCZ/ at the Equator</li> <li>- <u>Converging trade winds</u> forms strong convection current</li> <li>- air rises and then cools down/ favours condensation/ forms convectional rain</li> <li>- Around July, closer to the ITCZ with the strongest converging current</li> <li>- The ITCZ moves southwards around January and converging current has less influence</li> </ul>	1 1 1 1 1(4)
(c) (i)	<ul style="list-style-type: none"> <li>- area R locates at rain shadow</li> <li>- onshore wind blocked by high mountain range</li> <li>- most water vapour condenses and forms rain at area Q</li> <li>- fohn wind / hotter and drier air forms on the leeward slope</li> </ul>	1 1 1 1(2)
(ii)	<u>Relevant concepts/ arguments:</u> <ul style="list-style-type: none"> <li>- factors of the formation of rainfall</li> <li>- water vapour supply: affected by onshore westerlies</li> <li>- mechanism of uplifting air/water vapour : relief</li> </ul>	

**Marking criteria:**

<ul style="list-style-type: none"> <li>- <b>Logical</b> and well-elaborated explanation(s)/ argument(s) with reference to the information provided, demonstrating good <b>knowledge</b> and understanding</li> <li>- Logical discussion of the significance of other factors*</li> <li>- <b>With appropriate judgement</b></li> </ul>	4
<ul style="list-style-type: none"> <li>- A sound explanation/ argument in greater detail with reference to the information provided, demonstrating adequate knowledge and understanding, <i>OR</i></li> <li>- Two or more appropriate explanation(s)/ argument(s) demonstrating adequate knowledge and understanding</li> <li>- <b>Appropriate discussion of the significance of other factors*</b></li> </ul>	3
<ul style="list-style-type: none"> <li>- An appropriate explanation/ argument demonstrating basic knowledge and understanding, <i>OR</i></li> <li>- Two or more brief explanation(s)/ argument(s) demonstrating basic knowledge and understanding</li> </ul>	2
<ul style="list-style-type: none"> <li>- One brief explanation/ argument demonstrating elementary knowledge and understanding</li> </ul>	1

(\* factors other than relief)

Max. 18



**Question 4**

**Marks**

(a)	<b>Description (Max. 2)</b>	<b>Explanation (Max. 3)</b>							
	<ul style="list-style-type: none"> <li>- an increase in urbanisation, an increase in the % of employment structure of secondary industry/ positive relationship (1)</li> <li>- an increase in urbanisation, an increase in the % of employment structure of tertiary industry/ positive relationship (1)</li> <li>- an increase in urbanisation, a decrease in the % of employment structure of primary industry/ negative relationship (1)</li> </ul>	<ul style="list-style-type: none"> <li>- changed in economic structure, from primary industry to secondary and tertiary industry (1)</li> <li>- secondary and tertiary industries provided abundant of job opportunities, led to urbanisation (1)</li> <li>- urbanisation intensified land competition, led to a decrease in farming activities, and hence a decrease in farming labour force (1)</li> <li>- secondary and tertiary industries provided better income (1)</li> <li>- more factories set up in villages, led to a decrease in farming labour force (1)</li> </ul>	(5)						
(b) (i)	<ul style="list-style-type: none"> <li>- percentage of employment structure of secondary industry in Shenzhen decreased, but the one in the ZDR increased</li> <li>- increasing rate in percentage of the employment structure of tertiary industry in Shenzhen was lower than that of the ZDR</li> <li>- decreasing rate in percentage of the employment structure of primary industry in Shenzhen was higher than that of the ZDR/ percentage decrease of employment structure of primary industry in Shenzhen was lower than that of the ZDR</li> </ul>		1 1 1 (2)						
(ii)	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th><b>Explanation</b></th> <th><b>Evidence (Max. 2)</b></th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> <li>• Decrease in % of employment structure of secondary industry in Shenzhen:</li> <li>- decrease in labour intensive industries (1)</li> <li>- higher level of technology, high value-added industries employed fewer labour, improved in mechanization level (1)</li> </ul> </td><td> <ul style="list-style-type: none"> <li>- e.g. decrease in the economic output value of textile, garment and related products manufacturing (1)</li> <li>- e.g. an increase in the electronic and communication equipment manufacturing (1)</li> <li>- e.g. the economic output value of secondary/tertiary industries increased by 10 times (1)</li> <li>- e.g. high urbanization level (1)</li> </ul> </td></tr> <tr> <td> <ul style="list-style-type: none"> <li>• Increase in % of employment structure of tertiary industry in Shenzhen:</li> <li>- support the development of high-ended product manufacturing (1)</li> <li>- provide more services to urban due to an increase in urbanization (1)</li> </ul> </td><td></td></tr> </tbody> </table>	<b>Explanation</b>	<b>Evidence (Max. 2)</b>	<ul style="list-style-type: none"> <li>• Decrease in % of employment structure of secondary industry in Shenzhen:</li> <li>- decrease in labour intensive industries (1)</li> <li>- higher level of technology, high value-added industries employed fewer labour, improved in mechanization level (1)</li> </ul>	<ul style="list-style-type: none"> <li>- e.g. decrease in the economic output value of textile, garment and related products manufacturing (1)</li> <li>- e.g. an increase in the electronic and communication equipment manufacturing (1)</li> <li>- e.g. the economic output value of secondary/tertiary industries increased by 10 times (1)</li> <li>- e.g. high urbanization level (1)</li> </ul>	<ul style="list-style-type: none"> <li>• Increase in % of employment structure of tertiary industry in Shenzhen:</li> <li>- support the development of high-ended product manufacturing (1)</li> <li>- provide more services to urban due to an increase in urbanization (1)</li> </ul>			(5)
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(c) (i)	<ul style="list-style-type: none"> <li>- decrease in sulphur dioxide concentration, attained national standard/ lower than the concentration limit in 2010</li> <li>- decrease in nitrogen dioxide concentration, attained national standard/ lower than the concentration limit in 2019</li> <li>- decrease in PM<sub>10</sub> concentration, did not attain national standard/ still higher than the concentration limit in 2019</li> </ul>		1 1 1 (2)						
(ii)	<p><u>Relevant concepts/ arguments:</u></p> <p>Decrease in concentration of three types of pollutants:</p> <ul style="list-style-type: none"> <li>- industrial restructuring e.g. from low level to high level of technology</li> <li>- low-ended industry e.g. metal products industry, may cause serious air pollution</li> <li>- high level of technology industry, mainly using cleaner energy source to generate electricity</li> </ul> <p>PM<sub>10</sub> still higher than the concentration limit:</p> <ul style="list-style-type: none"> <li>- increasing building density and height due to city development/ increasing number of vehicles</li> </ul>								

Other reasons:

- increase in efficiency of production/ electricity generation, consume less energy
- use of clean energy/ higher quality of fossil fuels for electricity generation
- government policy e.g. stricter (rigorous) national standard, encourage the use of cleaner energy, develop of green industry etc.
- improvement in urban design/ transportation e.g. the use of cleaner energy

**Marking criteria:**

- <b>Logical</b> and well-elaborated explanation(s)/ argument(s) with reference to the <b>information</b> provided, demonstrating good <b>knowledge</b> and understanding	4
- Logical discussion of the significance of other factors*	
- <b>With appropriate judgement</b>	
- A sound explanation/ argument in greater detail with reference to the information provided, demonstrating adequate knowledge and understanding, OR	3
- Two or more appropriate explanation(s)/ argument(s) demonstrating adequate knowledge and understanding	
- Appropriate discussion of the significance of other factors*	
- An appropriate explanation/ argument demonstrating basic knowledge and understanding, <i>OR</i>	2
- Two or more brief explanation(s)/ argument(s) demonstrating basic knowledge and understanding	
- One brief explanation/ argument demonstrating elementary knowledge and understanding	1

(\* factors other than percentage changes in total industrial output)

Max. 18

## Section E

### Question 5

Describe the characteristics of siltstone found in Hong Kong and explain its formation process. Comment on the significance of sedimentary rock in shaping the physical landscape of Hong Kong.

#### Notes:

1. Award appropriate marks according to the **QUALITY** and **DEPTH** of discussion; do not count the number of points **only**.
2. Max. marks should be given to good quality answers with **well-elaborated arguments** and demonstrating good knowledge on relevant geographical concepts.
3. Award appropriate marks to relevant and reasonable answers not included in this marking scheme.

Marking Guidelines									
<b>Describe the characteristics of siltstone found in Hong Kong and explain its formation process.</b>									
<u>Relevant concepts:</u>									
<ul style="list-style-type: none"> <li>• Characteristics of siltstone: texture, grain size, presence of fossils</li> <li>• Formation process: mechanically formed/ clastic deposit; deposition of eroded and weathered materials; sedimentation, compaction, cementation and lithification</li> <li>• Relationship between formation process and characteristics of rock: presence of sorting process</li> <li>• Examples in HK: siltstone at Ping Chau and Ma Shi Chau, etc</li> </ul>	Marks								
<table border="1"> <thead> <tr> <th>Performance of Candidates</th><th>Marks</th></tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> <li>• Comprehensive knowledge and understanding of the characteristics of siltstone and its formation process</li> <li>• Systematic and logical description and explanation of the formation process of siltstone</li> <li>• Answers supported by appropriate examples showing the location of siltstone in HK</li> </ul> </td><td>6</td></tr> <tr> <td> <ul style="list-style-type: none"> <li>• Adequate to good knowledge and understanding of the characteristics of siltstone and its formation process</li> <li>• Appropriate description and explanation of the formation process of siltstone</li> <li>• Award higher marks to answer with more systematic descriptions and/ or more in depth explanations</li> </ul> </td><td>3 – 5</td></tr> <tr> <td> <ul style="list-style-type: none"> <li>• Elementary to basic knowledge of the characteristics of siltstone and its formation process</li> <li>• Brief/ general description and explanation of the formation process of siltstone</li> </ul> </td><td>1 – 2</td></tr> </tbody> </table>	Performance of Candidates	Marks	<ul style="list-style-type: none"> <li>• Comprehensive knowledge and understanding of the characteristics of siltstone and its formation process</li> <li>• Systematic and logical description and explanation of the formation process of siltstone</li> <li>• Answers supported by appropriate examples showing the location of siltstone in HK</li> </ul>	6	<ul style="list-style-type: none"> <li>• Adequate to good knowledge and understanding of the characteristics of siltstone and its formation process</li> <li>• Appropriate description and explanation of the formation process of siltstone</li> <li>• Award higher marks to answer with more systematic descriptions and/ or more in depth explanations</li> </ul>	3 – 5	<ul style="list-style-type: none"> <li>• Elementary to basic knowledge of the characteristics of siltstone and its formation process</li> <li>• Brief/ general description and explanation of the formation process of siltstone</li> </ul>	1 – 2	
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<b>Comment on the significance of sedimentary rock in shaping the physical landscape of Hong Kong.</b>									
<u>Relevant concepts:</u>									
<ul style="list-style-type: none"> <li>• Characteristics of different kinds of sedimentary rock: <ul style="list-style-type: none"> <li>- most sedimentary rocks clearly bedded (layered)</li> <li>- distinctive mineral contents</li> <li>- differentiated rates of weathering and erosion</li> </ul> </li> <li>• Effect of rock characteristics on <u>contrasting physical landscapes</u>: <ul style="list-style-type: none"> <li>- generally low-lying/ low land; gentle slopes</li> <li>- forming distinctive landforms in northeastern New Territories</li> <li>- examples in HK: Ping Chau, Ma Shi Chau, Port Island, Pat Sin Leng</li> <li>- different scales of landscapes: escarpments in Pat Sin Leng, wave-cut platforms at Ping Chau, landform features of differential erosion</li> </ul> </li> <li>• Other factors shaping the physical landscapes: <ul style="list-style-type: none"> <li>- significance of sedimentary rock (versus igneous rocks); presence of faults; human modifications</li> </ul> </li> </ul>	Marks								
<table border="1"> <thead> <tr> <th>Performance of Candidates</th><th>Marks</th></tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> <li>• Comprehensive knowledge and understanding of the impact of different types of sedimentary rocks on physical landscapes of HK</li> <li>• Clear and sound explanation with appropriate judgement referring to other factors affecting the physical landscapes</li> <li>• Systematic and logical presentation of ideas and views with local examples of contrasting physical landscapes</li> </ul> </td><td>6</td></tr> <tr> <td> <ul style="list-style-type: none"> <li>• Adequate to good knowledge and understanding of the impact of different types of sedimentary rocks on physical landscapes of HK</li> <li>• Appropriate reference to other factors affecting the physical landscapes</li> <li>• Award higher marks to more systematic and/ or more in-depth discussion with local examples</li> </ul> </td><td>3 – 5</td></tr> <tr> <td> <ul style="list-style-type: none"> <li>• Elementary to basic knowledge and understanding of the impact of different types of sedimentary rocks on physical landscapes of HK</li> </ul> </td><td>1 – 2</td></tr> </tbody> </table>	Performance of Candidates	Marks	<ul style="list-style-type: none"> <li>• Comprehensive knowledge and understanding of the impact of different types of sedimentary rocks on physical landscapes of HK</li> <li>• Clear and sound explanation with appropriate judgement referring to other factors affecting the physical landscapes</li> <li>• Systematic and logical presentation of ideas and views with local examples of contrasting physical landscapes</li> </ul>	6	<ul style="list-style-type: none"> <li>• Adequate to good knowledge and understanding of the impact of different types of sedimentary rocks on physical landscapes of HK</li> <li>• Appropriate reference to other factors affecting the physical landscapes</li> <li>• Award higher marks to more systematic and/ or more in-depth discussion with local examples</li> </ul>	3 – 5	<ul style="list-style-type: none"> <li>• Elementary to basic knowledge and understanding of the impact of different types of sedimentary rocks on physical landscapes of HK</li> </ul>	1 – 2	
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<ul style="list-style-type: none"> <li>• Elementary to basic knowledge and understanding of the impact of different types of sedimentary rocks on physical landscapes of HK</li> </ul>	1 – 2								
	Max. 12								

## Question 6

Describe the conditions favouring the formation of typhoons and explain their formation process. Discuss the relationship between monsoon winds and the development of typhoons in the South China region.

### Notes:

1. Award appropriate marks according to the **QUALITY** and **DEPTH** of discussion; **do not count the number of points only**.
2. Max. marks should be given to good quality answers with **well-elaborated arguments** and demonstrating good knowledge on relevant geographical concepts.
3. Award appropriate marks to relevant and reasonable answers not included in this marking scheme.

Marking Guidelines	
<b>Describe the conditions favouring the formation of typhoons and explain their formation process</b>	
<b>Relevant concepts:</b>	
<ul style="list-style-type: none"> <li>• Favourable conditions: 10-20°S/N (affects the intensity of Coriolis force, sea water temperature, moisture supply), warm ocean/sea (favours evaporation, provision of energy/ latent heat)</li> <li>• Formation: <ul style="list-style-type: none"> <li>- air rises from warm ocean surface</li> <li>- forms low pressure centre</li> <li>- latent heat is released during condensation</li> <li>- Coriolis force causes wind deflection, and hence makes the air rotate</li> <li>- steep pressure gradient forming strong winds at the vortex</li> </ul> </li> </ul>	<b>Marks</b>
<ul style="list-style-type: none"> <li>• Comprehensive knowledge and understanding of the conditions favouring the formation of typhoons</li> <li>• Systematic and logical description and explanation of the formation of typhoons</li> <li>• Adequate to good knowledge and understanding of the conditions favouring the formation of typhoons</li> <li>• Appropriate description and explanation of the formation of typhoons</li> <li>• Award higher marks to answer with more systematic descriptions and/ or more in depth explanations</li> <li>• Elementary to basic knowledge and understanding of the conditions favouring the formation of typhoons</li> <li>• Brief/ general description and explanation of the formation of typhoons</li> </ul>	6 3 – 5 1 – 2
<b>Discuss the relationship between monsoon winds and the development of typhoons in the South China region</b>	
<b>Relevant concepts:</b>	
<ul style="list-style-type: none"> <li>• Monsoon winds may affect typhoon development: <ul style="list-style-type: none"> <li>- Summer SW monsoon meets the easterly at the Southern Pacific, forms the monsoon trough which triggers convective activity, and favours the development of low pressure areas and typhoon formation</li> <li>- In winter, high pressure cell develops over the interior of the Asian landmass, strong NW or NE monsoon pushes the low pressure cell westward or to the southwest, moves far away from the South China region</li> <li>- A typhoon loses its heat when it meets the NE monsoon, which brings dry and continental air</li> </ul> </li> <li>• Typhoon development may affect monsoon winds: <ul style="list-style-type: none"> <li>- Short term interruption</li> <li>- The wind direction changes while a typhoon is approaching</li> <li>- Speed of monsoon winds increases due to large pressure gradient near typhoons</li> </ul> </li> </ul>	
<ul style="list-style-type: none"> <li>• Comprehensive knowledge and understanding of monsoon winds and typhoon</li> <li>• Systematic and logical discussion of the relationship between monsoon winds and the development of typhoon in the South China region</li> <li>• Adequate to good knowledge and understanding of monsoon winds and typhoon</li> <li>• Appropriate discussion of the relationship between monsoon winds and the development of typhoon in the South China region</li> <li>• Award higher marks to answer with more systematic and/ or more in depth discussion</li> <li>• Elementary to basic knowledge and understanding of monsoon winds and typhoon</li> <li>• Brief explanation of the relationship between monsoon winds and the development of typhoon in the South China region</li> </ul>	<b>Marks</b>
	Max. 12

## Question 7

Describe the factors influencing the modal choice of sea and air freight transport. Explain how multi-modal freight transport is adopted in Hong Kong.

### Notes:

1. Award appropriate marks according to the **QUALITY** and **DEPTH** of discussion; **do not count the number of points only**.
2. Max. marks should be given to good quality answers with **well-elaborated arguments** and demonstrating good knowledge on relevant geographical concepts.
3. Award appropriate marks to relevant and reasonable answers not included in this marking scheme.

Marking Guidelines	
<b>Describe the factors influencing the modal choice of sea and air freight transport</b>	
<u>Relevant concepts:</u>	
<ul style="list-style-type: none"> <li>• Factors influencing the modal choice of freight transport: costs (terminal costs and hauling costs), travel time, reliability of service, flexibility, security level, carrying capacity, nature of goods (e.g. bulkiness, quantity of goods, value of goods, perishability, urgency)</li> <li>• Sea freight transport: low hauling cost, economical over long distances, high carrying capacity, large quantity, heavy and bulky, low value goods, non-perishable/ non-urgent goods, with examples</li> <li>• Air freight transport: high terminal and hauling costs, low carrying capacity, high security level, small quantity, light and high value goods, perishable/ urgent goods, very fast, with examples</li> </ul>	
Performance of Candidates	Marks
<ul style="list-style-type: none"> <li>• Comprehensive knowledge and understanding of sea and air freight transport</li> <li>• Systematic and logical description of the factors that influence the modal choice of sea and air freight transport</li> </ul>	6
<ul style="list-style-type: none"> <li>• Accurate to good knowledge and understanding of sea and air freight transport</li> <li>• Appropriate description of the factors that influence the modal choice of sea and air freight transport</li> <li>• Award higher marks to answer with more systematic descriptions</li> </ul>	3 – 5
<ul style="list-style-type: none"> <li>• Elementary to basic knowledge and understanding of sea and air freight transport</li> <li>• Brief description of the factors that influence the modal choice of sea and air freight transport</li> </ul>	1 – 2
<b>Explain how multi-modal freight transport is adopted in Hong Kong</b>	
<u>Relevant concepts:</u>	
<ul style="list-style-type: none"> <li>• Multimodal transport is the combination of different means of transport</li> <li>• Hong Kong is a transport and logistics hub (central point for the collection, sorting, transshipment and distribution of goods)</li> <li>• Serves the world and the ZDR</li> <li>• External freight movement handled by sea and air transport</li> <li>• Roads provides linkages with the port and airport facilities</li> <li>• Internal/ cross border freight transport is mainly handled by road transport (container trucks and light van-type vehicles)</li> </ul>	
Performance of Candidates	Marks
<ul style="list-style-type: none"> <li>• Comprehensive knowledge and understanding of the adoption of multimodal freight transport in HK</li> <li>• Systematic and logical explanation of <b>both</b> external and internal freight movement</li> </ul>	6
<ul style="list-style-type: none"> <li>• Accurate to good knowledge and understanding of the adoption of multimodal freight transport in HK</li> <li>• Appropriate explanation of <b>both</b> external and internal freight movement</li> <li>• Award higher marks to answer with more systematic and/ or more in depth explanation, with accurate examples</li> </ul>	3 – 5
<ul style="list-style-type: none"> <li>• Elementary to basic knowledge and understanding the adoption of multimodal freight transport in HK</li> <li>• Brief/ general explanation of freight movement</li> </ul>	1 – 2
	Max. 12

### Question 8

Describe the changes in agriculture in the Zhujiang Delta Region since the 1980s. Discuss the relative importance of the development of agricultural technology in affecting these changes.

#### Notes:

1. Award appropriate marks according to the **QUALITY** and **DEPTH** of discussion; **do not count the number of points only**.
2. Max. marks should be given to good quality answers with **well-elaborated arguments** and demonstrating good knowledge on relevant geographical concepts.
3. Award appropriate marks to relevant and reasonable answers not included in this marking scheme.

Marking Guidelines												
<b>Describe the changes in agriculture in the Zhujiang Delta Region since the 1980s</b>												
<u>Relevant concepts:</u>												
<ul style="list-style-type: none"> <li>• Changes in agriculture:             <ul style="list-style-type: none"> <li>- decreases in farmland</li> <li>- changes from growing staple/ food crops to cash crops, e.g. market gardening</li> <li>- type of produce : from decided by the government to market oriented</li> <li>- changes from labour intensive to modernisation and intensification</li> <li>- mode of farm operation: from individual farmers to individual agribusiness enterprises</li> <li>- changes from self-sufficiency to commercialisation, specialisation and mainly for export</li> <li>- from traditional farming to leisure farming</li> </ul> </li> </ul>	<b>Marks</b>											
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